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**We are devoted to your business success**





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## Company Profile



Since its establishment in Al Obour City and throughout thirty years, Emcon has been improving its Capabilities with each individual project to become a major manufacturer in the field of steel structures.

Our distinguished services have widen our opportunities to serve the giant organizations in both local and global markets.

Emcon is well positioned to provide clients with the most durable and optimum steel structures to best meet their requirements and expectations with high service levels.

Emcon offers a complete range of Pre-engineered buildings starting from providing the best and optimized Structural Solutions, Engineering Study, Design Drawings, Steel Manufacturing and Installation along with all related accessories to match the international standard and to ensure customers satisfaction for a fruitful business relationship.

Having improved the factory capabilities to about 25,000 MT annually, we have strengthened our presence locally and globally.



## Our Vision



To become the most reliable steel manufacturer and supplier reaching the highest class of integrated solutions, engineering capabilities and business commitment.

## Our Mission

To keep improving our ascendant curve of superior services, pursuing our customers satisfaction by providing high class of integrated solutions accompanied by high quality steel products and providing all related services within an environment of dedicated employees focusing on our first and only aim; our clients satisfaction.

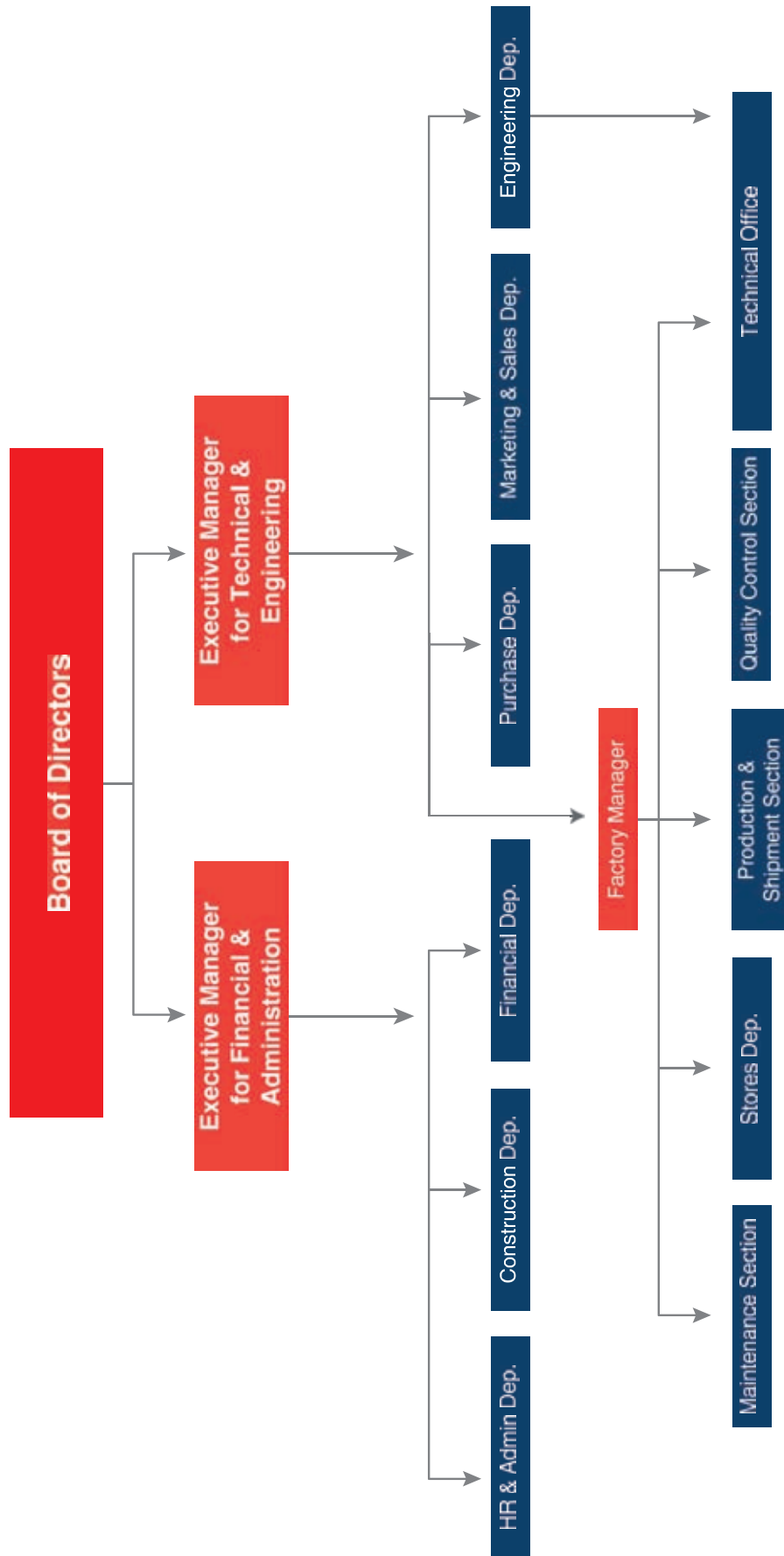


## Our Values

- Business integrity, honesty & transparency.
- Gain creditability and trust of our clients.
- Continuous improvement of our products.
- Belief in customer driven total solutions.



# Organization Structure







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perfection; your  
destination is  
EMCON**

## **Sales and Marketing**

From the initial thinking of your project, you can definitely depend on our sales team where you can find the best prospective plan for your building whatever your field is...

You will be provided by the best solution through their engineering experiences and tools taking into consideration all your business aspects whether you are in food industry, textile or even you have a commercial or Institutional business; our sales team will focus on the necessary information which closely match with your building behavior to provide you with. which will enable you to make the proper decision in terms of efficiency, cost and time.

You will be assisted by all the possible means of cooperation to reach the project's consultant approval, focusing on his needs and requirements to be achieved with the lowest cost and time impact.

In addition to their guidance in the initial phases; our sales engineers will be managing your project from the spot it begins till the final hand over, coordinating all the project phases from engineering to installation in order to respond to all the arising complaints if any, as we consider your business success is our own success....



A detailed photograph of an engineering workspace. In the foreground, a large, clear plastic set square is placed over a technical drawing of a mechanical part. To its right, a blue ballpoint pen lies horizontally. Above the pen, a silver metal compass is open. In the background, several rolled-up blueprints are visible, with one showing a cross-section labeled 'SECT. -Y-'. The blueprints are filled with technical drawings, lines, and text. A red triangular graphic is overlaid on the top left corner of the image.

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## Engineering

As we believe that our clients always aim for a building with both accuracy and economic aspects; our engineering department use its value engineering concept to create an optimized design to achieve a fully functional solution.

Our highly qualified engineers will thoroughly study your building's requirements using the most advanced international programs like Tekla, X-steel, Staad and Sap to make best use of materials with the minimal waste possible.

