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XTD STEEL STRUCTURE

Xintiandi Steel Structure

Corporate Brochure

YOUR ONE-STOP MODULAR STEEL STRUCTURE SUPPLIER

- Standardized Portal Rigid Frame
- Space Frame Structure
- Steel Structure Bridge
- Steel Structure Corridor
- Steel Structure Infrastructure
- Space Truss Structure
- Steel Structure Concrete High-rise
- Special-shaped Space Truss Structure
- Special-shaped Space Tube Truss Structure
- Steel Structure Industrial Working Platform

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Xintiandi Steel Structure

Your One-Stop Prefabricated Building Solutions Specialist

Suzhou Wujiang Xintiandi Steel Structure Engineering Co., Ltd. is a one-stop assembly building company specializing in design, processing, installation and management. Our products include standardized portal rigid frames, truss structures, grid structures, bridges and infrastructures. These solutions are suitable for a variety of locations including airports, exhibition centers, shopping malls, skyscrapers, railway stations, gas stations, warehouses, factories, etc., providing a full range of solutions for a variety of needs.

Our goal is to "**complete every project with care for our customers at high standards and competitive prices.**"

ENTERPRISE INTRODUCTION
企业介绍

Xintiandi Steel Structure Engineering Co., Ltd., as a leading global provider of customizable modular assembled building solutions, has focused on steel assembled buildings for over 20 years, successfully delivering thousands of large-scale projects worldwide. With advanced manufacturing processes and a professional technical team, we provide customers with one-stop service from design and manufacturing to global installation.

As a key partner of Butler China, the world's largest manufacturer of prefabricated steel buildings, we have successfully delivered customized steel structure solutions for many Fortune Global 500 companies. With our commitment to excellent quality and efficient service, we have earned the trust of our customers.

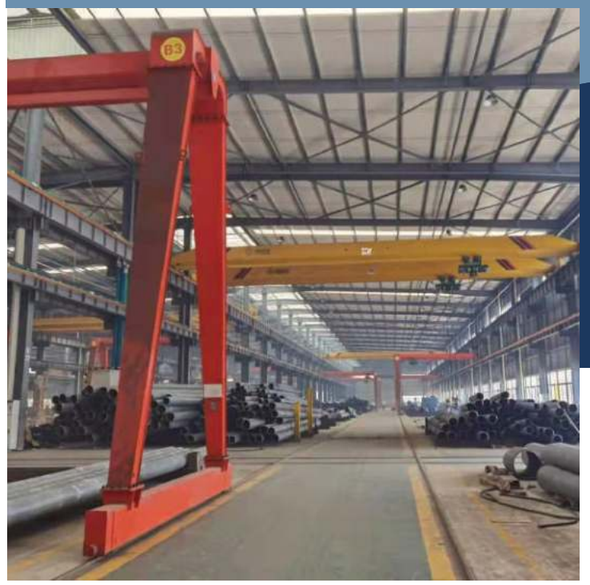
Our products are widely used in the following types of scenarios:

Large public buildings:
Outdoor stadiums
Indoor stadiums
Exhibition centers
Airport terminals and hangars

Industrial buildings:
Factories
Warehouses
Gas stations

Civil buildings:
High-rise office buildings
Residential Buildings

Infrastructure facilities:
Bridges
Pedestrian bridges
Subway
Transmission stations and power delivery systems



> We are convinced that our customers' success is our success. By helping our customers maximize their value through superior products and services, we can achieve mutual growth. Therefore, we are committed to building long-term, trusting relationships with our customers to create a bright future together

ENTERPERSE INTRODUCTION
企业介绍

We have more than 300 employees, including over 50 professional craftsmen and management team members. Our design engineers have decades of experience in the industry and can provide customers with rapid-response solutions in all aspects of budgeting, design, modeling, processing, manufacturing, and installation. The close collaboration between our advanced hardware facilities and experienced team enables us to efficiently produce high-quality products with exquisite craftsmanship that fully meet our customers' needs. We also provide excellent quality assurance, ensuring that our customers can cooperate with confidence. By choosing Xintiandi Steel Structure, you will experience industry-leading technology and quality service.

We have three major processing bases covering a total area of over 180,000 square meters, located in Suzhou City, Jiangsu Province; Yichun City, Jiangxi Province; and Guangzhou City, Guangdong Province. Our certified factories are equipped with a wide range of advanced automated equipment, including high-precision laser cutting machines, CNC machining centers, and other fully automated systems, many of which meet the highest standards in China.

With the help of advanced 3D modeling software, we are able to provide our customers with intuitive project models and achieve a seamless transition from design to production. Our efficient and precise production process enables us to respond quickly to customer needs and complete all kinds of steel structure projects with both quality and efficiency.

ENTERPRISE INTRODUCTION
企业介绍

Suzhou

Our Suzhou Branch, located in the Zhenze Development Zone, Wujiang, Suzhou, covers 87,000 m^2 and employs over 200 people across 5 distinct factories. Equipped with advanced machinery and 6 steel structure production lines, we provide design-to-installation solutions for heavy steel, light steel, net frames, pipe quilting frames, and more.

Yichun

The Yichun Branch is located in the Yifeng Economic Development Zone, at the center of the middle triangle economic circle. It covers 82,000 m^2, featuring a 33,000 m^2 factory and 6 independent processing lines. The second phase of the project is expected to be completed and commissioned in 2025.

Guang Zhou

The Guangzhou Branch is located in the southern part of China and serves as a key link connecting the urban areas on both sides of the Pearl River Estuary. The facility spans 10,000 m^2 and features 3 processing lines, offering design, processing, and installation services to clients in South China and Southeast Asia.

Suzhou FACTORY

Yichun FACTORY

Guangzhou FACTORY

ENTERPRISE AWARD
企业荣誉

2020 Contribution Enhancement Award

2020 Per Acre Tax Contribution Award

2020 Tax Increase Award

2021 Prefabricated Building Industry Standards Award

2021 Outstanding Contribution to the Assembly Building Industry Award

2022 Science and Technology Innovation Award

2022 Outstanding Entrepreneur

2022 Per Acre Tax Contribution Award

2023 Top 10 companies in terms of tax revenue per acre

2023 Top Ten Taxpayers per Acre

High-tech Enterprise Certificate

Love Donation Certificate

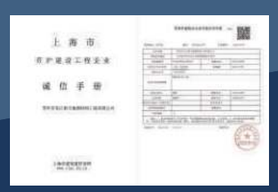
2020 Contribution Enhancement Award

Certificate of Membership in Charitable Associations

Member of Shanghai Metal Structure Industry Association

Business license

ISO 9001 Quality Management System Certification



Shanghai/Suzhou Urban Construction Enterprise Credit Handbook

Donation Certificate

Shanghai Quality Steel Engineering Golden Award

ENTERPRISE QUALIFICATION
企业资质

Construction Enterprise Safety Production License

Engineering Design Qualification Certificate

Construction Enterprise Qualification Certificate

Shanghai Construction Engineering Material Filing Certificate

Member of the China Steel Structure Association

ENTERPRISE CERTIFICATE

ENTERPRISE SERVISE
企业服务

Annual production capacity 100,000+ tons/year

Total prefabricated floor area 20,000,000+ Square Meters

Total completed 3,000+ Projects

ENTERPRISE HISTORY
企业发展大事记

2002 — Inception of Dingli Construction Component Factory, the predecessor of Xintiandi Steel Structure Company, with production completed in the same year.

2003 — Acquisition of all assets of Xintiandi Company, leading to the company's name change to Xintiandi Steel Structure Engineering Co., Ltd.

2010 — Acquisition of Huashun Company, presently operating as Suzhou Xintiandi Processing factory Two.

2015 — Acquisition of JiangMing Factory, now operating as Suzhou Xintiandi Processing factory Three.

2020 — Formation of Xintiandi Jiangxi Yifeng Branch, with production commencing the following year.

2022 — Acquisition of Hanshen Company and its factory, currently serving as Suzhou Xintiandi Processing factory Four.

2023 — Inauguration of Xintiandi Guangzhou Branch, with the commencement of operations at the Guangzhou factory in the same year.

2024 — Establishment of Suzhou Wujiang Xintiandi Steel Structure Hunan Branch.
In October 2024, the second phase of the Suzhou Branch officially completed, covering an area of over 30,000 m2

ENTERPRISE CORE VALUES
企业核心价值观

Our relationships with our partners are the foundation of our corporate development. We maintain close and long-term connections with our employees, customers, and suppliers based on the principle of "Respect - Win-Win."

We offer only the highest quality products in the industry. Guided by the philosophy of "Doing the best, giving the best," we challenge ourselves to achieve excellence in all areas of our work.

Our goal is to ensure that shareholders, employees, and other business partners have equal rights to profit. We aim to combine the strengths of all parties and foster mutual development.

We incorporate integrity into our commitments. We seek long-term and solid cooperation, maintaining zero tolerance for deceptive behavior. Additionally, we actively comply with legal standards and social ethics.

BUSINESS RELATIONSHIP
企业合作

*Due to space constraints, only some of the long-term cooperative enterprises are listed in the chart below.

PROFESSIONAL EQUIPMENT
专业设备

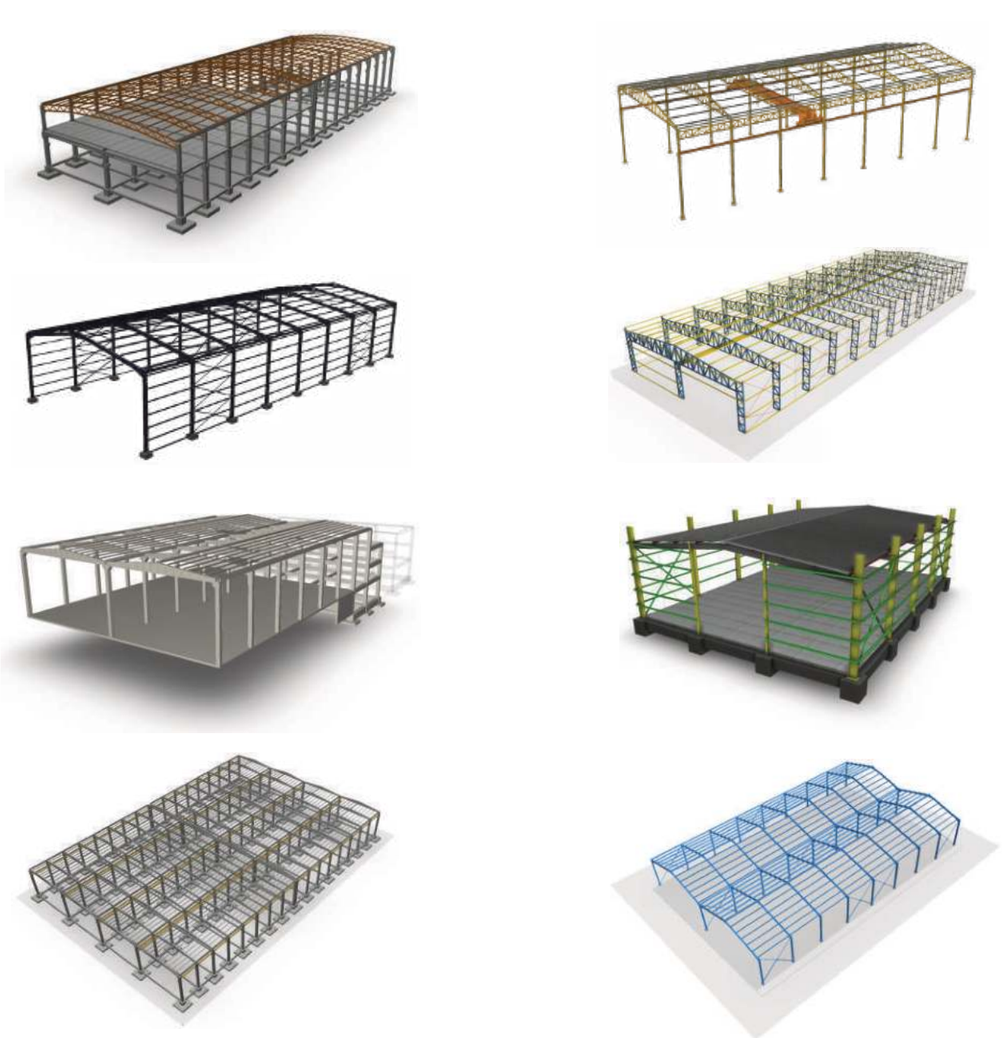
The company possesses advanced production, inspection, and office equipment, and has successively obtained ISO 9001 Quality Management System certification and Suzhou Integrity Enterprise certification, ensuring that the strict requirements for projects from design and manufacturing to installation are met. Our certified factories are equipped with fully automated equipment, including laser working platforms, CNC cutting machines, automatic welding machines, straightening machines, assembly machines, and shot blasting equipment. Leveraging these advanced facilities and a comprehensive management system, we are dedicated to providing customers with high-quality and efficient steel structure solutions.

EQUIPMENT LIST
加工设备清单

Item	Equipment Name	quantities	norm	branding
1	Programming-free orbital intelligent robot welding arm	4	12m	KASRY
2	Model 1330 12,000 Watt Laser Cutting Machine	1	12000W	HSG
3	Model 1330 20,000 Watt Laser Cutting Machine	1	20000W	HSG
4	Model 2635 30,000 Watt Laser Cutting Machine	1	30000W	HSG
5	Model 2635 40,000 Watt Laser Cutting Machine	1	40000W	HSG
6	20000W Profile One Piece Cutting Machine	1	20000W	KEBEI
7	H-beam Assembly Welding and Straightening Machine	3		
8	H-beam gantry welding machine	4	Model 1250	
9	2000 H-beam Assembly Production Line	4		
10	2500 H-beam Assembly Production Line	1		
11	3000 H-beam Assembly Production Line	1		
12	9+2 CNC Flame Cutting Machine	5	4*16	
13	Model 2660 17+2 CNC Flame Cutting Machine	4	6*26	
14	2520 Shears	4	250*20	
15	200 Tonnes Hydraulic Presses	4	200T	
16	5060 Hydraulic rocker arm drilling machine	3		
17	High-Speed Steel Cutting Saw	1		
18	1220 pass through type shot blasting and descaling equipment	1	1200*2000	
19	1522 pass through type shot blasting and descaling equipment	1	1500*2200	
20	1525 pass through type shot blasting and descaling equipment	1	1500*2500	
21	2530 pass through type shot blasting and descaling equipment	1	2500*3000	
22	300 Steel Pipe Shot Blasting Machine	2	300	
23	Double wire double arc gantry type submerged arc welding equipment	6	1600*1250	
24	40 H-beam Wing Plate Straightening Machine	4		
25	B60 H-beam Wing Plate Straightening Machine	1		
26	B80 H-beam Wing Plate Straightening Machine	2		
27	200 Gantry CNC Plasma Gas Cutting Machine	4		
28	CNC Surface Drilling	1		
29	Double-head CNC surface drilling	1		

EQUIPMENT LIST
加工设备清单

Item	Equipment Name	quantities	norm	branding
30	CNC Box Column Assembly Equipment	1		KASRY
31	CNC Box Column End Milling Machine	2		
32	Box Column Flux-Cored Arc Welding Machine	2		
33	Single Arm Dual Wire Dual Arc Box Column Root Welding Machine	1		
34	5T Truss Truck	30		
35	10T Truss Truck	10		
36	5T Single Gantry Truss Truck	10		
37	10T Single Gantry Truss Truck	48		
38	16T Single Gantry Truss Truck	20		
39	32T Single Gantry Truss Truck	4		
40	50T Single Gantry Truss Truck	2		
41	Mechanical beveling machine	1		
42	2530 Plate Rolling Machine	1		
43	30T Ground Rail Type Flatbed Transfer Vehicle	2		
44	Catalytic combustion treatment equipment for spray paint gas	2		
45	Mechanical welding arms	40		
46	Welding fume collection treatment system	2		
47	3-axis plasma coherent line cutting machine	2		
48	6-axis plasma coherent line cutting machine	1		
49	6020 Hydraulic top bending machine	1		
50	Automatic Assembly Platform for Grid Structure Members	2		
51	Automatic Welding Platform for Grid Structure Members	2		
52	630 Industrial Grade Carbon Arc Gouging Welding Machine	15		
53	Carbon Dioxide Gas Shielded Welding Machine	150		
54	Airless sprayer	15		
55	Magnetic drill	20		
56	Sanding machine	40		
57	Liquefied gas station	5		
58	37KW Screw Air Compressor	7		JAGUAR



Standard Portal Steel Structure Frame System

PRODUCTS
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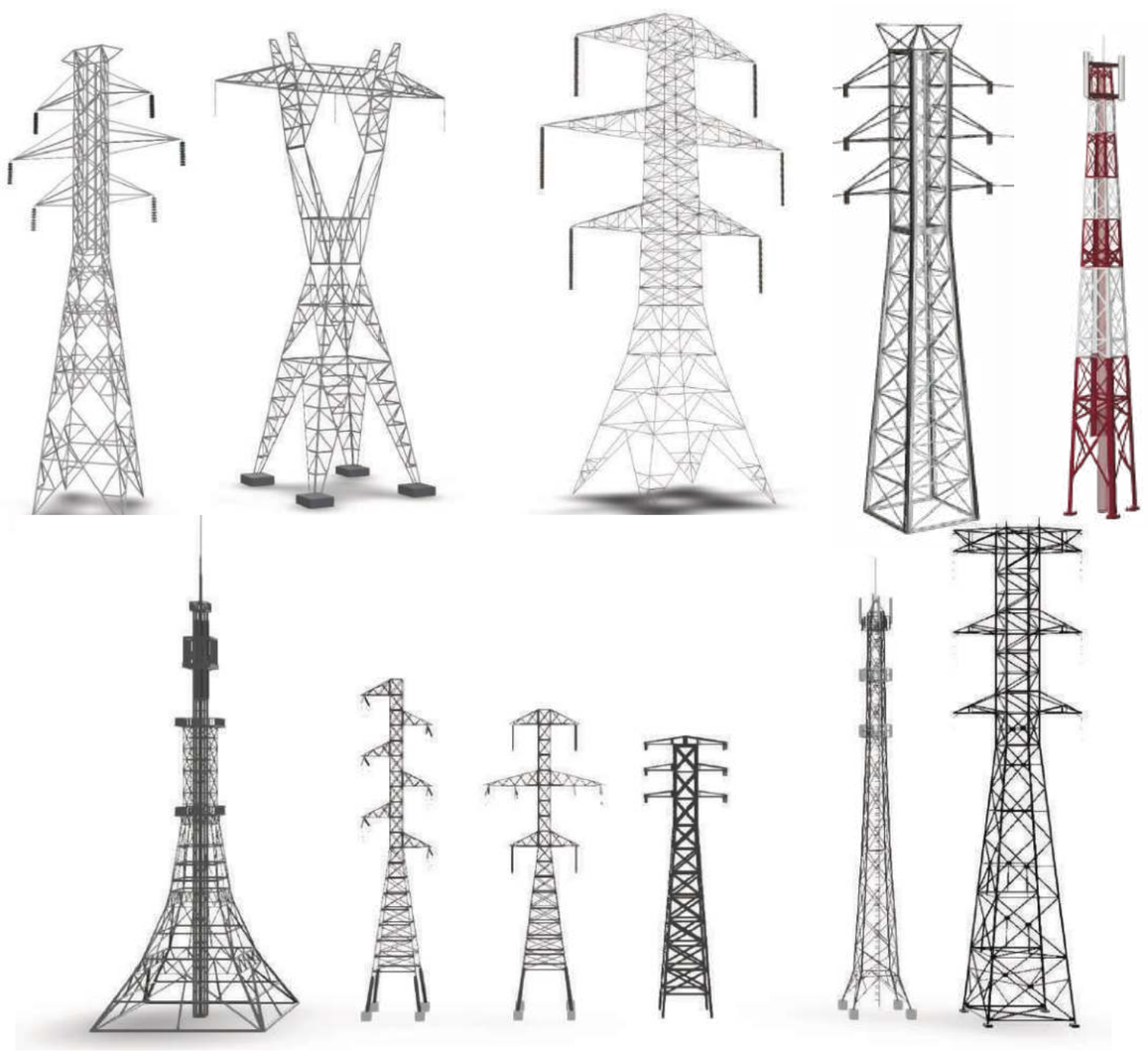
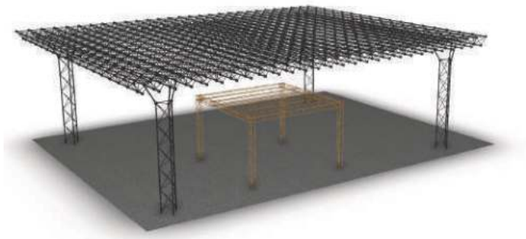
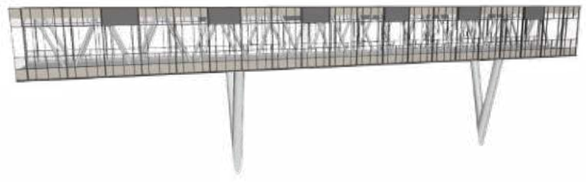


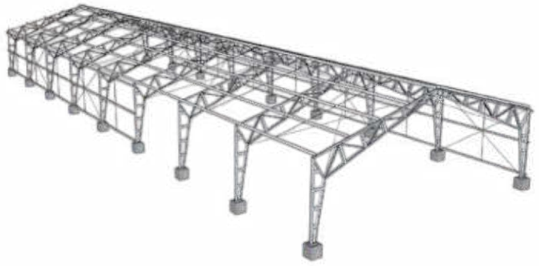
Steel Structure Infrastructure
Steel Tower、Signal Tower、Lightning Tower、Transmission Tower System



Space Grid Structure



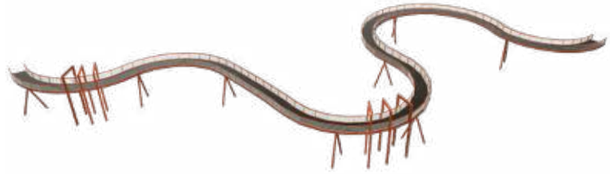
Steel Structure Corridor



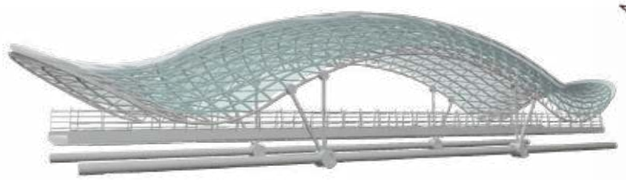
Space Truss Structure

Steel Structure Working Platform

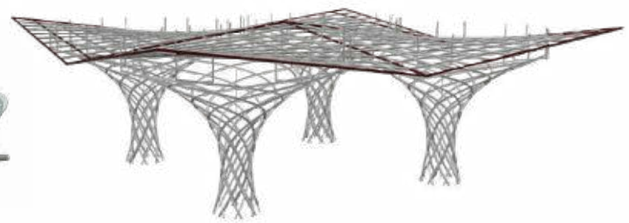
Steel Bridge



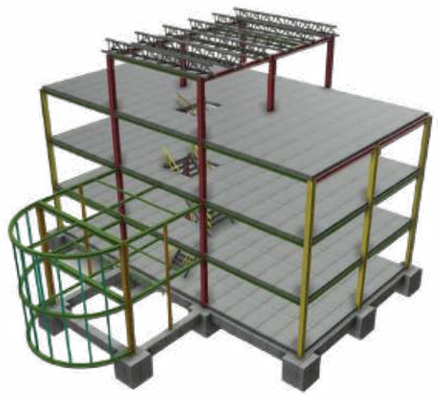
Special-shaped Steel Structure Bridge



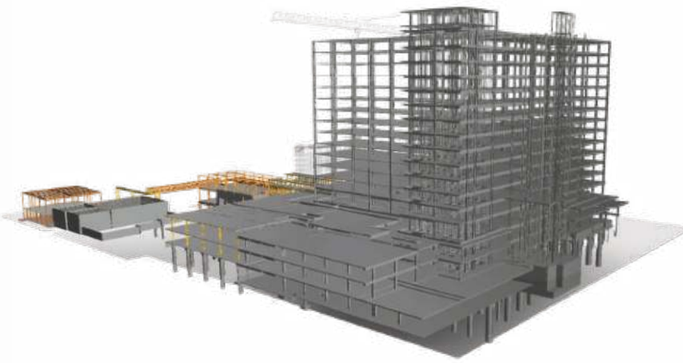
Special-shaped Space Tube Truss Structure



Special-shaped Space Truss Structure

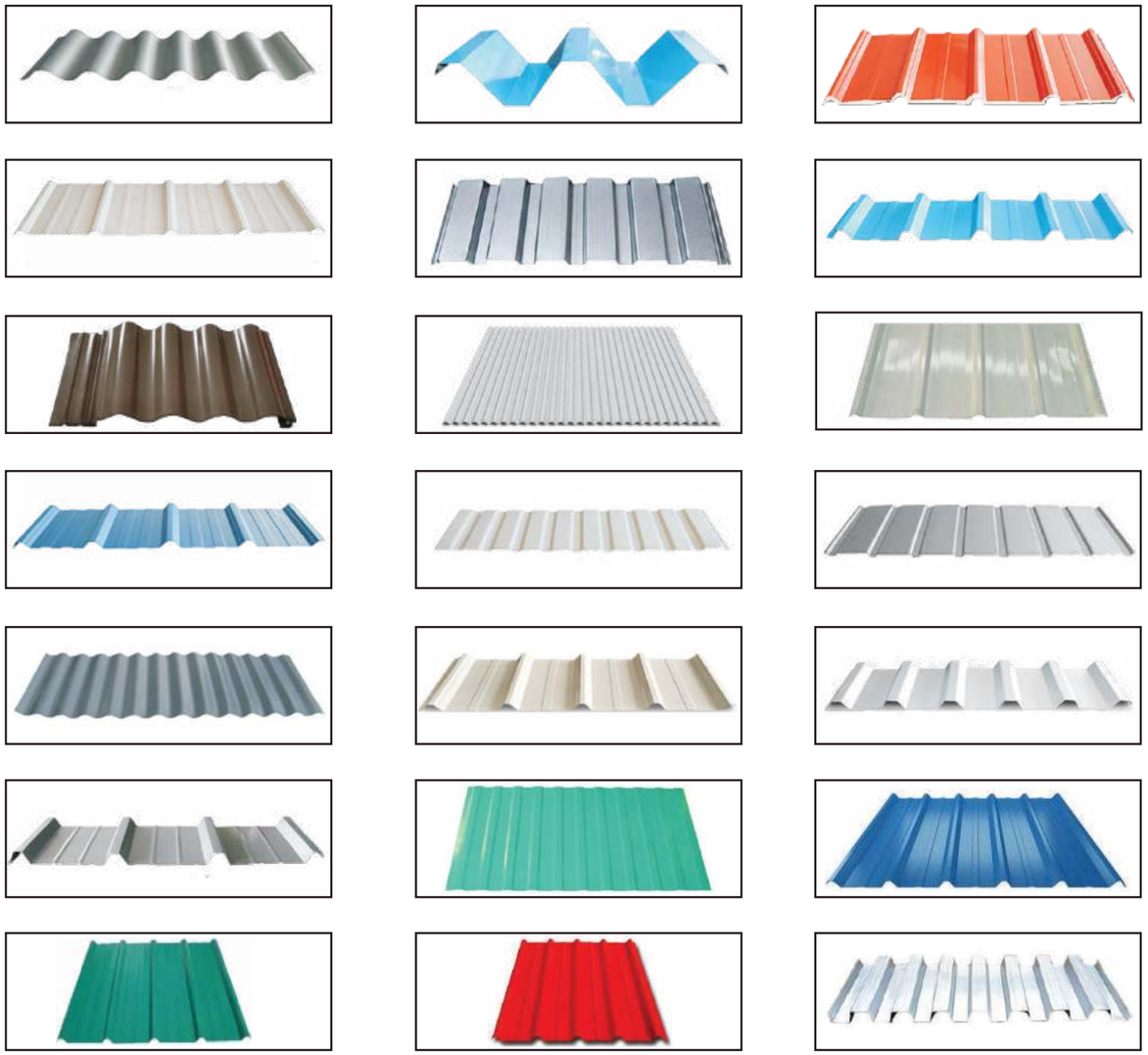


Steel-Concrete Structure



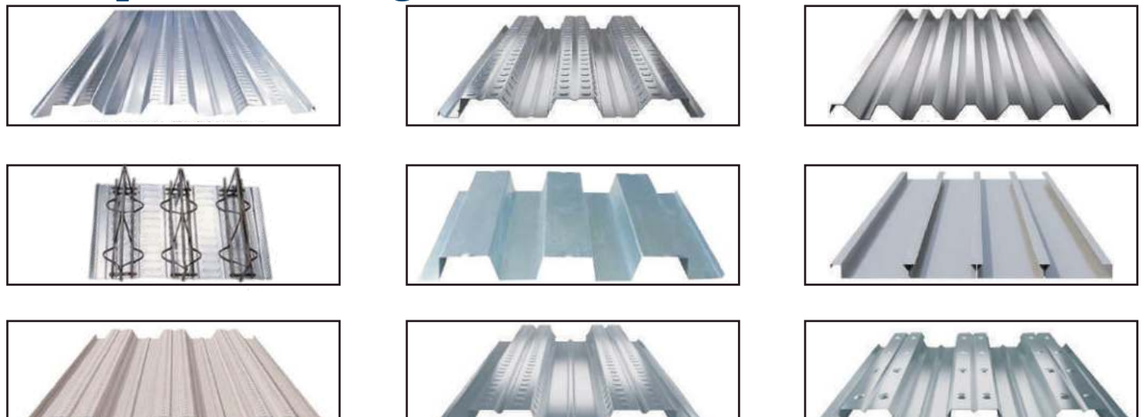
Steel -Concrete High-rise Building

Single Skin Cladding (Color Coated Steel Panel):

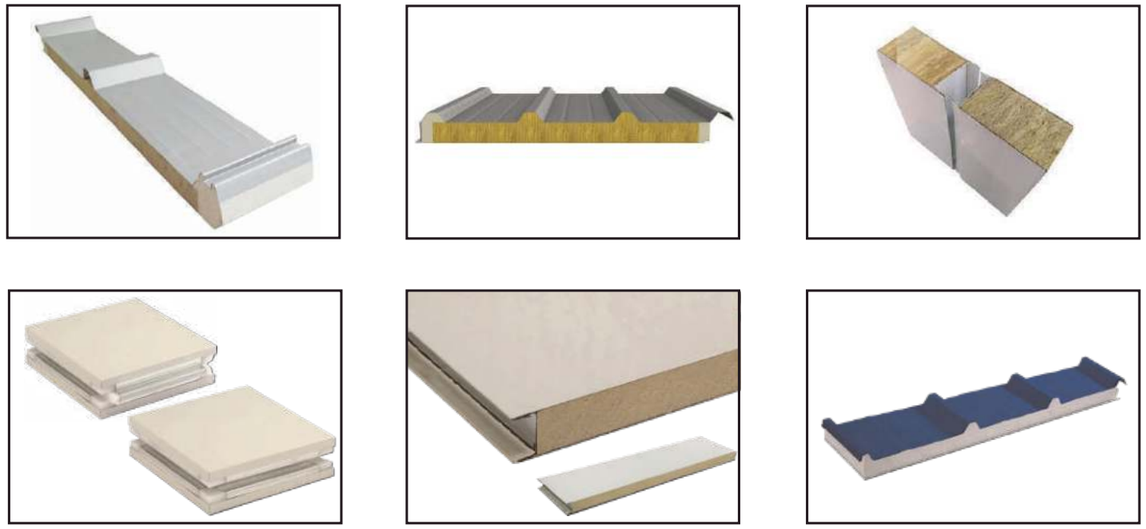


PRODUCTS
INTRODUCTION
产品介绍

Single Skin Cladding (Composite Decking):



Single Skin Cladding (Wall Sandwich Panel):



PRODUCT DESCRIPTION
产品介绍

Standardized Portal Rigid Frame:

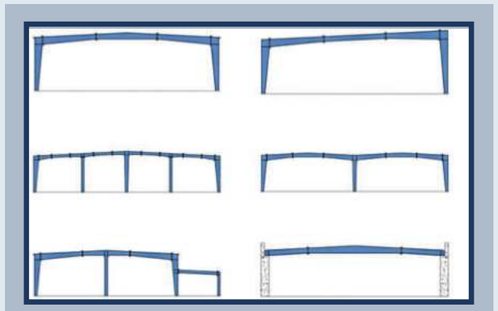
The standardized portal rigid frame is a single-story steel structure with a rigid connection between columns and beams. It features a simple structure, light weight, reasonable force, short construction period, and easy standardized processing. With time, the standardized portal rigid frame has become a perfect structural system in architectural design, manufacturing, and construction standardization, which can meet the construction and use requirements under different climatic conditions.

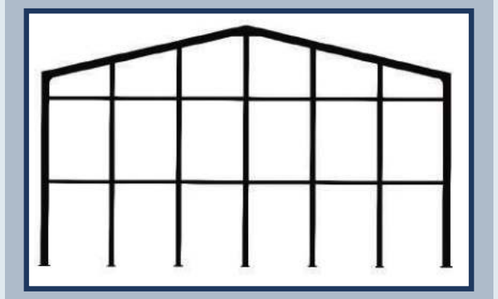
Simple construction: The portal frame structure adopts prefabricated components and standardized design, simplifying the construction process, greatly shortening the construction period, and saving time and labor costs compared with the traditional concrete structure.

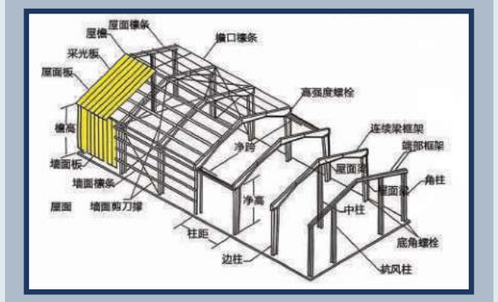
Lightweight material: The portal frame structure's main material is steel, which has lightweight features and high strength to reduce the overall weight of the building.

Diversified design: The portal's rigid structure with flexible design adjustment can meet different spatial and functional requirements. The quantity of materials between columns and beams can be increased or decreased according to the design and construction. At the same time, the roof and walls can be freely transformed and expanded according to the actual situation.

Excellent safety: Steel is tough and has anti-seismic performance, which makes the portal frame structure highly safe and stable in normal use.







Space Frame Structure:

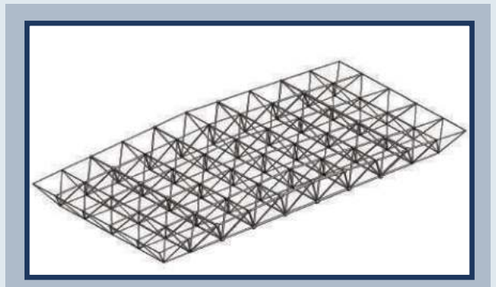
Space frame structure is a kind of three-dimensional truss structure that can withstand forces from all directions and has a high safety reserve. At the same time, the space grid structure also has good overall stability and seismic performance. The demand for steel is more economical, easy to assemble on-site, and improves construction efficiency.

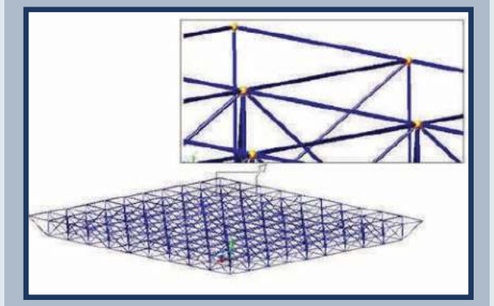
Space frame structure transfers the load through the axial force of the rods, fully utilizes the strength of the material, and saves steel while reducing the deadweight. Under the same conditions, the steel consumption of a well-designed space grid structure is similar to that of a reinforced concrete structure, which saves a large amount of concrete and reduces self-weight by 70-80%. Compared with an ordinary steel structure, it can save 20-50% of steel consumption.

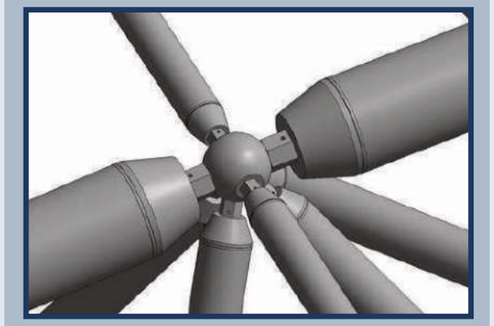
Good seismic performance: Due to the light self-weight of the structure, the seismic force generated during the earthquake is small, and the steel ductility is good, which can absorb larger seismic energy, the space frame structure has large spatial rigidity structural stability, is not easy to collapse, and has good seismic performance.

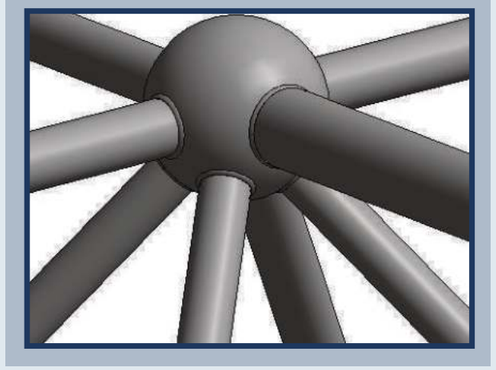
Smaller height: space can be effectively utilized, the high span ratio of common steel structure is 1/8~1/10, while the high span ratio of space frame structure is only 1/14~1/20, which can reduce the building height.

Fast construction speed: the size and shape of the components of space frame structure are mostly the same, which can be mass-produced in factories with high efficiency, without occupying construction space with civil engineering, reducing on-site workload and shortening construction period.









PRODUCT DESCRIPTION
产品介绍

Space Truss Structure：

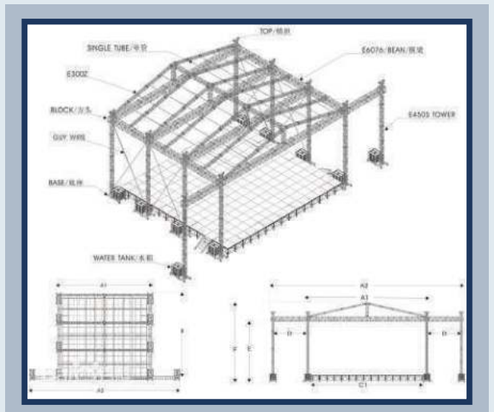
Space truss structures have been used increasingly in recent years, mainly used in large-span buildings, such as exhibition halls, airports, gymnasiums, etc. The space truss structure is a three-dimensional lattice system consisting of trusses linked together with complete force, which is of high strength and large span and can be reasonably load-sharing, so it is widely used in large-span structures.

