PRODUCT BROCHURE

Darshan
Steel Infrastructure

a place for **precise** work

An overview

DSI specializes in providing complete solutions including consulting, design, fabrication and erection of high-quality pre-engineered steel building and steel structure products with help of latest technology and manufacturing facilities.

DSI provides a reliable approach for fast turnkey construction primarily for non-residential buildings such as manufacturing plants, heavy industry, warehouses, high-rise building, shopping mall, exhibition centers, commercial, sports centers, offices, transportation, and aircraft hangars.

Plant Facility & Capacity:

Production line of DSI is totally closed with highly automatic and advanced facilities, which provides superior quality and high precision of products, having 1,050 MT production capacity per month.

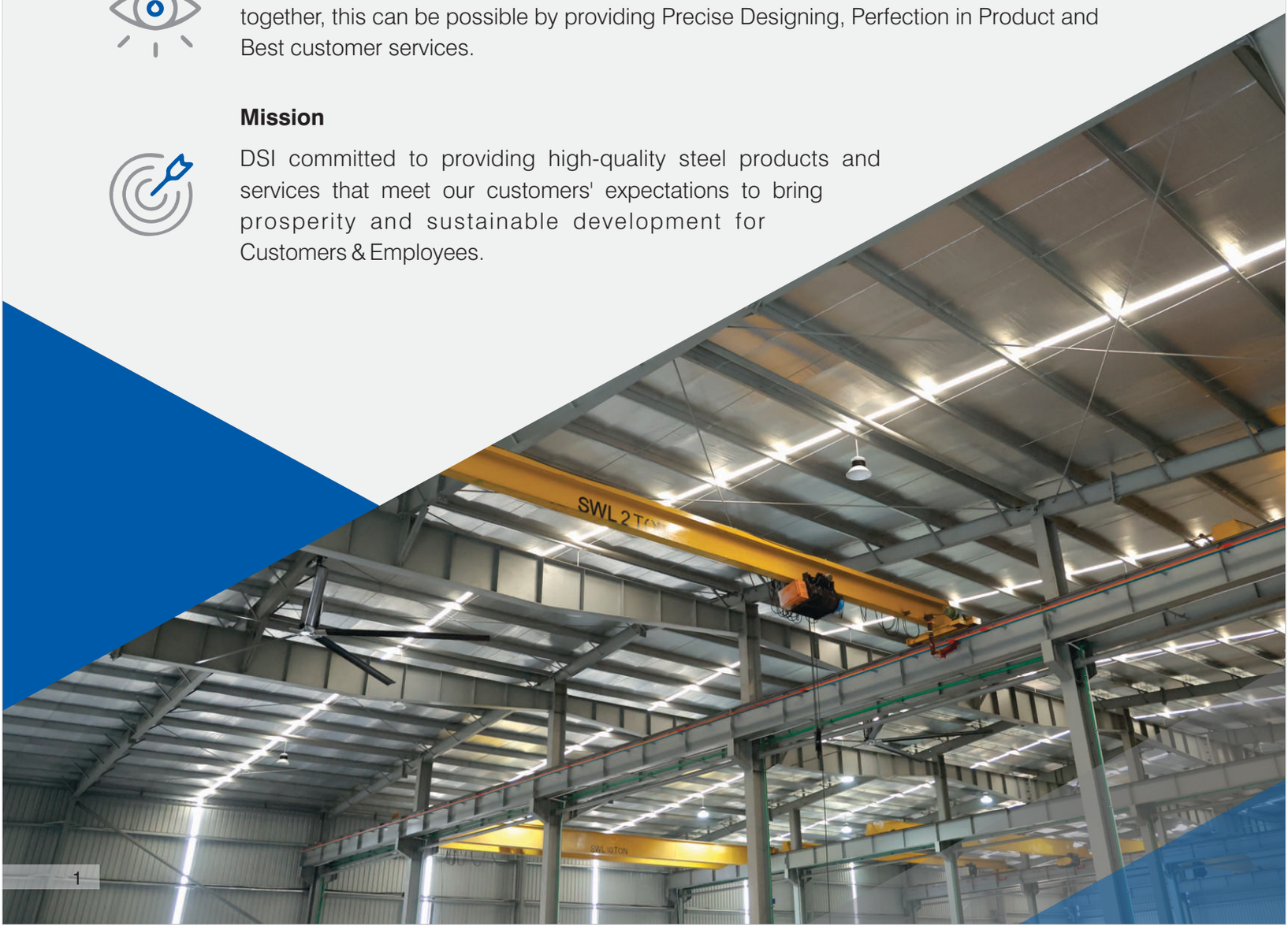
Vision & Mission

Vision

In DSI, client delight is the backbone of each action we take and building the forum future together, this can be possible by providing Precise Designing, Perfection in Product and Best customer services.

Mission

DSI committed to providing high-quality steel products and services that meet our customers' expectations to bring prosperity and sustainable development for Customers & Employees.



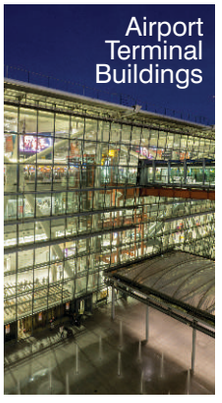
Pre-Engineered Buildings (PEB)

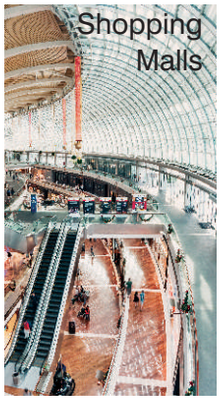
Pre-engineered building is built over three members Primary members (columns, rafters, bracing, Canopies), Secondary members (Z or C purlins, girts, eave struts), Cladding Systems (Roof and wall sheeting) connected to each other.

The entire primary members and secondary members are designed and fully fabricated including cut-to-length, punching, drilling, welding and prefabricated in the factory before shipping to the site for erection.

At the site, all components are assembled and joined via nut & bolt connections; thereby reducing the costs and assembly times.

Applications of PEB





Advantages of using PEB

Single Source Responsibility

As the complete building package is supplied by single vendor compatibility of all the building components and accessories are assured. This is one of the major benefits of the pre-engineered building systems.

Flexibility in Expansion

Steel Buildings can be easily expanded in the length by adding additional bays. Also, expansion in width and height is possible by pre-designing for future expansion.

Enhanced Speed of Construction

Steel is highly suitable for prefabrication and mass production Steel structures can be erected quite rapidly, resulting in quicker economic payoff. The construction time is 30% faster than the conventional building.

Foundations

Pre-engineered Buildings are about 30% lighter than the conventional steel structures. Hence, the foundations are of simple design, easy to construct and lighter weights.

Erection

Steel Structure is faster to erect compare to RCC frames, since all the connections of the different components are standard, the erection time is faster.

Durability

In contrast to reinforced concrete, steel properties do not change considerably with time

Low Maintenance

Buildings are supplied with high quality paint systems for cladding and steel to suit ambient conditions at the site, which results in long durability and low maintenance costs.

Earthquake Resistant

Properly designed steel structures can have high ductility, which is an important characteristic for resisting shock loading, such as blasts or earthquakes.