All designs are done according to the latest versions of international and local codes and standards according to the location and requirements of the building:

- Egyptian Code of Practice ECP (in Egypt)
- American Institute of Steel Construction (AISC)
- American Iron and Steel Institute (AISI)
- American Welding Society (AWS)
- Metal Building Manufacturers Association (MBMA)

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## Production

Our factory is located in Al Obour City. It covers an area of 20,000 m<sup>2</sup> where our products are fabricated with the most modernized facilities, machines & equipment.

Our workshop produces high quality building components through sophisticated operations with a capacity exceeding 2000 MT per month.



## Cutting

Our cutting service center produces the most accurate and quality products using 4 computerized hydraulic shears (Guillotine) and CNC flame cutting machine up to 6,000 mm width for shears and 3,000 mm width for flame cutting machine.

## Bending

Bending service using 300 ton press brake CNC machine up to 6,100 mm in length and up to 8 mm in thickness.







## Welding and Assembly

Our welding center is equipped with two of the most modern automatic welding and assembly beam lines with up to 16,000 mm in length, web thickness up to 16 mm, web width up to 1500 mm, flange thickness up to 35 mm thickness, tapered web up to 15 degrees. For larger beams we have special automatic welding machines.



## Drilling Station

Our drilling equipment has the capability to drill holes starting from 16Ø mm up to 70Ø mm to produce most varied bolted connections.

## Surface Treatment

We use sand blasting prior to painting or galvanizing our products in our facilities ensuring a quite clean steel surface. Airless spraying machines for epoxy and special paints are also available.

## Cold Formed Sections

In one single-roll space we can produce Cee, Zee, U & eave purlins with thickness ranging from 1.5 to 3.5 mm and length up to 15,000 mm.

All forming processes with tolerance +/- 1 mm.

Coil width up to 750 mm.

## Sheeting

We offer corrugated profiles with the following characteristics:

- a) Corrugated panels for walls and roofs with thickness from 0.5 mm – 0.7 mm.  
( Panel Width = 1.0 & 1.1 m )
- b) Ribbed panels for mezzanine with thickness from 0.5 mm – 1.2 mm.  
( Panel Width = 0.83 m )

## Your project phases with EMCON

*Your project is our main concern, while passing through its several stages it takes our full attention to deliver you a building exceeds your expectations.*



### Quotation

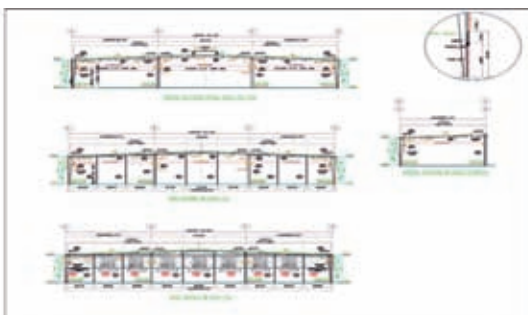
As soon as receiving your Request for Quotation (RFQ) our sales engineers work on evaluating your needs and discuss your requirements to advise you with the most suitable solution which exactly meets your vision.

Typical buildings usually take from 2 – 4 days to feed you back with our detailed financial and technical offer along with clarifying proposal drawings enabling you to have the full image of your future project so that you can take your decision based on an accurate study.

### Contract Signature & Order Entry

Once reaching our suitable compromise and all financial and technical details are agreed and approved from both parties, we will have the honor to cooperate with your esteemed organization by signing our contract.

Our order begins to be activated after contract signature to proceed with our further steps.

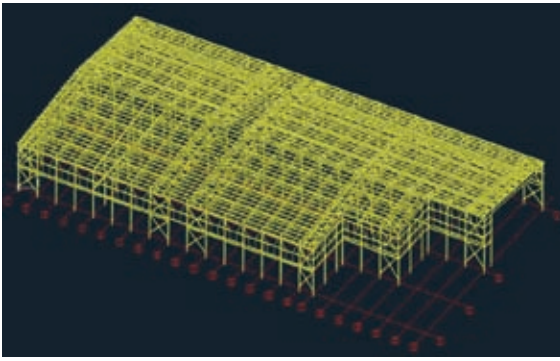


### Design Drawings

Approximately 1 to 2 weeks are needed to prepare our approval drawings for typical buildings, then submitted to the consultant to be studied and approved.

In case there are any comments it will be taken into consideration and modified until reaching the final approval in order to proceed with our shop and erection drawings.





## Detailing

After final approval of design drawings; our engineering department starts with the detailing stage which includes preparing of shop drawings, erection drawings and Bill of Materials (BOM).

## Production

As clarified above your building components pass through a highly controlled Production stages starting immediately after the detailing stage in coordination with your site representative and our sales support to be fully aware of your priorities to be in best line with your prospective time schedule.



## Shipping

After receiving a clear permission from the quality division, our shipping department is fully responsible for the proper packing and shipping of all your fabricated materials to site.

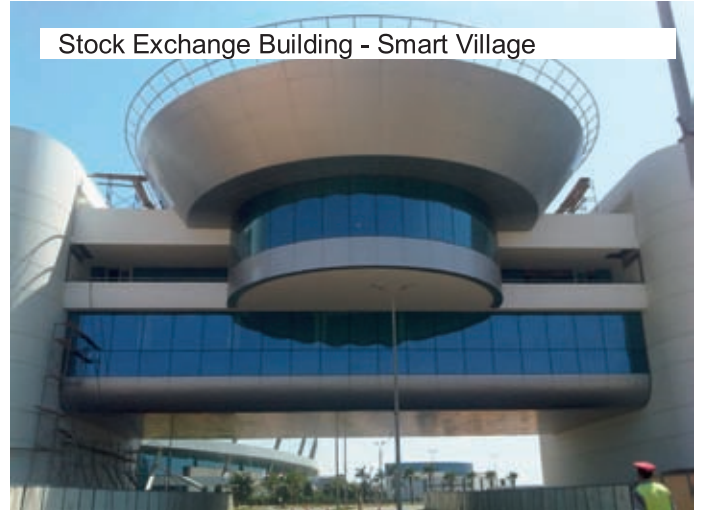
## Erection

As soon as all your civil works are completed, our erection crew will be ready with their highly qualified members and equipment to start executing your steel building within our agreed time frame.

Emcon scope of work includes inspection of anchor bolts and footings prior to erection of main frames, secondary frames, roof and wall cladding and any other needed materials mentioned in our contract to ensure handing over of a complete functional steel building totally ready for your aim.



# Handover





*Our main scope is fabrication, supply and erection of pre-engineered buildings (PEB) with all its related components and accessories necessary for the full completion of steel buildings.*

## **Pre-Engineered Buildings (PEB):**

Pre-engineered buildings (PEB) concept has been simply created to fabricate a steel building using best suited inventory of raw materials from all sources and manufacturing methods that can efficiently satisfy a wide range of structural and aesthetic design requirements.