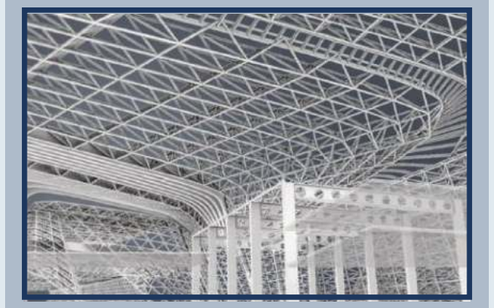
Large span: The space truss structure can reduce the need for support and wall thickness and enlarge the interior space due to the reasonable design of force.

Flexible design: Space trusses structure can be designed flexibly, and they can complete many kinds of complex structures according to the design to realize different needs of use.

High loading: With reasonable design, the truss structure can fulfill the high loading requirement even with low deadweight, thus saving the construction cost.

High construction efficiency: The truss structure can be prefabricated and processed in advance in the factory, greatly accelerating the progress of on-site installation. This makes it more convenient to control the quality and improve the installation efficiency.





Special-shaped Space Truss Structure：

Special-shaped space truss structures belong to a special kind of building structure characterized by space truss structures and shaped structures. They are mostly used in building construction projects that require large spans and non-traditional shapes. Special-shaped space truss structures are often found in architectural design to create unique architectural forms and aesthetic effects and are popular for their design flexibility and aesthetics.

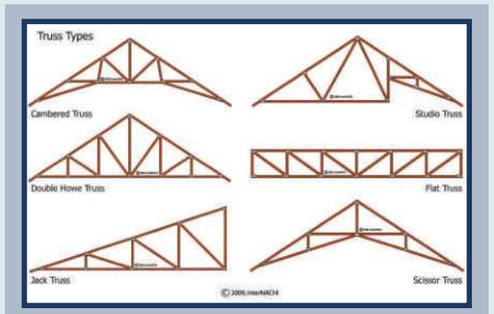
Powerful and Flexible Design: Special-shaped space truss structures can be designed and adjusted according to the project's needs and are also highly flexible. This means they can be adapted to spaces of all shapes and sizes, providing architects and designers with more creative freedom.

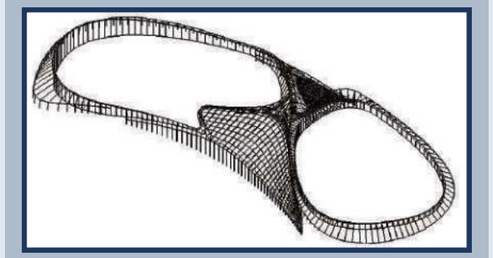
Lightweight Material: Compared with traditional building structures, Special-shaped space truss structures are usually lighter. This makes them particularly suitable for supporting large-span building projects because of their lighter weight advantage, which reduces the need for foundations and supporting structures while lowering the overall volumetric weight of the building.

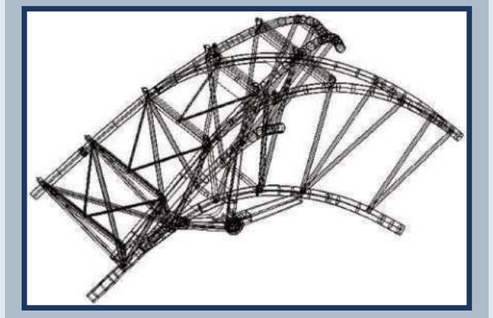
Stable Structure: Special-shaped space truss structure is connected with eachother through multidirectional truss members, which effectively distribute and transfer the loads and improve the stability and seismic performance of the overall structure, making it safer.

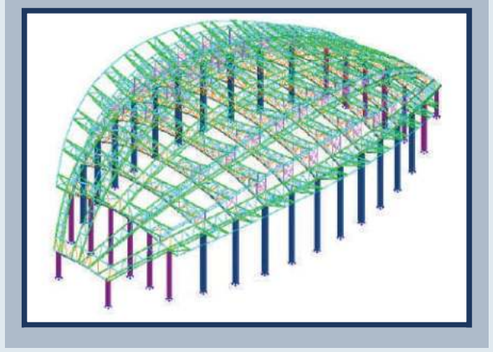
Convenient construction: Truss members can be prefabricated in the factory in advance and then assembled at the site, reducing the workload and time of on-site construction and improving construction efficiency and quality control.

Multi-scenario use function: Special-shaped space truss structures are not only used in traditional buildings but also temporary buildings, exhibition structures, art installations, and other architectural structures, showing their wide applicability and flexibility.









PRODUCT DESCRIPTION
产品介绍

Special-shaped Space Tube Truss Structure：

The special-shaped space tube truss structure differs from the traditional normal plane beam. The special-shaped space tube truss structure can be irregular curves or multiple lines. This structural form has a high degree of flexibility and adaptability and can meet the needs of various complex spaces. Generally, it is mostly suitable for architectural designs that require large spans, lightweight, and have high aesthetics.

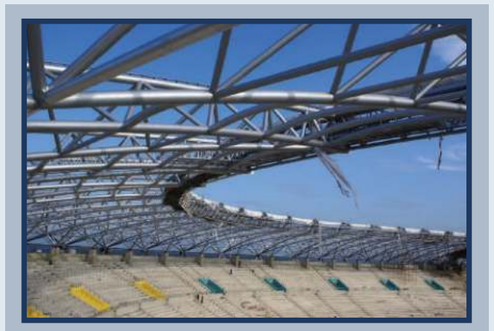
Reliable structure: Between the multidirectional force system and the node connection, the shaped space tube truss structure is stable and has good anti-seismic performance.

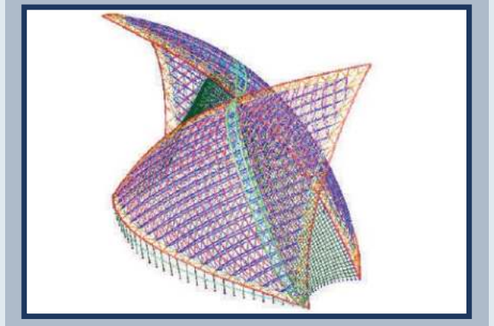
High utilization rate: Due to the flexibility and lightness of the structure, the tubular material with high strength-to-weight ratio optimizes the design of the truss structure, and the special-shaped space tube truss structure has large openings and fewer columns, which improves the space utilization rate of the building.

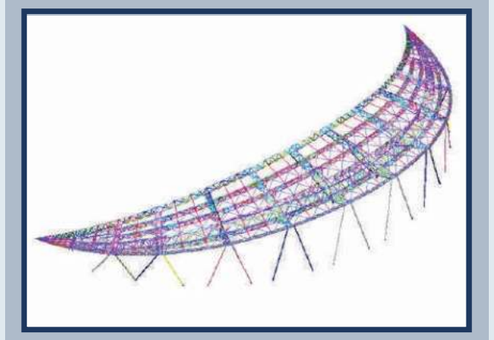
Flexible design: With parametric design and computer simulation, irregular space tube truss structure can realize diversified and complicated structural forms to meet the requirements of aesthetics and relevant functions of the building.

Convenient construction: The components can be prefabricated in the factory and assembled on site, which not only shortens the construction period, but also improves the construction efficiency and quality control.

Span Advantage: Shaped space tube truss structure is suitable for large span building, which can realize large space without column design, increase the flexibility and continuity of using space, create unique geometric modeling and delicate feel of tubular material, and at the same time, it is quite high in visual impact and modern sense of structural architecture, which enhances the overall artistic value of architectural outlook.







Steel Structure Concrete Nigh-rise Building：

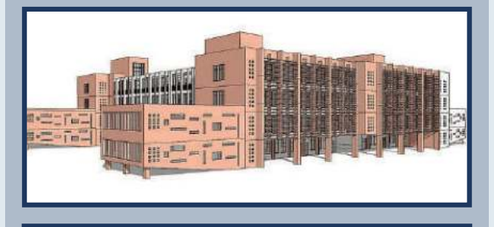
Steel structure concrete high-rise building combines the advantages of steel and reinforced concrete structures into a hybrid structural system, making a wide range of applications in modern high-rise buildings; the structural system is optimized by the material properties and structural form so that high-rise buildings have a relatively high degree of stability, durability, and seismic performance. The steel frame mainly provides its load-bearing and lateral force-resisting functions. At the same time, the concrete core has better seismic performance and faster construction speed while strengthening the overall seismic and torsional performance, featuring higher design flexibility and long service life.

High Strength: Steel is extremely strong and can withstand large loads while reducing the cross-sectional area of the component and allowing it to increase the available space. The light weight of the steel reduces the weight of the entire structure and reduces the requirements for foundations.

Structural reliability: Steel has good ductility under load, absorbs and disperses most of the seismic energy in the event of a natural disaster, and improves the seismic performance of the building. The high stiffness provided by the concrete core also increases the lateral and torsional resistance of the structure which will make the building stronger and more stable during earthquakes.

Efficient: Cast-in-place concrete slabs ensure structural integrity and stiffness, and make the construction process simple and fast.

Adaptable: The steel and concrete structure simultaneously increases the durability and service life of the building and reduces maintenance costs.



PRODUCT DESCRIPTION
产品介绍

Steel Structure Corridor:

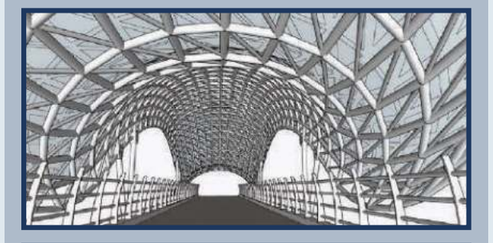
Steel structure corridors are important structural forms in construction, bridges, and other projects; they have high strength, are lightweight, have good seismic performance, have fast construction speed, are flexible in design, etc. It can realize the features of a large span, beauty, high durability, easy maintenance, etc. It is usually widely used in all kinds of passages between buildings, such as commercial complexes, campuses, transportation hubs, etc.

Diversified design: The high strength and flexibility of steel allow for various liberalized designs while realizing a variety of complex and innovative shape constructions.

Convenient Maintenance: Steel structures are easy to inspect and maintain. Regular inspection and protection treatment can extend the service life, and proper maintenance can improve durability.

Aesthetically pleasing design: Steel corridors are often modernized to provide a clean and simple aesthetic while enhancing the overall visual experience of the building. Steel structure corridors can realize large window areas and permeability, increasing the line of sight and light between buildings.

Multifunctionality: Steel structure corridors can be easily and quickly connected between different buildings, providing more convenient access, especially when applied to commercial complexes, campuses, transportation hubs, and other public places, increasing the availability of space by connecting buildings and expanding the use of the building's space, improving the overall utilization rate and functionality of the building.



Structural Steel Bridge:

Structural steel bridges are the strongest alternative to concrete bridges. Steel bridges are strong, and slimmer designs and lighter weights are possible. Factory prefabrication and on-site assembly make construction fast and weatherproof. Advantages of steel bridges include the ability to achieve large spans, ease of maintenance, and lower transportation and installation requirements.

Environmental Impact: Structural steel bridges are more economical in terms of materials used due to steel's high strength and lightweight characteristics, which help reduce resource consumption.

Durability: Properly treated steel bridges have good durability and are corrosion-resistant in various environmental conditions.

Adaptability: Structural steel bridges can meet different design requirements in more complex environments and terrains.

Lightweight: Structural steel bridges' low density and lightweight can reduce bridge and foundation loads compared to concrete bridges.

Ductility and toughness: Steel has excellent flexibility and toughness, which can effectively absorb and disperse energy under extreme loads such as earthquakes and improve the seismic performance of bridges.

PRODUCT DESCRIPTION
产品介绍

Steel Structure Industrial Working Platform:

Steel Structure Industrial Working Platforms come in various forms and have a wide range of functions, and its most notable fully-assembled structure is its characteristic, flexible design, which makes it widely used in modern industrial production. These platforms are composed of steel beams, columns, plates and other components. With the advantages of high strength, high bearing capacity, lightweight structure, flexible design, easy installation, good durability and easy maintenance in the later stage, steel structure working platforms can meet a variety of industrial needs and ensure the stability and safety of the platform.

High Strength and Load-bearing Capacity: Steel has excellent strength and load-bearing capacity and can withstand heavy loads, so it is suitable for various industrial and commercial interiors, such as warehouses, manufacturing facilities, distribution centers, and other scenarios.

Weight: Steel has a relatively low density and weighs less than concrete or wood decks. This reduces the need for foundations, making them easier to transport and install.

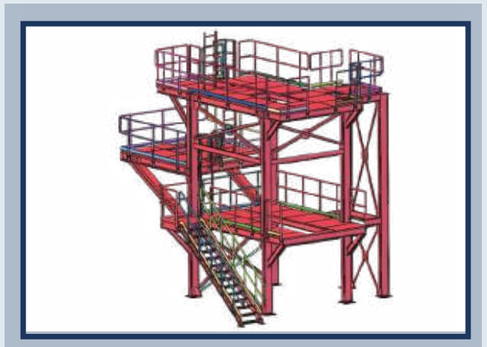
Design: Steel structures can be customized in various shapes and sizes according to different needs, making it easy to adapt to different spaces and application scenarios.

Construction: Steel platforms are generally prefabricated, making on-site assembly easier and shortening the construction cycle.

Durability: Steel is highly resistant to corrosion and fire and can be used long under harsh conditions.

Maintenance: The inspection and maintenance of the steel structure platform is relatively simple, and problems can be quickly identified and repaired.

Recycling: Steel decks can be recycled for reuse, making it possible to promote environmental sustainability.



Steel Structure Infrastructure:

Steel Structure Infrastructures are infrastructures constructed with steel as the main load-bearing material, including iron towers, lightning towers, signal towers, and power transmission systems. Facilities have significant advantages in terms of stability, durability, construction efficiency, environmental protection, etc. It is one of the preferred materials for modern infrastructure construction.

Strong durability: Steel is strong and corrosion-resistant, able to be used for a long time in harsh environments to ensure the service life of the infrastructure.

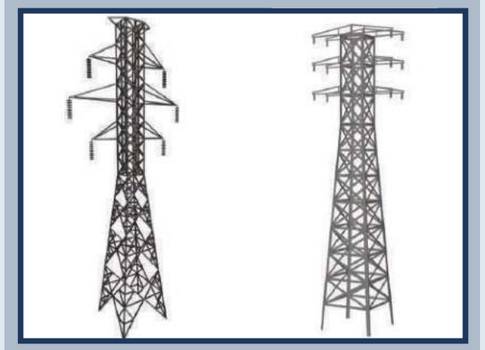
Safe and Reliable: Steel structures undergo rigorous design and various load calculations and strength verifications to ensure the safety performance of the infrastructure.

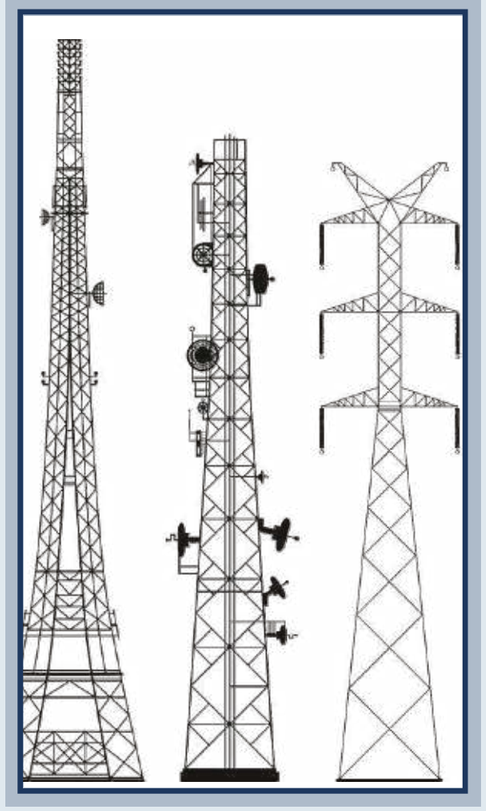
Rapid construction: Steel components are prefabricated in the factory and delivered to the site for simple assembly, which greatly shortens the construction time.

Easy Maintenance: Steel structures are easy to inspect and maintain, allowing problems to be quickly detected and repaired, extending service life.

Recyclable: The steel structure can be disassembled, and the disassembled steel can be recycled and reused, thus promoting the recycling of resources.

Flexible design: Steel structures are flexible in design and can be customized in various shapes and sizes to meet the requirements of different application scenarios.





PRODUCT DESCRIPTION
产品介绍

Single Skin Cladding (Color Pressure Plate Series):

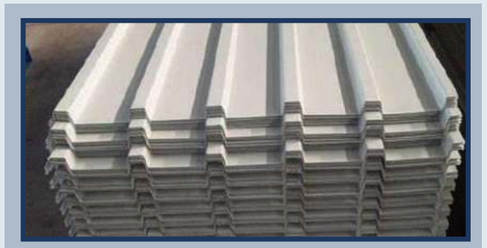
Color pressure plate steel plate is the use of color layer steel plate, light roller pressure cold into a variety of wave-shaped pressure plate, which is used in industrial and civil buildings, warehouses, special buildings, large-span steel structure of the house roof, wall, and internal and external wall decoration, etc., has a light weight, high strength, color and lustre, easy and quick construction, seismic, fire prevention, rain, long life, maintenance-free features, has now been popularized and applied.

Application Scenario: Roof, wall, color steel shed, fence

Single Skin Cladding (Composite Decking):

Wall sandwich panel is a high performance building material. It consists of two layers of strong panels with a sandwich layer in between. This sandwich structure gives the wall sandwich panel many advantages. On the one hand, it has good thermal insulation properties, which can effectively reduce the heat transfer between indoor and outdoor, save energy expenses and create a comfortable indoor environment. On the other hand, sandwich panels are strong enough to withstand external influences and weathering, ensuring the strength and durability of the wall. On the other hand, they are easy to install and can greatly reduce construction time. In addition, wall sandwich panels are available in a wide variety of appearances, which can meet different architectural styles and aesthetic needs, adding a unique charm to the building. Whether for industrial or residential buildings, sandwich panels are a reliable choice.

Application Scenario: Pharmaceuticals, food factories, laboratories, electronics factories

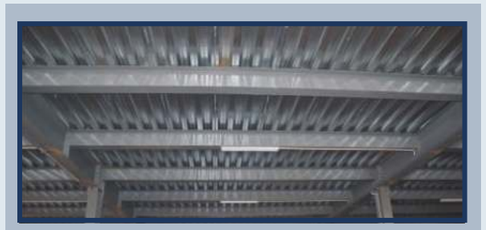




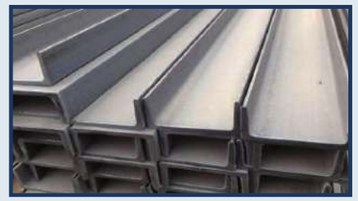
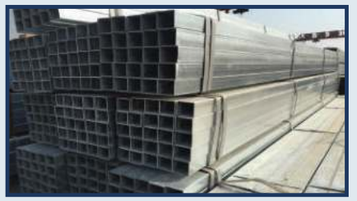
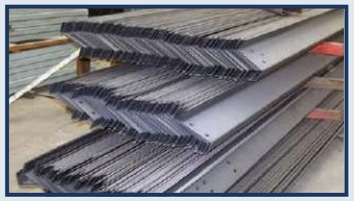
Single Skin Cladding (Wall Sandwich Panel):

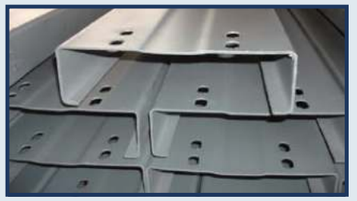
TDV, TDM steel joist floor joist is a combination of steel joist processed into steel bars in the floor slab in the factory and welded together with galvanized compression steel plate bottom formwork. During the construction stage, steel joist floor joist can bear the construction loads and can be laid directly on the beams, and then concrete can be poured by carrying out simple reinforcing steel works. As it completely replaces the function of formwork, it reduces the erection and dismantling works of Boban and improves the efficiency of floor construction.

Application Scenario: Construction, Municipal Engineering, Industrial Plant, Public Facilities



Engineering Supporting Products (C-type, Z-type, angle steel, channel steel, square tube, etc.):



ENGINEERING SERVICE PROCESS
项目服务流程

Customized structural design and construction process, from design to delivery, one-stop service, the whole hassle-free service experience

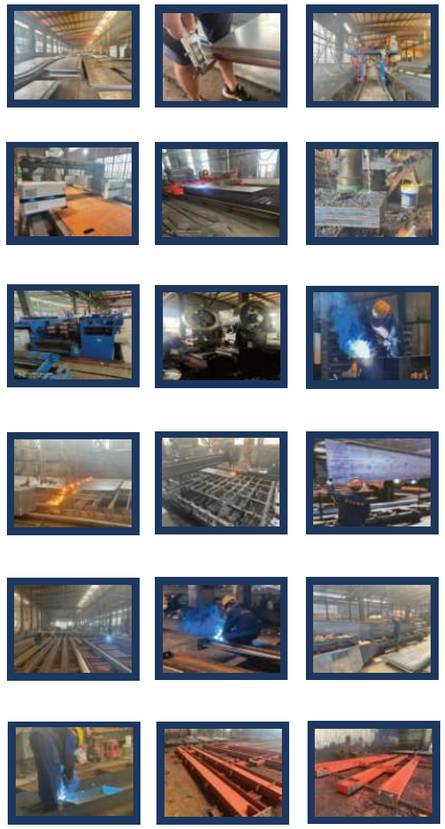
* Xintiandi steel structure construction project: Dongchang Middle School of East China Normal University(China Steel Structure Award Winning Project)

Engineering Services

Determination of project needs - Feasibility studies - Layout analysis and planning - Construction drawing design - Construction programs and specifications preparation - Budget and Quotations

Fabrication and Manufacturing Services

*On the left is a live shot related to the flowchart on the right.



Raw Materials → Material Inspection → Meet the Standard Required → Setting Out → Segregation of nonconforming products

Setting Out → Cutting → Deburring → Correction → Drill Holes → Produce welding bevels → Assemble → Welding → Welding Deformation Correction → Welded Connection → Secondary Deburring → Derusting → Coating → Coating Thickness Measurement → Factory Acceptance Test → Complete

Factory Acceptance Test → Touch-up Painting

Installation Services

OPERATING SCENARIOS 运用场景

OPERATING SCENARIOS 运用场景

Transmission Tower

Prefabricated Buildings

Toll Station

High-Rise Buildings

Bridge

Station

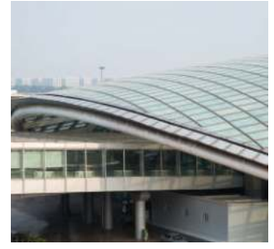
Gas Station

Work Platform

Corridor

Factory\ Warehouse

Sports Hall



Airport Terminal/ Hangar

Residential buildings\
Office buildings

Railway, Subway engineering

Tunnel construction

Dams, Sluices and Other hydraulic works

Dockyard

Aircraft Launch Platforms

Standardized 3D Atlas of Technical Quality and Process

(Steel Structure)

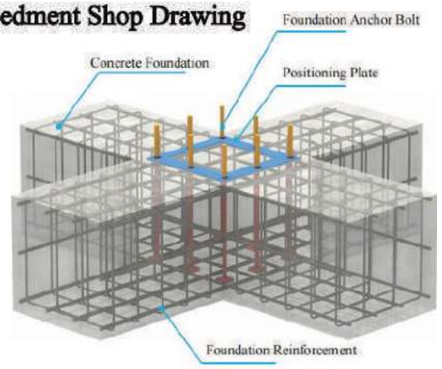
XTD STEEL STRUCTURE

3D IMAGE COLLECTION
三维图集

Chapter 1: Portal Frames

Section 1: Embedded Parts and Column Bases

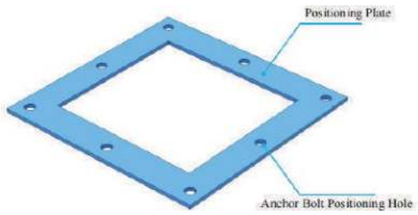
1. 1 Embedment Shop Drawing



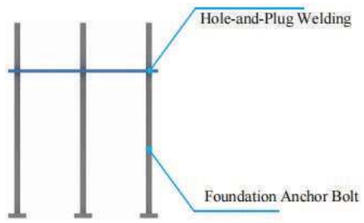
Precast Insert Large-scale Isometric Drawing

Instructions:

1.Foundation anchor bolt installation procedure: Reinforcing Steel Binding→Positioning and marking→Positioning Plate Installation→Secure Positioning Plate→Install Foundation Anchor Bolts→Secure by Welding→ Thread Preservation;
2.After the measurement and verification of the positioning are completed, the lower part of the foundation anchor bolts should be fixed to the bottom layer of reinforcement using steel bar lap splices, except for the upper part that is welded to the positioning plate;
3.Shear keys should be installed in position at the same time as the embedded anchor bolts. The use of prefabricated steel molds is recommended;
4.The threads are lubricated with grease and then wrapped with tape or a special sleeve for protection.

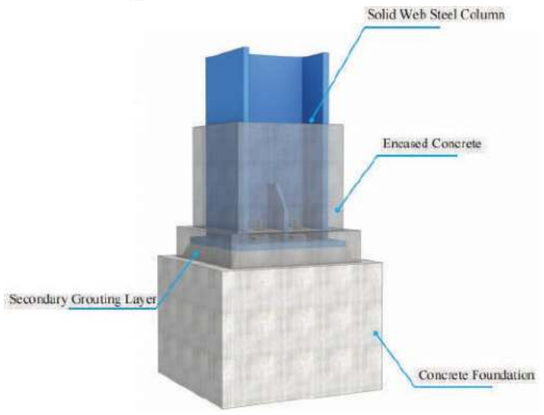


Positioning Plate Detail Drawing



Anchor Bolt Installation Right Side View

1.2 Solid Web Hinged Column Base Joint

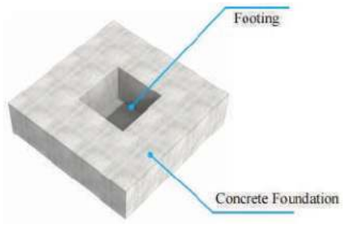


Solid Web Column Base Isometric Drawing

Instructions:

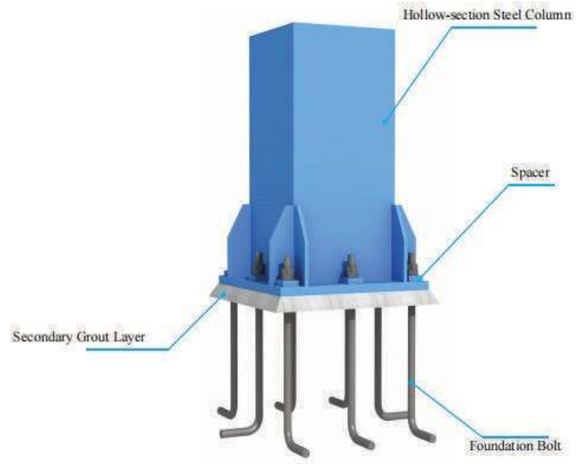
1.For hinged column bases, steel columns shall be secured with guy ropes during installation, and wedge-shaped blocks shall be placed at the bottom for auxiliary fixation. The steel columns shall also be connected to adjacent steel columns in a timely manner to form an overall stable structure.
2.After aligning the steel column, perform secondary grouting. For short column bases, the upper surface must be roughened before grouting. The grouting material should have micro-expansion properties. The thickness of the secondary grouting layer should not be less than 50mm, and should not exceed 100mm. For anchor bolts with a diameter greater than 42mm, the thickness should not be less than 100mm.
3.Before installing the steel columns, the shear keys must be cleaned and roughened, their dimensions must be rechecked, and there must be no foreign objects inside.
4.The column base bolt washer and the steel column base plate are fixed by welding. The weld specification is a fillet weld, and the height should not be less than half of the washer.
5.Sufficient operational space must be reserved in the detailed design stage for tightening the anchor bolt nuts of the foundation anchor bolts.

Steel Column Axonometric Detail Drawing



Shear Key Detail Drawing

1.3 Precast Insert Large-scale Isometric Drawing



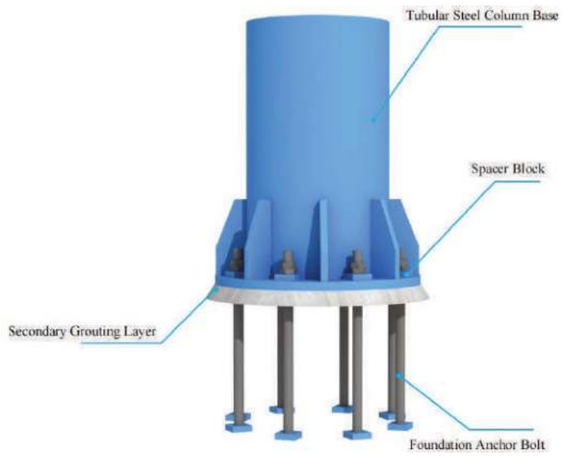
Column Base General Assembly Isometric Drawing

Foundation Bolt Installation Schematic

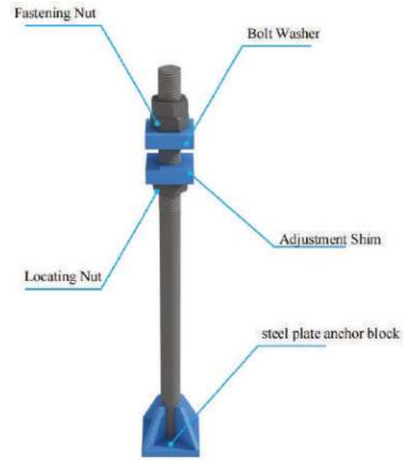
Instructions:

1.The design of anchor bolts for rigid base plates of rigid column bases shall not be less than 6, and the rigid connection between the steel column and the anchor bolts shall be used.
2.The alignment and grouting of the secondary grouting layer for rigid column bases can be carried out after the single unit forms a stable unit during the installation process. The thickness of the secondary grouting layer is generally not less than 50mm and should not exceed 100mm. When the anchor bolt diameter is greater than 42mm, the thickness should not be less than 100mm.
3.Shear keys are generally not installed in rigid column bases.
4.Two securing nuts shall be used. The spacer plate shall be welded to the steel column base plate. The weld shall be a fillet weld with a height of not less than 6mm.
5.Sufficient operational space must be reserved in the detailed design stage for tightening the foundation anchor bolt nuts.

1.4Tubular Steel Column Base With Rigid Connection



Embedded Part Shop Isometric Drawing



Anchor Bolt Installation Right Side View

Instructions:

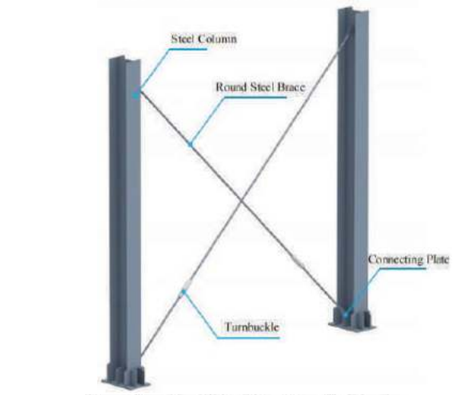
1.Select fixed-form brackets for fixing based on anchor bolt specifications and positioning accuracy requirements.
2.The rest is the same as Section 1.3.

3D IMAGE COLLECTION
三维图集

Chapter 1: Portal Frames

Section 2: Support System

2.1Inter-column Round Steel Braces



Inter-column Round Steel Brace Isometric Drawing

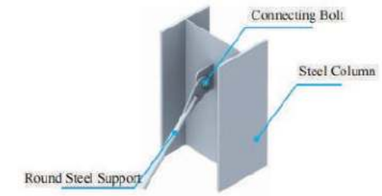
Instructions:

1.Round steel braces are commonly used for intermediate steel columns, working together with tie rods to form a bracing system

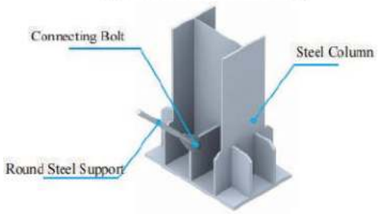
2.The round steel and steel plate are double-sided welded in the factory and connected to the steel column with a single-hole hin ge joint on site.

3.The pan head are tightened and installed between adjacent rows of steel columns. After alignment, they are tightened using to ols. The tightening standard is that the round steel is straight and the line is free of downward deflection.

4.Pat head screw are generally made of galvanized products

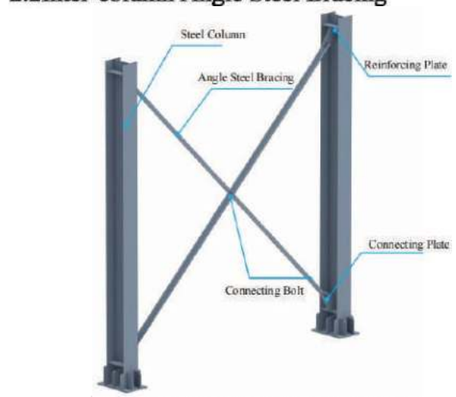


Upper Node Detail Detail Drawing



Base Plate Joint Detail Drawing

2.2Inter-column Angle Steel Bracing



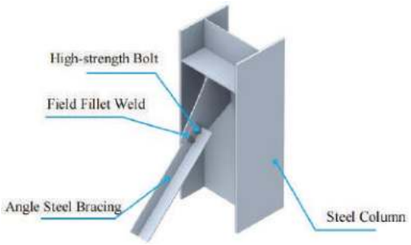
Inter-column Angle Steel Bracing Isometric Drawing

Instructions:

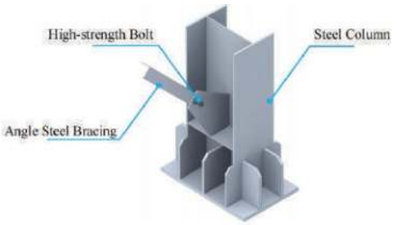
1.Column bracing and steel columns are installed simultaneously, serving as stable units for the sequential installation of adjacent steel columns, beams, and other structural elements.

2.Angle steel bracing is connected to the connection plate using high-strength bolts. After tightening, the angle steel flange is welded to the connection plate, and the weld specification is a fillet weld.

3.Upon installation, the structure should straight and free of any bending.

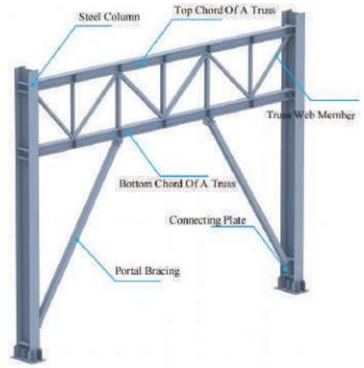


Column Upper Node Joint Detail Drawing



Column Base Node Joint Detail Drawing

2.3Column-to-column Portal Bracing



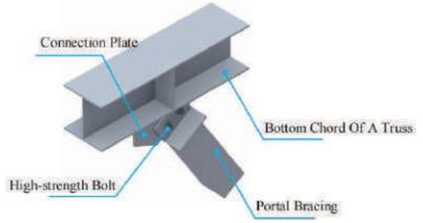
Isometric View Of Column-to-column Portal Bracing

Instructions:

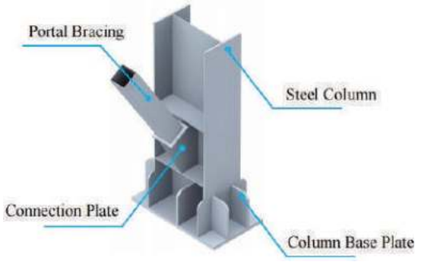
1.Portal bracing systems can be categorized into two main types: truss-type and beam-type. The cross-sections of the members can be selected from angle steel, channel steel, round tubes, and H-beams, depending on the specific requirements. The main factors influencing the selection of the bracing system and member cross-sections include the clearance requirements and the structural load-bearing demands.

2.It is recommended to assemble the bracing system on the ground and install it as a whole unit in synchronization with the installation of the steel columns. The bracing system can serve as the starting unit in the overall construction process, providing good stability.

3.To facilitate on-site construction, it is recommended to use a combination of bolted and welded connections for the connecting nodes. Avoid using pure bolted connections. During the connection construction process, pay close attention to the inspection of node welds.

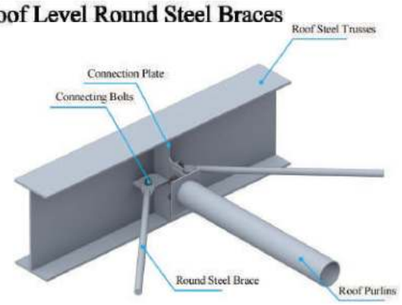


Support Node Detail Drawing(Top View)



Column Base Node Detail Drawing

2.4Roof Level Round Steel Braces



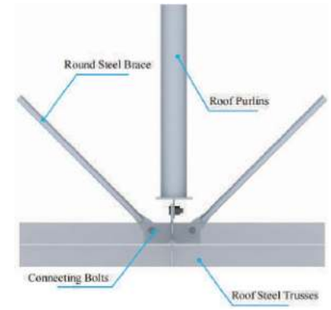
Roof Level Round Steel Brace Axonometric Diagram

Instructions:

1.Roof level horizontal braces are installed simultaneously with roof trusses to enhance structural stability.

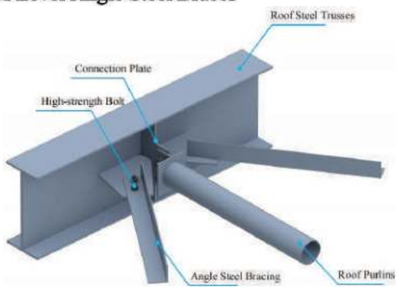
2.Round steel braces are tensioned using flower basket screws. After tensioning, the brace should be straight and have a maximum downward deflection of 2mm.

3.Round steel braces can be installed using a through-beam web plate node. Refer to the 04sg518-2 drawing set for specific node details.



Plan View

2.5Roof Level Angle Steel Braces

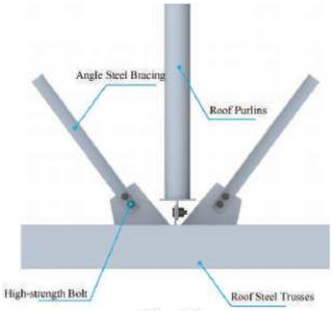


Roof Level Angle Steel Brace Isometric Drawing

Instructions:

1.The installation of roof level braces should be synchronized with the installation of trusses and beams to enhan ce structural stability. During installation, the sling point should be set at 1/3 to prevent downward deflection of t he angle steel.

2.Angle steel and connection plates are connected with bolts. If the design specifies welded connections, it is rec ommended to supplement the design documents and change the connection method to bolted connections.