Energy Efficient Roof & Wall Systems

Buildings can be supplied with polyurethane insulated panels or fiberglass blanket insulation to achieve required 'U' values.

Optimal & Aesthetic Designs

Steel has a high strength/weight ratio. Thus, the dead weight of steel structures is relatively small. Steel can aid in innovative designs compared to concrete.

Functional Versatility

- Large clear Spans (up to 100m).
- Long Bay Spacing (up to 13m without Jack Beams).
- Modular construction.

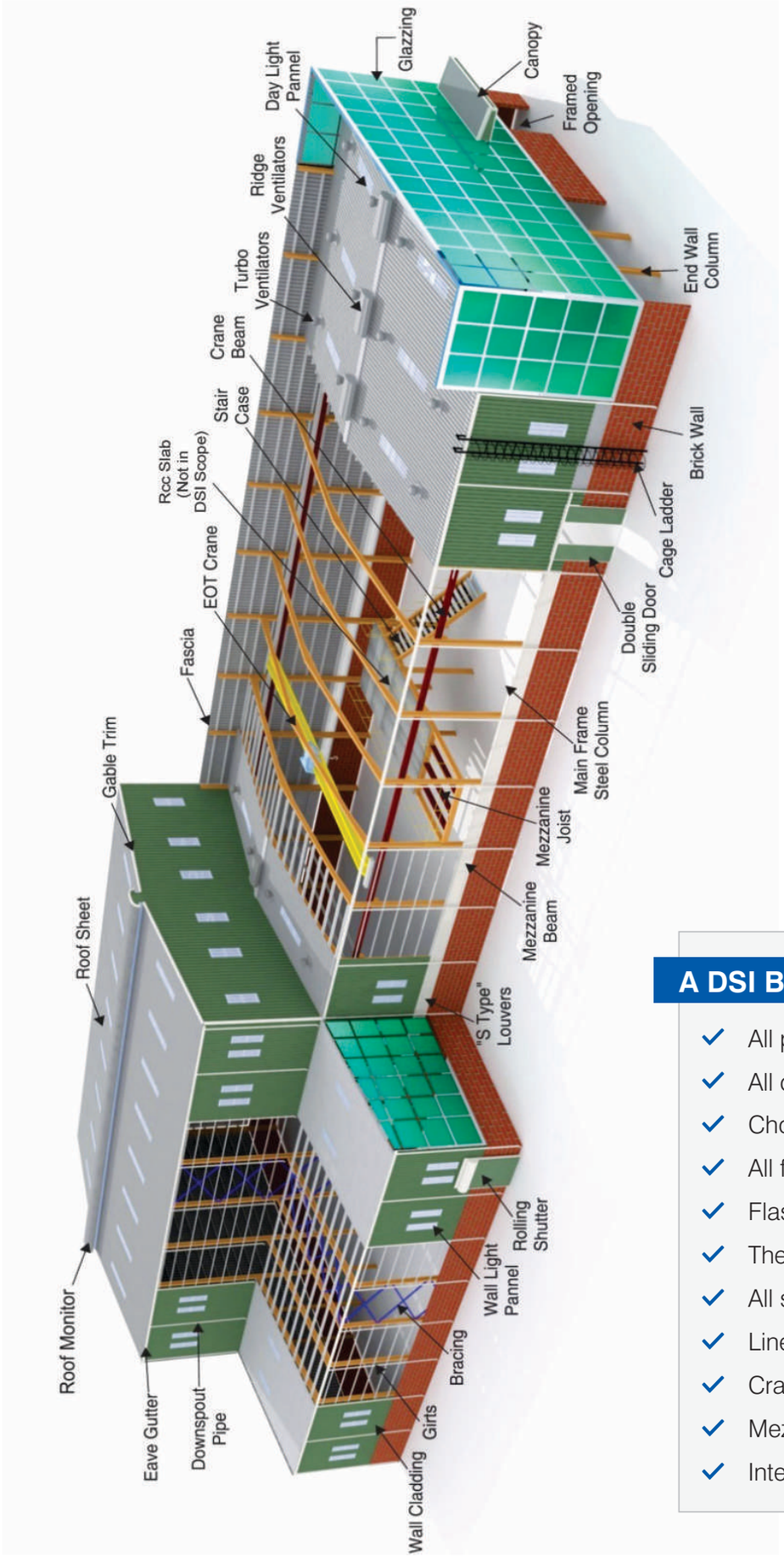
Quality Control

As buildings are manufactured completely in the factory under controlled conditions, the quality is assured.

Early Occupancy

Reduced project time results in early occupancy results in economic advantage to the clients.