An efficiently designed pre-engineered building can be lighter than the conventional steel buildings by up to 30% and to achieve that, we need to consider all design parameters such as clear span between bearing points, bay spacing, roof slope, live loads, dead loads, collateral loads, wind uplift, deflection criteria, internal crane system and maximum practical size and weight of fabricated members.

Pre-engineered buildings can be adapted to suit a wide variety of structural applications which enabled it to fulfill a huge share of steel market needs.

## **Applications of PEB can be classified as follows:**

### **Industrial:**

- Factories.
- Workshops.
- Warehouses.
- Cold stores.
- Car sheds.

### **Institutional:**

- Schools.
- Exhibition Halls.
- Hospitals.
- Theaters.
- Sports Halls.

### **Aviation & Military:**

- Aircraft Hangers.
- Maintenance Hangers.
- Military Shelters.

### **Commercial:**

- Shopping Centers.
- Showrooms.
- Restaurants.
- Hyper Markets.
- Service Stations.

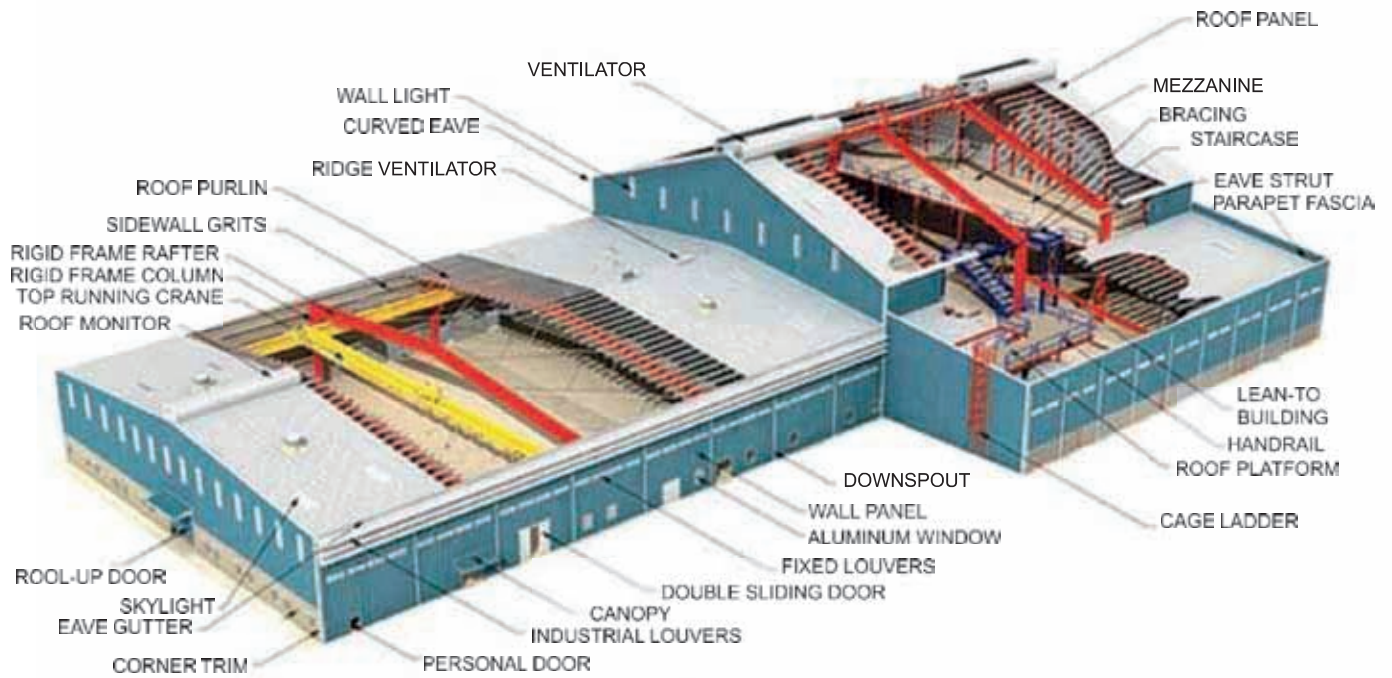
### **Agricultural:**

- Rearing Sets.
- Grains Storage.
- Green Houses.
- Animal Confinement.
- Pump Stations.

### **Heavy Industries:**

- Power Plants.
- Cement Plants.
- Ceramic Factories

## Pre-engineered building (PEB) parameters and components:



## Main Building Parameters

### Building Width

Building Width is Defined by one of the Following:

- Out to Out of steel line (distance from outside of eave strut at one side wall to the outside of eave strut in the opposite side wall).
- Center to Center (distance from center line to center line of external column bases of main rigid frame).
- Inside to Inside (the inside distance between the 2 external main frame columns at the knee).





## Building Length

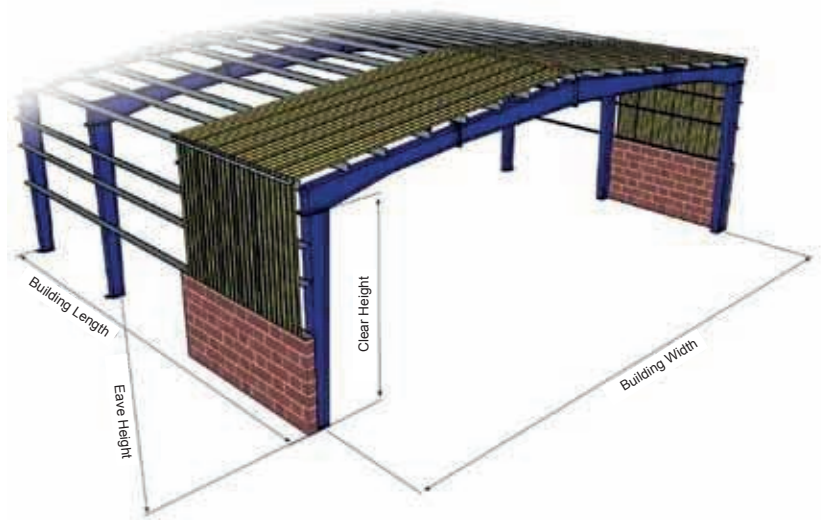
### Building Length is Defined by One of the Following:

- Out to out of steel line (In case of flush girts, The length of the building is the distance from outside of end wall column flange at one side to the end wall column flange at the opposite side).  
  
(In case of bypass girts, The length of the building is the distance from outside of end wall girt at one side to the end wall girt at the opposite side).
- Center to Center (distance from centerline of main frame (post) at one endwall to the center line of main frame (post) at the opposite endwall).
- Inside to inside (the inside distance between the endwall columns at one endwall to the opposite columns at the other endwall).