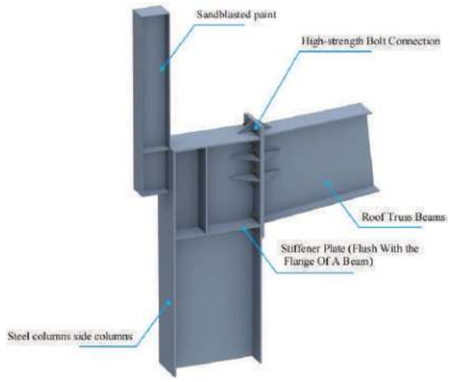
Plan View

3D IMAGE COLLECTION
三维图集

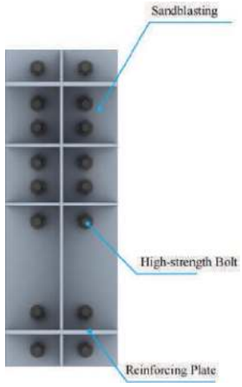
Chapter 1: Portal Frames

Section 3: Beam-Column Connections

3.1Edge Column Vertical Connection Node



Side Column Vrtical Section Isometric Drawing



Connection Detail Drawing

Instructions:

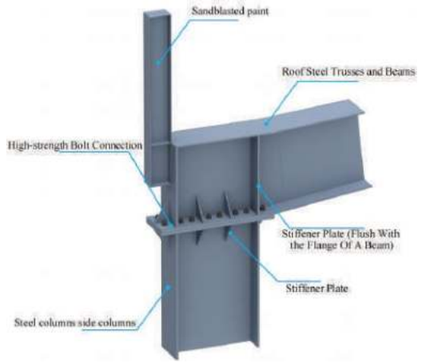
1.The end faces of beams and columns that form friction surfaces shall be protected before painting. The surface roughness shall meet the requirements of the relevant standards and design specifications.;

2.The tightening sequence for high-strength bolts shall proceed from the center to both sides gradually until the final tightening is completed, ensuring that the connected faces are tightly fitted without any gaps.;

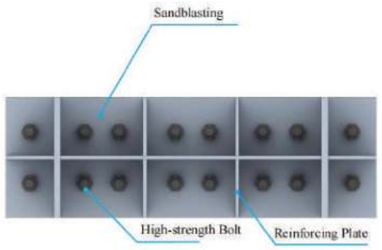
3.Key Control Items: Steel Column Verticality, Column Top Elevation, and Steel Beam Elevation.;

4.The spacing requirements for high-strength bolts to facilitate tightening should comply with the maximum and minimum permissible edge distances specified in JGJ82-2011.。

3.2Side Column Transverse Connection Joint



Side Column Horizontal Connection Isometric Drawing



Connection Detail Drawing

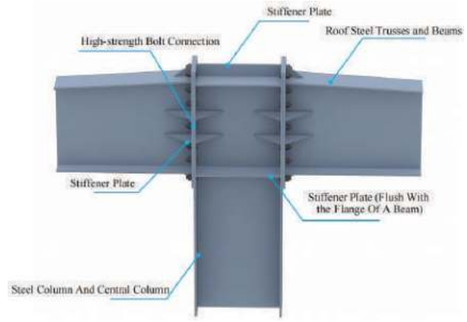
Instructions:

1.For beam-to-column connections where the connection surface is a friction surface, protect the surface before applying paint during construction and ensure the surface roughness meets the requirements of the relevant standards and design specifications.;

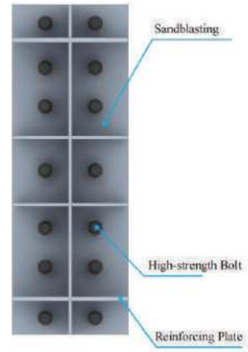
2.The tightening sequence for high-strength bolts shall be from the center towards both sides in a gradual manner. Upon completion of tightening, the connection surface shall be tightly closed without any gaps.;

3.Key control items: Steel column verticality, column top elevation, steel beam elevation。

3.3Central Column Vertical Connection Node



Steel Column Vertical Node Isometric Drawing



Connection Detail Drawing

Instructions:

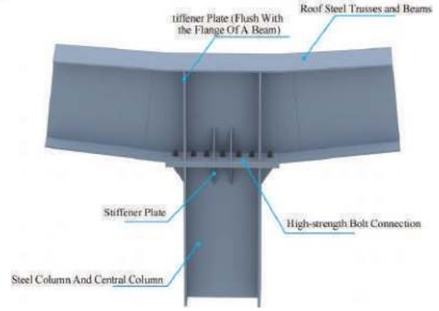
1.The end faces of the beam-to-column connections shall be friction surfaces. These surfaces shall be protected before the application of construction paint. The surface roughness shall meet the requirements of the relevant standards and the design specifications.;

2.The tightening sequence for high-strength bolts on the connection surface shall be from the center towards both sides gradually. The tightening of Truss Beam 1 and Truss Beam 2 shall be symmetrical. Upon completion of tightening, the connection surface shall be tightly fitted without any gap.;

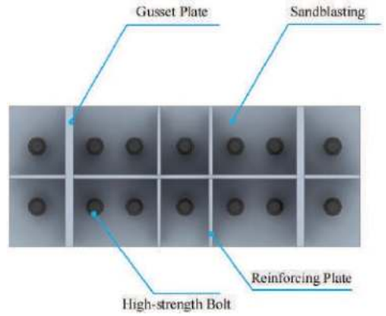
3.Main control items: steel column verticality、column top elevation、steel beam elevation;

4.The preferred insertion direction for high-strength bolts is from the column to the beam to facilitate the use of electric torque wrenches.。

3.4Central Column Transverse Connection Node



Central Column Transverse Connection Isometric Diagram



Connection Detail Drawing

Instructions:

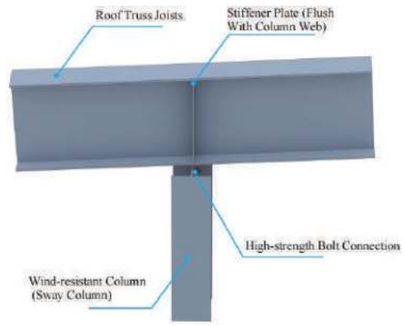
1.The end faces of beam-to-column connections are friction surfaces. Before painting, they should be protected and their surface roughness should meet the requirements of the relevant standards and design .;

2.The tightening sequence for high-strength bolts on the connection surface is to start from the center and gradually progress towards the left and right sides. Upon final tightening, the connection surface should be tightly closed without any gaps.;

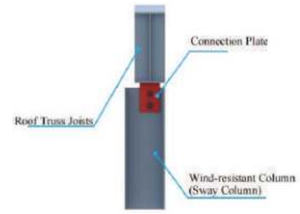
3.Main control items: steel column verticality、column top elevation、steel beam elevation;

4.It is recommended that high-strength bolts be inserted from the column to the beam (i.e., from the bottom up) to facilitate the use of electric torque wrenches.。

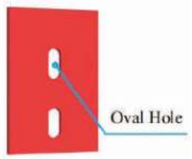
3.5 Connection Node of Wind-resistant Column, Sway Column, and Beam



Node Isometric Drawing



Right-side View



Connection Plate Detail Drawing

Instructions:

1.Wind columns, also known as buttress columns or lateral bracing elements, are crucial components in steel structures, particularly in buildings with gable walls. Their primary function is to effectively transfer wind loads from the gable walls to the overall framing system, ensuring the structural integrity and stability of the building under wind forces.;

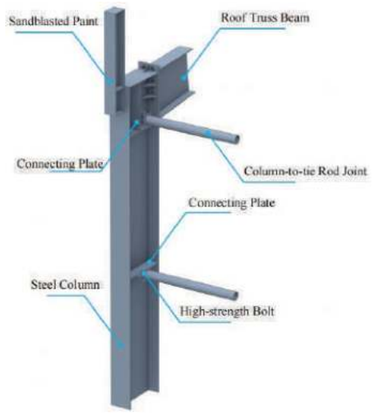
2.Wind columns, also known as buttress columns or lateral bracing elements, play a crucial role in transferring wind loads from gable walls to the overall framing system in steel structures. Their proper installation is essential for ensuring the structural integrity and stability of the building.

3D IMAGE COLLECTION
三维图集

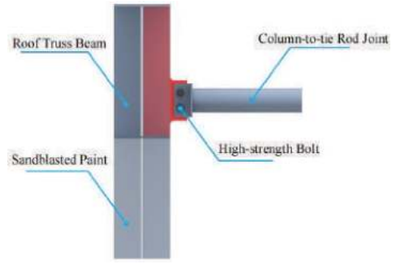
Chapter 1: Portal Frames

Section 4: Tie Rods

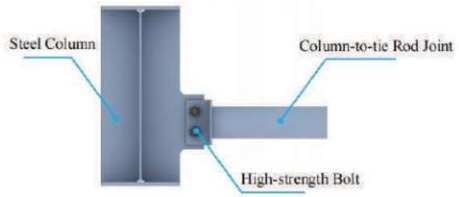
4.1 Inter-column Tie Rod Connection Node



Inter-column Tie Rod Isometric Drawing



Column Top Plan View



Plan View

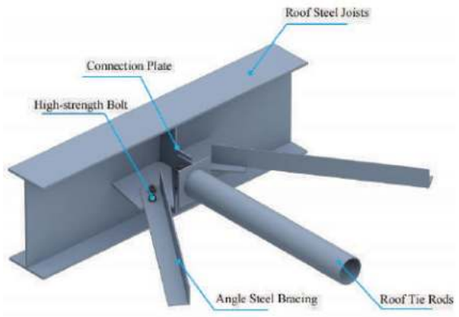
Instructions:

1.Column-to-tie rod connections typically use steel pipes as the cross-section. After welding square end plates to the ends, they are securely connected to the steel column connection plates using high-strength bolts；

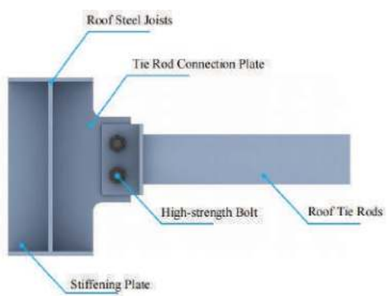
2.When using double plates to fix tie rods, one plate is prefabricated in the factory and the second plate is installed on-site as a loose component. After installation, the two plates are welded together.；

3.Tie rods are installed simultaneously with steel columns to enhance the stability of the unit structure.

4.2Roof Beam-to-Tie Rod Connection Node



Roof Horizontal Tie Rod Isometric Drawing



Left-side View

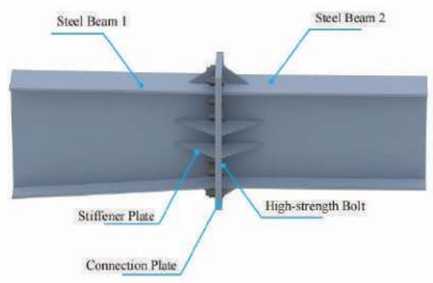
Instructions:

1.Roof horizontal tie rods are typically made of steel pipe sections and connected using single shear connections.

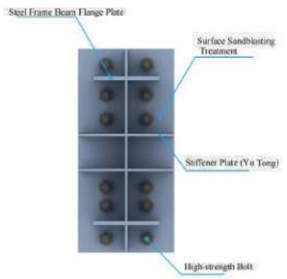
2.Roof horizontal tie rods and steel beams are installed simultaneously. The tie rods between columns in the two frames and the roof horizontal tie rods are all installed simultaneously.

Section 5: Splicing of Roof Trusses

5.1Steel Beam Transverse Connection Node



Roof Steel Beam Splicing Isometric Drawing



Connection Detail Drawing

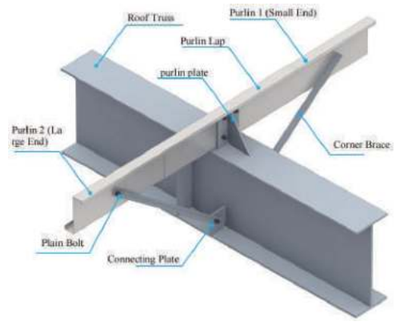
Instructions:

1. Roof steel beams should be pre-assembled in the factory. After passing inspection, they should be transported to the construction site in sections. The friction surfaces of the connections should be protected with stickers and should not be painted.

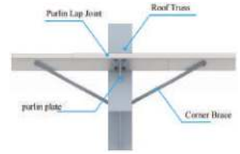
2. For columns with two or more steel beams between them, they can be assembled on the ground into hoisting units and then hoisted as a whole. High-strength bolts should be fully tightened on the ground;

3. Tighten high-strength bolts promptly after steel beams are installed in butt joints；

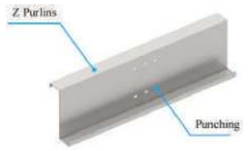
4. The contact area of the friction surface end plate shall not be less than 75% of the area of the connection plate, and it is recommended that the end surface should show a water rust friction effect.



Roof Purlin Installation Isometric Drawing



Plan View



Z Purlin Detail Drawing

Instructions:

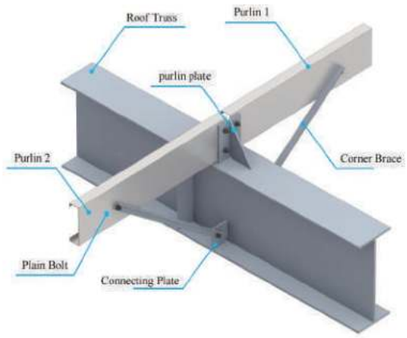
1.Z Purlins are typically galvanized and installed along the high side of the roof slope.

2.Purlins are connected and fixed to steel beams using purlin bearing plates and common C-grade bolts. The purlin bearing plates are welded together with the steel beams at the factory and coated with a suitable primer and intermediate paint.

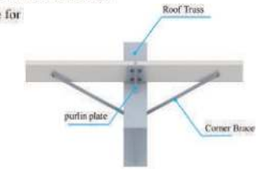
3.Purlin overlaps are distinguished by large and small heads. Fabrication and processing should be consistent with the on-site construction sequence. Large and small heads are connected.

4.The installation of corner braces can be reduced or eliminated by widening the flanges of the steel beams or increasing the number of tie rods.

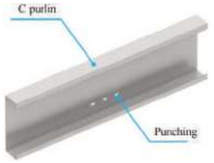
5.All purlins can be installed on site by increasing the number of holes and reducing the number of purlin models (the same for



Roof Purlin Installation Isometric Drawing



Plan View



C-Purlin General Assembly Detail Drawing

Instructions:

1.C purlins are typically made from galvanized steel strips and formed by pressing. They are installed along the longitudinal slope with the higher side facing up.

2.Purlins are connected to connecting plates and corner braces using C-class common bolts. The inspection standard is that the connection should be tight with no visible gap to the naked eye

3.Before installing purlins, safety nets must be installed under the work area, and lifelines must be installed on steel beams to provide fall protection for workers.；

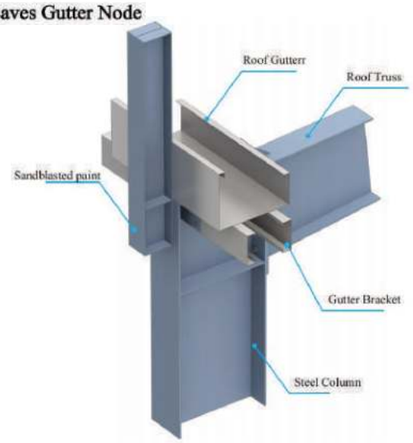
4.The installation of corner braces can be reduced or eliminated by increasing the width of the flange of the steel beam or increasing the number of tie rods.。

3D IMAGE COLLECTION
三维图集

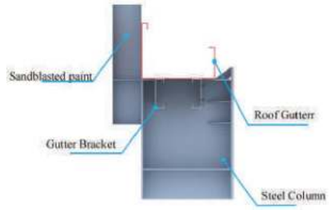
Chapter 1: Portal Frames

Section 6. Purlin System

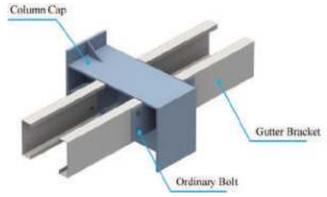
6.3Eaves Gutter Node



Eaves Construction Isometric Drawing



Right-Side View

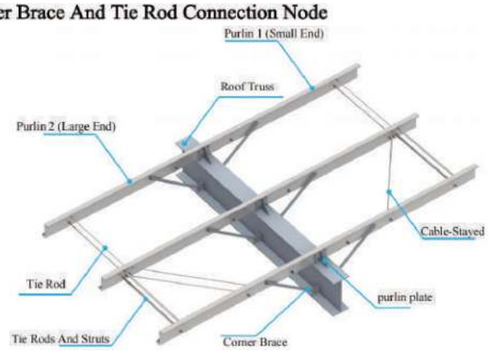


Gutter Bracket Detail Drawing

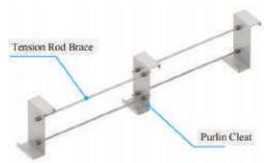
Instructions:

1.Gutters are generally made of galvanized steel or stainless steel sheets and folded into shape. The cutting dimension is the unfolded width. If the unfolded width of the gutter is greater than 1.5m, gutter struts should be installed. The material of the struts should be the same as that of the gutter. The lowest point of the finished surface of the gutter should be no less than 250mm from the lowest point of the roof.
2.Gutter joints are connected by welding. For galvanized steel gutters, use J422 welding rods. For stainless steel gutters, use stainless steel welding rods or wires of the same material as the gutter.
3.Gutters are fixed to purlins with screws and to parapet columns with intermittent welds. Each weld seam should be at least 50mm long.
4.If the unfolded width of the gutter is greater than 1.5 meters, additional welding is required to increase the width. The welding points should be located on both sides, as close to the top of the gutter as possible.
5.When the connection node of the gutter bracket and the beam column conflicts with the gusset plate, the connection plate should be extended for easy on-site installation. The top of the steel beam in the gutter installation area should be kept level, and the intermediate supports between the columns should avoid the downpipe position.

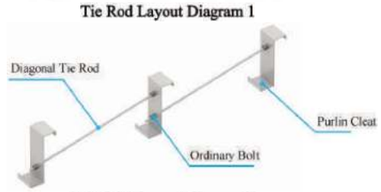
6.4Corner Brace And Tie Rod Connection Node



Corner Brace And Tie Rod Isometric Drawing



Tie Rod Layout Diagram 1

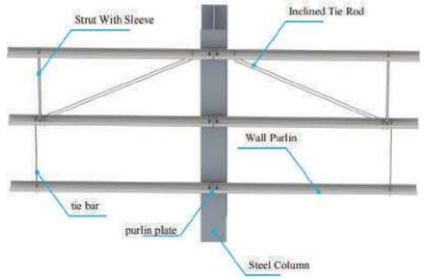


Tie Rod Layout Diagram 2

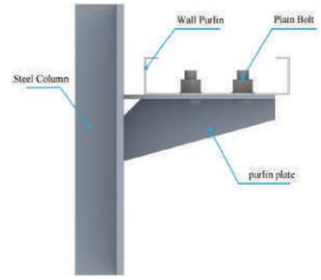
Instructions:

1.The installation sequence of tie bars is to first install the parts with struts. And inclined tie bars; then install the remaining tie bars after accurate positioning.
2.For the coating of tie rods and struts, galvanization is recommended. If using paint, ensure the paint film is completely dry before packaging and provide adequate protection during transportation.;
3.Purlins should be installed with consistent spacing, and the overall assembly should be level once the large and small ends are installed.
4.A single tie rod is secured with four nuts. The two inner nuts serve for positioning, while the two outer nuts are used for tightening.

6.5 Wall Purlin Installation Node



Wall Purlin Installation Isometric Drawing



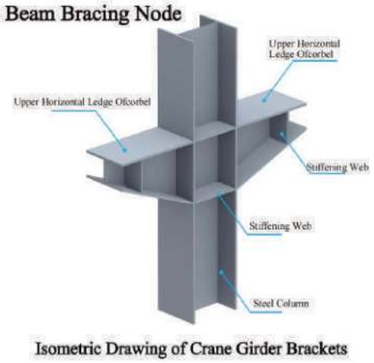
Left-Side View

Instructions:

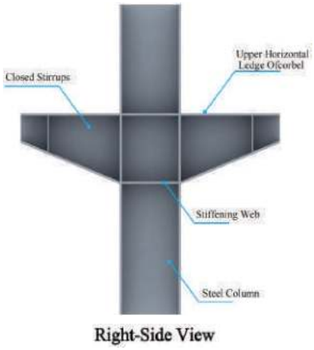
1.Purlin base plates and steel columns are prefabricated in the factory and painted according to the painting requirements of the steel columns.
2.Purlin base plates shall strictly follow the detailed design drawings and be compatible with the purlin openings.
3.Key Control Points for Purlins:Levelness、Elevation、Door and Window Opening Positioning、Tightness.
4.When detailing the orientation of purlin base plates, consider the installation of door openings, and the nuts should face the inner side of the window frame.
5.The top and bottom purlins of window frames should be made of double-span purlins or square steel, and the openings of the side C-shaped purlins should face outwards from the window frame.

Section 7: Crane Girder Systems

7.1 Crane Beam Bracing Node



Isometric Drawing of Crane Girder Brackets

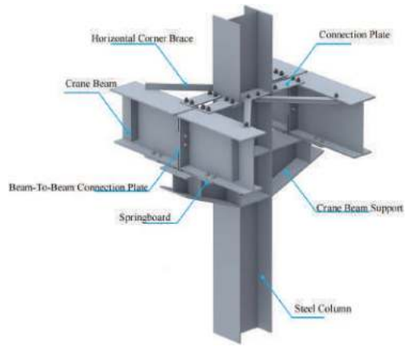


Right-Side View

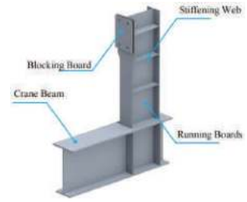
Instructions:

1.The crane beam corbel and steel column are welded together as a whole in the factory. The main control is the vertical angle formed by the top surface of the corbel and the steel column. The horizontal deviation should not exceed 1mm.
2.The verticality of the steel column and the top surface of the corbel are the primary control items during on-site installation.

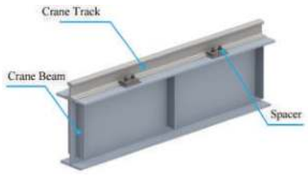
7.2Crane Beam Installation Node



Crane Beam Installation Isometric Drawing



Crane Bumper Detailed Drawing



Rail Installation Detail Drawing

Instructions:

1.Crane Beam Installation Sequence：Steel Column Installation→Roof Beam Installation→Tie-Rod Bracing System Installation→Alignment Check→Column Base Grouting→Crane Beam Hoisting→Connection Plate and Gusset Installation→Adjacent Crane Beam Installation→Crane Beam Connection and Fixing→Final Alignment Check→Spring Plate Welding→Installation Completion.
2.All bolts not specified in the drawing are high-strength friction bolts.
3.The crane beam must be installed in position and the connection plate installed before releasing the hook to lift the next steel beam.
4.All field welds not specified on the drawing are corner welds.
5.The flatness of the crane beam shall meet the relevant requirements for allowable deviations for crane beam installation specified in GB 50205-2001 "Code for Acceptance of Quality of Steel Structure Construction Engineering.

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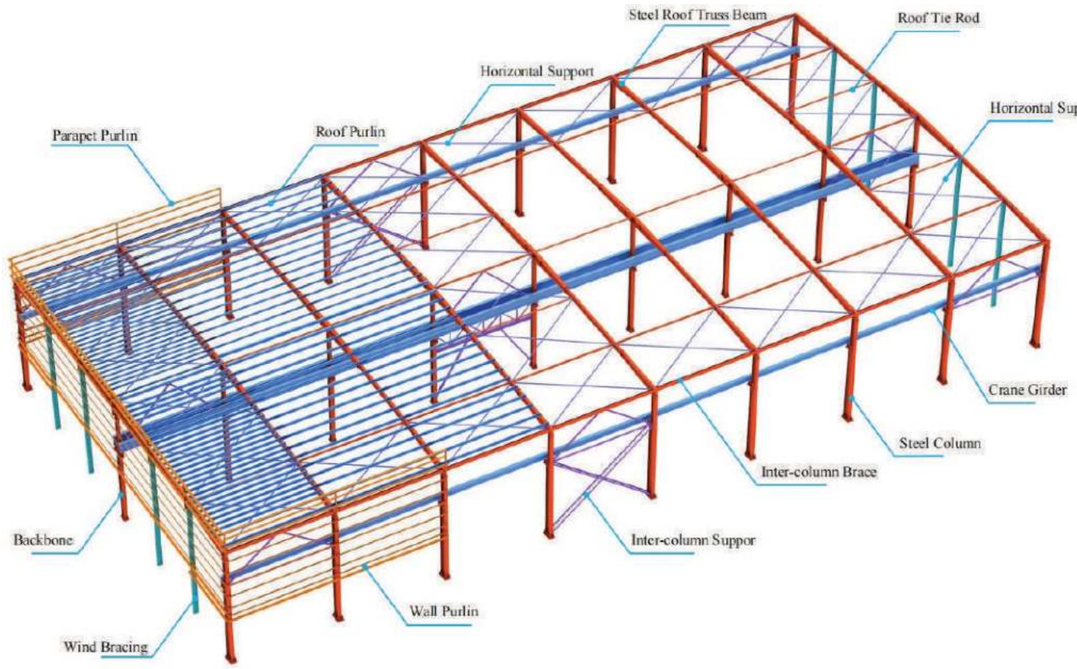
Chapter 1: Portal Frames

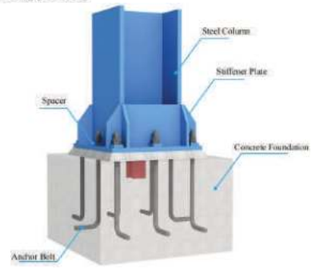


Overall Layout Drawing Of Portal Steel Frame Workshop

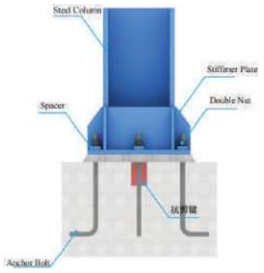
Chapter 2: Frame Structures

Section 1: Column Bases

1.1Exposed Base Plate



Exposed Base Plate Shop Detail Drawing



Front View

Instructions:

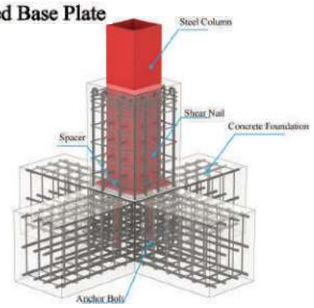
1.Hinged column bases should be secured with guy ropes during the steel column installation phase. Wedge-shaped blocks should be placed at the bottom for auxiliary fixation, and the column bases should be connected to adjacent steel columns promptly to form an overall stable structure.

2.After the steel columns are aligned, secondary grouting should be performed. The upper part of the short column foundation should be roughened before grouting. Since the grouting material has slight expansion properties, the thickness of the secondary grouting layer should not be less than 50mm but no more than 100mm. For anchor bolts with a diameter greater than 42mm, the thickness should not be less than 100mm.

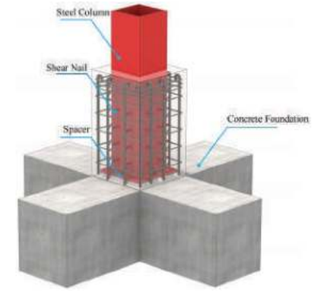
3.Shear keys should be cleaned and roughened before steel column installation, and their dimensions should be rechecked to ensure there are no foreign objects inside.

4.The column base bolt washer and the steel column base plate are fixed by welding. The weld type is a corner weld, and the height should not be less than half of the washer.

1.2Exposed Base Plate



Exposed Base Plate Shop Detail Drawing



Segmental Pouring Schematic Diagram

Instructions:

1.Hinged column bases require tensioning with guy ropes during steel column installation, and wedge blocks are placed at the bottom for auxiliary fixation. They should also be connected to adjacent steel columns in a timely manner to form an overall stable structure.

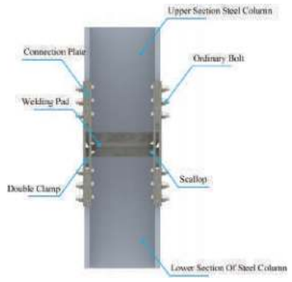
2.After the steel columns have been rectified, secondary grouting is carried out. The upper part of the short column foundation needs to be roughened. Due to the micro-expansion performance of the grouting material, the thickness of the secondary grouting layer should not be less than 50mm but should not exceed 100mm. For anchor bolts with a diameter greater than 42mm, the thickness should not be less than 100mm.

3.The base plate of the column bolt is welded to the base plate of the steel column for fixation. The weld specification is a fillet weld, and the height should not be less than half of the thickness of the base plate.

Section 2: Steel Column Site Splicing

2.1Solid Web Steel Column Splice Type 1

Field-assembled H-beam Column Isometric Drawing



Left-Side View

Instructions:

1.The lifting points for the installation of the upper section steel column are set at the top of the steel column, and four lifting points are used for the hoisting operation.

2.Before hoisting, the slag and floating rust on the top surface of the lower section steel column and the bottom surface of the current section steel column should be cleaned up thoroughly to ensure that the contact surface of the upper and lower section steel columns is tightly fitted.

3.Once the steel column is hoisted into position, its centerline should align with the centerline of the lower section steel column, ensuring symmetry in all four directions. The active double clamps should be smoothly inserted into the corresponding installation ear plates of the lower section column. The connecting bolts should be properly installed, and the temporary connection clamps should be secured. Then, welding should be performed.

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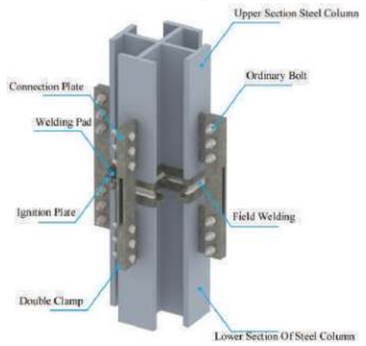
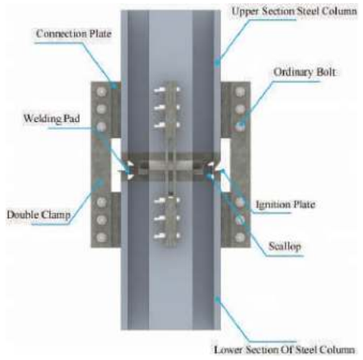
Chapter 2: Frame Structures

Section 2: Steel Column Site Splicing

2.2Solid Web Steel Column Connection Type 2



Field-assembled Cruciform Steel Column Isometric Drawing



Left-Side View

Instructions:

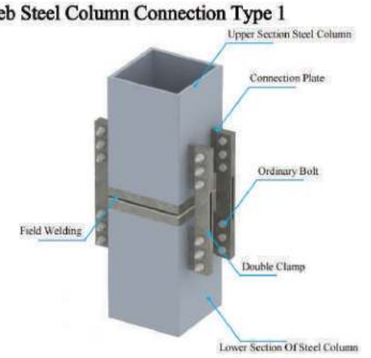
1.The lifting points for the installation of the upper section steel column are set at the top of the steel column, and four temporary connection ear plates are used for the hoisting operation.

2.Before hoisting, the slag and floating rust on the top surface of the lower section steel column and the bottom surface of the current section steel column should be cleaned up to ensure that the contact surface of the upper and lower section steel columns is tightly fitted.

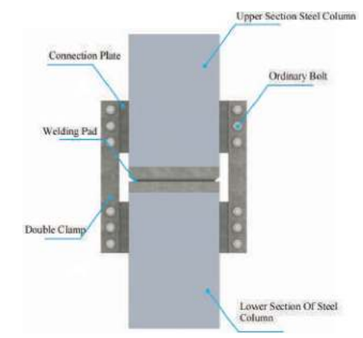
3.Once the steel column is hoisted into position, its centerline should align with the centerline of the lower section steel column, ensuring symmetry in all four directions. The active double clamps should be smoothly inserted into the corresponding installation ear plates of the lower section column. The connecting bolts should be properly installed, and the temporary connection clamps should be secured.

4.The minimum clearance between adjacent flanges of cross-shaped columns shall not be less than 200mm.

2.3 Hollow Web Steel Column Connection Type 1



Field-assembled Box-shaped Steel Column Isometric Drawing



Left-Side View

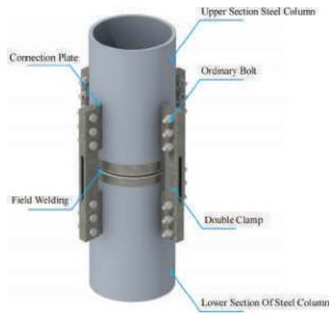
Instructions:

1.The lifting points for the installation of the upper section steel column are set at the top of the steel column, and four temporary connection ear plates are used for the hoisting operation.

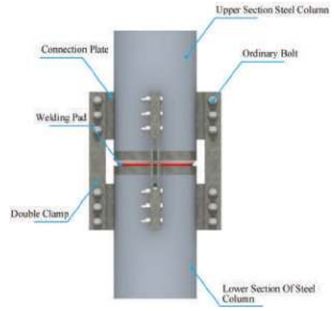
2.Before hoisting, the slag and floating rust on the top surface of the lower section steel column and the bottom surface of the current section steel column should be cleaned up thoroughly to ensure that the contact surface of the upper and lower section steel columns is tightly fitted.

3.Once the steel column is hoisted into position, its centerline should align with the centerline of the lower section steel column, ensuring symmetry in all four directions. The active double clamps should be smoothly inserted into the corresponding installation ear plates of the lower section column. The connecting bolts should be properly installed, and the temporary connection clamps should be secured.

2.4Hollow Web Steel Column Connection Type 2



Field-assembled Round Steel Tube Column Isometric Drawing



Left-Side View

Instructions:

1.The lifting points for installing the upper section steel column are set at the top of the steel column, and four temporary connection ear plates are used for the hoisting operation.

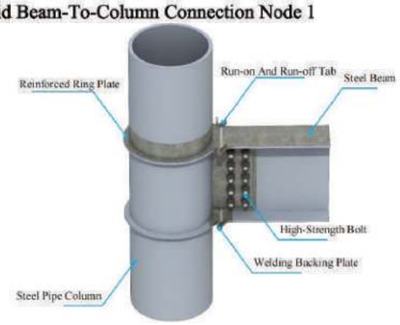
2.Before hoisting, the slag and floating rust on the top surface of the lower section steel column and the bottom surface of the current section steel column should be cleaned up thoroughly to ensure that the contact surface of the upper and lower section steel columns is tightly fitted.

3.Once the steel column is hoisted into position, its centerline should align with the centerline of the lower section steel column, ensuring symmetry in all four directions. The active double clamps should be smoothly inserted into the corresponding installation ear plates of the lower section column. The connecting bolts should be properly installed, and the temporary connection clamps should be secured.

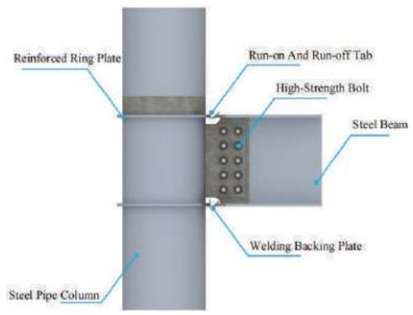
4.End milling is recommended for the top surface of the lower section steel column. The fabrication accuracy of the welding liners inside the column should be rigorously inspected to prevent deformation of the welding liners from hindering the smooth alignment and connection of the upper and lower section steel columns.

Section 3: Beam-to-column Connection

3.1Rigid Beam-To-Column Connection Node 1



One-axis Isometric View Of The Connection Node Between Round Pipe Columns And Steel Beams.



Left-Side View

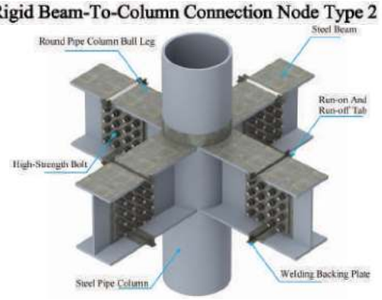
Instructions:

1.The web plate of the H-shaped steel beam is connected to the steel column connection plate with high-strength bolts, and the top and bottom flange plates are welded to the steel column.

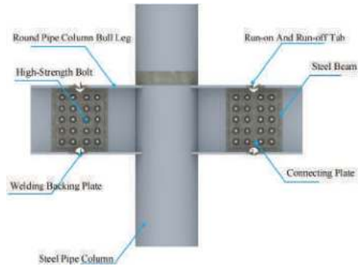
2.Steel beam connections shall employ groove welds with full penetration, and comply with the relevant national standards and specifications in the "Code for Steel Structure Welding (GB50661-2011)". The groove shape and dimensions of groove welds with full penetration shall be determined by the steel structure fabrication plant.

3.The length of the welding backing plate and arc strike plate extending beyond the flange plate of the steel beam shall not be less than 10mm.

3.2Rigid Beam-To-Column Connection Node Type 2



Isometric Drawing Of The Round Pipe Column To Steel Beam Connection Node



Left-Side View

Instructions:

1.The web plate of the H-shaped steel beam is connected to the steel column connection plate with high-strength bolts, and the top and bottom flange plates are welded to the steel column.

2.Steel beam connections shall employ groove welds with full penetration, and comply with the relevant national standards and specifications in the "Code for Steel Structure Welding (GB50661-2011)". The groove shape and dimensions of groove welds with full penetration shall be determined by the steel structure fabrication plant.

3.The length of the welding backing plate and arc strike plate extending beyond the flange plate of the steel beam shall not be less than 10mm.

3D IMAGE COLLECTION
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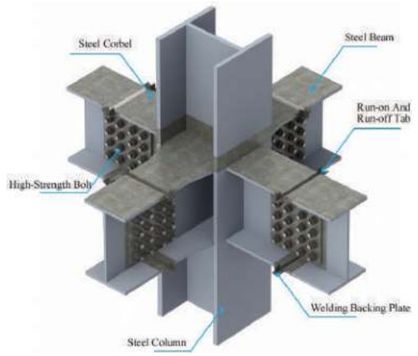
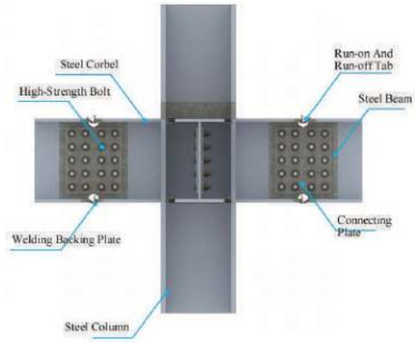
Chapter 2: Frame Structures

Section 3: Beam-to-column Connection

3.3Rigid Beam-To-Column Connection Node Type 3



Isometric Drawing of Connection Node Between H-Shaped Steel Column and Steel Beam

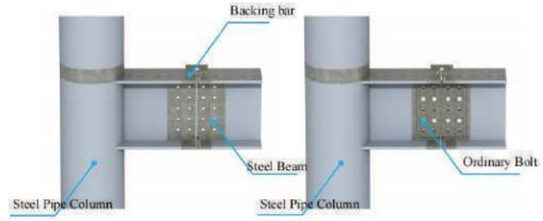


Left-Side View

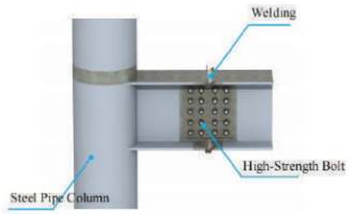
Instructions:

1.The web plate of the H-shaped steel beam is connected to the steel column connection plate with high-strength bolts, and the top and bottom flange plates are welded to the steel column.
2.Steel beam connections shall employ groove welds with full penetration, and comply with the relevant national standards and specifications in the "Code for Steel Structure Welding (GB50661-2011)". The groove shape and dimensions of groove welds with full penetration shall be determined by the steel structure fabrication plant.
3.The length of the welding backing plate and arc strike plate extending beyond the flange plate of the steel beam shall not be less than 10mm.