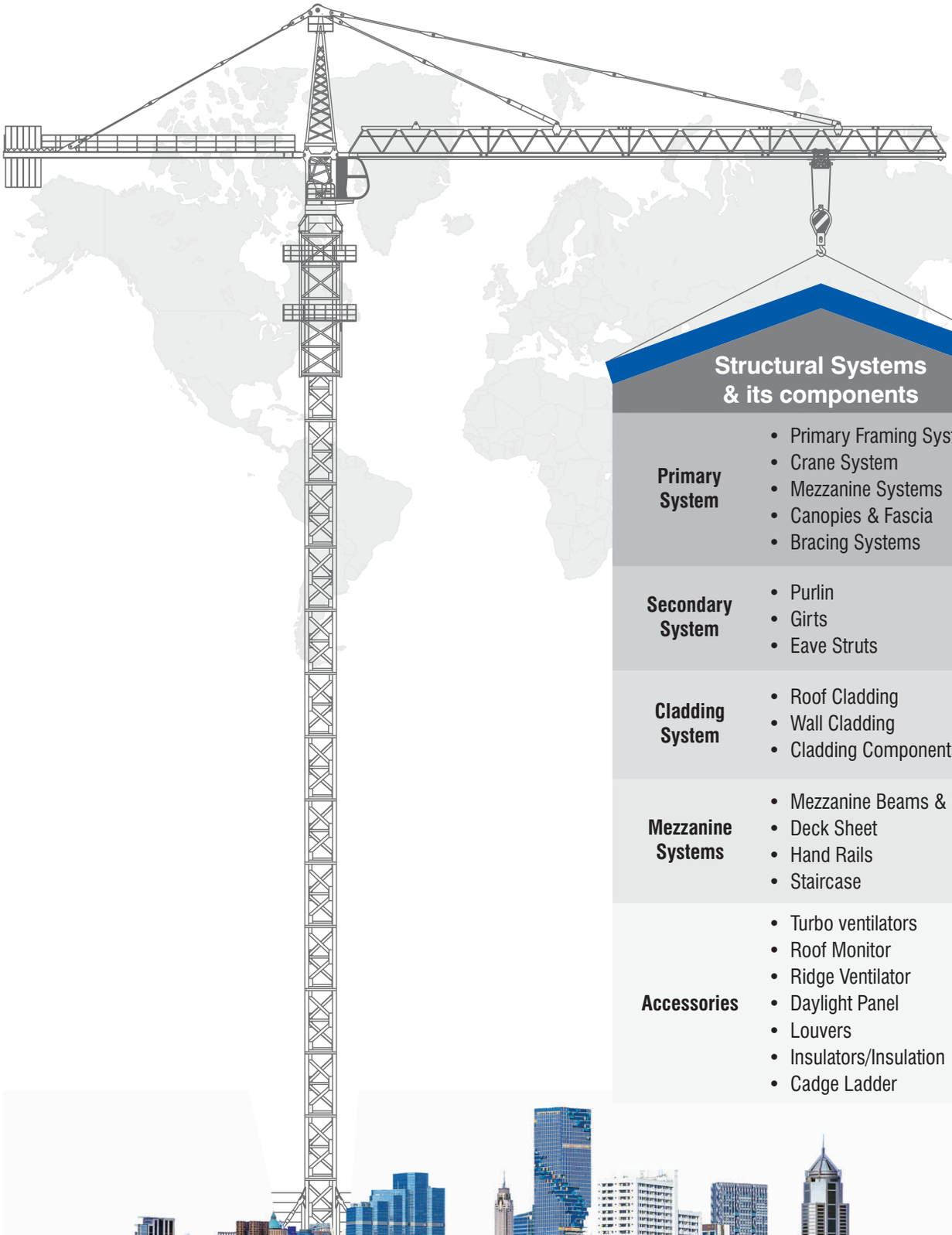
Pre-Engineered Building Components



A DSI Building includes...

- ✓ All primary and secondary framing
- ✓ All connecting parts
- ✓ Choice of different roof and wall systems
- ✓ All fixings
- ✓ Flashing
- ✓ Thermal and/or acoustic insulation
- ✓ All sealants for weather proofing
- ✓ Liner panels
- ✓ Crane beams and rails
- ✓ Mezzanine floors
- ✓ Integrated accessories

PEB Structural Systems



Structural Systems & its components	
Primary System	• Primary Framing System • Crane System • Mezzanine Systems • Canopies & Fascia • Bracing Systems
Secondary System	• Purlin • Girts • Eave Struts
Cladding System	• Roof Cladding • Wall Cladding • Cladding Components
Mezzanine Systems	• Mezzanine Beams & Columns • Deck Sheet • Hand Rails • Staircase
Accessories	• Turbo ventilators • Roof Monitor • Ridge Ventilator • Daylight Panel • Louvers • Insulators/Insulation • Cadge Ladder

Primary Framing System

Primary frame systems are the main load carrying and support members of a pre-engineered building. The shape and size vary based on application and requirements.

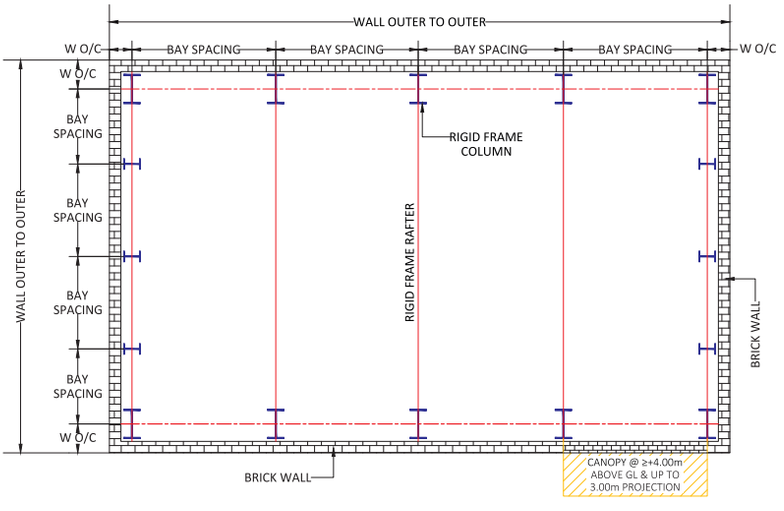
The main frame members such as Columns, Endwall posts, Rafters & other main support members, are the main load carrying member.

Specifications

- All profiles are shot blasted to SA 2.5 for surface finish by automatic shot blasting machine
- To afford protection during transportation and erection, all profiles receive a primer coat of 80 microns thickness.
- Optionally, corrosion protection paint can be provided, with a thickness of 100 microns.

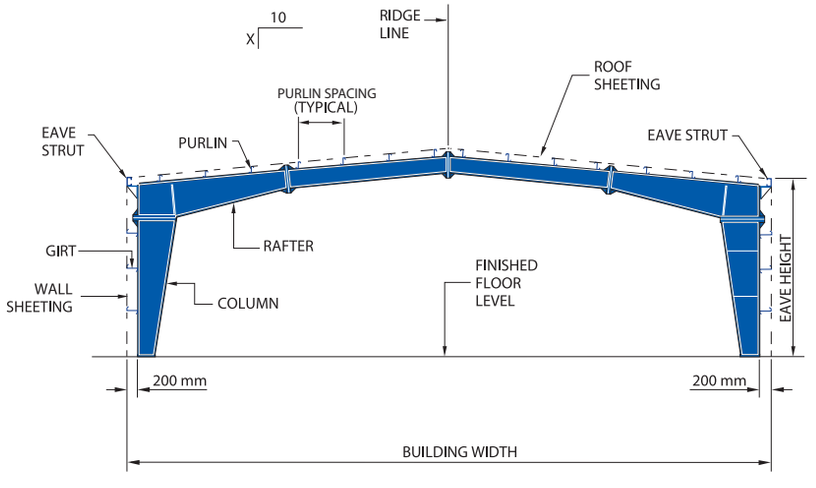
Basic Parameters of Pre-engineered Building

- **Building Width**
- **Building Height**
- **Building Length**
- **End bay Spacing**
- **Interior bay Spacing**
- **Design Loads**
- **Roof Slope**
- **Ancillary service areas required**



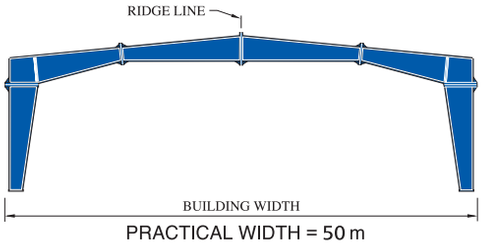
Advantages

- Aesthetic Profile
- Optimum clear space
- Easy adaptation of the building in case of modification or change of building use
- Fast and easy erection



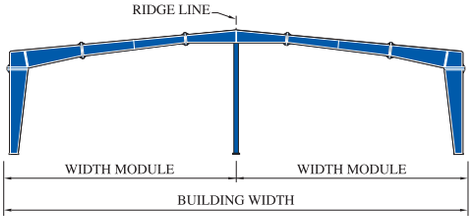
Types of Primary Framing System

Clear Span (CS)



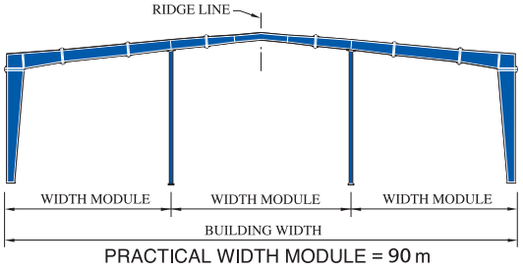
PRACTICAL WIDTH = 50 m

Multi-Span “1” (MS-1)