## Building Height

### Building Height is Defined by One of the Following:

- Eave height: is the height from outside the building between Finish Floor Level (FFL) and to the top of eave strut.
- Clear height: is the height inside the building from the FFL to the bottom of the rafter at the outer column.



## Roof Slope

Is the inclination of the roof with respect to the horizontal; the most common roof slope is 0.5 : 10 and 1.0 : 10 and it can be changed according to the design and customer requirements.

## Interior Bay Length

Is the distance between centerlines of 2 adjacent intermediate frame columns.

## Exterior Bay Length

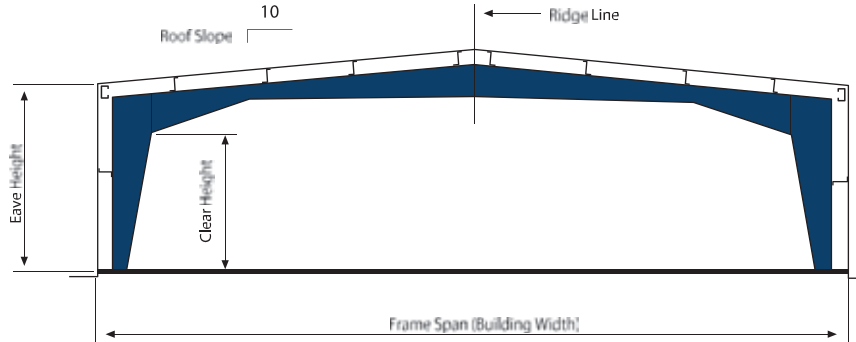
Is the distance from outside of endwall column flange (in case of flush girts) to the centerlines of the first interior frame column and the distance from outside of endwall girt (in case of bypass girts) to the centerlines of the first interior frame column.

# Main Framing Systems

## Main Rigid Frame

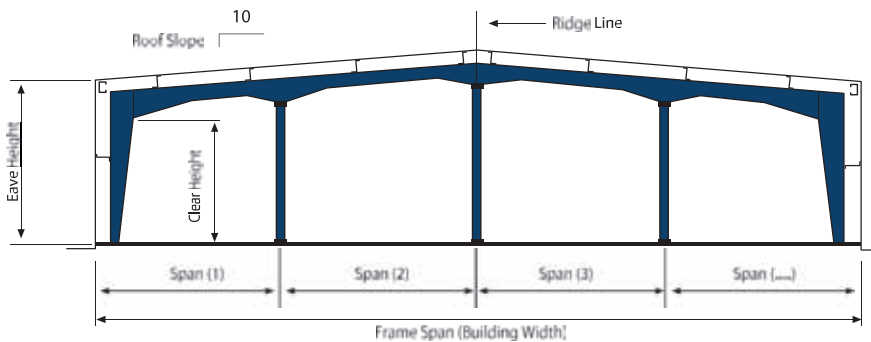
### Clear Span Rigid Frame

A CLEAR-SPAN frame has a single ridge and consists of built-up rafter and column sections. Columns are Hinged at the base as a standard (fixed bases maybe Utilized too) rafter is continuous.



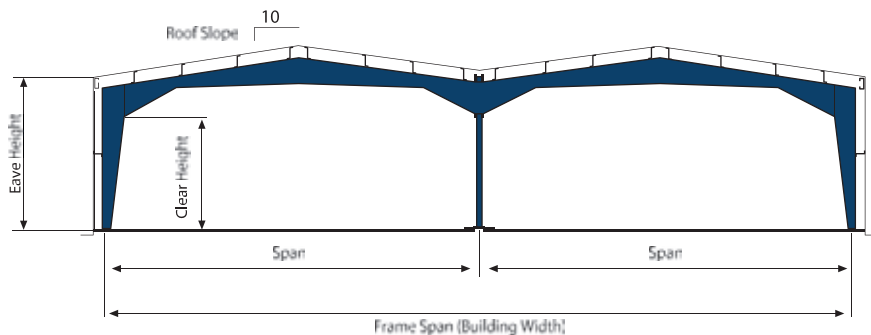
### Multi-Span Rigid Frame

A MULTI-SPAN Rigid Frame has a single ridge and consists of Built-up rafter and sidewall column sections. Columns are Hinged at the base as a standard (fixed bases may be utilized too). Rafter is continuous throughout. All interior columns are straight-hinged at bases. Frame can contain as many spans as required.



### Multi-Gable Rigid Frame

A MULTI-GABLE Rigid Frame has multi-ridges and consists of Built-up rafter and sidewall column sections. Columns are Hinged at the base as a standard (fixed bases may be utilized too). Rafter is continuous throughout. All interior columns are straight-hinged at bases. Frame can contain as many gables as required.

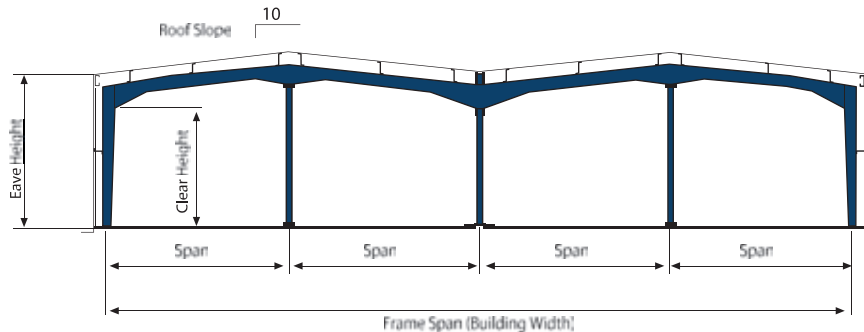




## Multi-Gable / Multi-Span Rigid Frame

A MULTI-GABLE / MULTI-SPAN Rigid Frame has multi ridges and consists of Built-up rafter and sidewall column sections. Columns are Hinged at the base as a standard (fixed bases may be utilized too).

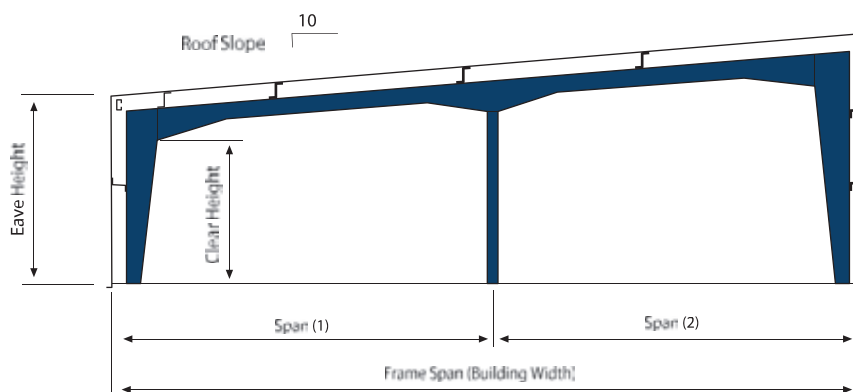
Rafter is continuous throughout. All interior columns straight hinged at bases. Frame can contain as many spans or gables as required.