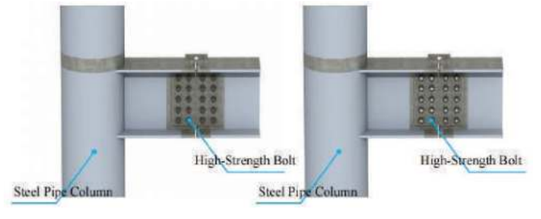
3.4Construction Sequence for Rigid Beam-Column Nodes



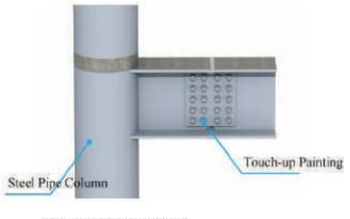
1. Hoisting and Positioning of Steel Beams　2. Installation of Temporary Bolts



5.Welding Flange slab



3. Installation of High-Strength Bolts　4. Initial Tightening and Final Tightening of High-Strength Bolts

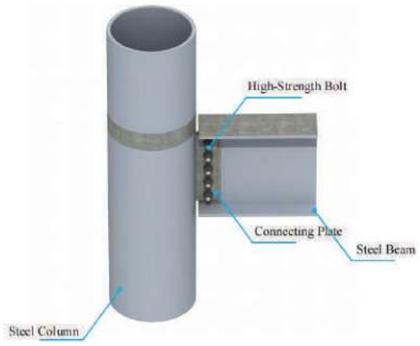


6.Rust Removal and Painting

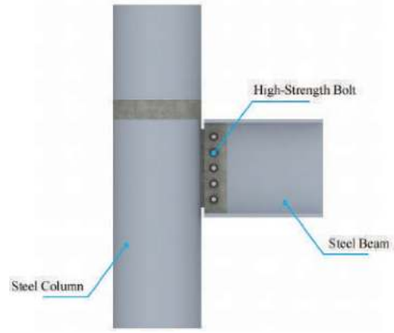
Instructions:

1.The number of temporary ordinary bolts for steel beam connections shall not be less than 1/3 of the number of nodes, and not less than 2 bolts.2.The length of the welding pad and arc ignition plate extending from the steel beam flange plate shall not be less than 10mm.
3.After the weld is completed, the arc ignition plate shall be cut off after the inspection is qualified according to the weld level requirements. The base metal shall not be damaged. The wire brush is used to remove rust. The rust removal level shall not be lower than St2. The factory-matched paint is used for on-site touch-up.

3.5Beam-To-Column Hinge Node 1



Axonometric Drawing of a Hinged Joint Between a Circular Steel Column and a Steel Beam

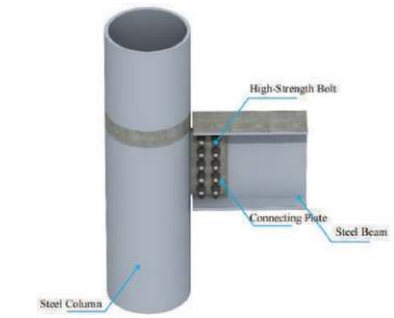


Left-Side View

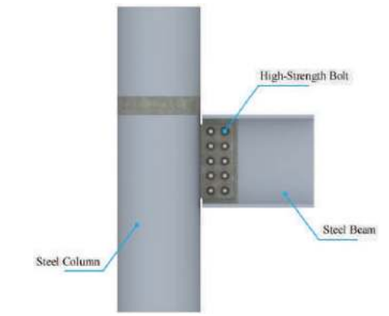
Instructions:

1.The H-shaped steel beam web plate and steel column ear plate are connected with high-strength bolts, and the ear plate can be connected with a single ear plate or a double ear plate according to the design requirements.
2.High-strength bolts should be tightened from the center of the connecting plate towards the ends or all around during construction.

3.6Beam-To-Column Hinge Node 2



Axonometric Drawing of a Hinged Joint Between a Circular Steel Column and a Steel Beam

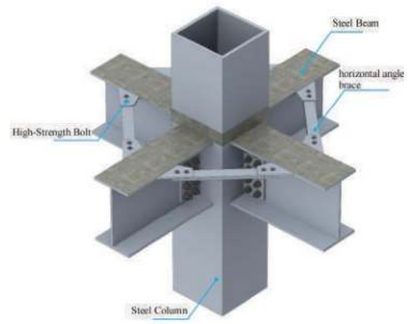


Left-Side View

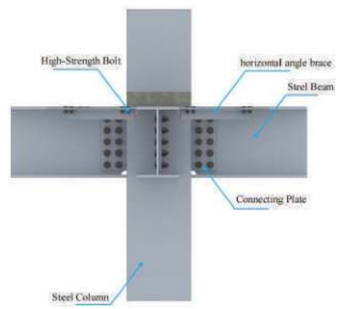
Instructions:

1.The H-shaped steel beam web plate and steel column ear plate are connected with high-strength bolts, and the ear plate can be connected with a single ear plate or a double ear plate according to the design requirements.
2.High-strength bolts should be tightened from the center of the connecting plate towards the ends or all around during construction.

3.8Beam-To-Column Corner Brace Connection Node



Axonometric Drawing of a Beam-to-Column Corner Brace Connection Node



Left-Side View

Instructions:

1.H-shaped steel beams and steel columns are connected using high-strength bolts or welded connections.
2.Corner braces are connected to the top or bottom flange of H-shaped steel beams using bolts.
3.Corner braces are typically fabricated in factories using angle steel and connected with high-strength bolts.

3D IMAGE COLLECTION
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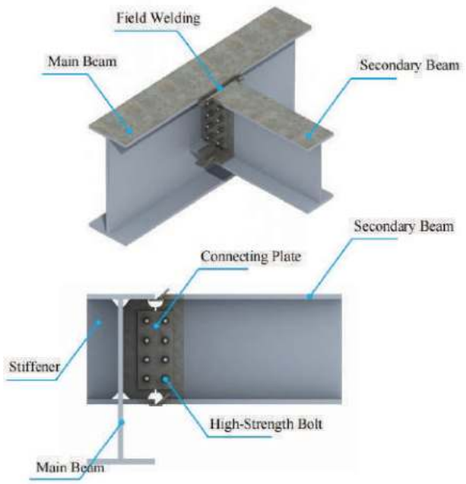
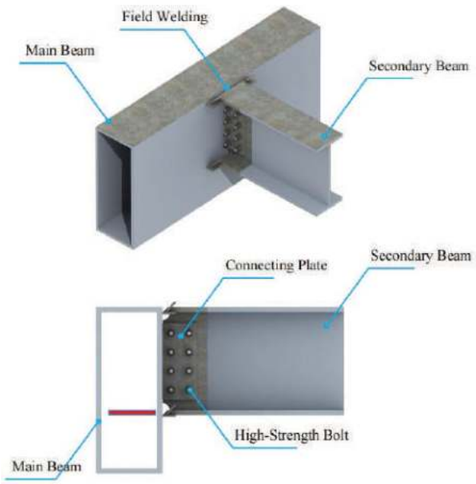
Chapter 2: Frame Structures

Section 4: Primary and Secondary Beam Connections

4.1Primary and Secondary Beam Rigid Connection Node



H-Beam Primary and Secondary Beam Rigid Connection Node



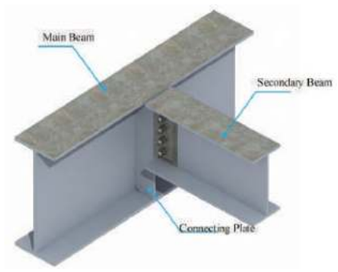
Box Beam Primary and Secondary Beam Rigid Connection Node

Instructions:

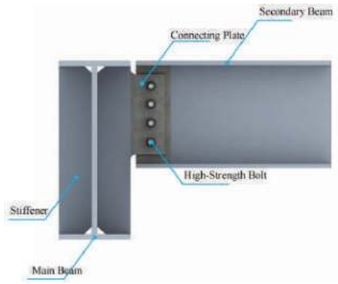
1The web plate of the secondary H-beam is connected to the ear plates of the primary H-beam using high-strength bolts. It is generally recommended to connect the top and bottom flanges of the secondary beam to the primary beam, either using bolts or welds, to ensure proper moment transfer and lateral stability.

2.Steel beam connections shall employ bevel-groove full-penetration welds in compliance with the relevant national standards and regulations specified in the "Code for Welding of Steel Structures GB50661". The bevel-groove form and dimensions of full-penetration welds shall be determined by the steel structure fabrication plant.

4.2Primary-secondary Beam Hinge Node



H-beam Primary Beam To Secondary Beam Hinged Node



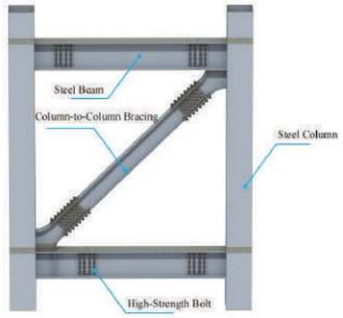
H-beam Primary Beam To Secondary Beam Hinged Node

Instructions:

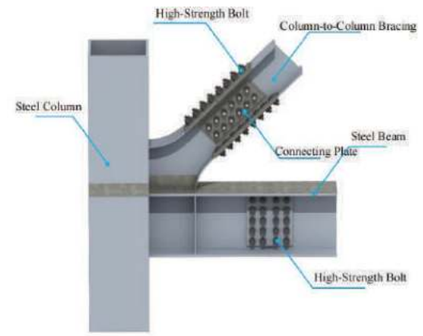
1.The web plate of the secondary H-beam is connected to the ear plates of the primary H-beam with high-strength bolts. The top and bottom flanges are not connected.

Section 5: Bracing Connections

5.1Column-to-Brace Bolt Connection



Axonometric Diagram of a Column-to-Brace Bolt Connection Node



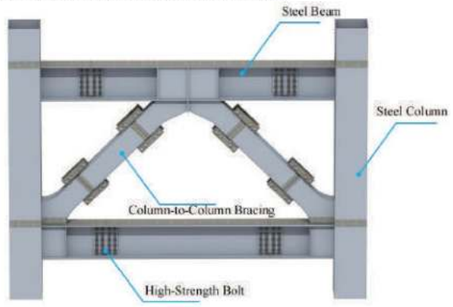
Node Detail Drawing

Instructions:

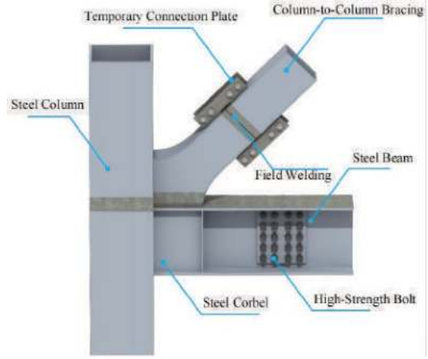
1.The steel beam web plate, top and bottom flange plates, and the column bull legs are connected to the column using high-strength bolts throughout.

2.During high-strength bolt tightening, the tightening process should start from the center of the connecting plate and progress towards the ends or peripheries.

5.2Column-to-Column Braced Weld Connection



Axonometric Diagram of a Column-to-Brace Welded Connection Node



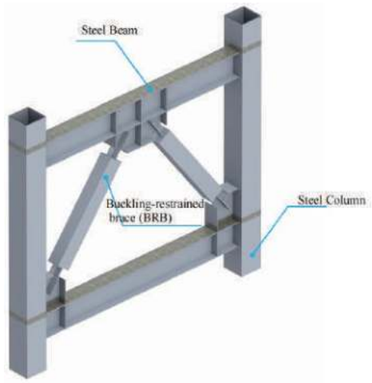
Node Detail Drawing

Instructions:

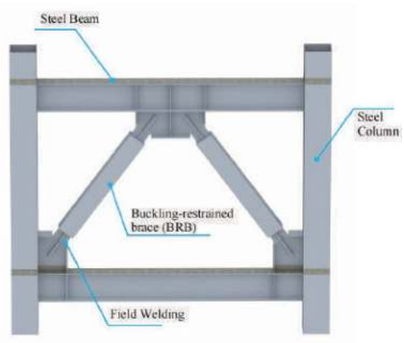
1.Inter-column support steel beams are fully welded to the steel column bull legs.

2.Sloped full-penetration welds for column supports shall comply with the national standards and codes such as the "Code for Welding of Steel Structures GB50661", and the form and dimensions of the sloped full-penetration welds shall be completed in the steel structure fabrication plant.

5.3Buckling-restrained brace (BRB) Connection Node



Buckling-restrained brace (BRB) Connection Node Isometric Drawing



Left-Side View

Instructions:

1.There are two main types of buckling-restrained braces (BRBs): filled and unfilled. Filled BRBs use concrete as the constraining material, while unfilled BRBs use only steel.

2.The installation procedure for buckling-restrained braces (BRBs) is as follows:Pre-installation preparation→Installation of embedded parts (concrete structures)→Node plate installation→Brace transportation→Temporary installation and fixing of braces→Brace connection→Connection point inspection→Fire and corrosionprotection→Connection to the wall (if there is a filler wall at the brace location).

3.In the same project, buckling-restrained braces (BRBs) shall be subjected to type testing and inspection according to the construction form, core steel support material, and yield bearing capacity of the supports. The sampling ratio shall be 2%, and there shall be at least one test piece for each category. The inspected components shall not be used for the main structure.

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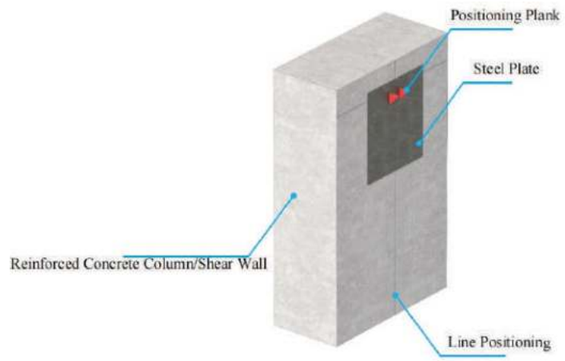
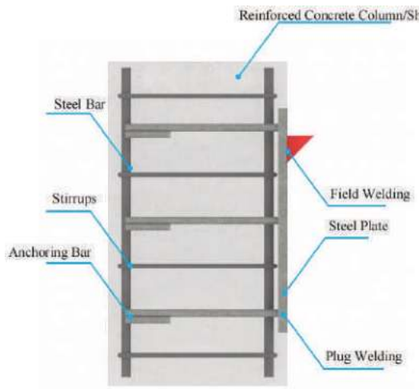
Chapter 2: Frame Structures

Section 6: Connection of Beams to Embedded Plates

6.1Embedded Plate Installation Node



Steel Beam Embedded Iron Parts Detail Drawing

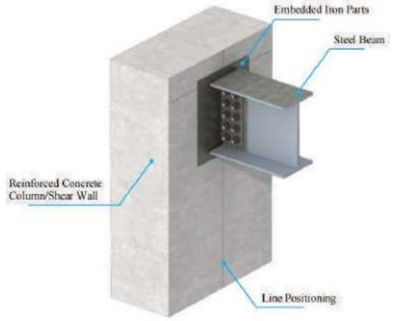


Left-Side View

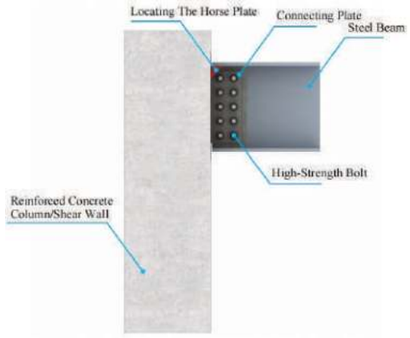
Instructions:

1. Precast slab installation process:Reinforcement tying→Positioning and marking→Installing precast slabs→Welding and fixing→Concrete pouring.
2. Once the measurement and verification of positioning are completed, the precast slabs should be firmly welded to the reinforcement.
3. After removing the concrete formwork, measure and verify the installation height and position of the steel beams. Weld temporary ear plates to facil itate the subsequent installation of the steel beams.

6.2Hinge Joint



Hinge Joint Isometric Drawing

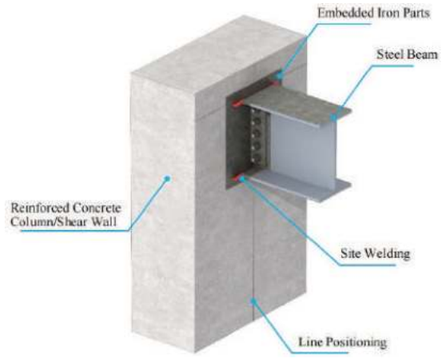


Left-Side View

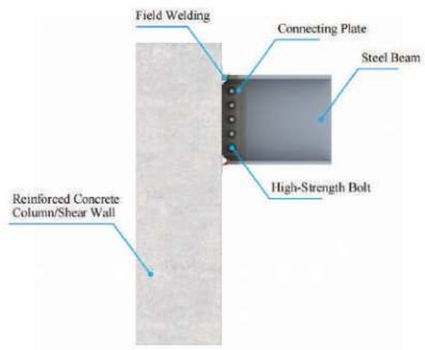
Instructions:

1. Install the steel beam connection ear plates first. After measurement and verification, weld them securely.
2. The H-shaped steel beam web and the connection ear plates are connected with high-strength bolts. The ear plates c an be connected with a single ear plate or a double ear plate according to the design requirements.
3. Tighten the high-strength bolts from the center of the connection plate towards the ends or around the perimeter.
4.Installation Method 2:Connect the steel beam to the connection ear plates first, Install the assembled components o nto the temporary connection plate of the prefabricated plate, Position the assembly accurately and weld it securely.

6.3 Rigid Joint



Rigid Joint Isometric Drawing



Left-Side View

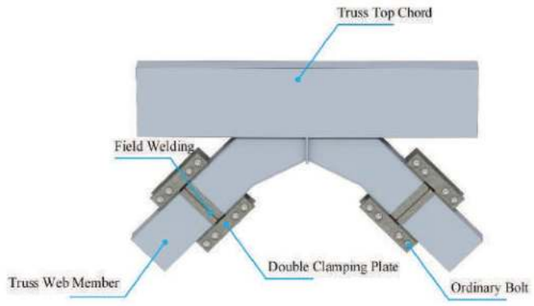
Instructions:

1.Install the steel beam connection ear plates first of After careful measurement and verification, weld them securely.
2.The H-beam web plate and the connection ear plates are connected with high-strength bolts, The ear plates can be singl e or double, depending on the design requirements, The top and bottom flange plates are welded to the embedded plates.
3.The steel beam connections utilize full-penetration groove welds. These welds must comply with the national standards and regulations, including the "Code for Steel Structure Welding GB50661", The design and dimensions of the full-pene tration groove welds are determined and completed at the steel structure fabrication plant.

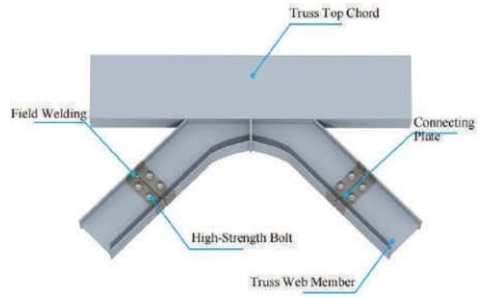
Chapter 3: Truss Structures

Section 1: Plane Trusses

1.1Box Section Top Chord Node



Box Section Top Chord Node Isometric Drawing

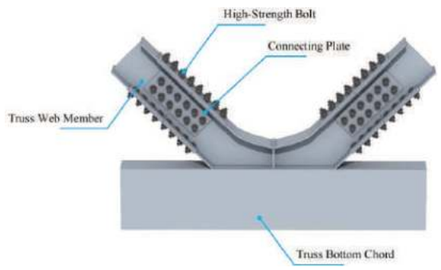


Box Section Top Chord Node Isometric Drawing

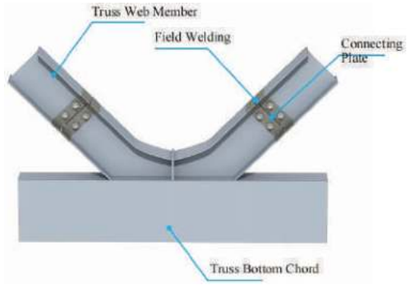
Instructions:

1.Box section top chord joint construction procedure:Hoist the top chord joint into position→Align and adjust the top chord joint→Secure the installation plates→ Weld the top chord joint→Remove the installation plates.2.Welding with ignition plates to ensure weld quality meets standards and design requirements.
3.After removing the installation plates, grind the surface to remove burrs and debris, and be careful not to damage the wood during the removal process.

1.2Box Section Bottom Chord Node



Box Section Bottom Chord Node Isometric Drawing



Box Section Bottom Chord Node Isometric Drawing

nstructions:

1.Construction Procedure for Box Section Bottom Chord Joints:Hoisting the Bottom Chord Joint→Alignment and Adjustment→Fixing Connection Plates→Preliminary Tightening of High-Strength Bolts→Final Tightening of High-Strength Bolts.2. Welding Back-Up Plates shall be used, and the welding quality upon completion shall meet the requirements of the relev ant code and design specifications.
3.When using high-strength bolts for connection, the length of the truss chord bull leg should fully consider the space for high-strength bolt operation.

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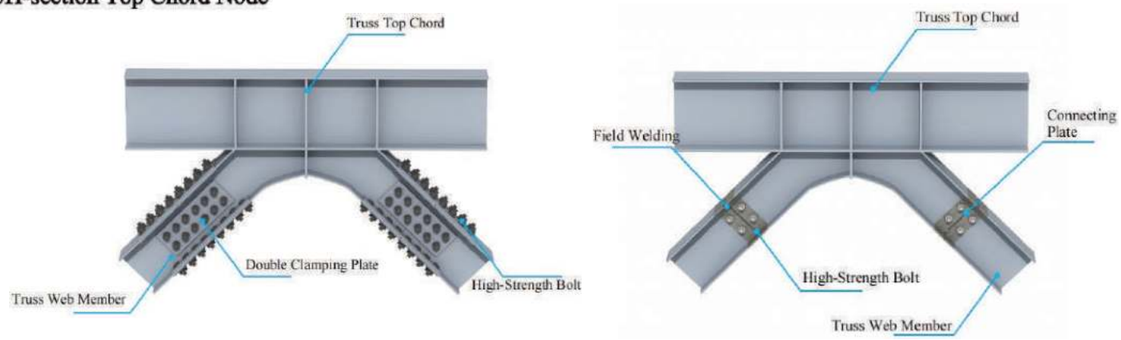
Chapter 3: Truss Structures

Section 1: Plane Trusses

1.3H-section Top Chord Node

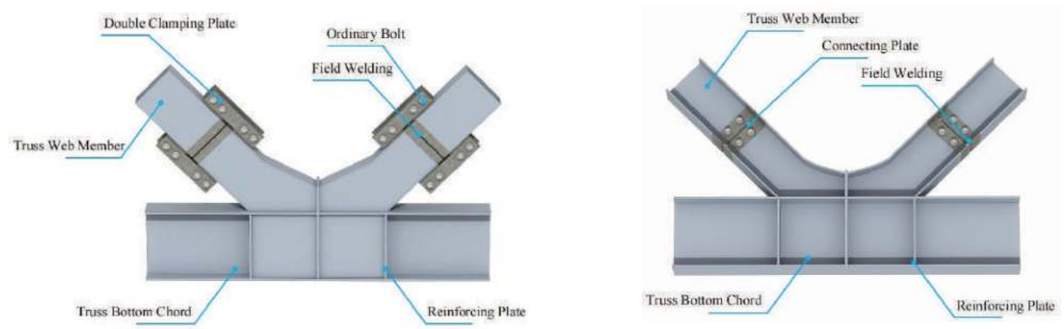


H-section Top Chord Node Isometric Drawing

nstructions:

1. Construction Procedure for H-section Top Chord Joints:Hoisting the Top Chord Joint→Alignment and Adjustment→Installation of Installation Bolts→Installation of High-Strength Bolts.
2.Installation bolts shall be no less than 1/3 of the total number of installation holes, and high-strength bolts shall not be used as installation bolts.
3.Tightening of high-strength bolts should follow the sequence of wing plates first, then web plates, and from the center to the periphery.;
4.The initial tightening, re-tightening, and final tightening of high-strength bolts should preferably be completed within one day.
5.When connecting truss chords with high-strength bolts, the length of the truss chord bull leg should fully consider the operating space for high-strength bolt tightening.

1.4H-section Bottom Chord Node

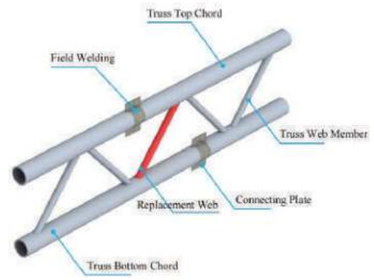


H-section Bottom Chord Node Isometric Drawing

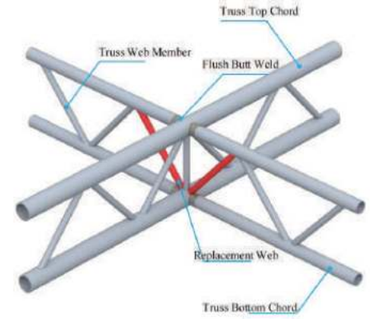
nstructions:

1. H-section Bottom Chord Joint Construction Procedure:Hoisting the Bottom Chord Joint→Aligning and Checking the Bottom Chord Joint→Fixing the Installation Clamps→ Welding the Joint→Removing the Installation Clamps.
2.Welding with ignition plates ensures the quality of the finished weld meets the specifications and design requirements.
3.Grind the installation clamps after removal to eliminate burns and residues without damaging the wood.

1.5Pipe Truss Top And Bottom Chord Node



Pipe Truss Node Isometric Drawing



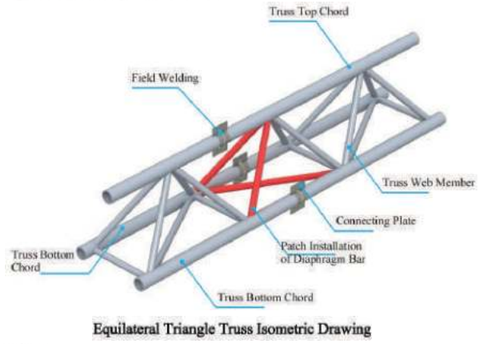
Cross-braced Pipe Truss Node Isometric Drawing

nstructions:

1.Both top and bottom chord tubes are formed using bending machines to ensure the smoothness of the steel tube curves; all intermediate web member centerlines are cut using fully automatic centerline cutti ng machines, resulting in smooth weld joints.
2.Welding sequence has a significant impact on welding deformation and post-weld residual stress. To minimize structural deformation and post-weld residual stress, structural welds should be designed ratio nally, ensuring that the heat-affected zone is symmetrical and evenly distributed throughout the entire plane. This prevents distortion and excessive post-weld residual stress due to uneven heating. The follow ing principles should guide the selection of welding sequence:a. Weld seams with larger shrinkage should be welded first. b. Employ symmetrical welding. c. For long welds, the welding sequence should be

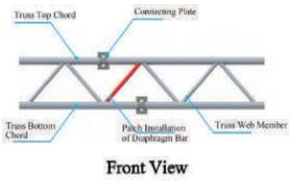
Section 2: Triangular Trusses

2.1Equilateral Triangle Truss Node



Equilateral Triangle Truss Isometric Drawing

Left-side View

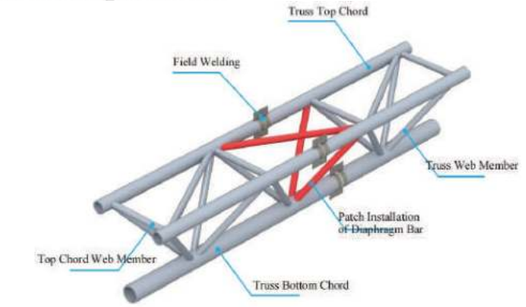


Front View

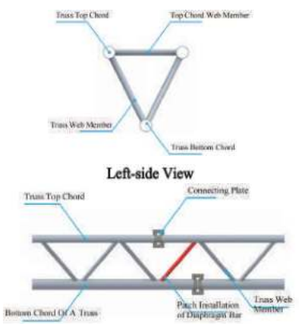
nstructions:

1 During assembly, first position the two steel tubes of the bottom chord of the truss, and then connect and fix them with the connecting steel plates and steel tubes between the st eel tubes. Then, assemble the top chord rods and the space web rods between the top and bottom chords. When assembling, do not force the position and modify the rods. The posi tioning welds should be implemented as spot welds within the transition zone of the rods to facilitate rod disassembly and reduce the impact on the bevels of the intersecting faces.
2. Horizontal and lateral web members can be gradually positioned during adjustment. During adjustment, first use a laser transit level supplemented by a steel tape measure to adj ust and fix the planar projection coordinate position, then use a water level instrument to control the adjustment of the height difference of each control node according to the coor dinate height, and then use scribing, positioning templates, and intersecting faces to determine the node position. Repeat this process to adjust each control node to accuracy, and t hen fix it with spot welds. After the spot-welded positioning nodes are rechecked for correctness, formal welding can be carried out.

2.2Inverted Triangular Truss Node



Inverted Triangular Truss Node Diagram



Front View

nstructions:

1.Inverted Triangular Truss Node Construction Procedure: Top and Bottom Chord Rod Installation→Alignment and Positioning→Welding Top and Bottom Chord Truss→Web Member Installation→Horse Removal
2.In a construction area, once the structural frame has been formed, a comprehensive adjustment process is undertaken to ensure that the top and bottom chord rods meet the specified standards in terms of horizontal devi ation and elevation control. This adjustment process entails meticulous attention to detail and precise measurements to guarantee the structural integrity and accuracy of the frame.
3.Upon completion of welding, a comprehensive measurement and data recording process is undertaken for each structural component. This meticulous procedure ensures that accurate real-world data is captured and util ized to inform the pre-control data for the subsequent component installation.
4.Steel pipe components should be designed and constructed with measures to prevent water from entering and accumulating inside the pipes.

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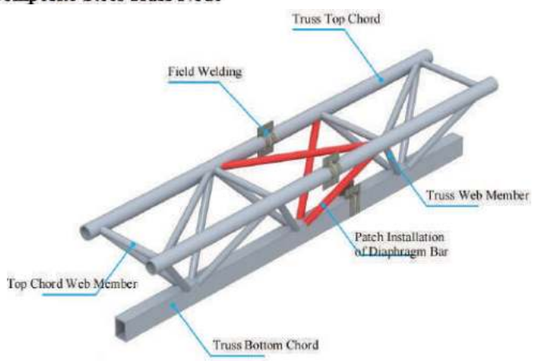
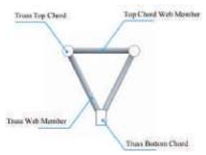
Chapter 3: Truss Structures

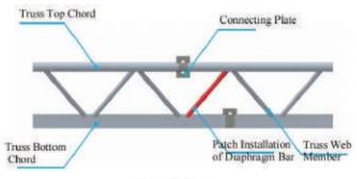
2.3Composite Steel Truss Node



Composite Steel Truss Node Diagram



Left-side View



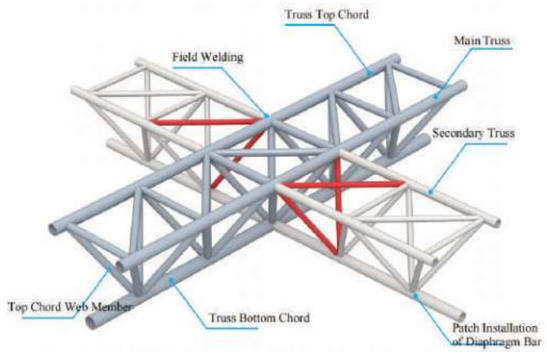
Front View

nstructions:

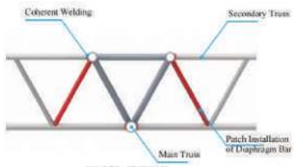
1.Key Steps in the Construction Procedure：Top and Bottom Chord Rod Installation and Positioning→Welding Top and Bottom Chord Truss→Web Member Installation→Horse Removal 2.Crack-free surfaces at intersecting node square tube ends

3.Develop a reasonable welding sequence for web members to ensure complete fusion and compliance with the design requirements for concealed welds.

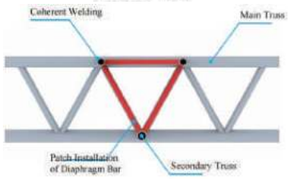
2.4Steel Pipe Triangular Truss Intersecting Node



Isometric Drawing of a Steel Pipe Triangular Truss Intersecting Node



Left-side View



Front View

nstructions:

1.Construction Procedure for Steel Pipe Composite Triangular Truss Intersecting Nodes：Main Truss Installation→Secondary Truss Positioning and Installation→Web Member Installation→Welding→Grinding and Rust Removal→Painting；

2.Upon the formation of the frame within a specific construction area, a comprehensive adjustment should be undertaken to address the horizontal deviation of the top and bottom chords, as well as the elevations of the control points, ensuring that they comply with the specified standards.

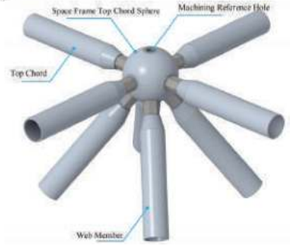
3.After welding is completed, a comprehensive measurement of the components should be conducted, and the actual unit data should be recorded to ensure the pre-control data for the installation of the next section of components.

4.Steel pipe components should be designed and constructed with measures to prevent water from entering and accumulating within the pipes.

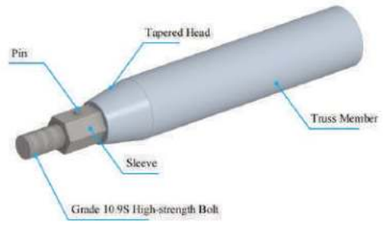
Chapter 4: Space Frame Structures

Section 1: Bolt-Ball Space Frames

1.1Top Chord Spherical Node



Top Chord Spherical Node Isometric Drawing



Truss Member Detail Drawing (1)

nstructions:

1.Bolted Sphere Truss Erection Procedure:Scaffolding or Ground Assembly→Line Positioning→Lower Chord Ball and Rod Assembly→Web Member Assembly→Upper Chord Ball and Rod Assembly

2.When connecting ball joints, small rods are connected manually, while large rods are connected with mechanical assistance such as slings or cranes.

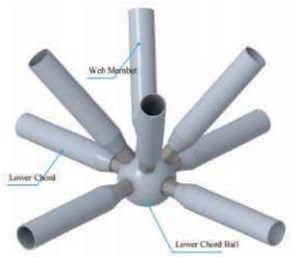
3.For trusses with pre-cambering requirements, steel pipes of different heights should be used at each support point to meet the pre-cambering requirements.

4.Upon completion of the overall assembly of the bolted sphere truss, the high-strength bolts and ball nodes should be securely connected, There should be no gaps, looseness, or other untightened conditions at the connection points.

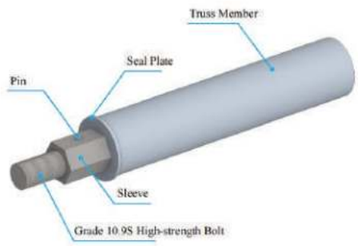
5.All seams in bolted ball joints should be tightly filled with caulking compound, and any excess screw holes should be sealed.

6.During both the construction and usage phases of a truss structure, direct loading on the truss members should be avoided, and the truss members should not be subjected to shear stress.

1.2Lower Chord Ball Node



Lower Chord Ball Node Isometric Drawing



Truss Member Detail Drawing (2)

nstructions:

1.Bolted Ball Truss Erection Procedure:Scaffolding or Ground Assembly→Line Positioning→Lower Chord Ball and Lower Chord Rod Assembly→Web Rod Assembly→Upper Chord Ball and Upper Chord Rod Assembly

2.When connecting ball-joint members, small members are manually connected, while large members are assisted by mechanical means such as chain hoists or cranes.

3.For trusses with a pre-camber requirement, different height steel pipes should be used at each support point to achieve the desired camber.

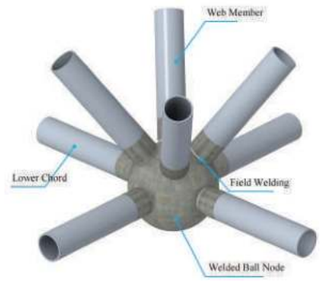
4.Upon completion of the overall assembly of bolted ball trusses, high-strength bolts and ball nodes should be firmly connected. There should be no gaps, looseness, or other signs of incomplete tightening at the connection points.

5.All joints in bolted ball nodes should be tightly filled with caulking compound, and any excess holes should be sealed.

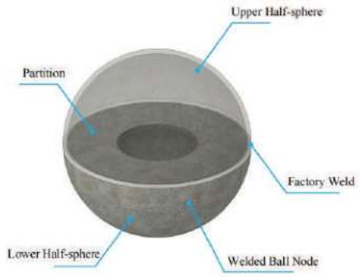
6.During the construction and use phases of trusses, direct loading on the members should be avoided, and the members should not be subjected to shear stress.

Section 2: Welded Ball Trusses

2.1Upright Quadrangular Pyramid Welded Ball Node



Axonometric Drawing of an Upright Quadrangular Pyramid Welded Ball Node



Welded Sphere Detailed Drawing

nstructions:

1.Erection Procedure for Welded Sphere Truss Structures:Scaffolding or Ground Assembly→Line Positioning→Lower Chord Assembly→Web Member Assembly→Upper Chord Assembly

2.During the splicing of sphere truss members, small members are manually positioned and fixed using tack welds, while large members are assisted by mechanical means such as chain hoists and cranes.

3.For lattice structures with pre-cambering requirements, steel pipes of different heights should be used at each support point to achieve the pre-cambering requirements.

4.Prior to Welding Sphere Truss Structures Mastering Welding Deformation and Shrinkage, After the complete assembly of the welded sphere truss structure, The deviation between the center of the sphere and the individual members should not exceed 2 millimeters.

5.The quality grade of the weld shall meet the relevant requirements of the design.

6.During both the construction and usage phases of sphere truss structures, direct loading on the members should be avoided, and the members should not be subjected to shear stresses.