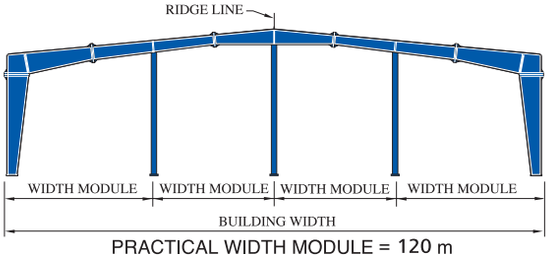
PRACTICAL WIDTH MODULE = 70 m

Multi-Span “2” (MS-2)



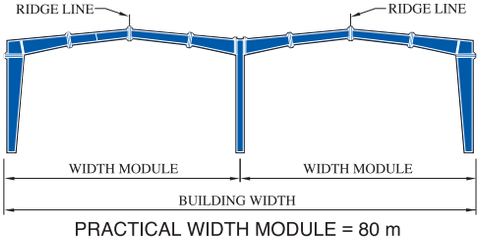
PRACTICAL WIDTH MODULE = 90 m

Multi-Span “3” (MS-3)



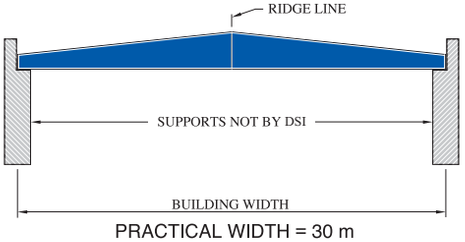
PRACTICAL WIDTH MODULE = 120 m

Multi-Gable (MG)



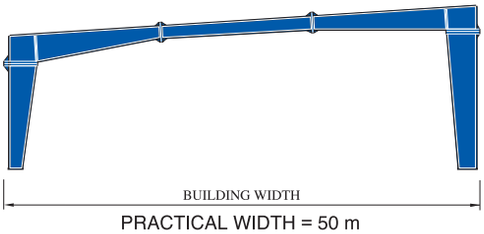
PRACTICAL WIDTH MODULE = 80 m

Roof System (RS)



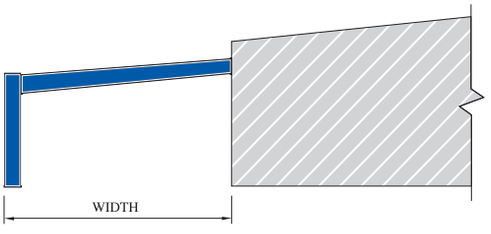
PRACTICAL WIDTH = 30 m

Single Slope (SS)



PRACTICAL WIDTH = 50 m

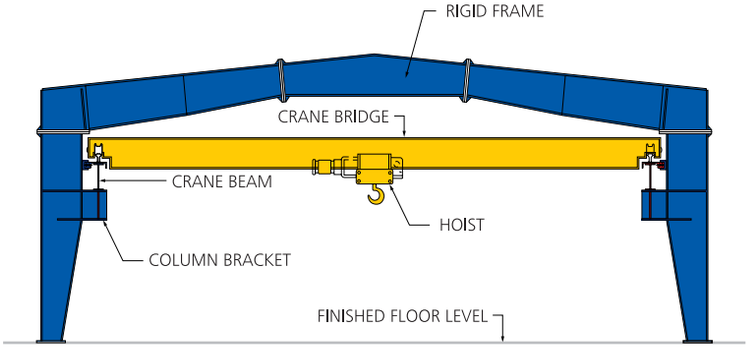
Lean-To (LT)



PRACTICAL WIDTH = 24 m

Crane Beam System

All PEB buildings can be designed to support any required Crane Systems. Generally EOT overhead traveling crane up to 30MT, can be rest on brackets. For heavier capacities, an independent support system is provided.



TOP RUNNING CRANE

Standard Supply

- ✓ All fixing components, cleats and fasteners
- ✓ Standard finish: shot blast SA 2.5 and shop primer 80 microns
- ✓ Static calculations and erection drawings

Features

- ✓ Heavy-duty rails
- ✓ Laminated rails for easy replacement of the crane rail
- ✓ Continuous welding of crane rail to crane beam
- ✓ End stops, excluding rubber buffers
- ✓ Technical Specifications
- ✓ Standard crane capacity: ≤30 tons
- ✓ Standard crane span: < 30m
- ✓ Crane types: I (single girder) and II (double girder)

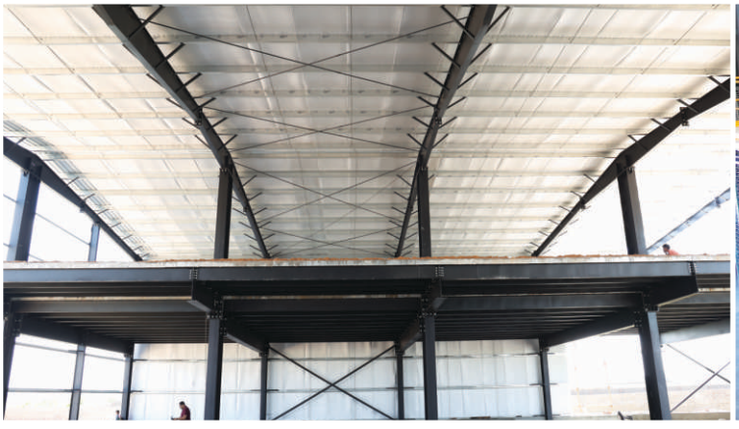
Advantages

- ✓ Perfect integration in DSI buildings
- ✓ Single source supply for crane beams and building
- ✓ Optimization of bay spacing and crane beam span
- ✓ Integrated design of the crane rail beams in the building

Mezzanine Systems

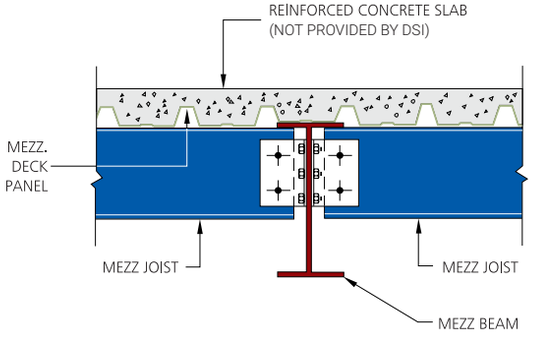
A mezzanine floor is an intermediate floor between main floors of a building. Standard Mezzanine floor system consists of Galvanized profile steel deck, joists the beam and intermediate support columns. A light concrete is used to make a permanent floor.

Mezzanine floors can be designed to accommodate all kinds of manufacturing equipment and production lines, and can integrate with existing logistics and storage systems.