## Single-Slope Rigid Frame

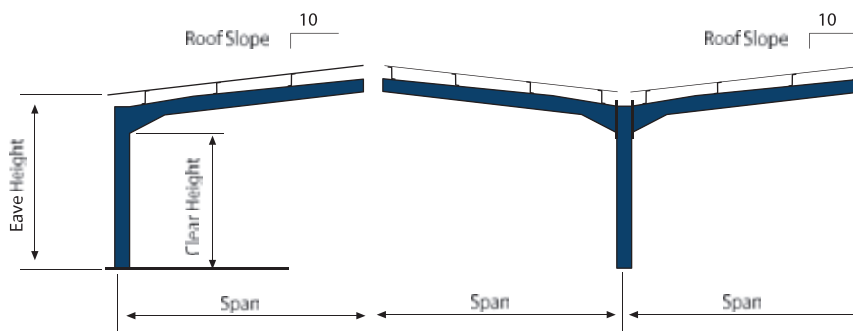
A SINGLE-SLOPE rigid frame has no ridge and consists of built-up rafter and column sections. Columns are Hinged at the base as a standard (fixed bases may be utilized too).

Rafter is continuous.



## L and T Shed Frame

L or T SHED Frame consists of Built-up rafter and one column section. Columns are FIXED at the base as a standard.

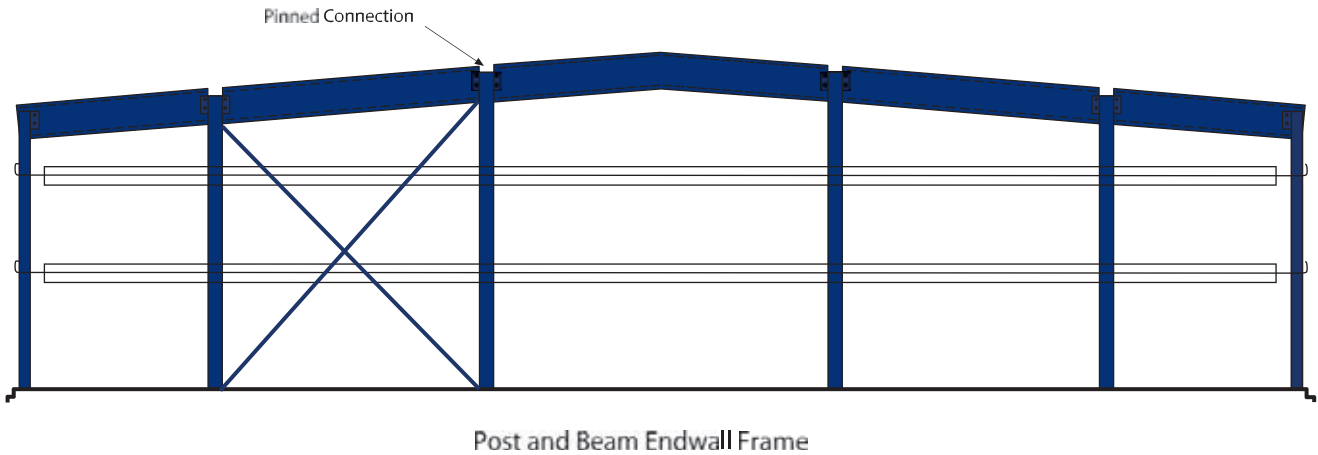


## Endwall Framing

Endwall frame is usually designed on only half load of a typical bay to reduce the cost of the building. There are two main types of endwall frames, each is used according to the building function.

### 1- Post and Beam:

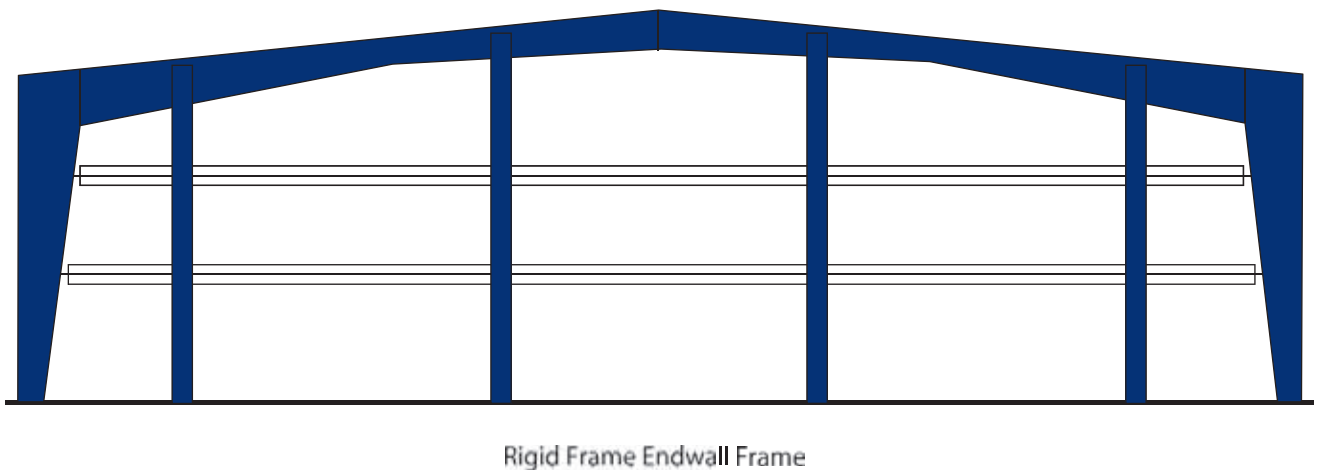
It is commonly used and consists of light-rolled sections. All connections are pinned. Stability of the system is acquired by bracing system.



### 2- Rigid Frame:

To be used in the following cases

- If there is a future extension along the building from this end (in this case frame is designed on full load).
- Where there is a crane runway at the end bay.
- If the building end is required to be fully opened for access to the building.