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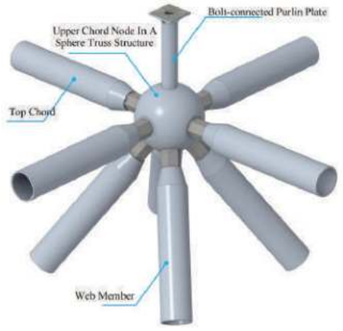
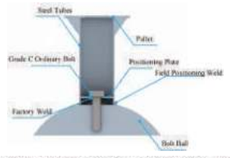
Chapter 4: Space Frame Structures

Section 3: Purlin Supports For Sphere Truss Structures

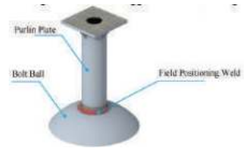
3.1Bolt-connected Purlin-to-node Joints In Sphere Truss Structures



Bolt-connected Spherical Purlin support assembly Detail Drawing



Bolt-connected Spherical Purlin Support Detail Drawing

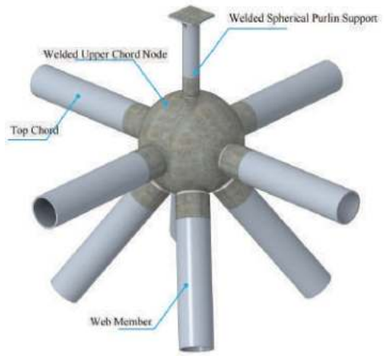


Purlin Support Axonometric Drawing

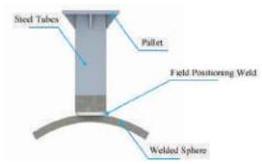
nstructions:

1. Bolt-Connected Spherical Purlin Support Installation Procedure:a. Verify Truss Slope b. Layout and Positioning c. Secure Purlin Supports
2. Bolt-connected spherical purlin supports utilize standard bolts to secure the purlins
3. Upon completion of purlin support installation, verify the purlin support coordinates and slope, and promptly apply touch-up paint.
4. Bolt threads are protected using wrapping tape or dedicated sleeves.
5. Structural slope should be determined through the design of the frame structure, and it is not advisable to find the slope through the support. When the slope is small, it is appropriate to consider finding the slope through the support.

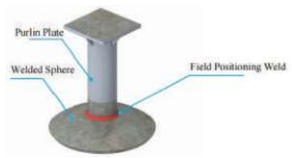
3.2Welded Spherical Purlin Support Connection Node



Isometric Drawing of Welded Spherical Purlin Support Connection Node



Detailed Drawing of Welded Spherical Purlin Support



Isometric Drawing of Purlin Support Installation

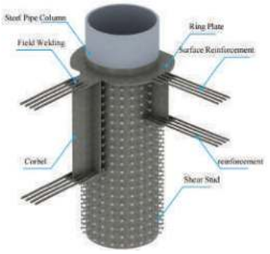
nstructions:

1.Construction Procedure for Welded Spherical Purlin Supports:Verify Frame Slope→Layout and Positioning→Temporary Tack Welding→Final Welding
2.Prior to Final Welding, Verify Purlin Support Coordinates and Slope Direction.
3.Welding of Purlin Supports，Sequential Welding from Center to Sides，Minimize Welding Deformation，Prompt Application of Paint after Welding.
4.The slope of the structure should be designed through the net frame structure, it is not suitable to find the slope through the support, when the slope is small can be properly considered through the support to find the slope.

Chapter 5: Stiffened Structures

Section 1: Stiffened Columns

1.1Steel Pipe Column Reinforced Concrete Node



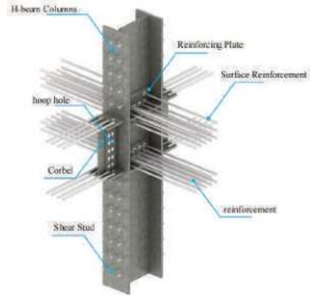
Steel Pipe Column-Reinforced Concrete Beam Connection Node

Steel Pipe Column Grouting Hole and Overflow Hole

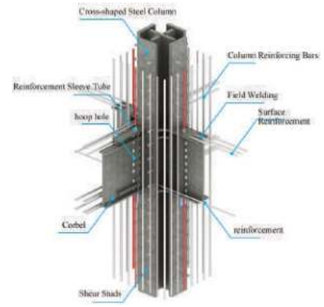
nstructions:

1. Steel sleeve couplings are used to connect steel bars and have internal threads that match the threads of the bar ends. For the connection of concrete beam reinforcement to steel columns, it is recommended to design o ne end to be welded and the other end to be connected with a sleeve coupling.
2. When connecting steel bars to steel columns using sleeve couplings, the ends of the steel bars are processed into straight threads using rolling technology. The thread direction and spacing of the straight threads of the s teel bars should be consistent with the thread parameters of the sleeve couplings. The steel bars are then welded to the steel columns on site, and the sleeve couplings are tightened to complete the connection.
3. Straight Thread Rolling Connection Process for Steel Bars：Steel Bar Cutting→Thread Rolling→Thread Inspection→On-site Thread Connection
4. Grouting holes are used to inject concrete into the interior of steel pipe columns. During the concrete pouring process, these holes also serve to expel air and excess grout from the enclosed space within the column. The se holes are commonly referred to as "Overflow Hole"：The diameter of the grouting holes should be larger than the outer diameter of the grouting pipe；Vent holes are typically spaced 2 to 4 around the circumference of the column and are positioned at the corners；Overflow Hole must be set at each floor slab.

1.2Steel Beam-Reinforced Concrete Column Connection Node



H-beam Column Reinforcement Connection Node

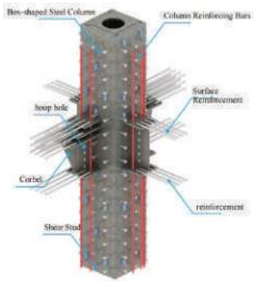


Cruciform Steel Column Reinforcement Connection Node

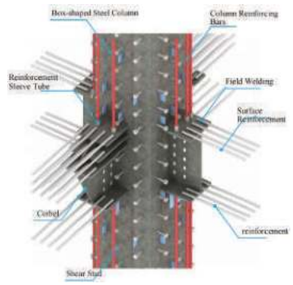
nstructions:

1. For steel columns with openings, where reinforcing bars pass through beam-column joints, if the opening section loss reaches or exceeds 20%, the opening area needs to be reinforced; the proportion of broken colu mn reinforcement should not exceed 50%.
2. One method to reinforce the weakened area around the opening is to weld steel plates onto the column.
3. Alternatively, a sleeve can be welded onto the steel column, and the sleeve can be connected to the reinforcing bars.
4. When connecting reinforcing bars to steel columns using sleeves, the ends of the reinforcing bars are processed into straight threads using a rolling process. The direction and spacing of the straight threads on the re inforcing bars should be consistent with the thread parameters of the sleeve. The reinforcing bars are then welded to the steel column on site and the sleeve is tightened to complete the connection.

1.3Box-shaped Column Reinforcement Connection Node



Box-shaped Column Reinforcement Connection Node



Isometric Drawing

nstructions:

1. Openings in steel columns，Reinforcement passing through beam-column joints，If the loss of cross-sectional area at the opening reaches or exceeds 20% then，The opening must be reinforced, the p roportion of broken reinforcing bars in the column should not exceed 50%.
2. Reinforcement of weakened areas around openings can be achieved by welding steel plates.
3. Alternatively, reinforcement can be achieved by welding sleeves onto the steel column and connecting the sleeves to the reinforcing bars;
4. When connecting reinforcing bars to steel columns using sleeves, the ends of the reinforcing bars shall be processed into straight threads using a rolling process. The direction and spacing of the straight threads on the reinforcing bars shall be consistent with the thread parameters of the sleeves. The reinforcing bars shall be connected to the sleeves by welding and tightening the connection on site.

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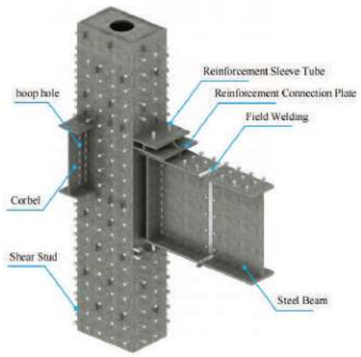
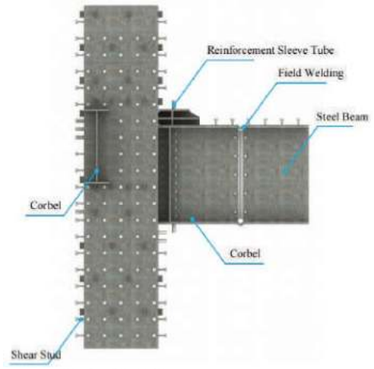
Chapter 5: Stiffened Structures

Section 2: Rigid Beam-Column Joints

2.1Welded Beam-column Node



Welded Beam-to-column Connection Node

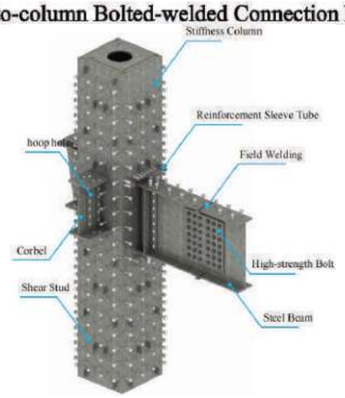


Left-side View

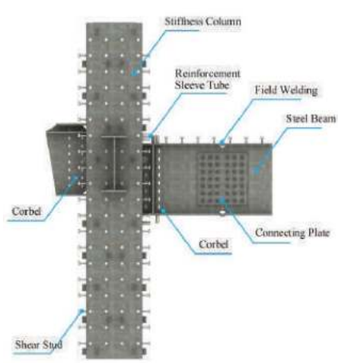
nstructions:

1.Temporary connection plates must be installed on the steel columns in advance.
2.Adjust the verticality and position of the columns, and temporarily fix them with bolts.
3.Employ symmetric welding and conduct weld inspection after welding.
4.Cut off the temporary connection plates.
5.When using sleeve connections, the ends of the rebar are processed into straight threads using a rolling process. The direction and spacing of the straight threads of the rebar should be consistent with the parameters of the sleeve threads. The rebar is welded on site and the sleeve is tightened to connect with the steel column.

2.2Beam-to-column Bolted-welded Connection Node



Beam-to-column Bolted-welded Connection Node



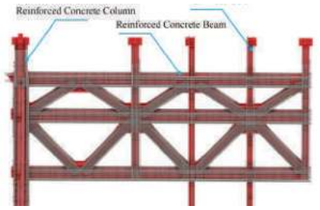
Left-side View

nstructions:

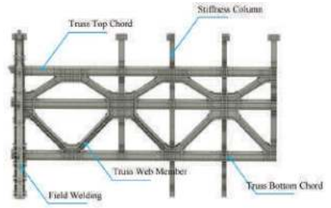
1.Bolted-welded joints are widely used nodes in steel structures, offering the advantages of easy installation and good load-bearing capacity.
2.Construction sequence: bolt connection first, followed by welding.
3.The construction sequence for high-strength bolts should follow a pattern from the center of the web outward to minimize additional stress.
4.For symmetrical welding, a backing plate should be installed to prevent arc strike.
5.When using sleeve connectors, the ends of the reinforcement bars are processed into straight threads using a rolling process. The direction and spacing of the straight threads on the reinforcement bars should be consistent with the parameters of the sleeve threads. The reinforcement bars are welded to the sleeves on site and tightened.

Section 3: Stiff Truss

3.1Stiff Truss Installation Node



Rigid Truss Installation Node



Truss Detail Drawing

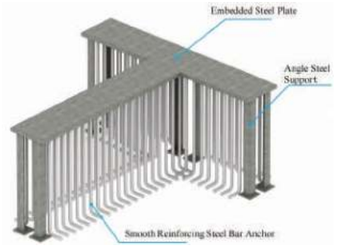
nstructions:

1.Rigid Truss Construction Sequence：Steel Truss Erection，Outer Reinforcement Installation，Formwork Installation，Concrete Pouring，Formwork Removal，Finishing and Inspection.
2.Ensuring Structural Stability During Rigid Steel Truss Installation.
3.Pay attention to welding sequence, weld symmetrically to reduce residual stress
4.Reinforcement connection if an opening is needed in a steel truss, reinforce the opening area.
5.Design camber for steel truss installation. When there are no specific design requirements, use the values specified in the relevant codes and standards. Typically ranges from 1‰to 3‰

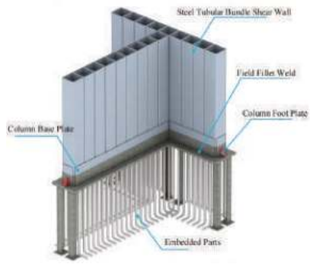
Chapter 6: Prefabricated Structures

Section 1: Steel Tubular Structures

1.1Embedded Part Shop Drawing



Embedded Part Detail Isometric Drawing

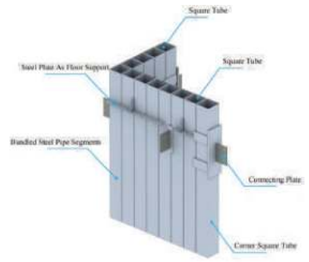


Steel Tubular Bundle Column Base Shop Detail Drawing

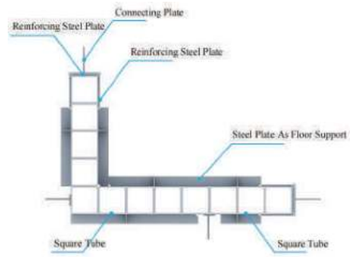
nstructions:

1.Embedded Part Installation Procedure：Substrate Cleaning→Line Marking→Reinforcement Bar Tying→Embedded Part Placement and Adjustment→Elevation and Axisline Adjustment→Embedded Part Securing→Embedded Part Protection→Installation Quality Inspection
2.Spot Welding Rebar Intersections at Embedded Part Locations，connecting the anchor bolts (which can be made from straight rebar, channel steel, or angle steel) to the bottom reinforcing steel bars of the raft slab foundation using short lengths of reinforcing steel bars.
3.Bend Anchor Bolt Hooks Upward to Avoid Interference with Embedded Part Placement
4.For Excessively Long Embedded Steel Plates, Reinforcing Plates Can Be Added at the Bottom During Factory Installation to Prevent Deformation
5.Recommendation for Pre-fabrication of Embedded Parts and Steel Tube Bundles to Minimize Field Welding of Column Base Joints.

1.2Continuous Square Tube Shear Wall Connection Node



Isometric Drawing of A Shear Wall Constructed with Continuous Square Tubes



Top View

nstructions:

1.Steel Pipe Bundle Construction Procedure:Cleaning of Embedded Parts→Welding of Positioning Plates→Hoisting and Positioning of First Vertical Components→Installation of Steel Beams→Measurement, Alignment, and Correction of Installed Components→Tightening of High-Strength Bolts→Welding of Components
2.Due to their composition of square tubes and U-shaped steel, steel pipe bundle components are often subject to positive deviations caused by welding. This means that the actual dimensions of the components after welding may be slightly larger than the nominal dimensions specified in the design drawings. To ensure proper fit and alignment, it is crucial to adjust the length of the steel beams based on the actual dimensions of the steel pipe bundle components after they have been processed and welded.

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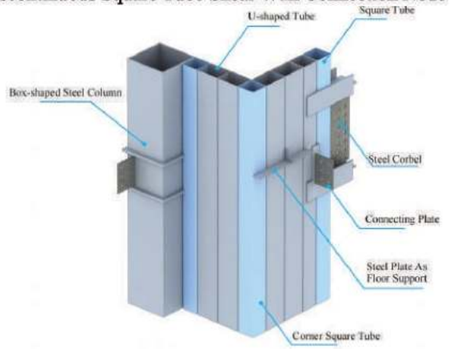
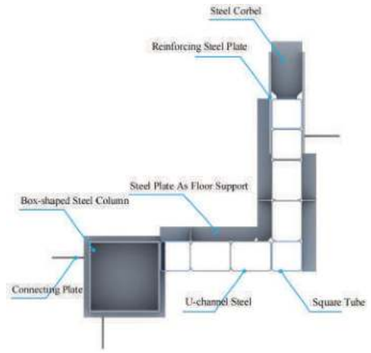
Chapter 6: Prefabricated Structures

Section 1: Steel Tubular Structures

1.3Discontinuous Square Tube Shear Wall Connection Node



Discontinuous Square Tube Shear Wall Isometric Drawing



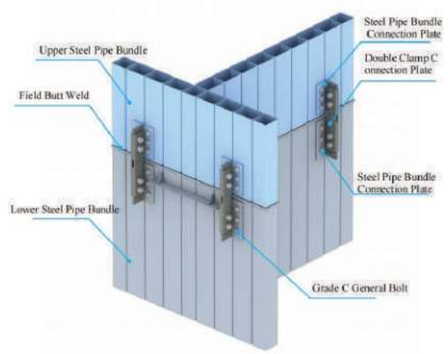
Top View

nstructions:

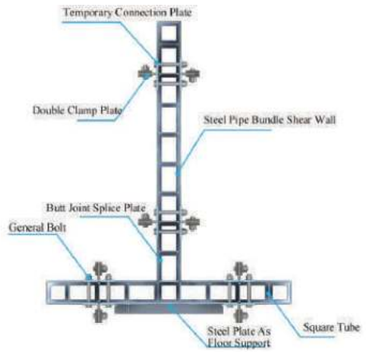
1.Discontinuous Square Tube Shear Wall Axonometric Drawing：Clearing of Embedded Parts→Line and Chalk Marking→Welding o f Positioning Plates→Hoisting and Positioning of First Vertical Components (Steel Pipe Bundle Walls, Box Columns)→Steel Beam Ins tallation→Measurement and Correction of Component Installation→High-Strength Bolt Tightening→Component Welding

2.As the steel tube bundle members are composed of square tubes and U-beams, there is usually a positive deviation due to welding, an d the length of the steel beams needs to be adjusted according to the actual size of the steel tube bundles after processing is completed.

1.4Steel Pipe Bundle Shear Wall Butt Connection Node



Steel Pipe Bundle Shear Wall Butt Node Isometric Drawing



Top View

nstructions:

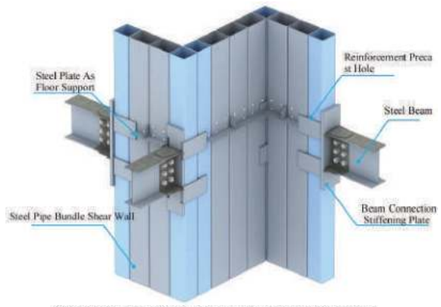
1.Steel Pipe Bundle Construction Procedure:Pre-embedded Component Cleaning→Line and Chalk Marking→Positioning Plate Welding→First Vertical Component Erection→Steel Beam Installation→Component Installation Me asurement and Adjustment→High-Strength Bolt Tightening→Component Welding

2.When arranging the ear plate, at least one pair of ear plates shall be arranged for each wall limb. Removable earplates should be arranged in the vertical ribs of the steel pipe bundle. When the steel pipe bundle is composed of not less than three steel pipe, the first ear plate should be arranged from the edge of the second and the third steel pipe between the vertical ribs.

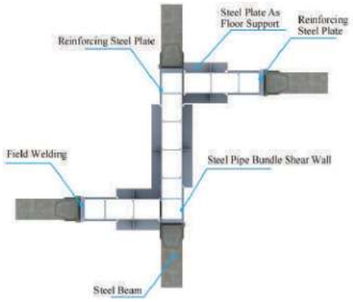
3.When pouring concrete in the lower section of the bundle, measures should be taken to reduce the concrete bonded on the screw. After the welding of horizontal weld of steel pipe bundle is completed and before pouring concrete in the upper section of the bundle, the construction personnel should be arranged to remove the removable ear plate. After the removal of the ear plate, the screw hole should be grouted in a timely manner.

4.In case of verticality deviation, a yard plate for jacking force can be welded to each of the members of this and the next section at the same elevation from the appropriate position of the buttressing surface, and the angle gap between the upper and lower members can be adjusted with the jack until the verticality deviation is within the range of the locking jack, and then the wind rope can be stabilised by pulling the cable. The verticality and tip position deviation is then adjusted to within the permissible range by means of a hoist at the bottom of the cable in another axial plane perpendicular to the plane.

1.5Steel Pipe Bundle to Steel Beam Connection Node



Steel Pipe Bundle to Steel Beam Connection Node Detail Drawing



Top View

nstructions:

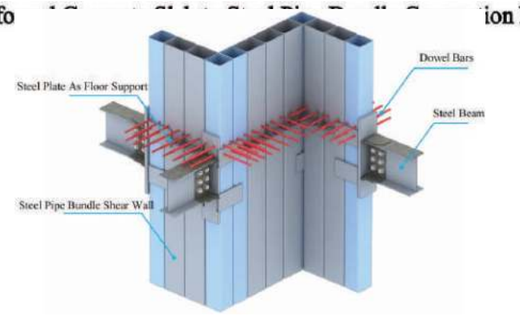
1.Steel Pipe Bundle Construction Procedure:Clean Embedded Parts→Line and Mark→Weld Positioning Plates→Hoist and Position First Vertical Member (Steel Pipe B undle Wall or Box Column)→Install Steel Beams→Measure, Align, and Adjust Components→Tighten High-Strength Bolts→Weld Components

2.Once the steel pipe bundles and steel beams within an installation section have been installed, overall measurement and correction of the steel pipe bundles shall be perf ormed. For any local dimensional deviations, use cable stays or jacks for correction.

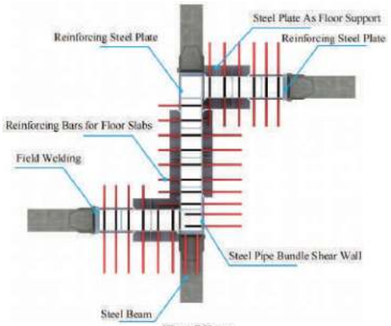
3.The steel beams of the bolted connection nodes are fastened in the order of initial screwing, then welding and finally final screwing.

4.Steel beam welding should proceed from the center of each building towards both sides. When welding the root welds of the steel pipe bundle bases, two welders shoul d be arranged to weld symmetrically on both sides to prevent displacement and deformation of the pipe bundle due to thermal expansion and contraction of the welds.

1.6Reinfo ion Node



Isometric Drawing of Reinforced Concrete Slab to Steel Pipe Bundle Connection Node



Top View

nstructions:

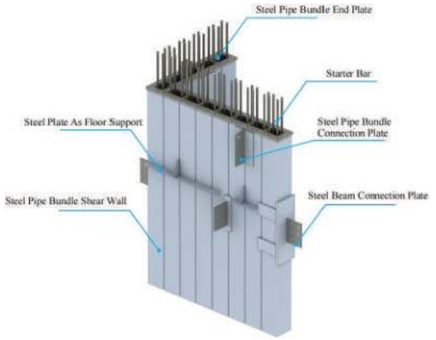
1.Reinforcing bars are inserted into the floor slab after the installation of the steel truss floor slabs is complete, prior to the pouring of steel pipe bundle concrete.

2.Beam-to-floor slab steel truss connections are made using spot welds. At drop slab or steel pipe bundle wall locations, the steel trusses are connected to the support plates using spot welds.

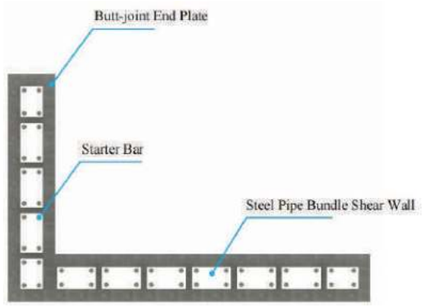
3.At the intersection of the steel truss floor slabs and steel columns, angle steels should be welded to the sides of the columns to support the formwork and prevent leakage of concrete slurry.

4.Steel truss floor slabs are installed according to the design drawings. The steel trusses are welded to the steel beams, and the galvanized steel plates overlap the main beams by 30mm. The galvanized steel plates are then spot welded to the steel beams with a spacing of 300mm to prevent leakage of concrete slurry.

1.7Internal Concrete-filled Connection Node



Internal Concrete-filled Connection Node Isometric Drawing



Top View

nstructions:

1.Ensure the verticality of the embedded reinforcement during concrete pouring of steel pipe bundles to avoid affecting the installation of the next section of steel pipe bundles.

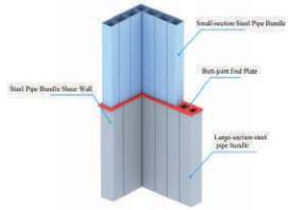
2.After concrete pouring for steel pipe bundles, clean up the excess concrete on the end plates and cavities of the steel pipe bundles to avoid affecting the welding quality of the n ext section of steel pipe bundles.

3.Self-compacting concrete is generally used for pouring steel pipe bundles. In order to prevent the formation of voids inside the steel pipe bundles, the side walls of the steel pip e bundles need to be vibrated during the pouring process.

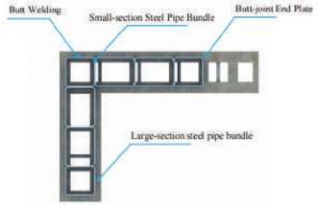
3D IMAGE COLLECTION
三维图集

Chapter 6: Prefabricated Structures

1.8Steel Pipe Bundle Variable Section Connection Node



Steel Pipe Bundle Variable Section Connection Node Isometric Drawing



Top View

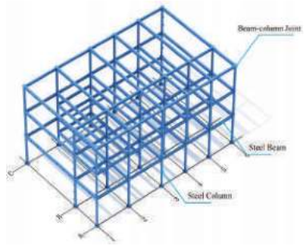
nstructions:

1.Steel pipe bundle variable section joints can be assembled by butt-joint welding in the factory or on-site.

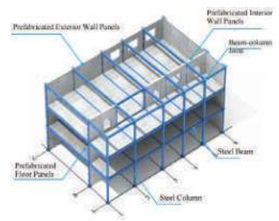
2.When butt-welding on-site, the positioning line of the previous steel pipe bundle should be marked on the butt-joint end plate of the next section steel pipe bundle. The key points of control during steel pipe bundle installation are verticality and positioning.

Section 2: Steel Plate Composite System

2.1Steel Plate Frame System Model

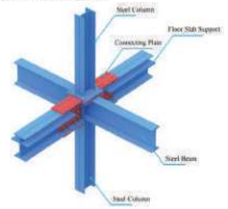


Steel Plate Frame System Isometric Drawing

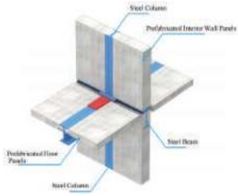


Steel Plate Frame System and Slab Isometric Drawing

2.2Compound Node Construction Method

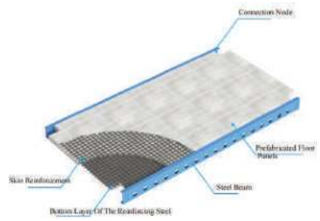


Steel Plate Frame System Node Isometric Drawing

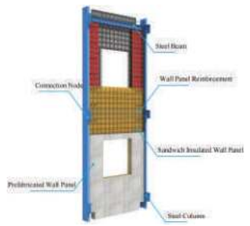


Steel Plate Frame System and Slab Node Isometric Drawing

2.3Prefabricated Slab Detail Drawing



Prefabricated Floor Slab Detail Drawing

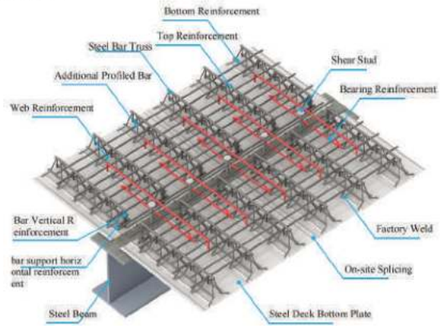


Prefabricated Wall Panel Detail Drawing

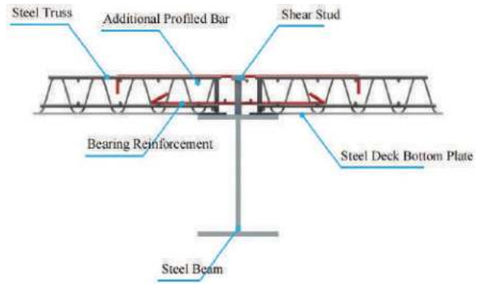
Chapter 7: Steel Structure Floor System

Section 1: Reinforced Concrete Girder Floor Slabs

1.1Beam Splice Node



Beam-to-beam Connection Detail Drawing



Left-side View

nstructions:

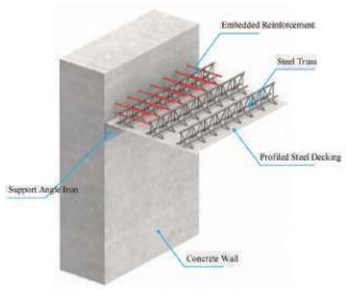
1.For lapped purlin composite beams, the supporting length of the lapped steel beam should not be less than 75mm, and the supporting length of the lapped concrete beam should not be less than 100mm.

2.For lapped purlin intermediate beams, the supporting length of the lapped steel beam should not be less than 50mm, and the supporting length of the lapped concrete beam should not be less than 75mm.

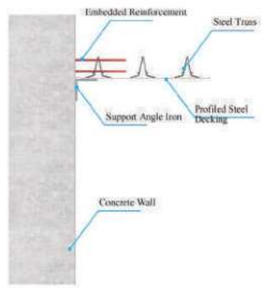
3.Profiled steel decking shall be fixed to steel beams by spot welding, with at least one spot weld per trough.For continuous panels connected to intermediate support steel beams, the number of spot welds may be reduced appropriately, but there should be at least two spot welds per panel.

4.The distance from the center of the stud to the side of the upper flange of the steel beam or the side of the embedded part shall not be less than 35 mm. The distance from the center of the stud to the side of the upper flange of the concrete beam with embedded parts shall not be less than 60 mm.

1.2Concrete Shear Wall Connection Node



Concrete Shear Wall Connection Node Detail Drawing



Left-side View

nstructions:

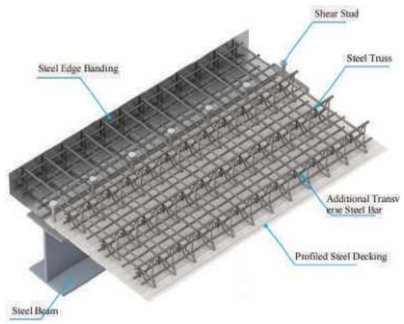
1.When composite slabs are supported on the side of shear walls, it is advisable to embed reinforcing bars in the shear walls and connect them to the composite slabs.

2.Expansion bolts should not be used to fix anchorages on the sides of shear walls. Anchorages can be pre-embedded and fixed by welding.

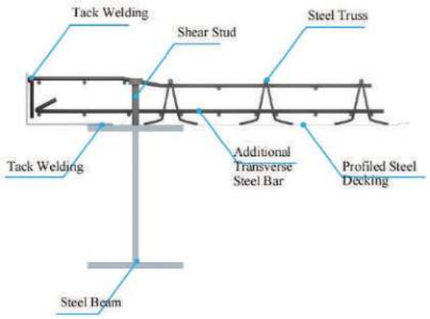
3.Angle steel should not be smaller than L70×5, and the weld height should not be less than 5mm.

4.Construction Sequence:Reinforcement Binding for Shear Walls→Installation of Embedded Plates→Concrete Pouring for Shear Walls→Angle Steel Installation→Floor Slab Placement→Welding of Shear Connectors→Reinforcement Binding for Other Structural Elements.

1.3Cantilever Node



Cantilever Node Detail Drawing



Left-side View

nstructions:

1.For permanent loads less than 3kN/m² during the construction phase, the thickness of the edge banding steel plate (Q235) is as follows:Cantilever length a ≤ 80mm, plate thickness t = 1.2mm; 80 < a ≤ 120mm, t = 1.5mm; 120 < a ≤ 180mm, t = 2mm; 180 < a ≤ 250mm, t = 2.6mm.

2.The lap length of the edge banding steel plate and the top flange of the steel beam shall not be less than 50mm. Intermittent fillet welds with a length of 25mm and a spacing of 300mm shall be used.

3.When the corrugated steel sheet is cantilevered, the edge banding is vertically attached to the web of the beam. The edge banding plate is welded to the corrugated steel sheet for fixation, and the weld length is greater than 25mm per wave.

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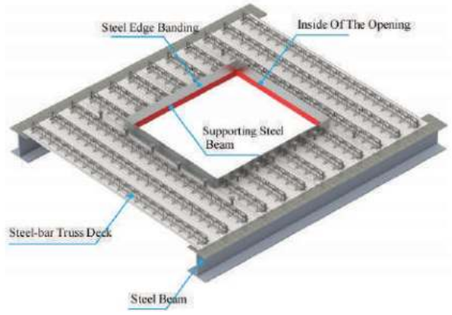
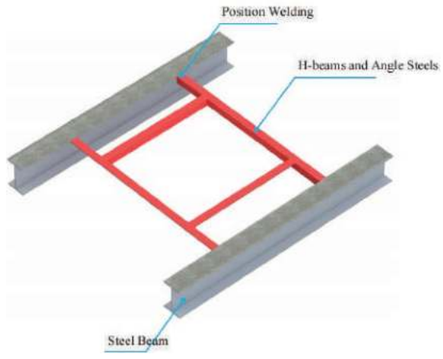
Chapter 7: Steel Structure Floor System

1.4Hole Node



Hole Node Detail Drawing

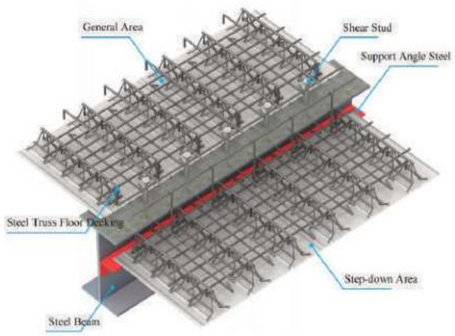


Hole Node Detail Drawing

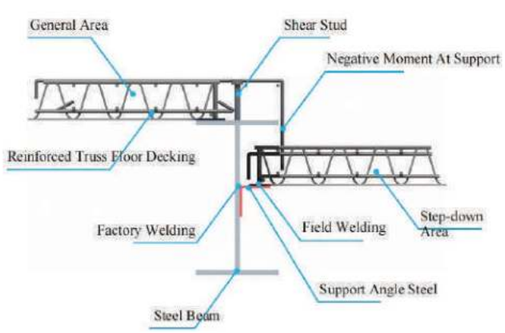
nstructions:

1.For circular openings or rectangular openings with side lengths not exceeding 300mm in composite slabs, no reinforcement measures are required.
2.For openings larger than 300mm in composite slabs, effective reinforcement measures should be implemented. Steel channels or angle steels can be added along the longitudinal and transverse ribs for connection.
3.The spacing of shear studs welded along the longitudinal ribs shall not exceed 300mm, and at least one shear stud shall be welded in each groove of the transverse ribs.
4.translates to "Construction Procedure: Layout and Marking → Installation of Steel Channels or Angle Steels → Erection of Galvanized Formwork Panels → Laying of Floor Decking → Welding of Shear Studs → Binding of Reinforcing Bars

1.5Step-down Node



Step-down Node Detail Drawing

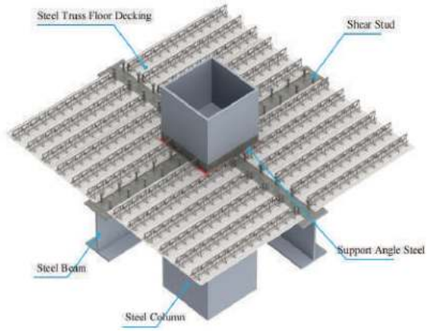


Left-side View

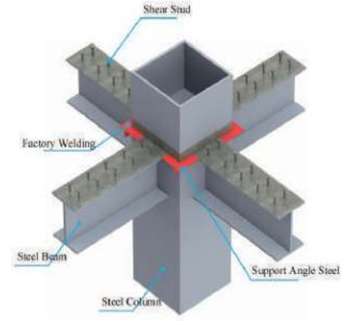
nstructions:

1.One end of the step-down is supported on the side of the steel beam. Angle steel can be welded on the web of the steel beam for treatment. The angle steel should not be less than L100×6, and the weld height should not be less than 6mm.
2.Both ends of the step-down are supported on the side of the steel beam. Gusset plates can be welded on the web of the steel beam for treatment. The gusset plates should extend 100mm beyond the top flange of the steel beam.

1.6Column-side Support Node



Column-side Support Node Detail Drawing



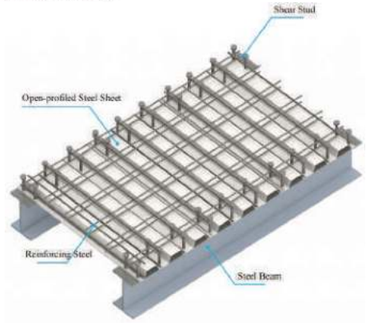
Angle Steel Support Detail Drawing

nstructions:

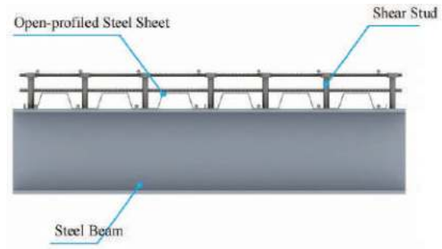
1.For composite slabs cut off at the intersection with a column and where the distance from the outer side of the top flange of the beam to the outer side of the colu mn is greater than 75mm, strengthening measures should be taken;
2.Strengthening measures can be implemented by welding angle steel supports to the column or the top flange of the beam. The minimum size of the supporting ang le steel should be L50 × 5;
3.When the column is an open section (such as an H-section), a horizontal stiffener can be set at the opening of the column section on the top flange of the beam;
4.Construction Procedure:Layout and Marking→Installation of Supporting Angle Steel→Laying of Floor Slabs→Welding of Stud Bolts→Reinforcement Tying

Section 2: Profiled Steel Sheet Floor Slabs

2.1Open-profiled Steel Sheet



Open-profiled Steel Sheet Detail Drawing

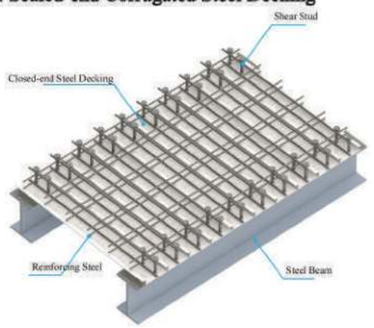


Left-side View

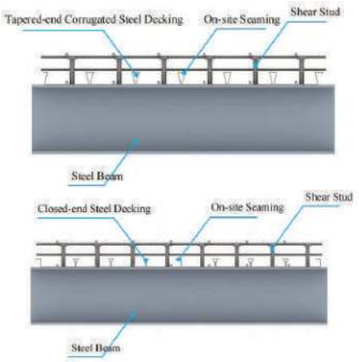
nstructions:

1.Primary Types of Open-profiled Steel Sheets:600，678，688，690，720，750，915，1025；
2.Open type pressure plate at the port should be blocked plate, so as to avoid pouring concrete into the openings from the bottom of the plate leakage of slurry, open type steel bearing plate and steel beams with a cavity between the need to do shoulder plugs to fill the cavity.