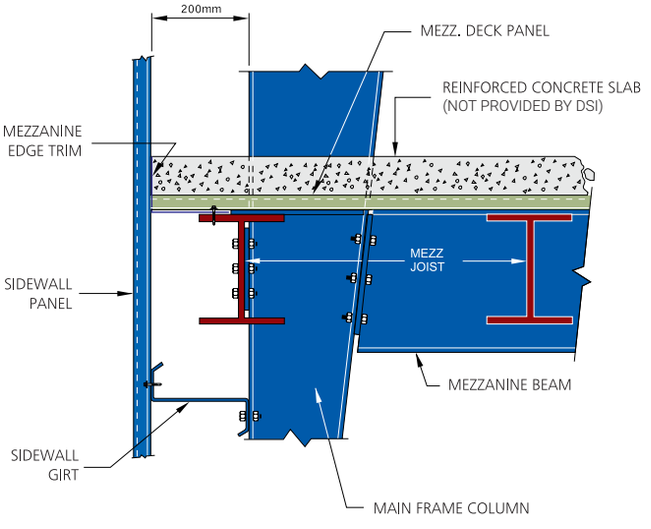


USES OF MEZZANINE FLOORS

- Storage Mezzanines
- Retail Mezzanines
- Office Mezzanines
- Production Mezzanines
- Warehouse Mezzanines
- In-situ concrete solution



Mezz. Joist Connection To Mezz. Beam



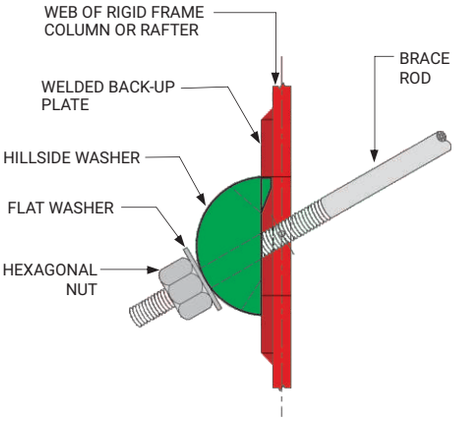
Mezz. Beam Connection To Mainframe Column

Advantages

- ✓ Single source supply for mezzanine and building
- ✓ Integrated design of the mezzanine in the building
- ✓ Maximized use of building space
- ✓ Reduced construction time: simultaneous erection of mezzanine and the building

Bracing Systems

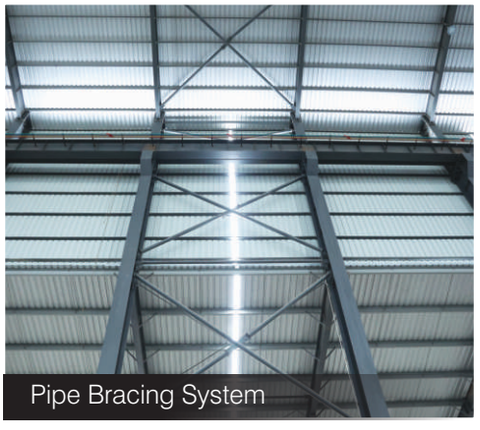
The purpose of design the bracing member is, to ensure the stability of the building against forces in the longitudinal & lateral direction due to wind, cranes, earthquakes, and transfer these loads rafter & columns to foundation.



ROD BRACING

Portal Bracing System

Rod Bracing System



Pipe Bracing System

Canopies

Canopies are narrow roof systems that cantilever (below the eave of a building) from the sidewalls and end walls, which is basically acting as sun shed over the door or window to protect the rainwater / sun access to the building.

Canopies are structurally designed and place at eaves, end wall, over the doors and windows are also available.

Curving Canopy

Straight Canopy

Secondary System

Secondary members act as struts that help in resisting part of the longitudinal loads that are applied on the building such as wind and earthquake loads, and they provide lateral bracing to the compression flanges of the main frame members thereby increasing frame capacity.

Secondary framing consists of the elements which support the roof and wall sheeting and which transfer loads to the primary framing:

- Purlins
- Girts
- Eave Struts
- Bracing Systems

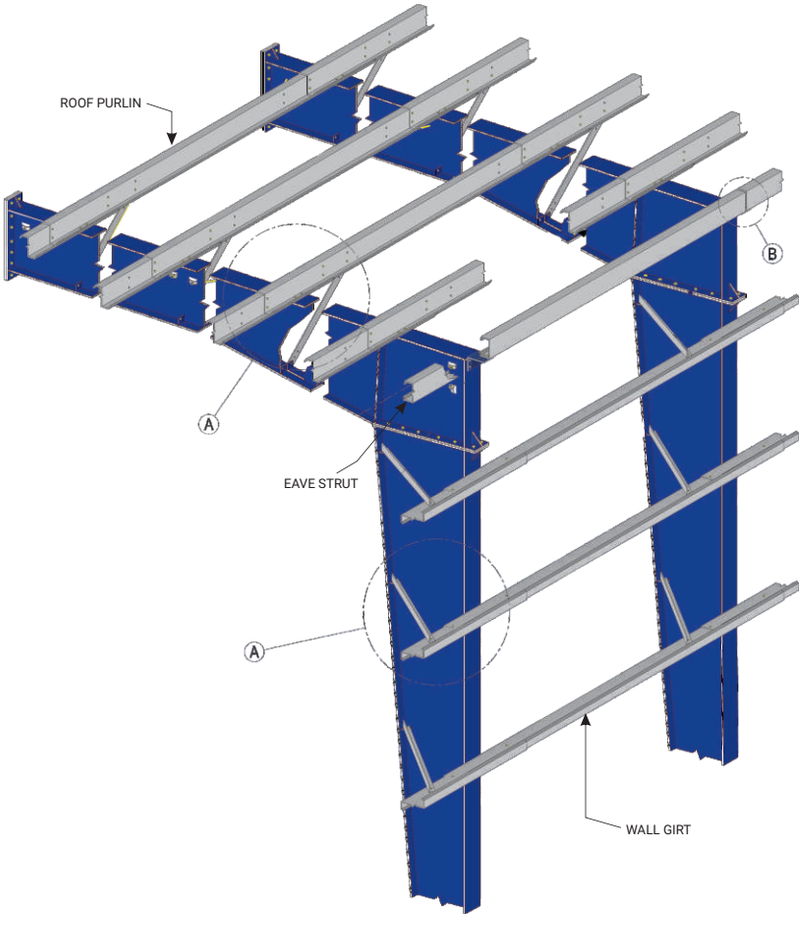
Purlins & Girts

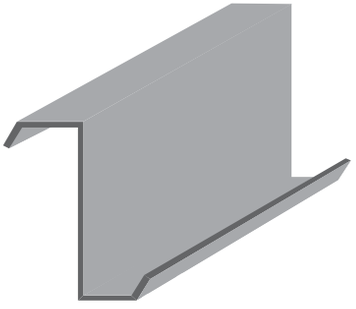
In pre-engineering Building, mainly purlin & Girt of Z & C shapes of various sizes. Typically cold form members used for the roof are called purlin and for the walls it called as girt however profile for the both in general is the same.

Eave Struts

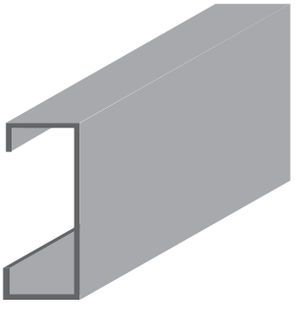
Eave struts shall be Z or C sections with various Depth & Thickness as per requirement at the End of the rafters. This member transmits longitudinal wind force on the end walls from roof brace rods to wall brace rods. Such Eave Struts are constructed from the cold formed C-Sections.