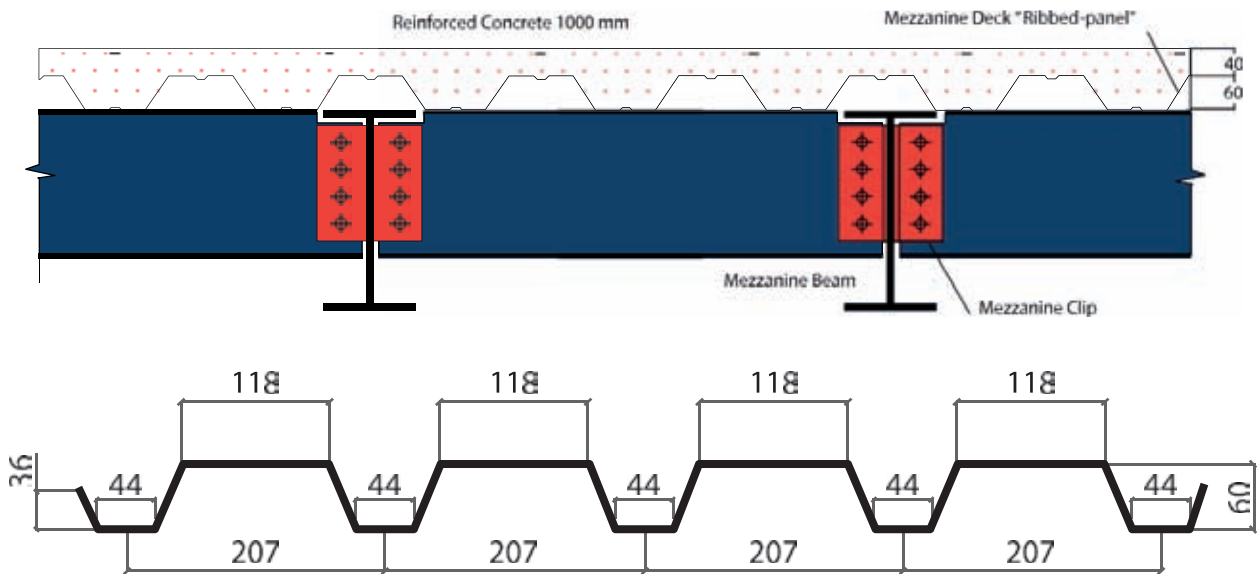




# Additional Framing Systems

## Mezzanine

Mezzanine is an internal elevated area within the steel building, which can be used as an office or storage area.



### The Components of Mezzanine are:

The mezzanine framing can be connected to the main rigid frame columns for lateral stability or can be with separate framing system inside the building.

Mezzanine columns are designed as hinged base spaced from 5m to 9m.

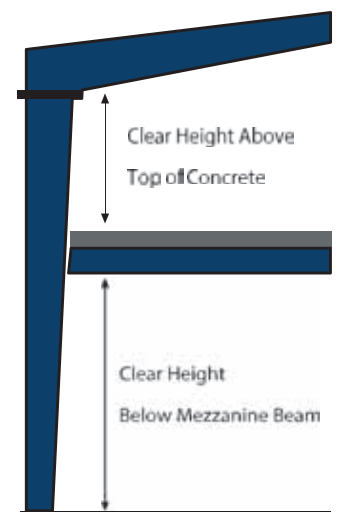
Mezzanine main beams are arranged in the direction of the main frame rafter and connected to the main frame columns or the mezzanine columns.

Mezzanine joists are spaced 1,4m to 2,0m for average loads and connected to the main beams.

Mezzanine decks are normally corrugated 0.7mm galvanized steel sheets (0.5mm to 1.2mm) acting as a temporary shuttering, which carries the load of concrete (normally 10cm concrete).

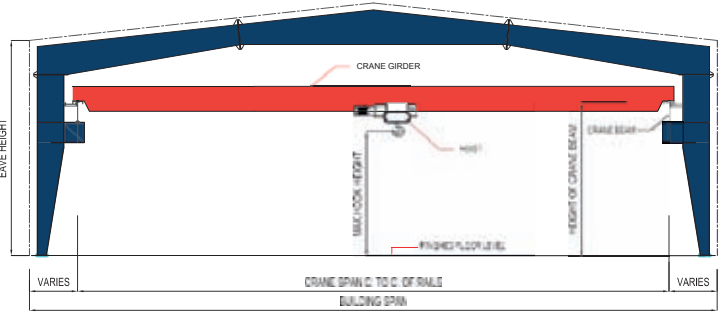
### Mezzanine Main Data:

- Dead load (depends on concrete thickness, type of floor finish and above walls).
- Live Load depends on the use of mezzanine.
- Clear height below mezzanine beams/joists.



# Crane Systems

Crane supporting system can be designed for Pre-Engineered buildings for ideal use of area after providing the accurate crane data in order to provide the most economical and safe design for the building.

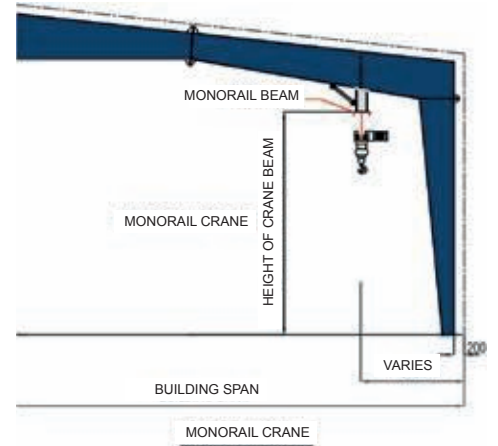


**TOP RUNNING CRANE IN CLEAR SPAN BUILDING**

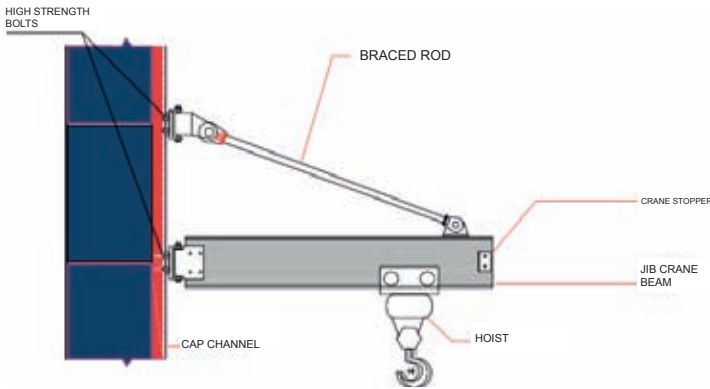
The following data should be well defined:

- Type of crane ( top running single or double girder, under hung, monorail and jib crane).
- Number of cranes.
- Lifting capacity.
- Location of crane inside the building.
- Travel length of each crane.
- Distance between crane rails.
- Hook height or crane beam height.
- Static maximum wheel load (+impact %).
- Minimum distance between consecutive cranes.
- Wheel base and bumper to bumper distance of end carriages.
- Vertical and horizontal clearance.

The crane technical data can be provided by the crane supplier or manufacturer.