2.2Closed-end or Sealed-end Corrugated Steel Decking



Closed-end Corrugated Steel Decking Detail Drawing



Left-side View

nstructions:

1.Main Types of Closed-end (Tapered-end) Corrugated Steel Decking：510，555，720，762；
2.Closed-end (tapered-end) corrugated steel decking can completely replace the bottom layer of reinforcement, reducing the amount of on-site reinforcement fabrication, alleviating labor intensity, and accelerating construction speed.
3.Closed-end (tapered-end) corrugated steel decking should be strictly fabricated in the factory according to the design la yout and numbered according to the laying sequence to facilitate quick and accurate installation on site.

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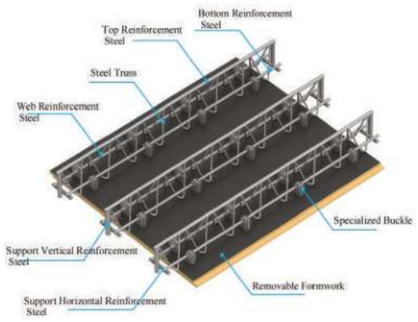
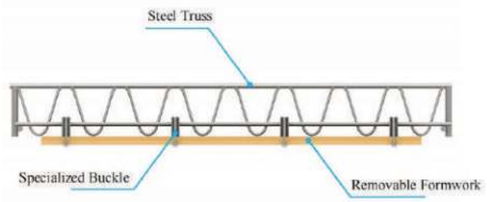
Chapter 7: Steel Structure Floor System

Section 3: Composite Deck

3.1Demountable Reinforced Steel Truss Floor Decking Shop Drawings



Demountable Reinforced Steel Truss Floor Decking Detail Drawing

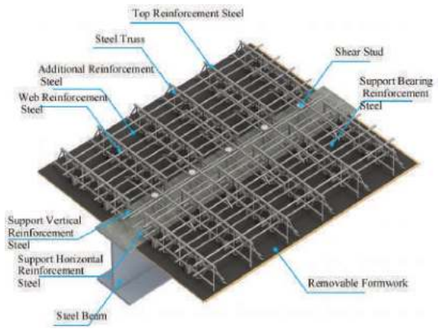


Front View

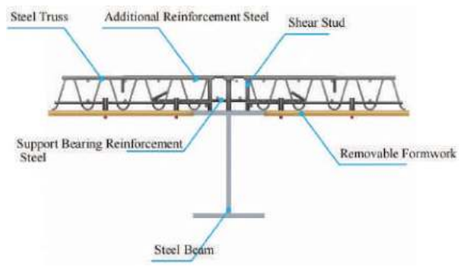
nstructions:

1.Formwork for removable steel truss floor slabs is primarily made of aluminum alloy formwork, bamboo or wooden plywood, and steel formwork.
2.Removable formwork steel truss floor slabs utilize specialized buckles to connect truss steel bars and modular formwork, with the trusses bearing construction loads. Once the concrete reaches the required strength, the formwork can be removed to complete the floor construction.

3.2Beam Splice Node



Beam Splice Node

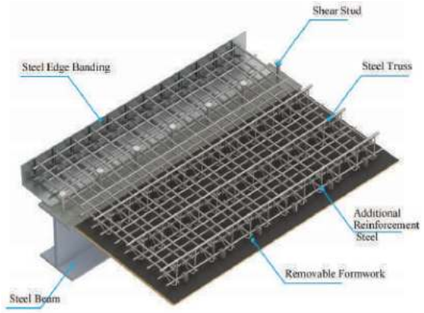


Left-side View

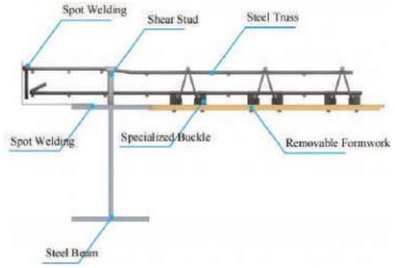
nstructions:

1.Steel beams and base plate gap processing principles: t ⩽ 5mm, filled with polyurethane foam; 5mm < t ⩽ 50mm, using 3mm or so galvanised steel or plywood pads put, and steel beams and base plate lap not less than 10mm; t > 50mm, re-processing of the base plate, the site and the alignment of the base plate and the addition of support measures.

3.3Cantilever Node



Cantilever Node

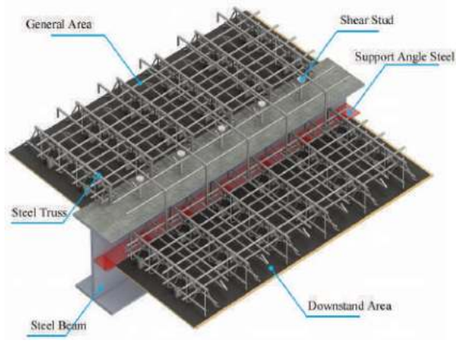


Left-side View

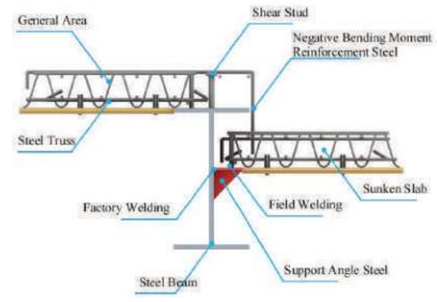
nstructions:

1.Edge banding should be made of galvanized steel plates with a thickness of approximately 3mm. If curtain wal l installation is required, it is recommended to use on-site wooden formwork for assembly to facilitate the install ation of prefabricated fasteners.
2.Refer to Chapter 7, Section 3.2.

3.4Downstand Node



Downstand Node

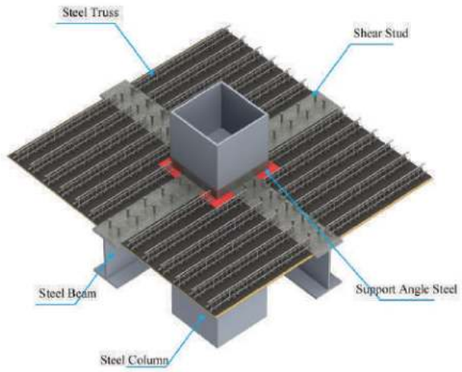


Left-side View

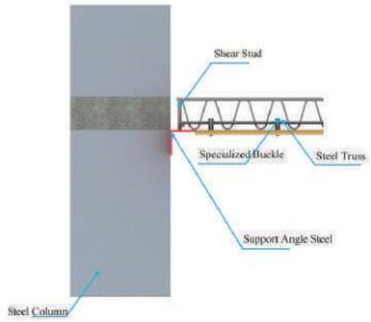
nstructions:

1.Drop-down support angle steel should be positioned and welded in the factory during the detailed design stage. The top surface and the are as of the steel beam web and flange plate that come into contact with concrete should not be painted or only sprayed with one coat of primer.
2.The same as Section 3.2 of Chapter 7

3.5Column-side Support Node



Column-side Support Node Detail Drawing



Left-side View

nstructions:

1.Column-side support angle steel should be positioned and welded in the factory during the detailed design stage.
2.The same as Section 3.2 of Chapter 7

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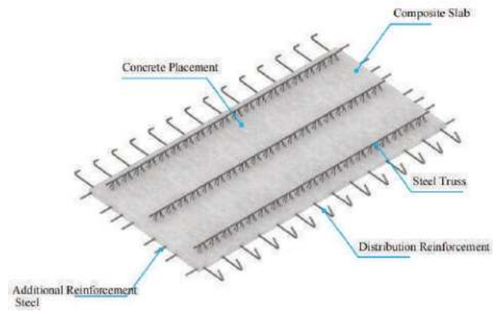
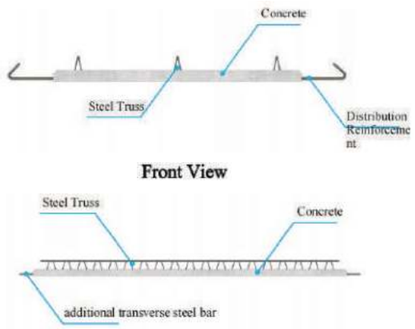
Chapter 7: Steel Structure Floor System

Section 4: Composite Slabs

4.1Composite Slab Construction



Composite Slab Construction Detail Drawing



Front View

Left-side View

nstructions:

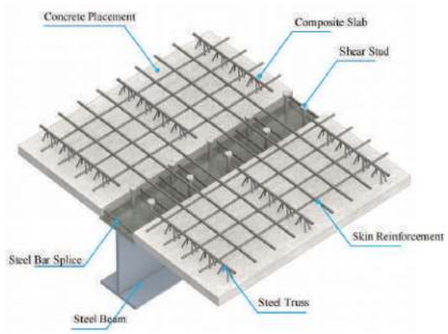
1.The thickness of the precast slab in a composite floor shall not be less than 60mm, and the thickness of the post-cast concrete composite layer shall not be less than 60mm.

2.For spans greater than 3m, it is recommended to use trussed reinforced concrete composite slabs.

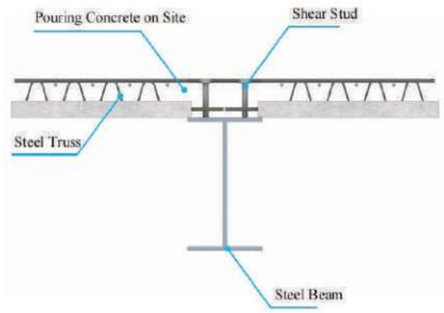
3.The bonding surface between the precast slab and the post-cast concrete composite layer should be roughened. The area of the roughened surface should not be less than 80 % of the bonding surface, and the depth of the unevenness of the roughened surface of the precast slab should not be less than 4mm.

4.The longitudinal reinforcement of precast components should be anchored straight in the post-cast concrete. When the straight anchorage length is insufficient, bending or mechanical anchorage methods can be used.

4.2Composite Slab Floor Steel Beam Splice Node



Composite Slab Construction Detail Drawing



Left-side View

nstructions:

1.The thickness of the precast slab in the composite floor should not be less than 60mm, and the thickness of the post-cast concrete composite layer should not be less than 60mm.

2.For spans greater than 3m, it is recommended to use a trussed reinforced concrete composite slab.

3.The bonding surface between the precast slab and the post-cast concrete composite layer should be roughened. The area of the roughened surface should not be less than 80% of t he bonding surface, and the depth of the unevenness of the roughened surface of the precast slab should not be less than 4mm.

4.The lap length of the composite slab on the steel beam should be strictly set according to the design requirements, and the minimum should not be less than 30mm.

Section 5: Floor Slab Construction Shoring

5.1Shoring Methods for Trussed Reinforced Concrete Composite Slabs and Corrugated Steel Decking with Spans Exceeding Design Limits

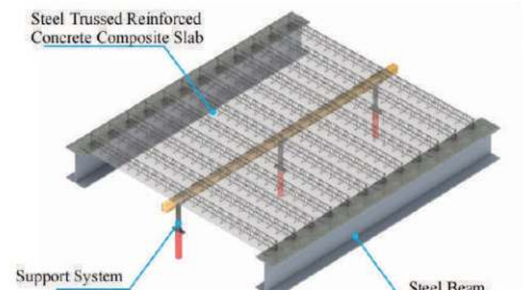
钢筋桁架楼承板			楼板厚度/mm	施工阶段楼承板允许跨度/m	
型号	钢筋规格组合编号	桁架高度/mm		简支板	连续板
HB1-70	1	70	100	1.9	2.6
HB1-80		80	110	2.0	2.6
HB1-90		90	120	2.1	2.8
HB2-100	2	100	130	3.3	3.8
HB2-110		110	140	3.4	3.8
HB2-120		120	150	3.6	4.0
HB2-130		130	160	3.7	4.0
HB3-140	3	140	170	3.8	4.0
HB3-150		150	180	3.8	4.2
HB3-160		160	190	3.9	4.2
HB4-120	4	120	150	3.8	4.8
HB4-130		130	160	4.0	4.8
HB4-140		140	170	4.1	5.0

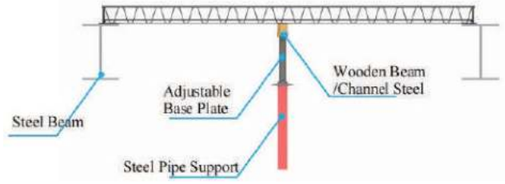
钢筋桁架楼承板			楼板厚度/mm	施工阶段楼承板允许跨度/m	
型号	钢筋规格组合编号	桁架高度/mm		简支板	连续板
HB5-150	5	150	180	4.2	5.0
HB5-160		160	190	4.2	5.2
HB5-170		170	200	4.4	5.2
HB6-150	6	150	180	4.4	5.0
HB6-160		160	190	4.4	5.2
HB6-170		170	200	4.4	5.2
HB7-190	7	190	220	4.8	5.4
HB7-210		210	240	4.9	5.4
HB7-230		230	260	5.1	5.6
HB8-240	8	240	270	5.2	5.4
HB8-260		260	290	5.3	5.6
HB8-270		270	300	5.4	5.6

注1：上、下弦钢筋采用 HRB400，腹杆钢筋采用性能等同 CRB550 的冷轧钢筋。

注2：施工阶段荷载包括标准值为 1.0 kN/m² 的施工活荷载与湿混凝土模板重量。

Allowable Spans for Floor Slabs During Construction Phase Table





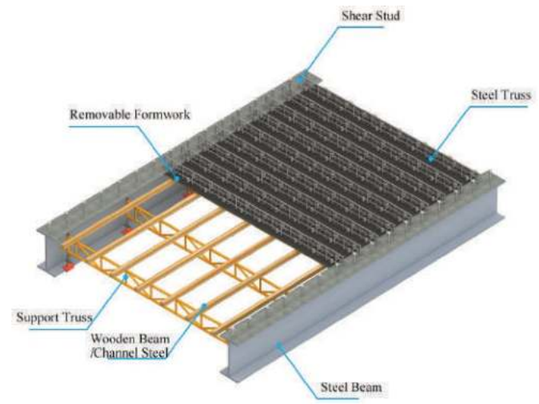
Examples Of Long-span Supports

nstructions:

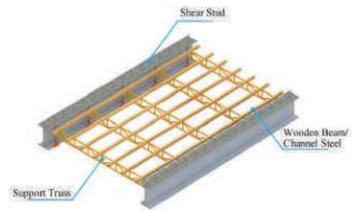
1.Seaffolding should be erected and reinforced at the bottom of the floor slab. The layout of the scaffol ding needs to be calculated and determined

2.The stability of the support system itself must be ensured by reliable horizontal connectors or braces.

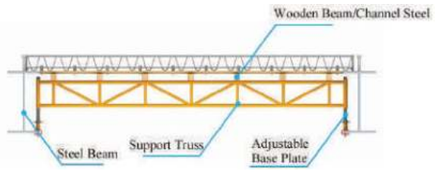
5.2Construction Method For Removable Truss Floor Slab Truss Support



Isometric Drawing Of The Construction Method For Removable Truss Floor Slab Truss Support



Perspective Drawing



Left-side View

nstructions:

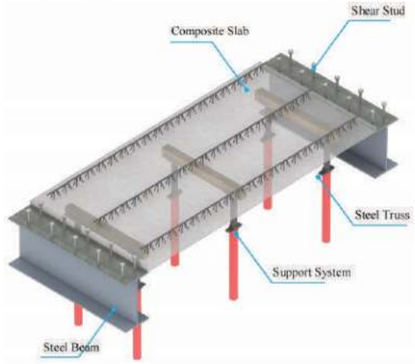
1.Truss supports should be installed under the floor slab. The spacing and specifications of the trusses shoul d be determined through calculations. The stability of the steel beam flanges should also be considered.

2.The stability of the support system itself must be ensured by reliable horizontal connectors or braces.

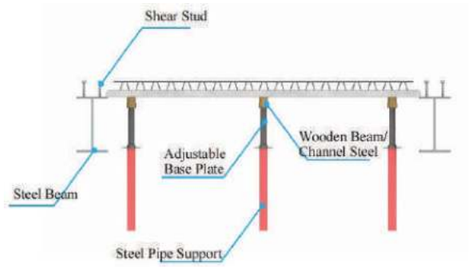
3D IMAGE COLLECTION
三维图集

Chapter 7: Steel Structure Floor System

5.3Temporary Support Method For Composite Slabs



Composite Slab Site Support Method Detail Drawing



Left-side View

nstructions:

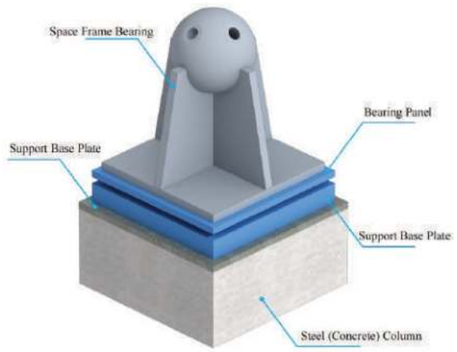
1.Scaffolding supports should be installed under the floor slab for reinforcement. The arrangement of the scaffolding should be determined through calculations.

2.The stability of the support system itself must be ensured by reliable horizontal connectors or braces.

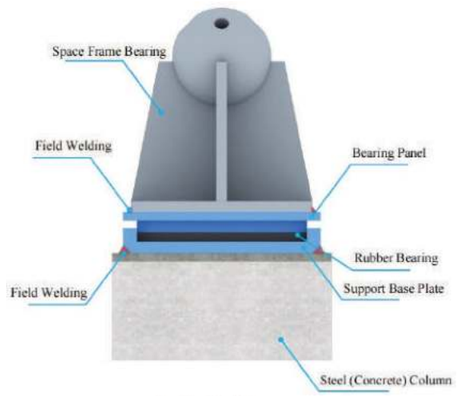
Chapter 8: Support System

Section 1: Rubber Bearing Node

1.1Rubber Bearing Node Detail Drawing



Rubber Bearing Node Detail Isometric Drawing



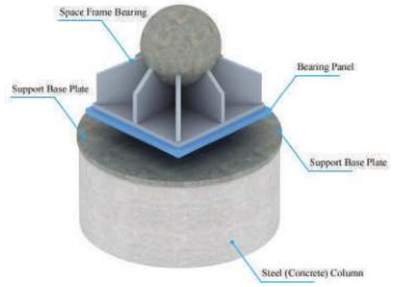
Left-side View

nstructions:

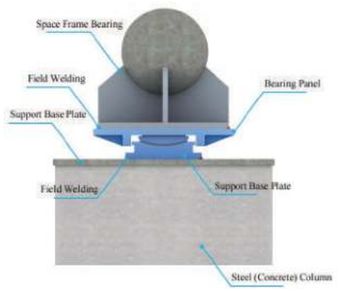
1.Restraints such as angle steel or steel plates should be installed at the four corners of the bearing.

Section 2: Steel Bearing Node

2.1Steel Bearing Node Detail Drawing



Steel Bearing Node Detail Isometric Drawing



Left-side View

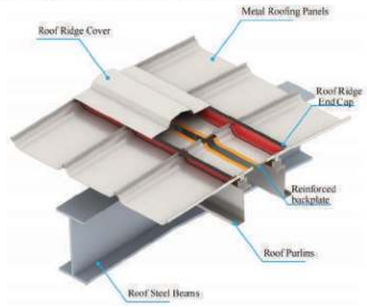
nstructions:

1.Restraints such as angle steel or steel plates should be installed at the four corners of the bearing.

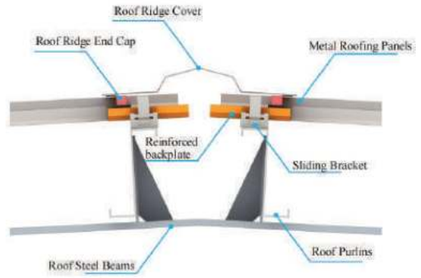
Chapter 9: Enclosure System

Section 1: Metal Roofing

1.1Roof Ridge Construction Method



Roof Ridge Node Isometric Drawing



Front View

nstructions:

1.The ridge reinforcement backplate serves to strengthen local support, fix the ridge metal end cap, and prevent the ridge from being too soft in certain areas and deforming, which could lead to water leakage problems later on.

2.A certain gap is required between the roof panels on both sides of the ridge, and this gap needs to be determined through calculation.

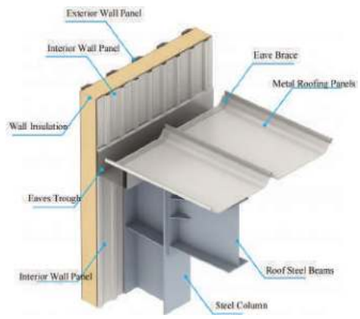
3.Roof Ridge Node Construction Procedure: Roof Purlin → Sliding Bracket → Roof Metal Sheets → Ridge Reinforcement Backplate → Ridge Metal End Cap → Ridge Cover Plate

4.The ridge cover plate is fixed to the ridge metal end cap; the ridge reinforcement backplate is fixed only to the ridge metal end cap, and it is strictly forbidden to nail it to the roof purlins.

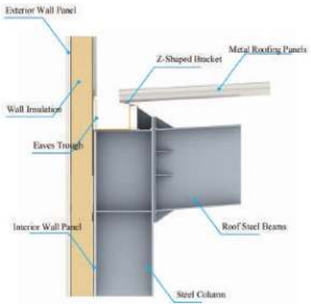
5.The ridge metal end cap should be wrapped with butyl tape, and the fastening nails on the upper surface should face outwards.

6.Ridge Cover Plate Lap Joint: Overlap 250mm, apply one layer of sealant on the underside and one layer of visible sealant on the topside, and connect using rivets or stitching nails.

1.2Eave Construction Method



Eaves Node Isometric Drawing



Left-side View

nstructions:

1.In this node, the Z-shaped bracket serves to fix the eaves metal pressure strip and the eaves metal inner plug. At the same time, if there is a leak in the eaves nail hole after construction, it can be ensured that the water will fall into the gutter for drainage.

2.Eaves Node Construction Sequence: Roof Purlins → Eaves Gutter → Z-Shaped Bracket → Eaves Metal Inner Plug → Sliding Bracket → Roof Metal Panel → Eaves Metal Pressure Strip

3.The extension length of the roof panel into the gutter at the eaves should be ≥ 120mm.

4.The Z-shaped bracket is fixed to the eaves gutter, and sealant must be applied to the bottom. The eaves metal inner plug and the eaves metal pressure strip are fixed to the Z-shaped bracket.

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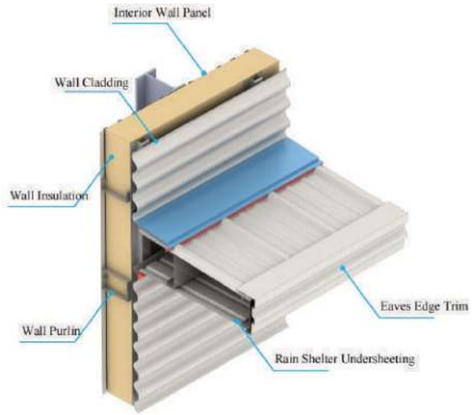
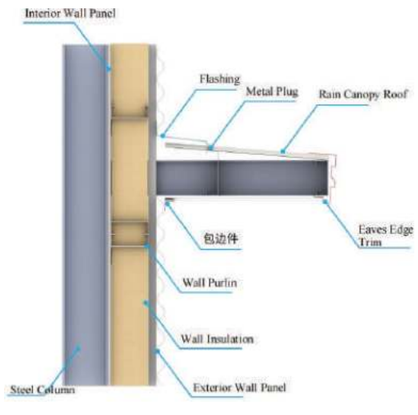
三维图集

Chapter 9: Enclosure System

1.3Rain Canopy Construction Method



Rain Canopy Node Isometric Drawing

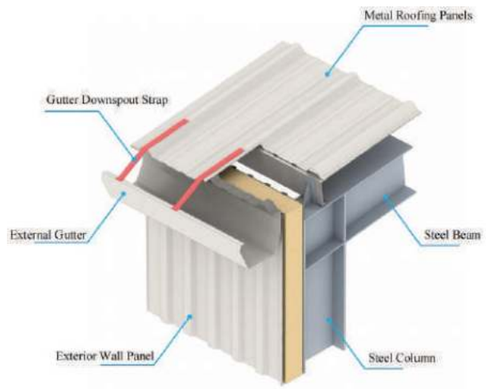


Left-side View

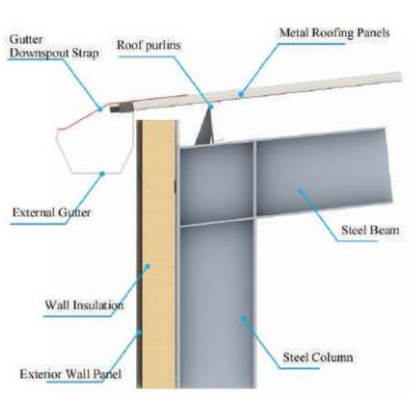
nstructions:

1.The slope of the rain canopy can be achieved through structural framing or by adding square tubes. The recommended slope is 3%.
2.Drain holes need to be punched along the eaves of the rain canopy for drainage.
3.If the height of the rain canopy structure exceeds 600mm, a wall panel should be added to close off the gap.

1.4External Gutter Construction Method



External Gutter Node Isometric Drawing

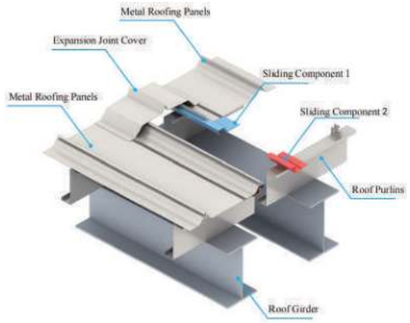


Left-side View

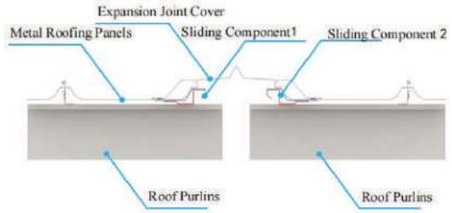
nstructions:

1.External gutters are secured to downspout straps and roof panels. The outer side of the external gutter should be lower than the inner side to prevent water from flowing into the house when water accumulates.

1.5Expansion Node Construction Method



Expansion Node Isometric Drawing

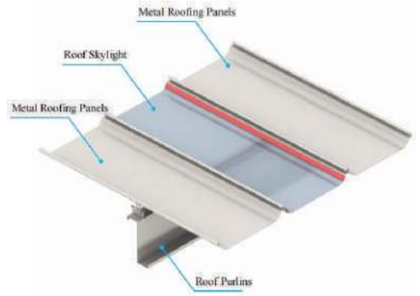


Front View

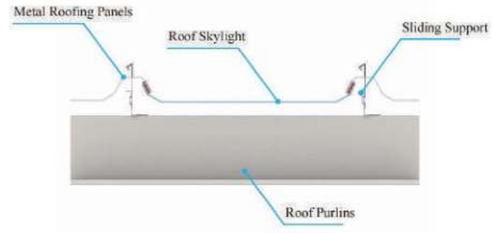
nstructions:

1.Eave node construction sequence: Roof purlins → Sliding component 1 → Sliding component 2 → Roof metal sheet → Expansion joint cover;
2.Sliding component 1 is installed on each purlin and fixed to the purlin; sliding component 2 is installed along the entire length and is engaged with sliding component 1. No nailing is allowed for fixation
3.The expansion joint cover and sliding component are fixed with large-cap blind rivets and stitching nails, and butyl tape is applied underneath;
4.The overlap length of the expansion joint cover shall not be less than 200mm. Two concealed sealants or one exposed sealant and one conceale d sealant shall be applied at the overlap position.

1.6Skylight Panel Construction Method



Skylight Panel Node Isometric Drawing

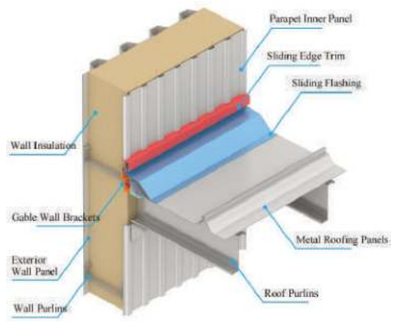


Front View

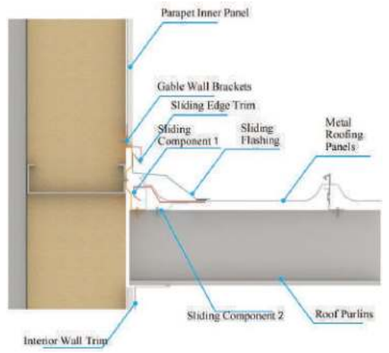
nstructions:

1.Common skylight materials used with corrugated metal panel systems include polycarbonate (PC) skylights and fiberglass reinforced polyester (FRP) skylights,
2.Polycarbonate skylights, also known as sun panels, are divided into solid panels and hollow panels. Hollow panels can be two-layer or multi-layer. The panel sha pe is divided into flat panels and corrugated panels. The UV protection function is divided into single-sided protective layer and double-sided protective layer.
3.Fiberglass reinforced polyester (FRP) skylights are also known as fiberglass color steel panels.
4.At the overlapping positions of the skylight panels and the roof, a ridge reinforcing backplate and an eave metal pressure strip should be added for fixation. The overlap length should not be less than 250mm.

1.7Gable Wall Construction Method



Gable Wall Node Isometric Drawing



Left-side View

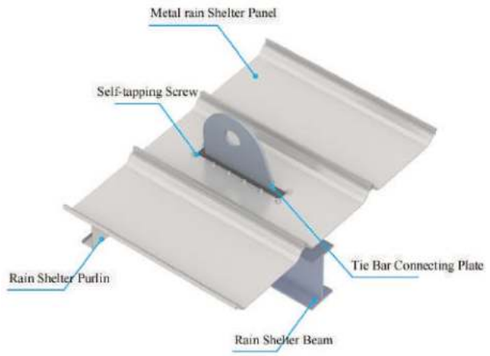
nstructions:

1.Gable wall brackets serve to secure wire mesh and parapet inner panels.
2.Gable wall sliding components 1 and 2 enhance the wind resistance of the roof and ensure the overall sliding of the roof panels.3.Sliding trim 2 is secured to the roof panel and sliding component 2 using large-head rivets. A concealed sealant must be applied on the inside.
4.The overlap length of gable flashing should not be less than 200mm. Two concealed sealants or one concealed sealant and one exposed sealant should be applied at the overlap.

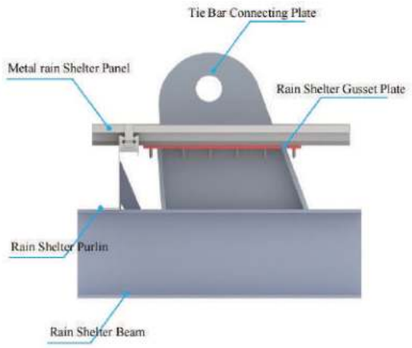
3D IMAGE COLLECTION
三维图集

Chapter 9: Enclosure System

1.8Rain Shelter Connecting Plate Construction Method



Rain Shelter Connection Plate Node Isometric Drawing

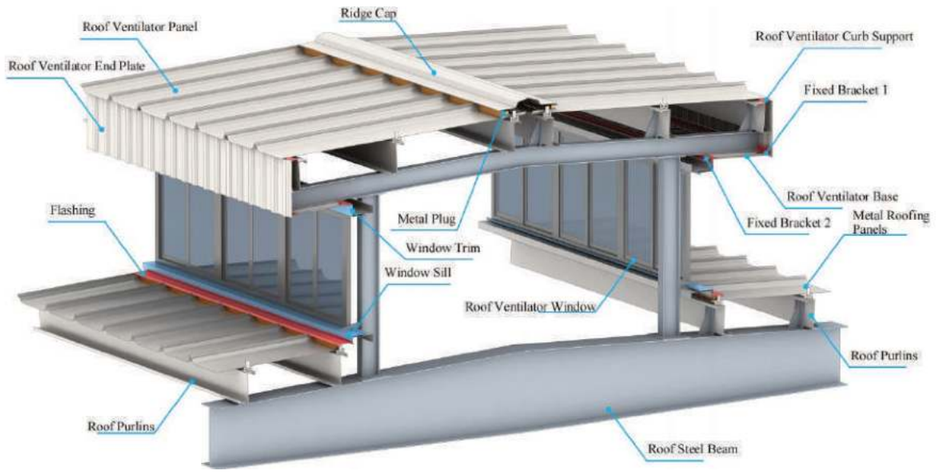


Front View

nstructions:

1.If there is no gusset plate for the connection plate and you don't want to set a back plate, you can use blind rivets instead of self-tapping screws.
2.Apply polyurethane sealant all around the cut.

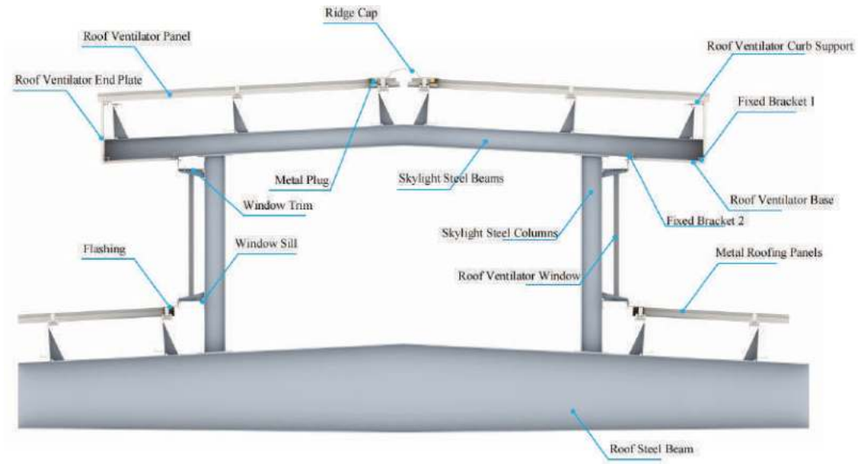
1.8Method 1 for Roof Ventilator Node Construction



Skylight Node Isometric Drawing

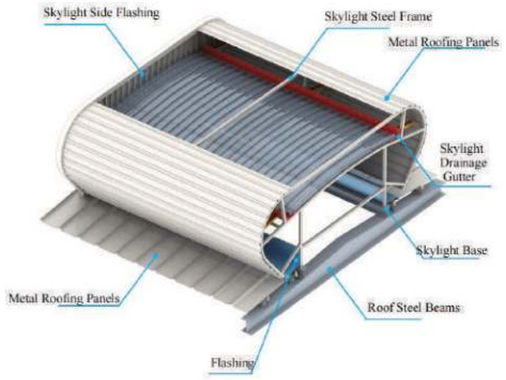
nstructions:

1、The need for skylight end plates and base plates should be determined base d on the specific requirements of each project.
2、The upstand height of the skylight flashing should not be less than 250mm.

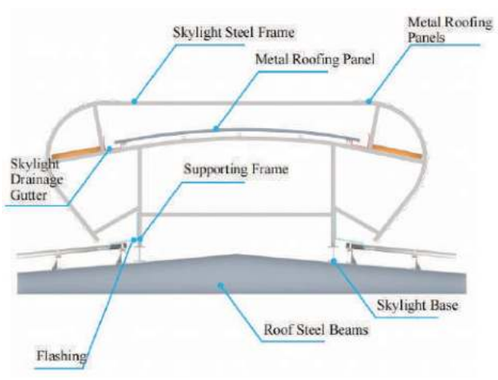


Left-side View

1. 9 Method 2 for Roof Ventilator Node Construction



Skylight Node Construction Isometric Drawing

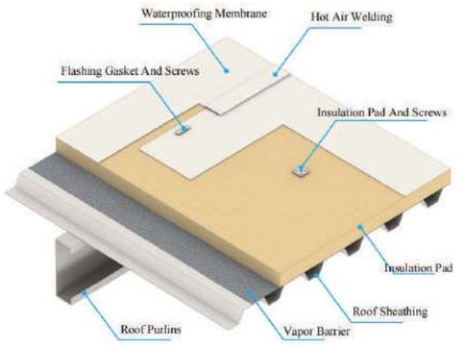


Front View

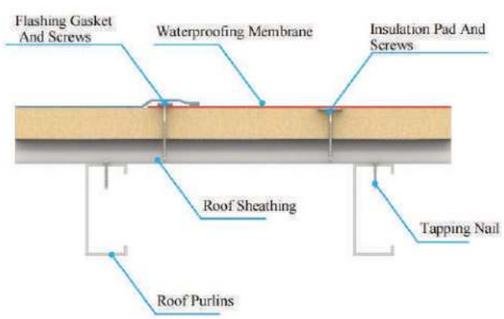
nstructions:

1、The height of the flashing and edge trim on a skylight shall not be less than 250mm.

2.1Construction General Drawing



Construction Detail Isometric Drawing



Left-side View

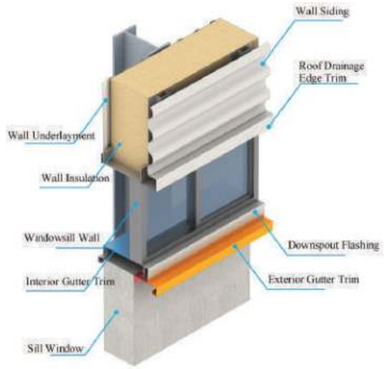
nstructions:

1.The minimum overlap width of polymer waterproof membrane is 120mm, and the welding width is ≥25mm. The transverse joints of the membrane should be staggered by 300mm to avoid water leakage at the corners;
2.The minimum lap width of the vapour barrier film is 100mm, and the vapour barrier film should be laid in suc h a way that the thermal insulation foam does not come into direct contact with the underside of the roof.
3.Multi-layer rock wool board laying needs to be close to the load-bearing layer, paving and padding stable, tig ht stitching, staggered laying, board seams can not appear through the phenomenon;
4.For corners or membrane punctures, use custom membrane prefabricated parts that meet the requirements of t he specifications for installation or repair (diameter not less than 200mm).