Eave Struts are located along the sidewalls, at the intersection of planes of roof and side walls.





Z - SECTION



C - SECTION

Cladding System

Cladding systems are used to provide weather covering for roof and walls from the external condition, steel structure needs to be covered fully/partially as per functional requirements.

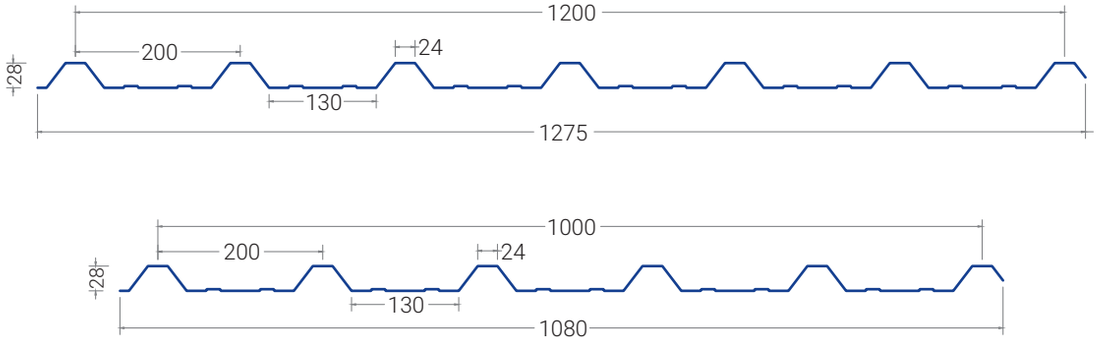
Technical Specification of Roof Cladding & Wall Cladding:

- Long span ribbed panel: coverage width 1200mm or 1000mm as per profile.
- 0.50mm to 0.8mm core thickness,
- High tensile strength steel – S550
- Fixed to the structure with self-drilling stainless steel screws

Base Material

1. Bare Galvalume
   - As per IS 513
   - Thickness: 0.4 mm to 0.8 mm
2. Color Coated Galvalume
   - As per IS 513 (AZ 150)
   - Thickness: 0.4 mm to 0.8 mm
3. Color Coated Galvanized
   - As per IS 277 (120 GSM)
   - Thickness: 0.5mm to 0.8mm

Cladding System Profile Details



INPUT WIDTH	SUPPLY WIDTH	EFFECTIVE WIDTH	PITCH	DEPTH
1450	1275	1200	200	28
1220	1080	1000	200	28

Advantages

- ✓ An economical and practical solution
- ✓ An increase of safety and water tightness thanks to the strength of its fixation
- ✓ Attractive and economical
- ✓ Easy to install
- ✓ Cost-effective energy efficiency
- ✓ Long-term performance

Color Options

- DSI Dark Grey
- DSI Galvalume
- DSI Off White
- DSI Taurus Blue
- DSI Stone Grey
- DSI Red
- DSI Leaf Green

Standing Roof Seam System

Standing Roof Seam systems are used to provide weather covering for roof from the external condition, steel structure needs to be covered fully as per functional requirements.

Technical Specification of Standing Roof Seam:

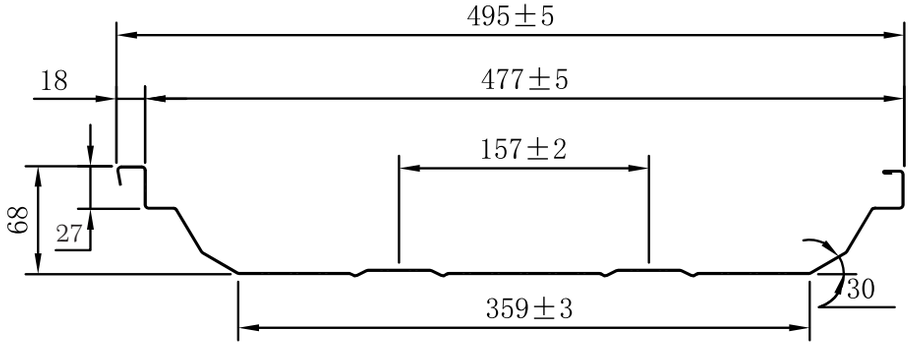
- 0.50mm to 0.8mm core thickness
- High tensile strength steel – S350 MPA
- Fixed to the structure with standing seam clips.