**MONORAIL CRANE**

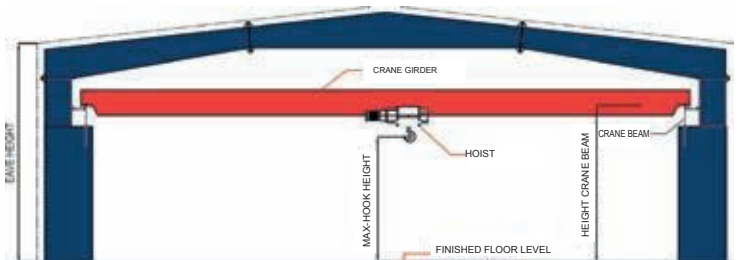


**JIB CRANE DETAIL**

The standard supplies for top running, overhung and rail cranes includes crane runway beams (no rails), brackets, kickers and bracing system.

For JIB cranes a cap channel is welded to the column flange with a lateral wall bracing.

When the loads of crane are extremely high (more than 20 ton) the bracket is substituted with stepped column or even separate columns.





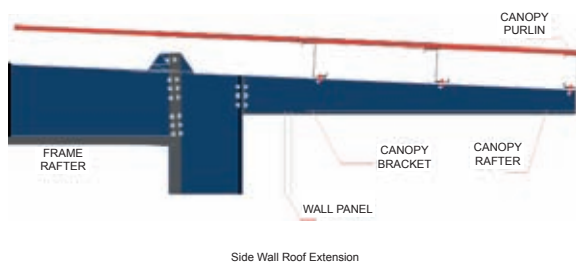
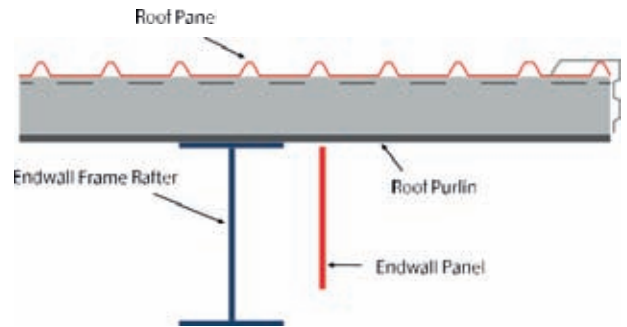
## Roof Extensions

Roof extension is an extension of the roof of the main building beyond the steel line of endwall or sidewall and its main functions are:

- Provides additional shaded area around the building.
- Provides extra protection to the main buildings walls.
- Carry rain away from the building.
- At both walls An optional liner panel (soffit) panel can be supplied to cover the bottom of the steel system and gives a more luxurious appearance to the building.

### Endwall Roof Extension

Can be achieved by extending the endwall roof purlin up to 1500mm beyond the steel line from one side or both sides of the building.



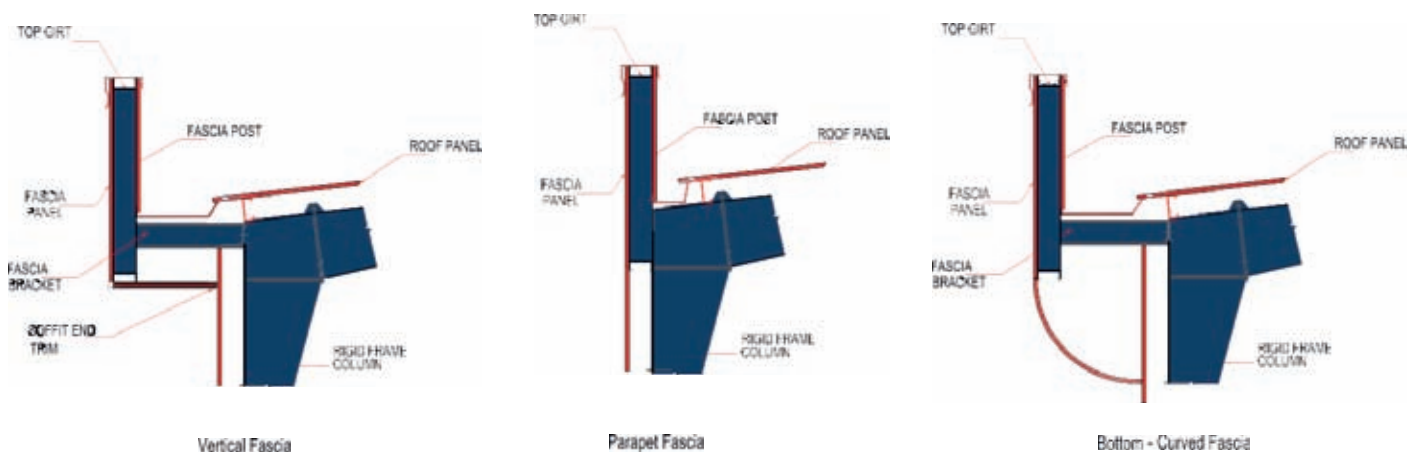
### Sidewall Roof Extension

Can be achieved by extending the main frame rafter by built up section extending up to 1500mm (more economic) beyond the steel line with additional flush purlins between these sections.

## Fascia

Fascia is used all around the building or at one side of the building to add an attractive look by covering the slope together with the gable and to form a rectangular building shape, and can take one of the following shapes:

- Vertical fascia (most popular)
- Parapet fascia
- Bottom - Curved fascia

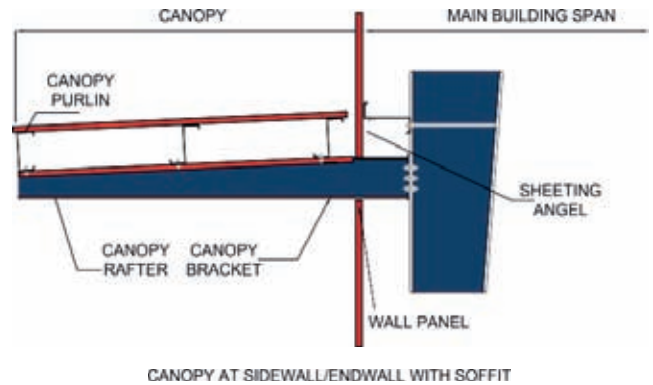


## Canopies

Canopy is a cantilever beyond the steel line of endwall or sidewall at a height less than the eave height of the building and their main function is to provides shaded protected area from rain for:

- Gates and entrances
- Windows
- Loading docks
- Car park adjacent to the building

The canopy consists of a cantilever of built up or hot rolled section with secondary purlins covered by steel corrugated sheets and optional liner (soffit) panel.



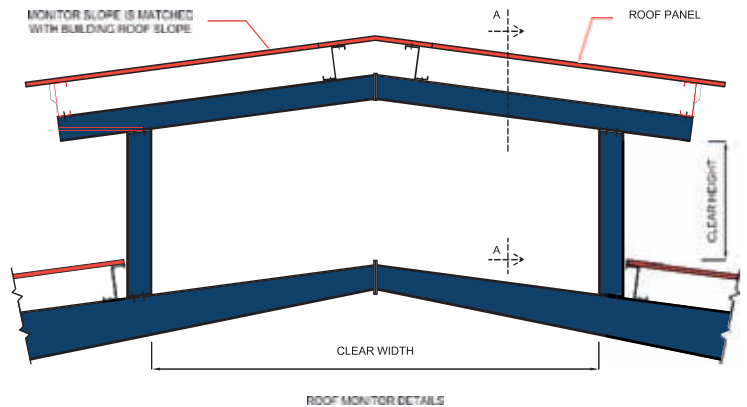
## Roof Monitor

Roof monitor is an elevated roof above the building ridge with open or closed sides used for ventilation and / or lighting purposes or for both.