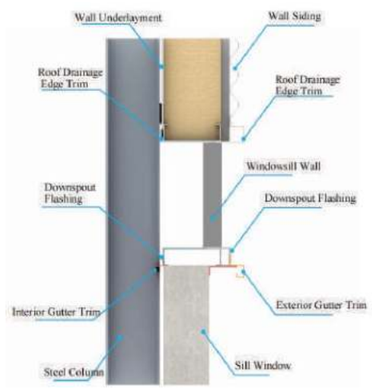
3D IMAGE COLLECTION
三维图集

Chapter 9: Enclosure System

3.3Sill Window Drainage Channel Construction Method



Sill Window Drainage Channel Isometric Drawing

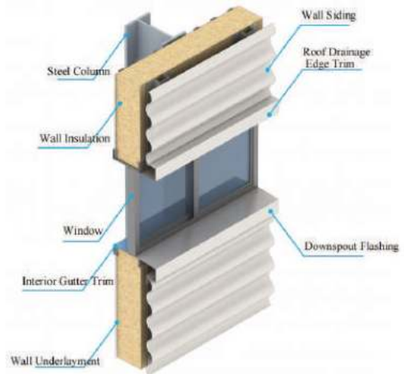


Left-side View

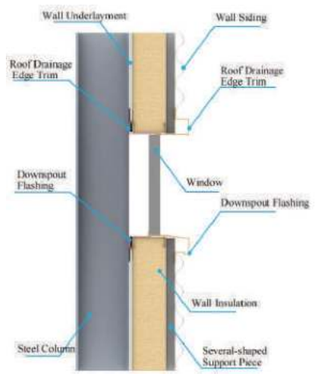
nstructions:

1.Prior to construction of this node, the elevation of the sill window top purlin must be measured. Before cutting the sill window flashing and liner, the position relationship between the sill window and the top purlin must be rechecked on site to avoid problems with the liner not being able to be installed and the sill window flashing not being straight.
2.The corners of the window should be sealed with a watertight caulk, and the wall panels around the window should be sealed with plugs and a neutral silicone sealant on the outside for waterproofing.
3.The interior and exterior sill window flashing must be installed before the interior and exterior wall panels are installed. The construction sequence must not be reversed.

3.4Window Frame Node Construction Method 1



Isometric Drawing Of The Window Top And Bottom Nodes

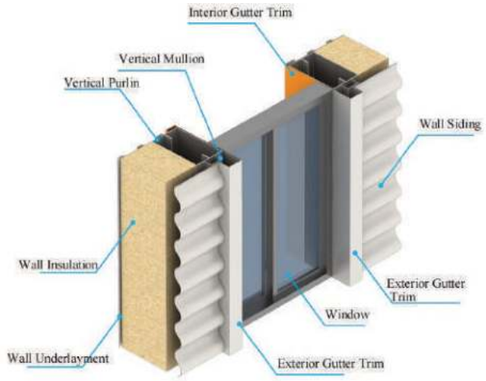


Left-side View

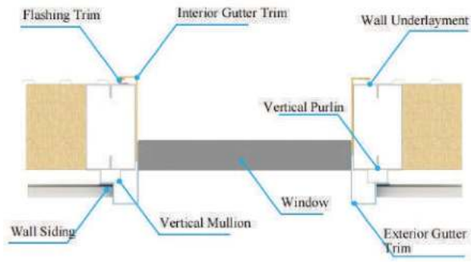
nstructions:

1.The exterior wall panels must extend into the recess of the exterior sill flashing under the window.
2.Window corners need to be waterproofed with Begonia Corner, and wall panels around the windows need to be foam plugged and waterproofed with a neutral silicone weatherproof sealant on the outside.
3.Before fabricating the flashing components for this node, communicate with the window and door manufacturer to determine the window frame's front-to-back position and width.

3.5Window Frame Node Construction Method 2

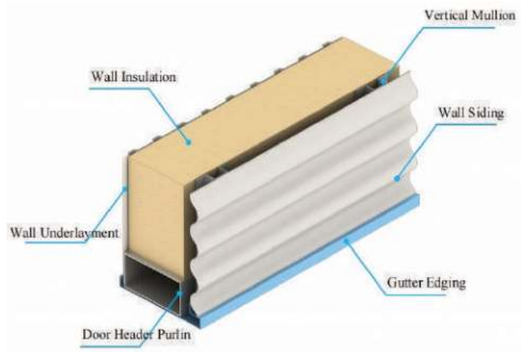


Window Side Node Isometric Drawing

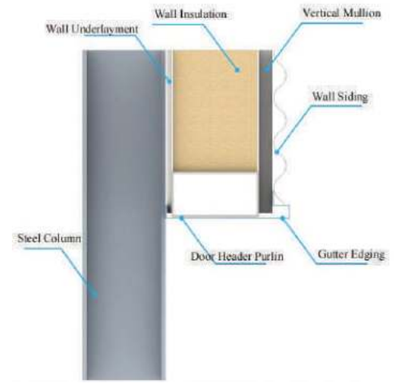


Top View

3.6Door Frame Node Construction Method 1



Door Node Isometric Drawing

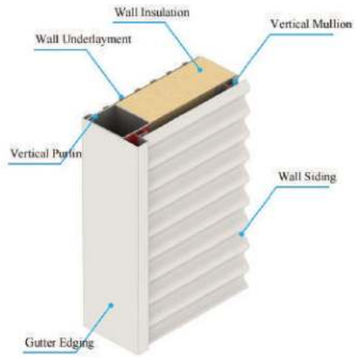


Left-side View

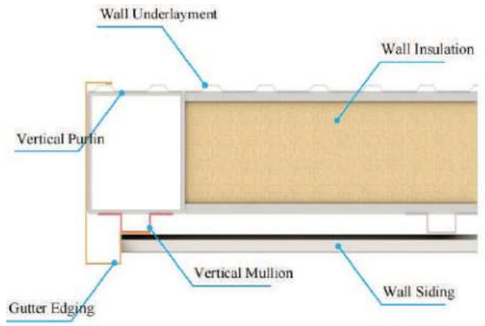
nstructions:

1.Door flashing requires the installation of a "bird's mouth" profile. However, this is not necessary if a rain canopy is present.

3.7Door Frame Node Construction Method 2



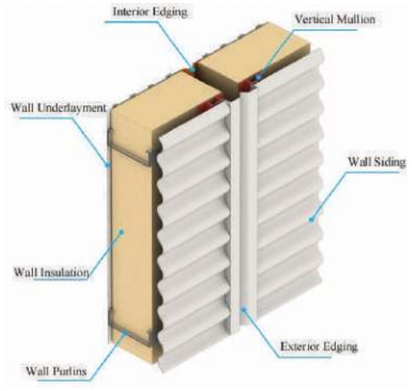
Door Side Node Isometric Drawing



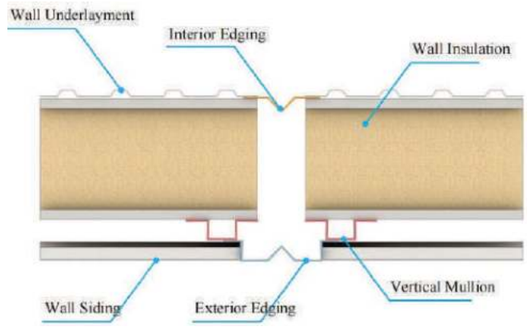
Top View

Chapter 9: Enclosure System

3.8Expansion Node Construction Method



Expansion Node Isometric Drawing

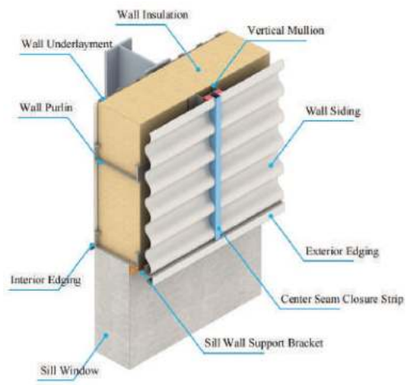


Top View

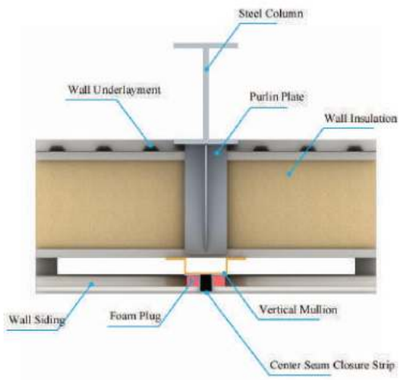
nstructions:

1.Before fabricating expansion joint edging components, the spacing of the on-site purlins should be verified.
2.When installing edging components, pay attention to installing from bottom to top, with the upper edging co mponents covering the lower edging components. Apply butyl rubber tape at the lap joints.

3.9Wall Center Seam Construction Method (Horizontal Panels)



Center Seam Node Isometric Diagram

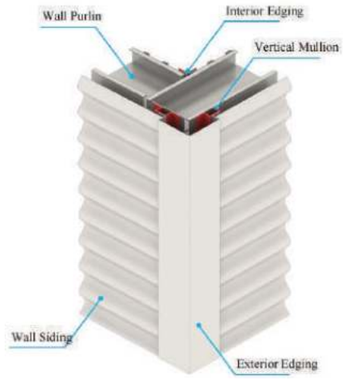


Top View

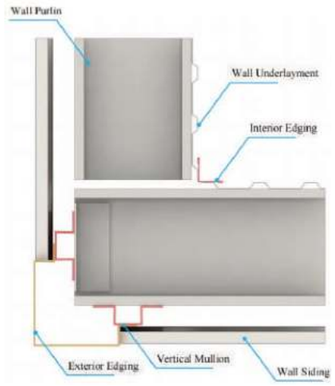
nstructions:

1.This method is suitable for horizontal layout.

3.10Wall Corner Construction Method (Horizontal)



Wall Corner Node Isometric Diagram

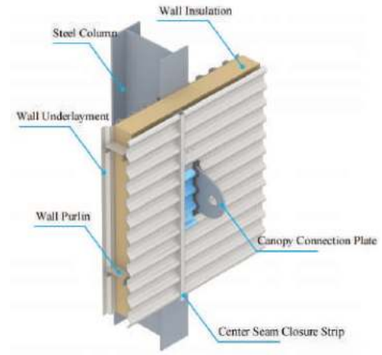


Top View

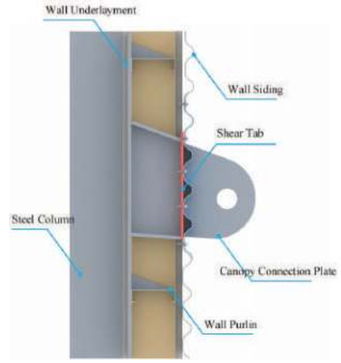
nstructions:

1.This method is suitable for horizontal layout.

3.11Canopy Connection Plate Node



Canopy Connection Plate Node Isometric Diagram

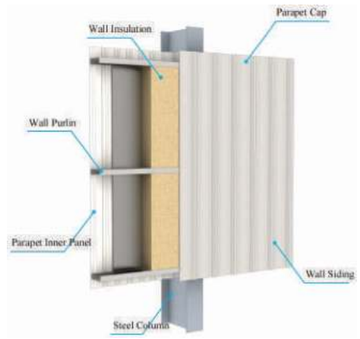


Left-side View

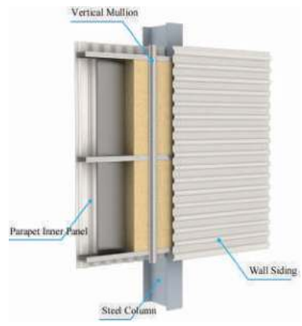
nstructions:

1.Apply polyurethane sealant around the shear gap between the canopy connection plate and the outer panel.

3.12Horizontal and Vertical Panel Schematic Drawings



Vertical Panel Schematic Drawing



Horizontal Panel Schematic Drawing

nstructions:

1.This method is applicable to both horizontal and vertical panel layouts.

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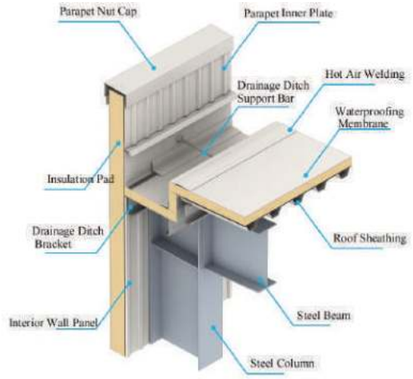
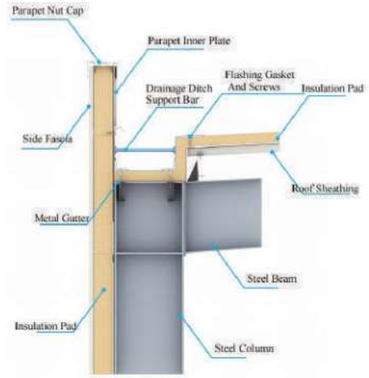
Chapter 9: Enclosure System

2.2Drainage Ditch Construction Methods



Gutter Node Isometric Drawing

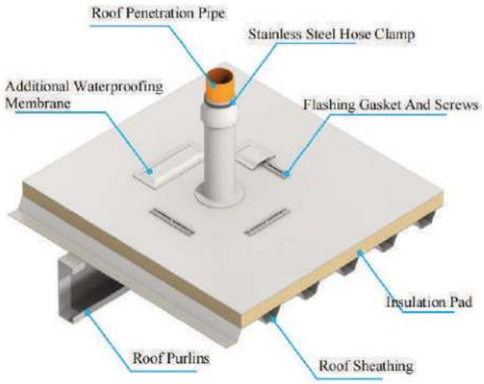


Left-side View

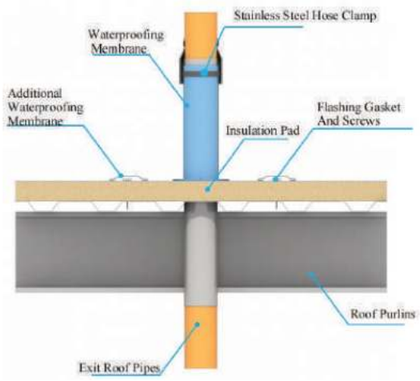
nstructions:

1.For this joint, it is recommended to add two square tubes at the bottom of the gut ter to secure the rockwool. It is not recommended to pierce the gutter directly.
2.Pressure strips with screws and load dispersal ropes should be used to enhance l ocal wind resistance at gable ends, roof ridges, and hill wall lean-to locations.

2.3Roof Outlet Pipe Construction Method



Roof Outlet Pipe Node Isometric Drawing

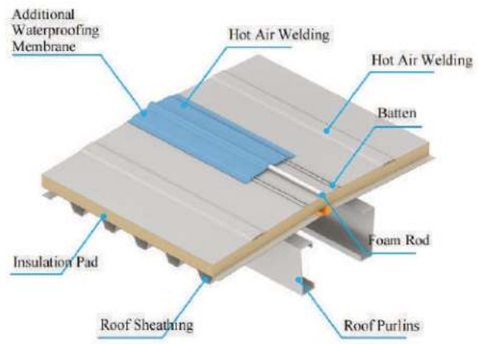


Front View

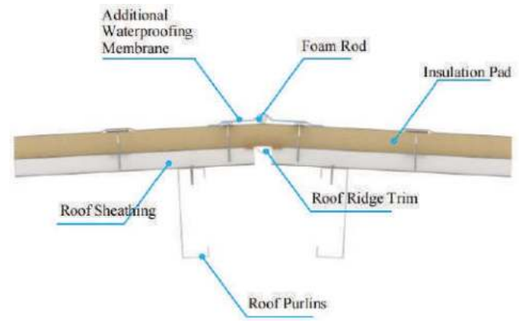
nstructions:

1.For roof penetrations with openings smaller than 500mm, the flashing should be directly welded or bonded to the roof waterproof ing membrane. The flashing height should be greater than 250mm and should be clamped tightly with stainless steel metal straps.
2.For roof penetrations with openings greater than or equal to 500mm, the waterproofing membrane around the opening of the roof penetration facility should be fixed with metal strips, and each metal strip should have at least two fixing nails. The flashing shoul d be directly welded or bonded to the roof waterproofing membrane. The flashing height should be greater than 250mm and should be clamped tightly with stainless steel metal straps.

2.4Roof Ridge Construction Method

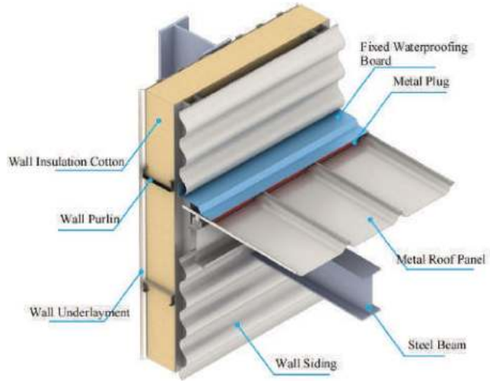


Roof Ridge Node Isometric Drawing

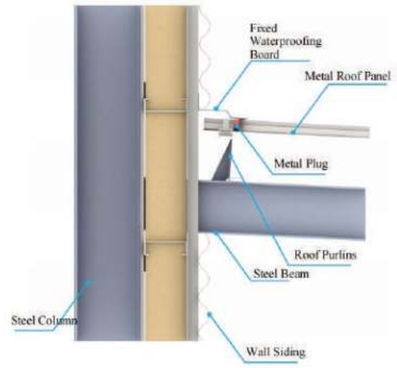


Front View

3.1High-low Bay Junction Construction Method



Isometric Drawing Of A High-low Bay Junction

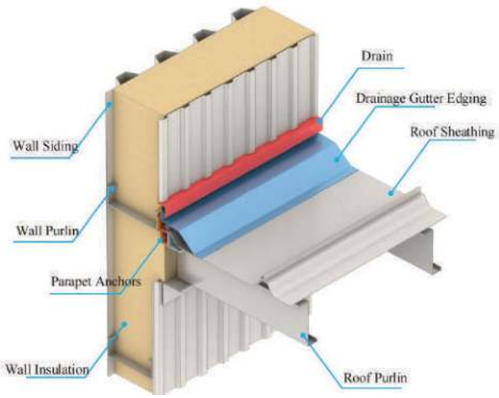


Left-side View

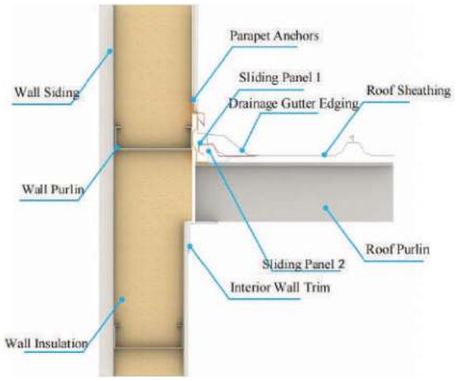
nstructions:

1.The span of flashing edge pieces in high-low bays should not exceed 250mm. If th e span exceeds 250mm, an edge support strip should be installed.
2.When embedding roof purlins, they should be at least 10cm away from the wall to facilitate the construction of the ridge ridge reinforcement backplate and nodes.

3.2Parapet Wall Node Construction Method



Parapet Wall Node Isometric Drawing



Left-side View

nstructions:

1.The span of parapet coping should not exceed 250mm. If the span exceeds 250mm, a coping support strip should be installed.
2.When embedding roof purlins, they should be at least 100mm from the wal l to facilitate the installation of ridge reinforcement back plates and nodes.

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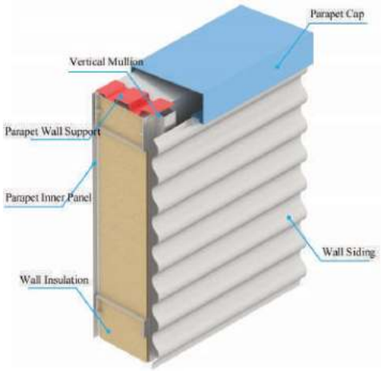
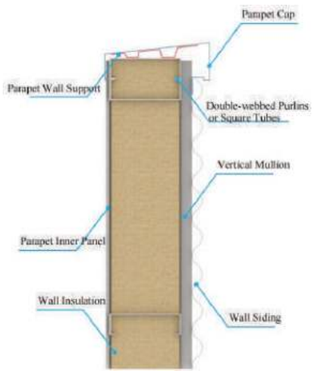
Chapter 9: Enclosure System

3.13Parapet Wall Node



Parapet Wall Node Isometric Drawing



Parapet Wall Joint Node Sectional View

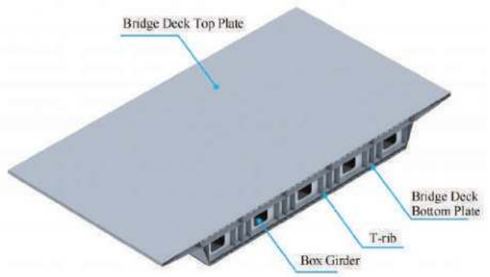
nstructions:

1、Parapet coping supports are used to support the parapet coping cap and preven t it from sagging or deforming. They are spaced at 1.5 meters (4.9 feet) intervals, and a lap joint must be installed at the overlap of the edging pieces.

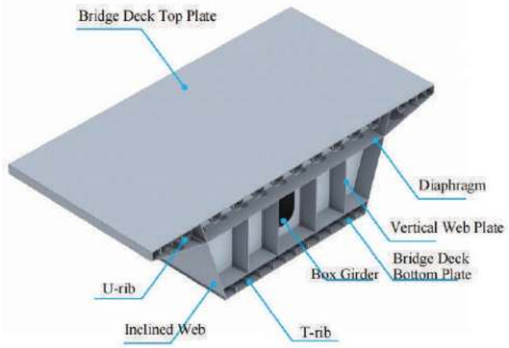
Chapter 10: Steel Structure Bridges

Section 1: Steel Box Girders

1.1Steel Box Girder Section Detail Drawing



Multi-cellular Steel Box Girder Isometric Drawing

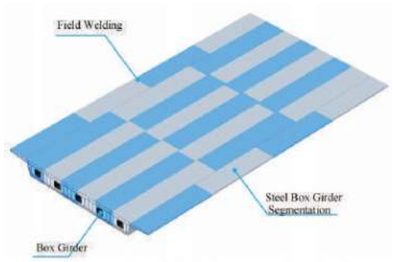


Single-cellular Steel Box Girder Isometric Drawing

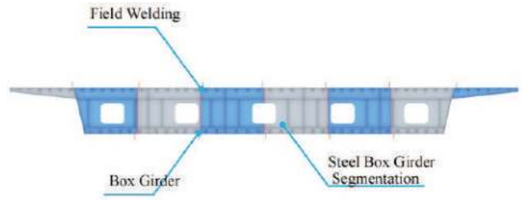
nstructions:

1.Steel box girders can be classified according to the number of cells into single-cell single-chamber, single-cell multi-chamber, and multi-cell multi-chamber.

1.2Steel Box Girder Field Assembly Node



Field Assembly Node Floor Plan View

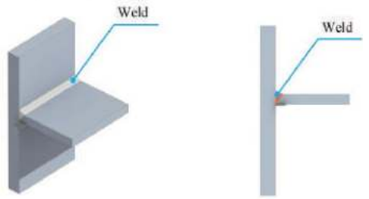


Left-side View

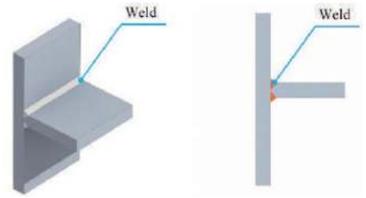
nstructions:

1.All section locations and section joint offsets must meet the requirements of the design documents and relevant specifications. The section locatio ns must be kept a sufficient distance from the support locations. The top, bottom, and web plate joints must be staggered by at least 200 mm.
2.Field joints between steel box girder segments should be located at the junctions of thick and thin plates whenever possible. If this is not feasible, the field joint location should be at least 1000 mm from the junction of the thick and thin plates.
3.Due consideration should be given to the sequence of lifting to facilitate on-site lifting in place and grouping between sections;
4.The limitations on weight and dimensions of steel box girder segments imposed by manufacturing, transportation, and erection must be fully cons idered. Meanwhile, the structural stability of each girder unit must be ensured during transportation and erection.

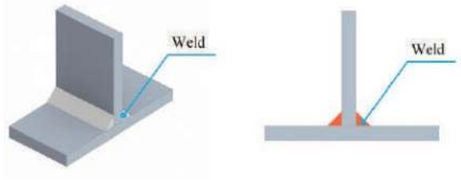
1.4Welding Requirements



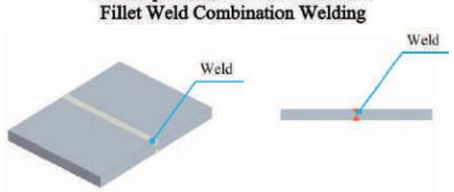
Single-bevel V-groove Full-penetration Welding



Partial-penetration Bevel Weld and Fillet Weld Combination Welding



Fillet Weld

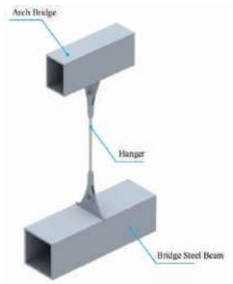


X-groove Full-penetration Welding

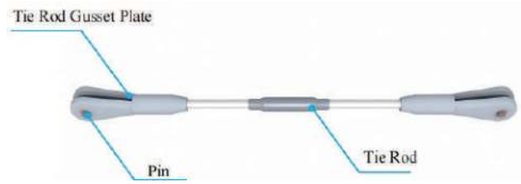
nstructions:

1.On-site welding materials are mainly of Q345qD grade, and the welding method used is CO2 gas shielded single-side welding with double-sided formation. This means that a ceramic backing is applied to the back of the weld, and the front is filled with CO2 gas shielded welding and covered with submerged arc welding.
2.On-site welding sequence should be formulated in accordance with the principles of welding long welds before short welds, welding welds with large weld metal deposition first, and welding welds with small weld metal deposition later.
3.Bridge section site connection weld: first weld the transverse butt weld of the top and bottom plates, then weld the butt weld of the web plate, and finally weld the weld of th e reinforcing rib embedded section;
4.For submerged arc automatic welding, the thickness of the flux cover should be between 20mm and 60mm. After welding, wait for the weld seam to cool slightly before rem oving the slag. If an arc break occurs during welding, the arc break must be gouged to a 1:5 slope and overlapped 50mm before welding.5.Angle weld corner wrap should be g ood, the weld are should be welded back more than 10mm, multi-layer multi-channel welding, each layer of the slag between the channels must be thoroughly cleaned up.

1.5Tie Rod (Hangers) Construction Method



Hanger Installation Isometric Drawing



Hanger Installation Isometric Drawing

nstructions:

1.As hangers are important force-bearing components of bridges, they should be sourced from qualified manufacturers with reliable technology
2.Installation monitoring is mandatory during hanger construction
3.During hanger installation, the hanger force and bridge deck elevation must be inspected. If there is any deviation between the hanger force and elevation and the design values, it must be checked and corrected. The specific procedures should be based on the construction monitoring instructions for hanger cable installation.

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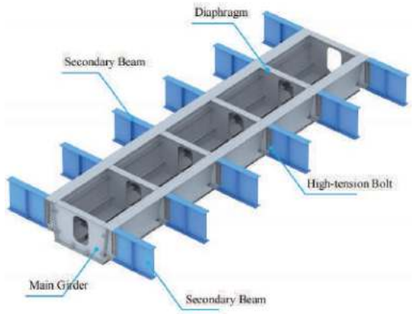
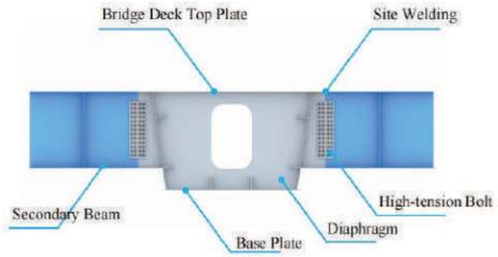
Chapter 10: Steel Structure Bridges

Section 2: Steel Composite Beam

2.1Main and Secondary Beam Node



Main and Secondary Beam Node Isometric Drawing

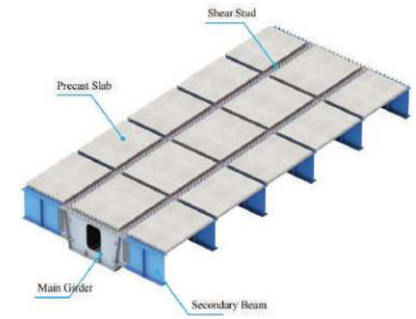


Left-side View

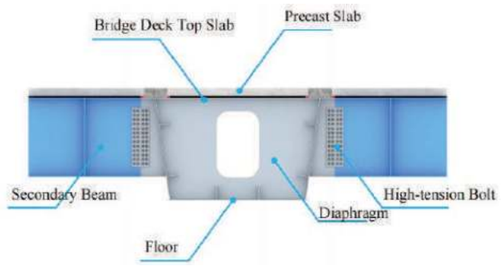
nstructions:

1.Steel beams shall be pre-assembled in the factory according to the pre-assembly line shape determined by the construction control. The key inspection of the pre-assembly is the coincidence rate of the bo lt holes at the connection nodes. After the pre-assembly is qualified, subsequent operations such as painting shall be carried out, and 2 beam sections shall be left for the next round of pre-assembly.
2.The assembly of suspended beam segments and the preassembly between suspended beam segments shall be carried out only under the condition that the temperature difference between the top plate and the bottom plate is less than ±2℃; if the temperature deviates from the standard temperature during the trial assembly process, the correlation with the standard temperature shall be derived. Measures shall be taken to overcome the influence of temperature difference during assembly and preassembly of suspended beam sections;
3.High-strength bolts of grade 10.9S shall be used for connecting steel beams, and shall meet the requirements of "High-strength large hexagon head bolts for steel structures" (GB/T1228-2006). Nuts shall meet the requirements of "High-strength large hexagon nuts for steel structures" (GB/T1229-2006). Washers shall meet the requirements of "High-strength washers for steel structures" (GB/T1230-2006). Technical conditions shall meet the requirements of "Technical conditions for high-strength large hexagon head bolts, large hexagon nuts and washers for steel structures" (GB/T1231-2006).

2.2Beam-slab Composite Node



Beam-slab Composite Node Isometric Drawing



Left-side View

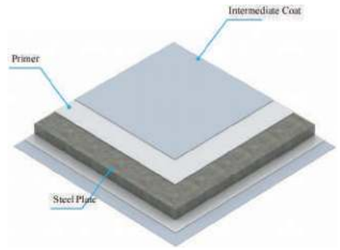
nstructions::

1.Before installing precast concrete slabs, they must be carefully checked and placed in the correct position to prevent errors. In addition, the sto rage sequence of precast concrete slabs should be considered to adapt to the installation sequence of precast concrete slabs.
2.Precast concrete slabs should not be removed from the molds and lifted until the concrete strength has reached 100% of the design strength.
3.The bridge panel transportation and hoisting system shall ensure sufficient stability and good operability, and generate minimal impact on the steel structure and precast panels during its operation.
4.During bridge panel installation, strictly follow the panel classification specified in the drawings to avoid interference with reinforcement bars.

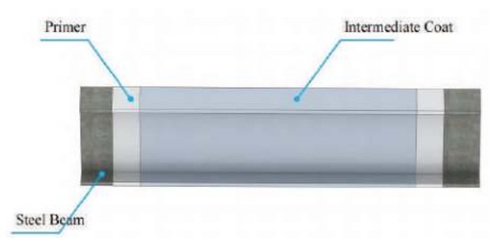
Chapter 11: Corrosion and Fire Protection of Steel Structures

Section 1: Corrosion Protection of Steel Structure

1.1Layered Structure of Primer and Intermediate Coating Sample



Schematic Drawing of the Layered Structure of Primer and Intermediate Coat

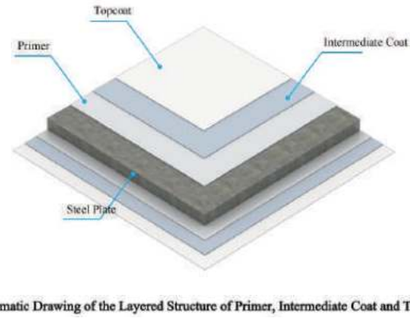


Paint Sample Diagram

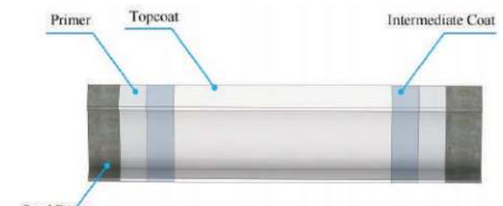
nstructions:

1.Before applying anti-corrosion primer for steel structure, the steel surface should be treated. Mechanical rust removal and manual rust removal methods can be used.
2.The surface of treated steel should be free of weld slag, weld beads, dust, oil, water, and burrs.
3.The time interval between surface rust removal treatment and painting should be within 4 hours. In the workshop or on a sunny day with low humidity, it should not exceed 12 hours.
4.Steel structure anticorrosion coating environment temperature should be controlled between 5-38 ℃, the relative humidity should not be greater than 85%, the surface of the compone nts should not be condensed when coating, and should be protected from rain within 4h after coating.
5.The type of coating, number of coats, and coating thickness should meet the design requirements. When there are no specific design requirements, the total dry film thickness of the c oating should be 150μm for outdoor applications and 125μm for indoor applications. A tolerance of -25μm is allowed.

1.2Application of Non-fireproof Topcoat



Schematic Drawing of the Layered Structure of Primer, Intermediate Coat and Topcoat

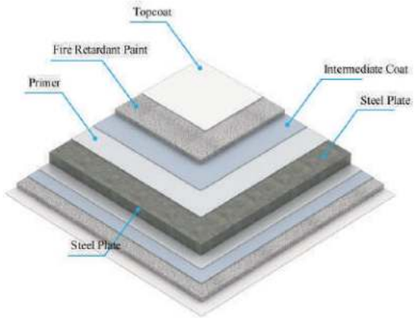


Paint Sample Board

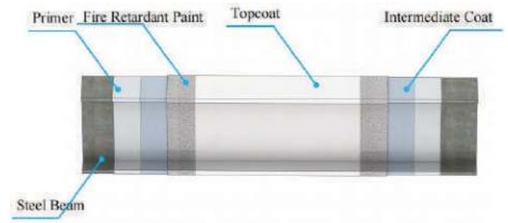
nstructions:

1.The primer, intermediate coat, and topcoat should be compatible with each other and should not exhibit phenomena such as lifting or bubbling.
2.Appropriate re-coating intervals should be used between coats. Refer to the product specification for maximum and minimum re-coating intervals.
3.For weld areas on construction sites, a non-painted area should be left on both sides of the weld, with a width of 10-15cm on each side.
4.Chips, burns, and other damage to the coating caused by installation or transportation should be repaired using the original coating system.

1.3Application of Fire Retardant Paint Topcoat



Schematic Drawing of the Layered Structure of Primer Intermediate Coat and Fire Retardant PaintTopcoat



Paint Sample Diagram

nstructions:

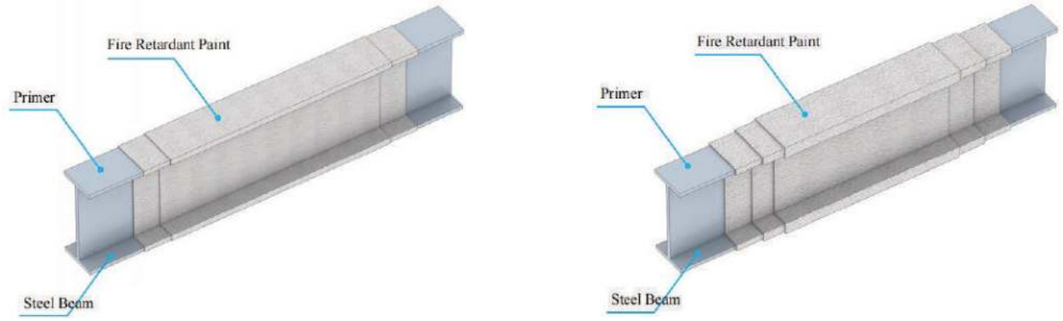
1.The topcoat should be applied only after the fire retardant paint has completely dried.
2.Application of fire retardant paint topcoat should prioritize spray painting to ensure optimal finish and performance.3.If the fire retardant paint is not dried and solidified properly, and the adhesion is not good or powdering and falling off, the fire retardant paint must be treated first before the topcoat can be applied.

3D IMAGE COLLECTION
三维图集

Chapter 11: Corrosion and Fire Protection of Steel Structures

Section 2: Fire Protection of Steel Structures

2.1Non-Intumescent Fire Retardant Paint Spraying

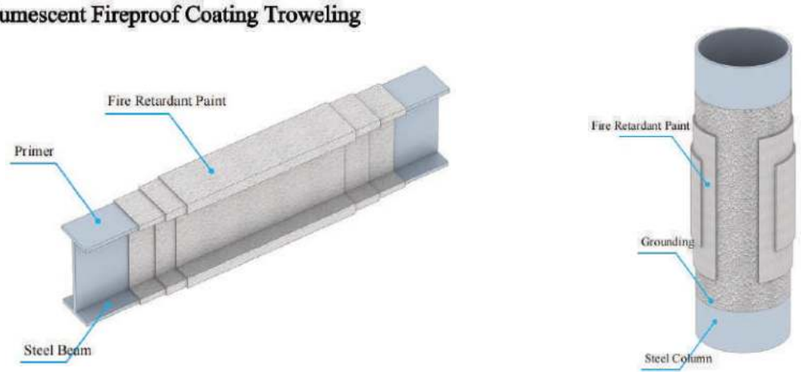


Isometric Drawing of Non-Intumescent Fire Retardant Paint Spraying

nstructions:

1.Process: surface treatment of grass-roots level → first layer of spraying priming → each layer of spraying 6-8mm (special circumstances require the setting of wire mesh);
2.Spraying gun should be perpendicular to the sprayed steel components, the distance of 10-15cm is appropriate, spraying air pressure should be maintained at 0.4-0.6MPa, se lf-checking after spraying, the thickness of the part is not enough to make up for spraying again;
3.Within 4h after spraying, rain should be strictly prevented, and when using airless spraying, the wind at the site should not exceed grade 5;
4.The width of cracks on the surface of non-intumescent fireproofing coating should not be more than 1mm, and the bond between the coating and the grass-roots level and ea ch layer should be firm, without drumming or peeling off, and the spraying process should be good for the protection of finished products of other components.

2.2Non-Intumescent Fireproof Coating Troweling

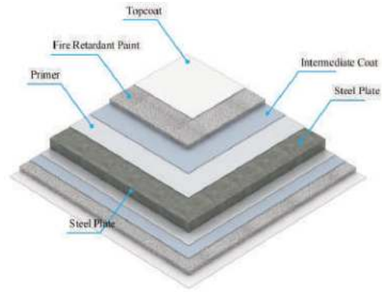


Non-intumescent Fire-resistant Coating Application Isometric Diagram

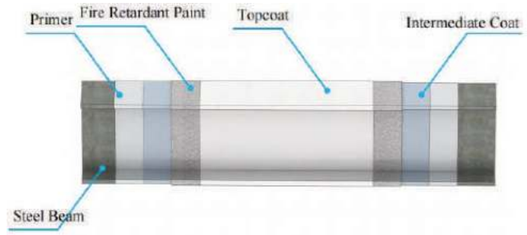
nstructions:

1.Process: surface treatment of grass-roots level → first layer of spraying priming → each layer of 8-10mm (special ci rcumstances require the setting of steel wire mesh);
2.Troweling should be specially treated in the corners and sunny areas to ensure that the edges and corners are clear;
3.Protect from rain for 4 hours after spraying;
4.The width of cracks on the surface of non-intumescent fireproof coating shall not be greater than 1mm, and the bond between the coating and the grass-roots level and each layer shall be firm, without hollow drum or peeling off.