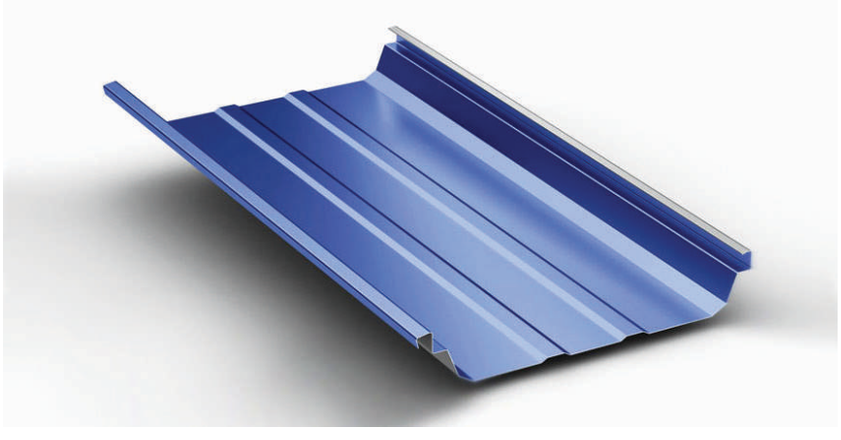
Base Material

1. Bare Galvalume
   - As per IS 513
   - Thickness: 0.5 mm to 0.8 mm

2. Color Coated Galvalume
   - As per IS 513 (AZ 150)
   - Thickness: 0.5 mm to 0.8 mm

Standing Seam Profile Details





Standing Seam Profile

Standing Seam Sheet Connection

Cladding Components

Corner Flashing

Top Opening Flashing

Bottom Flashing

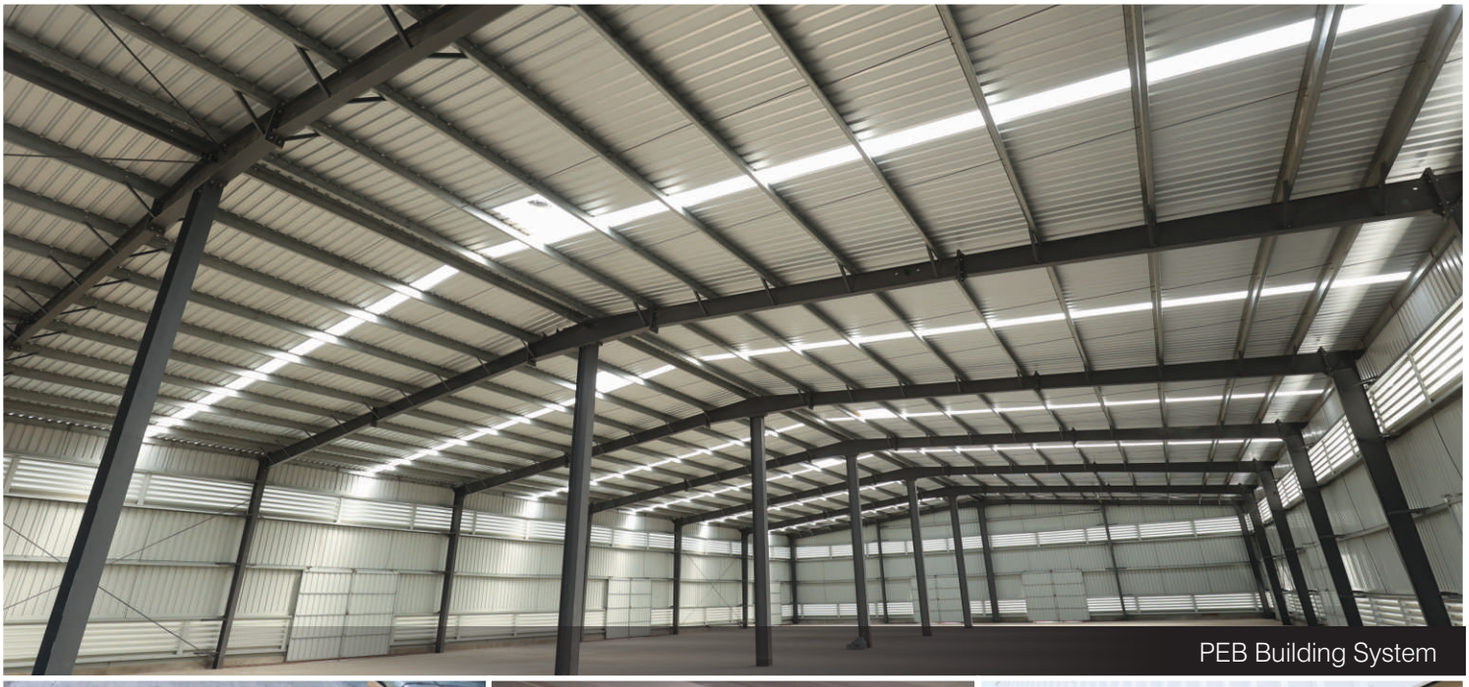
L Type Flashing

Side Opening Flashing

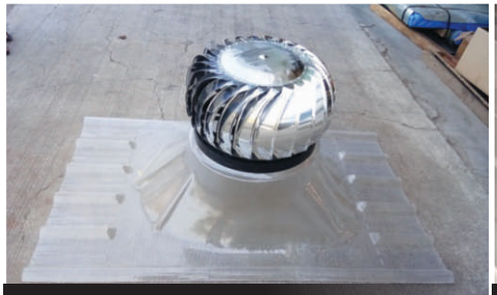
Building Accessories

Building accessories may not be important structurally but it is very important functionally and it adds the performance of the building. Sky light, Wall Light, Doors, Windows, louvers ventilator, turbo vent, insulation roof cube, etc. are equally important to smooth functioning of the building.

In addition to main building components, depending on user-requirement.



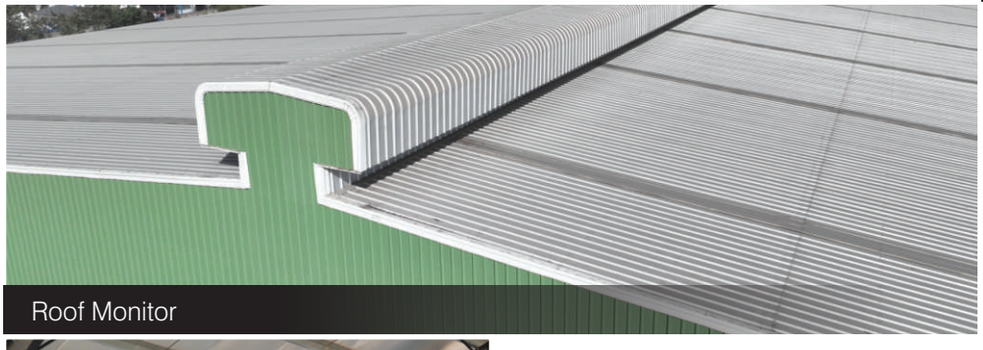
PEB Building System



Turbo Fan

Poly-carbonate Sheet

S-Type Louvers



Roof Monitor

Insulation

Nut-Bolts

Cadge Ladders

Multistory

The structure consists of columns, beams and stabilization elements. Beams and columns are made of hot-rolled or welded profiles, purlins and rails of cold-formed, galvanized profiles.

STEEL STRUCTURE

Columns are fixed to the foundations by anchor bolts embedded in the concrete.

Construction elements are connected to each other with galvanized, high-tensile steel bolts. All welded and hot-rolled construction elements are shot-blasted according to SA 2.5 and have a color coating.

Optionally, elements can be supplied hot-dip galvanized.

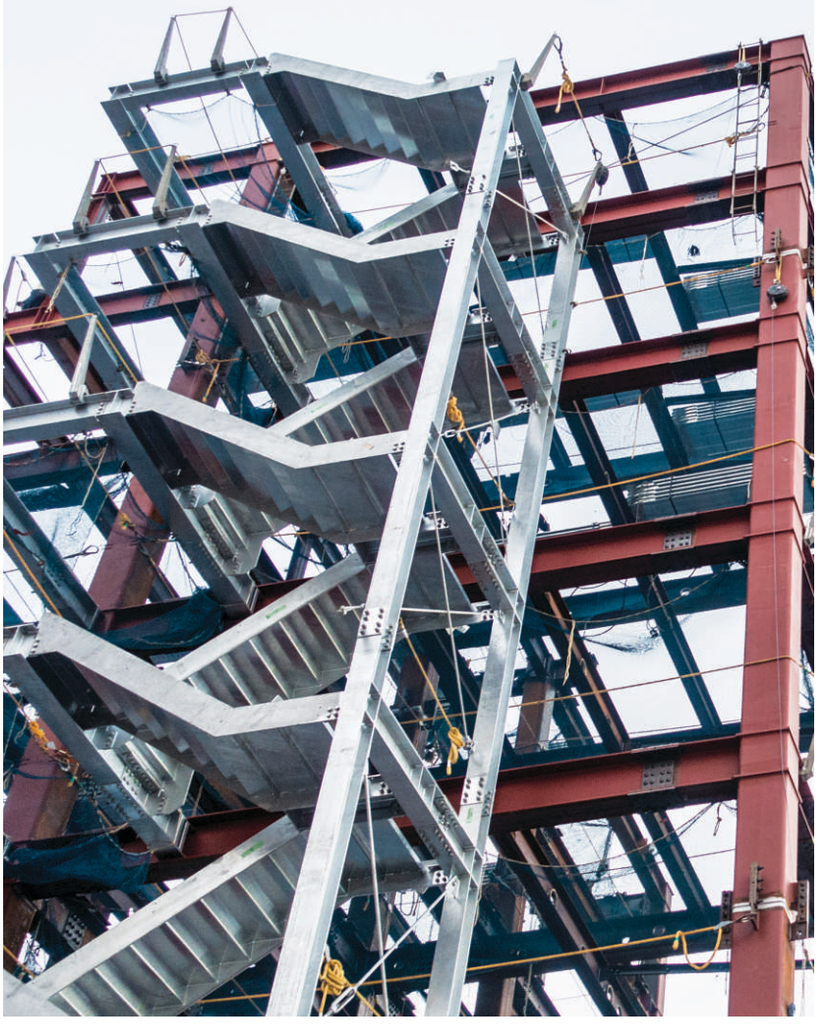
The design based on a 3-dimensional approach allows various structure options using narrow columns to meet customer requirements and optimize costs.