2.3Intumescent Fire-resistant Coating



Expanding Fireproof Coating Application Axonometric Diagram



Coating Sample

nstructions:

1.Process: surface treatment of grass-roots level → first layer of spraying priming → each layer of spraying about 3mm;
2.Before spraying, you need to control the ratio of paint, water and thinner in strict accordance with the product specification, so as to avoid the loss of viscosity of the paint, affecting the adhesion;
3.Spraying gun should be perpendicular to the sprayed steel components, gun distance from the components ≤ 25cm, spraying air pressure should be maintained at 0.4-0.6MPa, self-check after spraying, the thickness is not enough to make up for the spraying of a part;
4.When spraying again, the previous coat should be checked and the table should be dry before spraying the next coat;
5.The surface of the paint moulding should be free from obvious colour difference, logistic hanging, wrinkles, pinholes, bubbles, peeling and other phenomena.

Chapter 12: Common Steel Structure Construction Methods

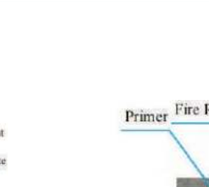
Section 1: Design and Selection of Lifting Eyes

1.1Lifting Eye Type

Type A Lifting Eye

Type A Lifting Eye

Type D Lifting Eye



Type D Lifting Eye

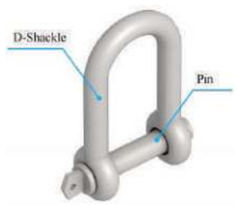
Steel Column Lifting Eye (with Connection Ear Plate)

Steel Column Lifting Eye (with Connection Ear Plate)

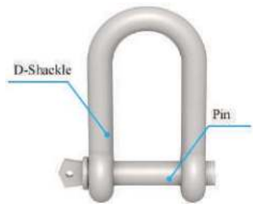
nstructions:

1.Selection of lugs according to the weight of the member and the form of section, in which the steel box girder generally adopts D-type lugs, ord inary section steel girder adopts A-type lugs, and the steel column generally adopts the connecting lugs as lugs, and the upper holes are enlarged.
2.The lugs should be removed when the installation of the component is completed, and the base material should not be injured when removing t hem, and 2mm should be retained under normal circumstances.

1.2Common Lifting and Rigging Shackles

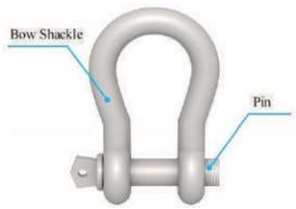


D-Shackle



Front View

Bow Shackle



Front View

nstructions:

1.Selecting Shackles Based on Component Weight and Cross-Sectional Shape

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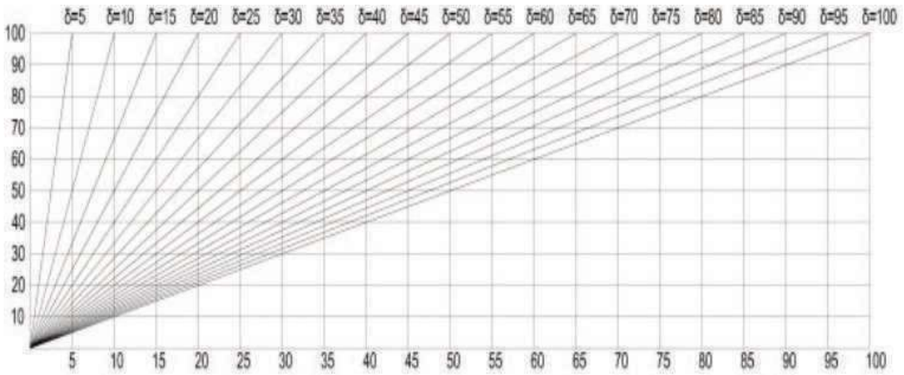
Chapter 12: Common Steel Structure Construction Methods

1.3Lifting Eye Selection Standards



Load-bearing Capacity Curve For A-type Lifting Eyes

Allowable Load (tons)	Lifting Eye Dimensions (mm)										
	δ 1	H	B	D1	R	F	δ 3	D2	δ 2	h	b
<5	14	150	120	40	60	90					
5~10	16	180	150	50	75	105					
10~20	20	210	200	60	100	120 (110)					
20~30	25	240	250	70	125	135 (115)					
30~40	30	280	280	80	140	160 (140)			10	140	260
40~50	30~35	310	300	90	155	175 (155)	18~25	220	18	155	290
50~60	30~35	340	340	100	170	190 (170)	18~25	240	22	170	320

Selection of D-Type Lifting Eyes

nstructions:

1.According to the weight of components and cross-section form selection of lugs form, of which the steel box girder is generally used D-type lugs, ordi nary cross-section steel beams using A-type lugs, steel columns are generally used to connect the lugs as lugs, the upper hole to expand the processing;
2.The lugs should be removed when the installation of the component is completed, and the base material should not be injured when removing them, an d 2mm should be retained under normal circumstances.

2.1Steel Frame Hoisting Construction Process


Embedment and Steel Column Installation


Framework Beam Installation


Framework Beam and Secondary Beam Installation


Sectional Installation of Large-Span Steel Beams for the First Floor


First Floor Steel Beam Installation Completed


Laying Floor Decking and Pouring Concrete


Installation of Second-Floor Steel Columns and Beams

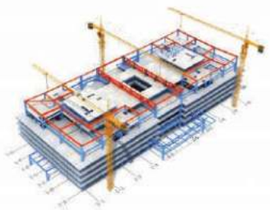

Laying Floor Decking and Pouring Concrete


Installation of Third-Floor Steel Columns and Beams

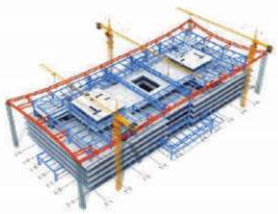

Installation of Fourth-Floor Steel Columns and Beams


Installation of Fifth-Floor Steel Columns and Beams

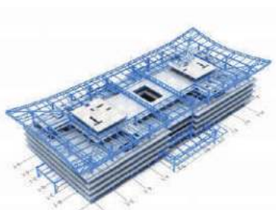

Installation of Roof Steel Columns and Beams


Installation of Roof Truss Structure


Installation of Secondary Trusses and Girts


Erection of Secondary Trusses and Purlin System


Installation of Perimeter Trusses and Roof Truss Girts


Upon Completion of Installation Dismantle Crane and Hand Over to Decorators

3D IMAGE COLLECTION
三维图集

Chapter 12: Common Steel Structure Construction Methods

3.1Falsework Construction Method

Steel Column Installation

On-Site Installation of Steel Beams and Trusses

Formwork Support Scaffolding Erection

Formwork Connection and Installation of Truss Units

Continuous Installation of Formwork Support Scaffolding and Truss Units

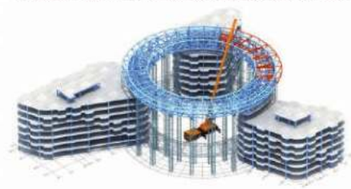
Retrofitting Truss Units between the Truss and Main Structure

Installation of Secondary Trusses and Other Members

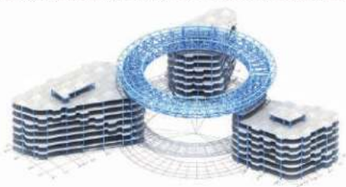
Sequential Installation of the Second Section of Aerial Trusses

Installation of Secondary Trusses and Retrofitting of Other Members

Sequential Installation of the Third Section of Aerial Trusses



Installation of Secondary Trusses and Retrofitting of Other Members



Demolding of Support Formwork and Completion of Steel Structure Construction

3.2Sliding Construction Method

Erection of High-Altitude Assembly Platforms on Floors or Ground

On-Site High-Altitude Assembly of the First Section of Trusses

Sequential Installation of Trusses to Form Stable Units

Installation of Second-Tier Trusses or Frameworks

Sliding the First Installation Unit Truss (Two Frames)

Installing Adjacent Two Truss Frames and Connecting Them to the First Unit

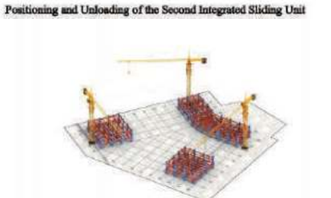
Sequential Completion of the First Integrated Sliding Unit

Positioning and Unloading of the First Integrated Sliding Unit

Positioning and Unloading of the Second Integrated Sliding Unit

Sequential Installation of All Truss Frames

Installation of Main Structure Tower (1)



Installation of Main Structure Tower (2)

Installation of Main Structure Tower (3)

Ground-Based Measurement and Layout for Aerial Truss Corridor

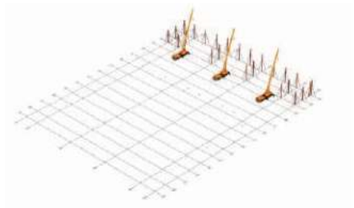
Ground Assembly and Installation of Truss Frames and Lifting Rigs

Hydraulic Lifting, Positioning, and Connecting of Towers

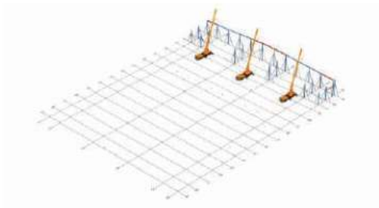
3D IMAGE COLLECTION
三维图集

Chapter 12: Common Steel Structure Construction Methods

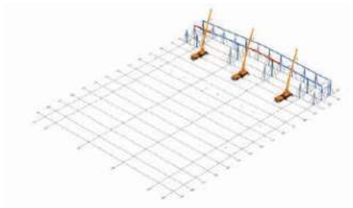
4.1Erection of Portal Frame Workshops



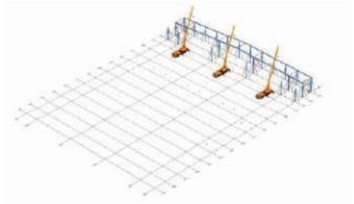
Installation of Steel Columns and Inter-Column Braces (Cable Stays)



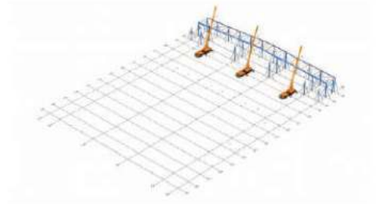
Installing the First Roof Beam



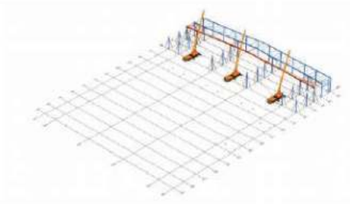
Installing the Second Roof Steel Beam



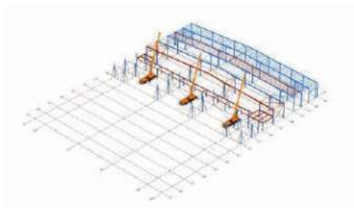
Installing Roof Tie Rods



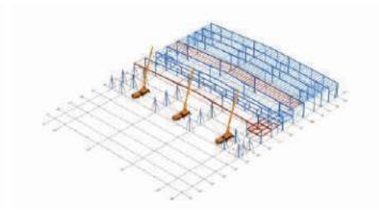
Installing Roof Horizontal Braces



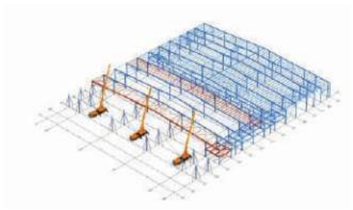
Installing Subsequent Roof Framing Beams Sequentially



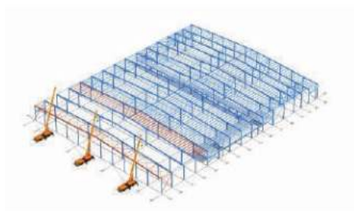
Installing Factory Interior Platform Steel Structure



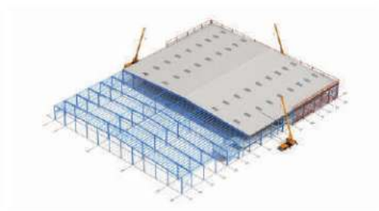
Installing the Upper Steel Structure of the Platform



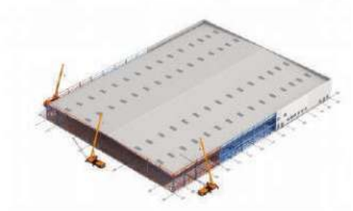
Simultaneous Insertion and Installation of Roof Purlins



Main Steel Structure Installation Completed

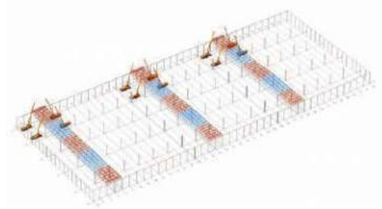


Roof Sheathing and Wall Girts Installation

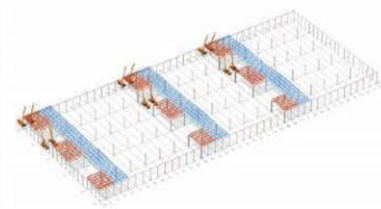


Wall Cladding Construction

5.1Truss Block Lifting and Installation Process

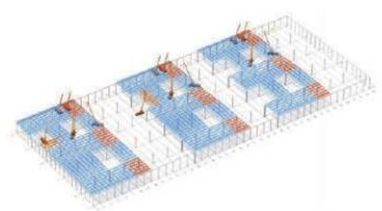


Assembly of Steel Truss Block Units

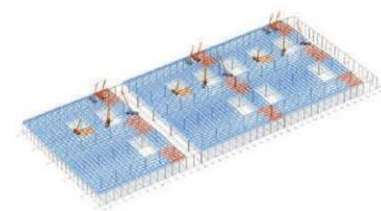


Lifting and Installation Using Two or More Cranes

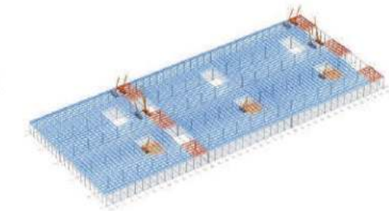
Roof Truss Installation Using the Skip-Bay Method



Aerial Disassembly and Reassembly of Truss Unit Cavities



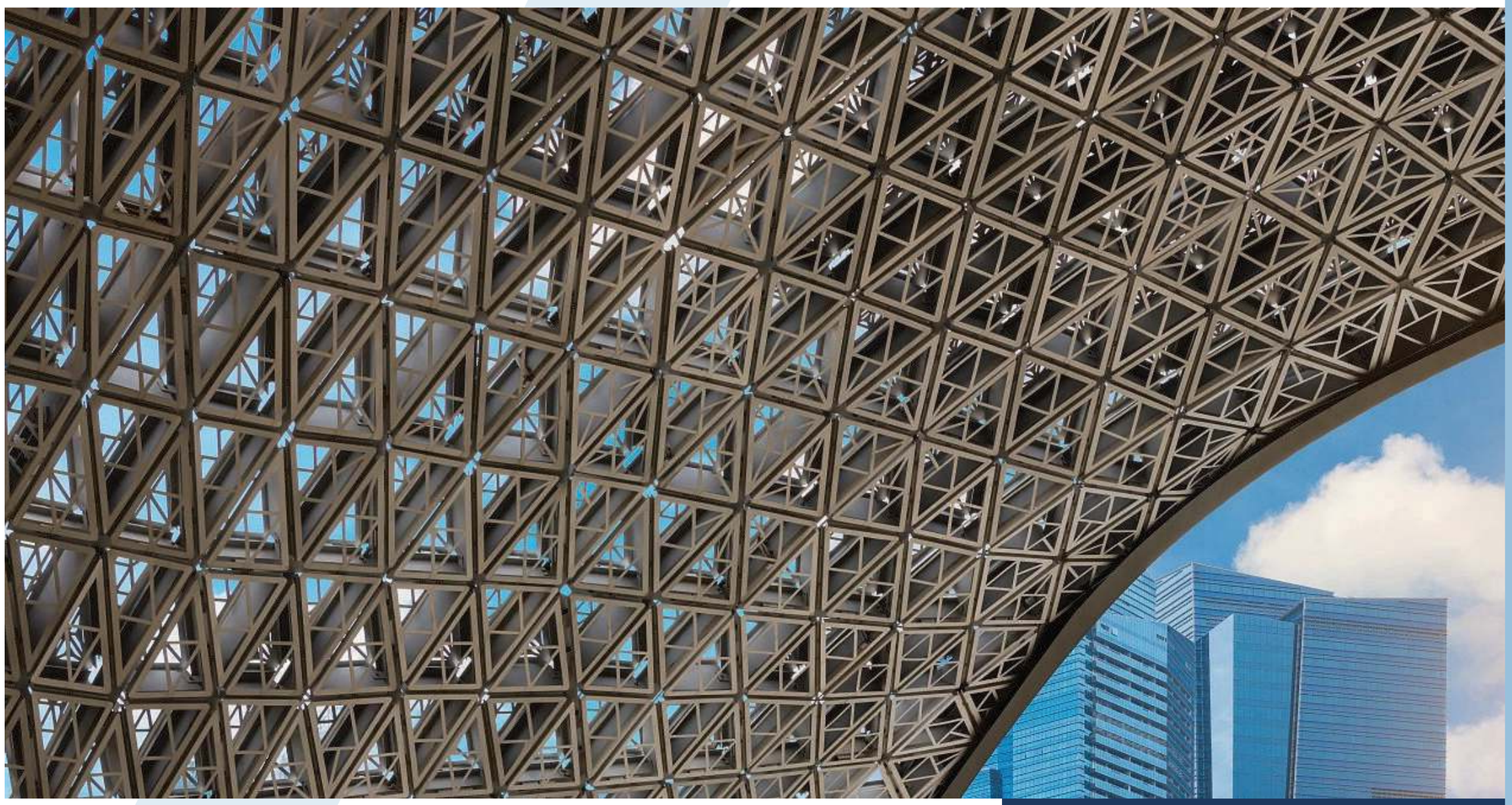
Sequential Lifting and Installation of Truss Block Units



Installing Additional Structural Members Until Completion

PROJECT INTRODUCE
项目介绍

In this chapter, you will see a selection of projects we have completed. While we only showcase a few photos here, we undertake a large number of projects across various industries each year. Therefore, we can provide additional project references tailored to your specific needs.



COMPLETED PROJECTS
企业近年已建工程

序号	Project name	Project attribution	Project category	construction unit
1	Factory with an annual production capacity of 50,000 fire protection systems	Jiangsu Province-Suzhou	Factory	Kaimei Fire Technology (Suzhou) Co., Ltd.
2	Prefabricated Steel Structure Building Components Technology R&D Center	Jiangsu Province-Suzhou	Factory and Office Building	Midland Steel Structure Building Systems (Suzhou) Co., Ltd.
3	Construction of the waterfront cottage reinforcement and renovation project	Jiangsu Province-Suzhou	Infrastructure	Suzhou Tongli International Tourism Development Co., Ltd.
4	Zhujiajiao Agricultural Machinery Service Center	Shanghai-Qingpu District	Office Building	Zhujiajiao Agricultural Comprehensive Service Center, Qingpu District, Shanghai
5	factory with an annual output of 500 million automotive and communication parts	Jiangsu Province-Suzhou	Factory	Suzhou Ruima Metal Forming Co., Ltd.
6	Songjiang District Tram Line	Shanghai-Songjiang District	Infrastructure	Shanghai Songjiang Tram Investment and Operation Co., Ltd.
7	Shanghai Songdong Water Environment Purification Co., Ltd. Phase I and II Upgrading and Phase III Project	Shanghai-Songjiang District	Infrastructure	Shanghai Songdong Water Environment Purification Co., Ltd.
8	Overall relocation project of factories and office buildings	Jiangsu Province-Suzhou	Factory and Office Building	Wujiang Hongda Flaw Detection Equipment Co., Ltd.
9	Annual assembly of 2,000 sets of electromechanical equipment manufacturing factory	Jiangsu Province-Suzhou	Factory	Wujiang Songling Town Baqieshi Hongmei Hoisting Machinery Factory
10	Factory with an annual output of 1 million carton boxes	Jiangsu Province-Suzhou	Factory	Suzhou Changlun Environmental Protection Fiber Co., Ltd.
11	Factory with an annual output of 1 million steel drums	Jiangsu Province-Suzhou	Factory	Suzhou Gu'an Packaging Materials Co., Ltd.
12	Factory No.5 and No.6	Jiangsu Province-Suzhou	Factory	Suzhou Baisui Cement Products Co., Ltd.
13	Shengze Primary School Qiaobei Campus Relocation Project	Jiangsu Province-Suzhou	Office Building	Suzhou Wujiang District Shengze Experimental Primary School
14	Subcontracting of steel structure engineering for the new Factory and building	Jiangsu Province-Suzhou	Factory	Suzhou Green Control New Energy Technology Co., Ltd.
15	Su 2007-B-10 (1) Block 2 Phase 7# Section 1	Jiangsu Province-Suzhou	Office Building	Suzhou Green Control New Energy Technology Co., Ltd.
16	Zhuhai Xianghai Bridge Project #TJ4	Guangdong Province - Zhuhai	Infrastructure	China Communications Construction Group Co., Ltd.
17	China Railway Construction Guangzhou Panyu Steel Processing Center	Guangdong Province - Guangzhou City	Infrastructure	China Railway Construction
18	China Railway Construction South China Entrepreneurship and Technology Incubator	Guangdong Province - Guangzhou City	High-Rise Building	China Railway Construction

COMPLETED PROJECTS
企业近年已建工程

序号	Project name	Project attribution	Project category	construction unit
18	China Railway Construction South China Entrepreneurship Technology Industrial Park	Guangdong Province - Guangzhou City	Office Building	China Railway Construction
19	Linyue Depot TOD Comprehensive Development Project	Guangdong Province - Foshan City	Infrastructure	China Communications Construction Group Co., Ltd.
20	North Hongqiao Xietong Health Aged Care Building	Shanghai-Jiading District	High-Rise Building	Shanghai North Hongqiao Xietong Health Management Co., Ltd.
21	Expansion Project of Dongchang Middle School Affiliated to East China Normal University	Shanghai-Pudong New District	Office Building	East China Normal University Affiliated Dongchang Middle School
22	Huyi 110KV transformer substation	Sea City-Jiading District	Infrastructure	Shanghai Power Transmission and Transformation Engineering Co., Ltd.
23	Shanghai Langwen 110KV transformer substation	Shanghai-Pudong New District	Infrastructure	Shanghai Power Transmission and Transformation Engineering Co., Ltd.
24	Shanghai Luochuan 110KV transformer substation	Shanghai - Jing'an District	Infrastructure	Shanghai Power Transmission and Transformation Engineering Co., Ltd.
25	Shanghai Hechuan 110KV transformer substation	Shanghai-Minhang District	Infrastructure	Shanghai Power Transmission and Transformation Engineering Co., Ltd.
26	Wuxi Expressway Interchange Toll Station	Jiangsu Province-Wuxi City	Infrastructure	Wuxi Highway Development Center
27	Shanghai International Medical Park Medical Device Accelerator Building	Shanghai-Pudong New District	High-Rise Building	Wuye Group Shanghai Co., Ltd.
28	Mine Section Shield Shaft Full Enclosure Project	Guangzhou-Tianhe District	Working Platform	China Railway 12th Bureau Group Fourth Engineering Co., Ltd.
29	WJ-J-2020-004 plot: scientific research and commercial service buildings	Suzhou-Wujiang District	High-Rise Building	Shanghai Baoye Group Co., Ltd.
30	Shandong Wanshan Group Stock Shed Closure Project	Weifang City - Changle County	Warehouse	Shandong Wanshan Group Co., Ltd.
31	Leo New Energy Material Shed Closure Project	Weifang City - Changle County	Warehouse	Shandong Leo New Energy Co., Ltd.
32	Shouning Edible Fungi Industry Chain Development Industrial Park	Fujian Province-Shouning County	Factory	China Railway Third Engineering Bureau Group Construction and Installation Engineering Co., Ltd.
33	Shandong Chongshan Cement Factory 1#2# Material Shed Closure Project	Zibo City - Zichuan District	Warehouse	Shandong Chongshan Group Co., Ltd.

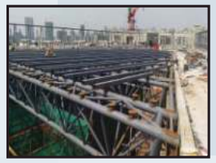
COMPLETED PROJECTS
企业近年已建工程

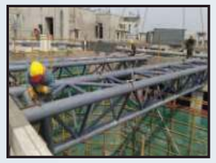
	Project name	Project attribution	Project category	construction unit
34	Steel bridge for vehicles and pedestrians	Anhui Province - Hefei	Steel Bridge	China Railway Fourth Engineering Bureau Group Co., Ltd. Municipal Engineering Branch
35	Suzhou Yongchangjing Section 2, Sluice Pump	Suzhou Wujiang	Steel Bridge	Suzhou Hongda Construction Engineering Co., Ltd.
36	Cross River Steel Structure Landscape Bridge	Wujiang Zhenze	Steel Bridge	
37	Qiyang Expressway Shuanggou Interchange Connection Line		Steel Bridge	
38	Tongyang Expressway Rutai Canal 80-meter steel tube arch bridge		Steel Bridge	
39	Xicheng Canal Channel Maintaince Project Bridge Section I Yangjiawei Bridge		Steel Bridge	
40	Suzhou Modern Service Plaza Circular Corridor	Jiangsu Province-Suzhou	Steel Bridge	Suzhou Xinhefeng Real Estate Co., Ltd.
41	Circular Corridor of the Fifth Affiliated School of East China Normal University	Shanghai-Jiading District	Steel Bridge	Shanghai Construction Second Construction Group Co., Ltd.
42	State Grid Corporation Huangdu Station Steel Structure Portal Frame Project	Tianjin - Hebei District	Infrastructure	State Grid Zhilian E-commerce Co., Ltd.
43	Dalian Electric Porcelain (Jiangxi) Co., Ltd. UHV Line Suspension Porcelain Insulator Factory	Jiangxi Province - Pingxiang	Factory and Office Building	Hongdu Construction Group Co., Ltd.
44	Bihai 110KV transformer substation	Shanghai	Infrastructure	Hongdu Construction Group Co., Ltd.
45	Shanghai Nanyan Railway 110kV Transmission and Transformation Project	Shanghai	Infrastructure	East China Power Transmission and Transformation Engineering Co., Ltd.
46	Beiliuqi 110kV Transmission and Transformation Project	Shanghai	Infrastructure	Shanghai Power Transmission and Transformation Engineering Co., Ltd.
47	Haifeng 110kV Transmission and Transformation Project	Shanghai	Infrastructure	Shanghai Xintai Construction Engineering Co., Ltd.
48	Zhujiajiao 110kV Transmission and Transformation Project	Shanghai	Infrastructure	East China Power Transmission and Transformation Engineering Co., Ltd.
49	Jingnan 110kV Transmission and Transformation Project	Shanghai	Infrastructure	East China Power Transmission and Transformation Engineering Co., Ltd.

COMPLETED PROJECTS
企业近年已建工程

	Project name	Project attribution	Project category	construction unit
50	Jinshan 110kV Transmission and Transformation Project	Shanghai	Infrastructure	East China Power Transmission and Transformation Engineering Co., Ltd.
51	Shanghai Songjiang 110KV Huatie Station Relocation Project	Shanghai	Infrastructure	East China Power Transmission and Transformation Engineering Co., Ltd.
52	Xinghuo 220 kV substation renovation project (civil construction, substation)	Shanghai	Infrastructure	East China Power Transmission and Transformation Engineering Co., Ltd.
53	Feixi New Energy Vehicle Intelligent Industrial Park	Hefei City, Feixi	Factory	China Railway Fourth Engineering Group Co., Ltd. Feixi New Energy Vehicle Intelligent Industrial Park EPC Project Management Department
54	Feixi New Energy Vehicle Intelligent Industrial Park EPC Project Construction Engineering Professional Subcontract Contract (Steel Structure Subcontract Engineering)	Hefei City, Feixi	Factory	China Construction Sixth Engineering Bureau Co., Ltd.
55	2# and 3# new steel structure Factory	Jiangxi Province - Yichun City	Factory and Office Building	Yichun Ruifute New Energy Materials Technology Co., Ltd.
56	Zhangjiang Station covered structure	Shanghai-Pudong New District	Infrastructure	China Railway Fourth Engineering Bureau Group Co., Ltd. Shanghai Branch Shanghai Metro Line 21
57	Hainan Commercial Space Launch Site No. 2 Launch Station Manufacturing and Installation Project	Hainan Province - Wenchang City	Military facilities project	China Railway Electrification Bureau Group Co., Ltd.
58	Linping Canal Energy Storage Project (Phase I) EPC Engineering	Zhejiang Province-Hangzhou	Infrastructure	Zhejiang Kunxing Construction Group Co., Ltd.
59	Lingang Fengxian Industrial Park C10-05	Shanghai Fengxian District	Infrastructure	Shanghai Pudong New District Construction (Group) Co., Ltd.
60	Shanghai Bank Card Industrial Park Phase II Plot 8	Shanghai-Pudong New District	Factory and Office Building	Shanghai Xinjun Construction Group Co., Ltd.
61	Maojia 220 KV power transmission and transformation project	Shanghai	Infrastructure	Shanghai Power Transmission and Transformation Engineering Co., Ltd.
62	Dishui Lake Financial Bay (Plot 25-06)	Shanghai-Pudong New District	High-Rise Building	Zhejiang Zhongcheng Construction Group Co., Ltd.
63	Xiangyang Hanjiang Modern Agriculture Trade Center	Hubei Province - Xiangyang City	Factory and Office Building	China Construction Third Engineering Bureau Group Co., Ltd.
64	Semir Sports Shanghai Industrial Park	Shanghai-Minhang District	Factory and Office Building	Zhejiang Zhongcheng Construction Group Co., Ltd.
65	Rongteng Intelligent Industriual Park	Wuxi	Factory and Office Building	China Communications Construction Group Co., Ltd.

PROJECT CASES 项目实例






China Pharmaceutical University Renovation Project

Location: Nanjing

Building area: 890 square meters

Amount of steel used: 100 tons

Steel Structure Category: Shaped space tube joist structure

Completion time: 2019

Shanghai International Medical Park (SIMP)

Location: Shanghai

Total area: about 64,000 square meters

Amount of steel used: 4200 tons

Steel Structure Category:Steel structure concrete high-rise

Completion time: 2022





Shanghai Hongqiao Airport Parking and Maintenance Hangar

Location: Shanghai

Hangar hall steel roofing area: 13,500 square meters

Span: 160m

Steel Structure Category: Space frame structure

Completion time: 2012

PROJECT CASES 项目实例




Shanghai Electricity Substation

Location: Shanghai

Steel consumption: 110kv (400 tons/pc)
220kv (1400 tons/unit)

Steel Structure Category: Standardized portal rigid frame

Completion date: Long-term maintenance works

Shanghai Bankcard Industrial Park Building

Location: Shanghai

Building area: about 201,600 square meters

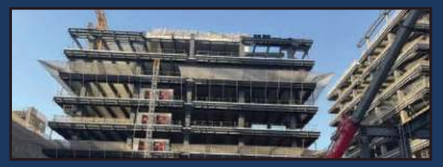
Ground floor area: approximately 151,600 square meters

Basement area: approximately 50,000 square meters

Steel Structure Category: Steel structure concrete high-rise

Estimated completion date: 2025








Shanghai Xietong Aged Care Building

Location: Shanghai

Total floor area: 71,027 square meters

Ground floor area: 60979 square meters

Underground construction area: 10048 square meters

Steel Structure Category: Steel structure concrete high-rise

Completion time: 2021

PROJECT CASES 项目实例

Wuxi Highway Interchange Toll Station (China's largest toll station span)

Location: Wuxi

Building area: about 4240 square meters

Amount of steel used: 800 tons

Steel Structure Category: space tube truss structure

Completion time: 2023

Hangzhou Qiantang New District Service Centre

Location: Hangzhou

Building area: about 2000 square meters

Steel Structure Category: Steel structure concrete high-rise

Completion time: 2020

Shanghai Songjiang Sports Centre

Location: Shanghai

Building area: 12080 square meters

Span: 68m

Steel Structure Category: Space truss structure

Completion time: 2020

PROJECT CASES 项目实例

Semir Sports Shanghai Industrial Park

Location: Shanghai

Area: 59913 square meters

Steel consumption: 7000 tons

Steel Structure Category: Steel structure concrete high-rise

Estimated completion date: 2025

Wugong Mountain Ski Resort

Location: Jiangxi

Building area: 45441.71 square meters

Amount of steel used: 1700 tons

Steel Structure Category: Space truss structure

Completion time: 2024

Shanghai Taopu Smart City

Location: Shanghai

Total floor area: 81030.04 square meters

Ground floor area: 53870.04 square meters

Underground construction area: 27160 square meters

Steel Structure Category: Space pipe truss structure

Completion time: 2020

PROJECT CASES 项目实例

Foshan Subway Line 2

Location: Foshan

Construction: 32.41 kilometers

Steel consumption: 4700 tons

Steel Structure Category: Steel structure industrial working platform

Completion time: 2021

Fifth Affiliated School of East China Normal University

Location: Shanghai

Building area: 56,560 square meters

Steel consumption: 885 tons

Steel Structure Category: Structural steel bridge

Completion time: 2023

Anhui Feixi Electric Vehicles Intelligent Industrial Park

Location: Hefei

Building area: about 510,000~530,000 square meters

Steel consumption: 8000 tons

Steel Structure Category: Space truss Structure

Completion time: 2023

PROJECT CASES 项目实例

Nantong Pingqian International Industrial Park

Location: Nantong

Building area: 85000 square meters

Steel consumption: 3600 tons

Steel Structure Category: Standardized portal rigid frame

Completion time: 2024

Dalian Insulator Group Co., Ltd. Jiangxi Manufacturing Plant

Location: Pingxiang

Building area: more than 150,000 square meters

Steel consumption 4000 tons

Monolithic: 68,000 square meters/each

Steel Structure Category: Space frame structure

Completion time: 2022

Dongchang Middle School of East China Normal University (China Steel Structure Award Winning Project)

Location: Shanghai

Total floor area: 39518.18 square meters

Ground floor area: 29,057.23 square meters (reserved building 1919 square meters)

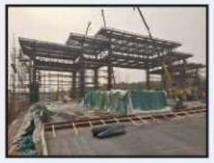
Underground building area: 10460.95㎡

Steel Structure Category: Steel structure concrete high-rise

Completion time: 2023

PROJECT CASES 项目实例



Luoyang Guanlin Highway Toll Station

Location: Luoyang

Building area: 1558.8 square meters

Amount of steel used: 400 tons

Steel Structure Category: Shaped space structure

Completion time: 2017

Zhejiang Canal Museum

Location: Shaoxing

Building area: 34,000 square meters

Steel structure: 12,000 tons

Steel Structure Category: Shaped space structure

Completion time: 2017






Shanghai Pudong Airport Terminal

Location: Shanghai

Steel structure: 400 tons

Steel Structure Category: Shaped space structure

Completion time: 2008

PROJECT CASES 项目实例


Metersbonwe Office Building

Location: Shanghai

Building area: about 4,000 square meters

Steel Structure Category: Shaped space structure

Completion time: 2011

Hainan Wenchang Satellite Launch Platform

Location: Wenchang

Launch platform height: 123m

Steel consumption: 500 tons

Steel Structure Category: Steel structure industrial working platform、Steel structure infrastructure

Completion time: 2014



Ruifut Large-scale Steel Structure Plant

Location: Ganzhou

Building area: 36937.9 square meters

Span: 52m

Height: 30m

Steel consumption: 4090 tons

Steel Structure Category: Standardized portal rigid frame

Completion time: 2024

PROJECT CASES 项目实例

Ruifut Large-scale Steel Structure Plant Project

Location: Hangzhou

Building area: 8100 square meters

Steel consumption: 750 tons

Steel Structure Category: Standardized portal rigid frame

Completion time: 2024

Rongteng Intelligent Industriual Park

Location: Wuxi

Building area: 30,000 square meters

Steel consumption: 7000 tons

Steel Structure Category: Space truss structure

Completion time: 2025

Shouning Edible Mushroom Supply Chain Industrial Park

Location: Shouning

Steel consumption: 2819 tons

Building area: 53847 square meters

Steel Structure Category: Standardized portal rigid frame

Completion time: 2024

PROJECT CASES 项目实例

Suzhou Modern Service Business Plaza

Location: Suzhou

Project: Center Circle Corridor

Diameter: 75m

Steel Structure Category: Steel structure corridor

Completion time: 2023

Lingang New Area Financial Bay Business Center

Location: Shanghai

Building area: 27,186 square meters

Steel consumption: 3800 tons

Steel Structure Category: Steel structure concrete high-rise

Completion time: 2025

Xiangyang Hanjiang Modern Agricultural Trade Center

Location: Xiangyang

Steel consumption: 4000 tons

Steel Structure Category: Standardized portal rigid frame

Completion time: 2024

PROJECT CASES 项目实例

Xiangshan Tunnel, Suzhou Central Ring Road

Location: Suzhou

Steel consumption: 300 tons

Steel Structure Category: Shaped space structure

Completion time: 2017

The Pudong Zhaojiaogou Sluice Pump Project (Largest Pump Gate Project in Pudong since the founding of China)

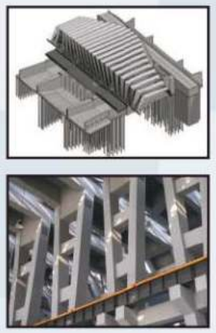
Location: Shanghai

Building area: 9998.7 square meters

Construction scale: 1225.0 square meters

Steel Structure Category:Shaped space structure

Completion time: 2023



Yangcheng Lake Hairy Crab Museum

Location: Suzhou

Building area: 4630 square meters

Steel Structure Category: Shaped space structure

Completion time: 2022

PROJECT CASES 项目实例

STATE GRID Corporation of China Shanghai Huangdu 500kV UHV Tower

Location: Shanghai

Steel consumption: 700 tons

Steel Structure Category: Space truss structure

Completion time: 2022

Previous foreign trade projects (export of components)

Construction of Thermal Power Station in Indonesia

Location: Indonesia

Steel consumption: 1536 tons

Steel Structure Category: Shaped space structure

Completion time: 2022

Indonesia OKI Pulp & Paper Mills

Location: Indonesia

Steel consumption: 1000 tons

Steel Structure Category: Pipe corridor steel structure

Completion time: 2024

BUSINESS SCOPE

业务范围

Xintiandi Steel Structure has extensive experience in managing numerous overseas projects. Our initiatives have successfully launched in dozens of countries worldwide, providing high-quality services to global users.

COOK ISLANDS
库克群岛

CAMBODIA
柬埔寨

SERBIA
塞尔维亚

MALAYSIA
马来西亚

INDONESIA
印度尼西亚

PAKISTAN
巴基斯坦

ETHIOPIA
埃塞俄比亚

ANGOLA
安哥拉

PHILIPPINES
菲律宾

TURKEY
土耳其

SOUTH AFRICA
南非

AUSTRALIA
澳大利亚