STABILIZING ELEMENTS

The diaphragm effect of the floor elements, as well as the wind bracing in the roof ensure the horizontal stability of the building.

Depending largely on the arrangement of the balcony, but also on the building use, vertical stability is provided by additional elements, combined under specific conditions; these may be:

- Cross bracing (the basic option, low cost and highly effective)
- A stabilization frame, which allows greater flexibility in the installation of doors and windows
- Concrete walls or concrete cores such as lift wells or staircases



Advantages

- ✓ Few and narrow columns, therefore wide, empty floor spaces
- ✓ Low building height due to integrated beams
- ✓ 3D design for an optimized conception
- ✓ Steel frame construction is more suitable to withstand lateral loads caused by the wind or seismic.
- ✓ Quick and simple erection thanks to bolted connection.

Gratified Clients

Mascot Forge Pvt Ltd., Rajkot

Type
Forging Unit

Area
12,020 Sq. Mt.

Davat Beverages Pvt. Ltd., Gondal

Type
Beverages Products

Area
10,140 Sq. Mt.

Lemit Paper LLP, Morbi

Type
Duplex Paper Mill

Area
19,920 Sq. Mt.

Crane
35 Metric Ton

Ambani Paper LLP, Morbi

Type
Duplex Paper Mill

Area
10,490 Sq. Mt.

Crane
25 Metric Ton

Fortune Enterprise, Rajkot

Type
Logistic Park

Area
11,850 Sq. Mt.

Crane
15 Metric Ton

Shilpan Boardlam Pvt. Ltd., Rajkot

Type
Plywood / Laminates

Area
12,990 Sq. Mt.

Actionware India Pvt. Ltd., Morbi

Type
Home Appliances

Area
2,550 Sq. Mt.

Crane
2 Metric Ton

Action Metal & Tubes LLP, Rajkot

Type
Metal Industries

Area
4,700 Sq. Mt.

Crane
5 Metric Ton

G M Engineering, Rajkot

Type
Valve Manufacturing

Area
3,185 Sq. Mt.

Crane
10 + 2 Metric Ton

Austrol Non-Woven, Rajkot

Type
Non-Woven Goods

Area
3,940 Sq. Mt.

West Point Industries LLP, Rajkot

Type: Aluminum Castings **Area:** 3,450 Sq. Mt.

Ajay Gadhiya, Rajkot

Type: Warehouse **Area:** 3,515 Sq. Mt.

Grecy Homeware (India) Pvt Ltd., Rajkot

Type: Home Appliances **Area:** 2,530 Sq. Mt.

A & J Microns Pvt. Ltd., Morbi

Type: Microns **Area:** 3,550 Sq. Mt.

Lemina Paper Industries, Morbi

Type: Paper Industries **Area:** 3,650 Sq. Mt.

Ackma Woodlam Pvt. Ltd., Morbi

Type: Wooden Industries **Area:** 3,600 Sq. Mt.

Bag-Tech Polymers, Rajkot

Type: Poly Pack **Area:** 2,880 Sq. Mt.

Refractory Shapes Pvt. Ltd., Morbi

Type: Refractory Bricks **Area:** 5,200 Sq. Mt.

Eddy Bath Fittings, Rajkot

Type: Bath Fittings **Area:** 1,680 Sq. Mt.

Equinox Solar Pvt. Ltd., Rajkot

Type: Solar Industries **Area:** 1,105 Sq. Mt.

Sagar Industries, Rajkot

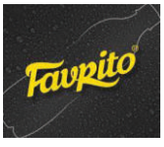
Type: Poly Foam **Area:** 2,850 Sq. Mt.

Shayna Polymers LLP, Morbi

Type: Plastic Industries **Area:** 2,325 Sq. Mt.

Connecting dots...

We believe that a happy customer is the best marketing strategy, and we strive to exceed our customers' expectations with every interaction.



Many more projects are under construction...

Why choosing
Darshan Steel Infrastructure?

SINGLE WINDOW SOLUTION
Consultancy, Design, Fabrication, Erection

DSI is able to offer a complete process of high-quality steel structure, including consultancy, design, fabrication & erection. This integrated the production process will bring to our customers huge advantages of an optimal solution, high quality products and perfect customer services.

FAST DELIVERY & ERECTION

Buildings are designed with low engineering complexity can be designed, detailed, fabricated, and shipped from our plant in less than 6 weeks. We work closely with our clients to meet their delivery targets.

SAFE & COST EFFECTIVE DESIGN SOLUTION

Advanced and customized software determines the exact position of each part of the structure. Combination of structural strength with optimum use of steel to ensure the safety and longevity of steel structure.

ADVANCED MANUFACTURING FACILITY

State of Art factory that manufactures all the PEBs components under one roof, with the help of advanced CNC based Cutting, Welding and Forming machine which provide precise and fast production of PEB structure with the high quality control.

STANDARD & HIGH QUALITY MATERIAL

DSI mainly use high-grade materials for building components and offer quality products. Our material specifications always meet the industry requirements. We use high strength steel of yield strength from 345MPa for all the Primary Member & secondary member, 550MPa grade material is used for Roofing.

QUALITY ASSURANCE

Quality check of strength and appearances carried out at every stage and every piece of manufacturing to execution to ensure the excellent end product with high durability.

FUTURE EXPANSION

Since all the member of structure such as Columns, Endwall posts, Rafters & other main support members are connected with the bolts so expansion of PEB structure is easy and simple by adding additional bays. Also, expansion in width and height is possible by pre-designing for future expansion

PERFECT CUSTOMER SUPPORT AND SERVICES

With the regular attendance of the project management board to serve customer's from the beginning to the final stage of project, customers can be sure of the quality, on schedule progress and guaranteed service.

Project Work Flow

Identifying Customers need

Develop possible solutions
& select promising one

Providing Quotation with promising solutions

DSI offers best proposal with Promising solution to all kinds of PEB structure

Finalizing deal and Receiving Purchase order

DSI's experience Design, Fabrication & Erection team Start planning to Complete project in optimum time

Getting Approval of general Arrangement drawing from Customers

After approval of GA drawing detail Design drawing and erection drawing will be prepared.

Fabrication and Supply of Structural Material

All the Fabrication Work is done By CNC. Cutting, Welding, Forming Systems, etc.

Erection Process

Providing Quotation
With Promising Solution

Work completion certificate from Customer

A project completion certificate is issued when a project is completed in its entirety with fully satisfaction from customer.

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Darshan
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