It consists of posts with rafters, and can be made of cold formed; built up or rolled sections according to the required opening width and covered like roof of the main building.

The main parameters required are:

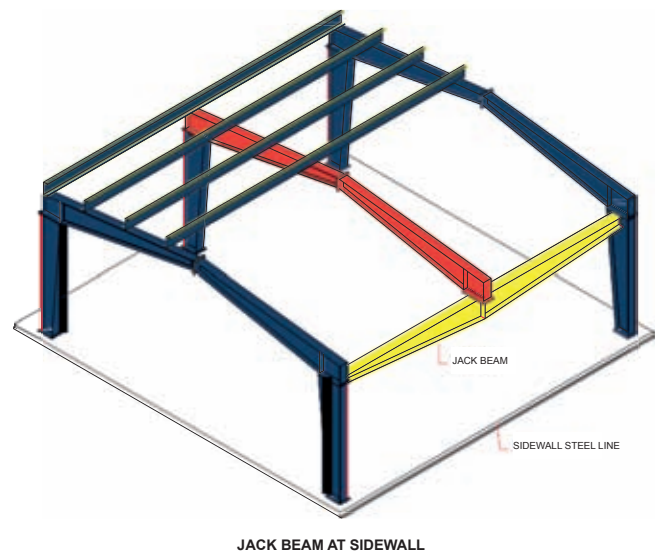
- Through opening or overall width.
- Eave or clear height.
- Wall condition (opened, bird screen or windows).



## Jack Beams

Jack beam is used when it is required to remove an internal or external main frame column from specific location where unobstructed space is required.

Jack beam is a horizontal built-up beam connecting two Columns and supporting the middle frame rafter.



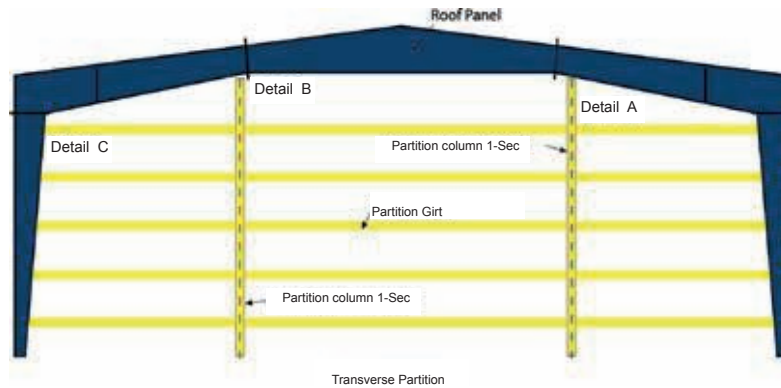


## Partitions

Steel partition is an interior separating wall that can be placed anywhere inside the building and consists of steel columns with flushed girts sheeted from one side or both sides, partitions sheeting may start from the FFL or can start from a higher level.

Partition is connected to the main frame rafter or purlins when it is required with full height.

Partition is called longitudinal partition when it is parallel to the frame length and called transversal partition when it is parallel to the building width.



## Secondary Framing Systems

### Cold Formed Section

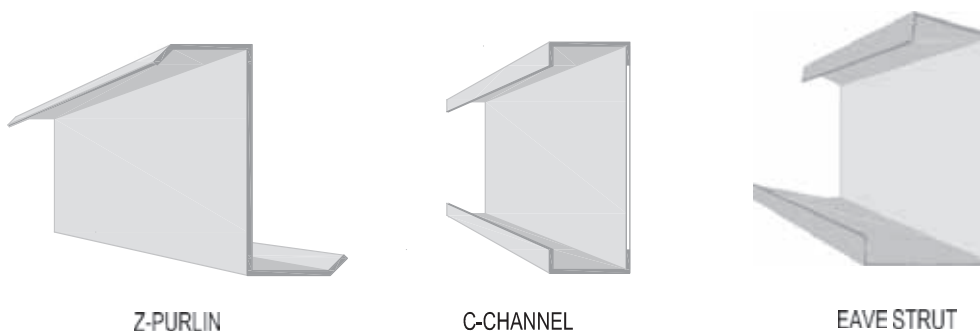
Secondary framing members join the primary framing members together to form building bays and provide the means of supporting and attaching the roof and walls. Secondary framing members consist of eave struts, purlins, girts and bracing.

Purlins, girts and eave struts are the secondary structural members. They are roll formed from steel coils, Z-shape for purlins and girts, and C-shape for eave struts with thicknesses ranging from 1.5 to 3.5mm.

**Purlins** support roof panels and transfer the roof loads to the rafters. Z-shaped purlins are adopted for Pre-Engineered buildings that provide the great advantage of being lapped at support points and nested together to increase the stiffness if required.

**Girts** are horizontal structural members attached to sidewall and endwall columns that support paneling. They run horizontally, between main frame columns and between endwall columns. Generally girts are a bypass to columns and in some cases they are placed flush to the columns.

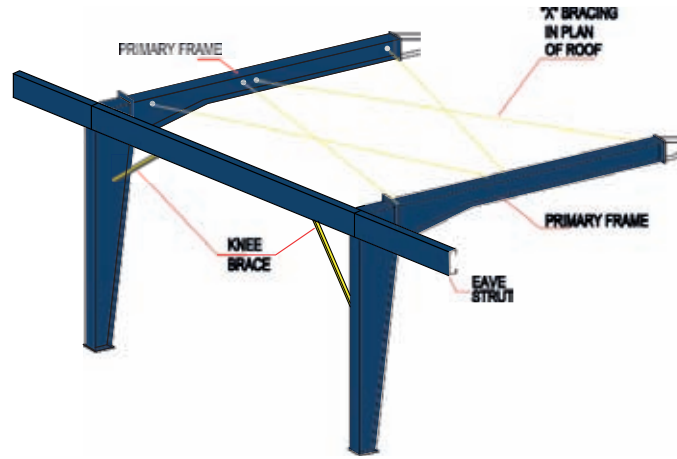
**Eave Struts** are simply supporting members located at the eave of the building provides attachment and bearing points for the end of the roof sheets and wall sheets.



# Bracing Systems

Bracing in Steel buildings has one or more forms of bracing to control the forces like torsion, shear, compression and lift results from wind, earthquakes or cranes.

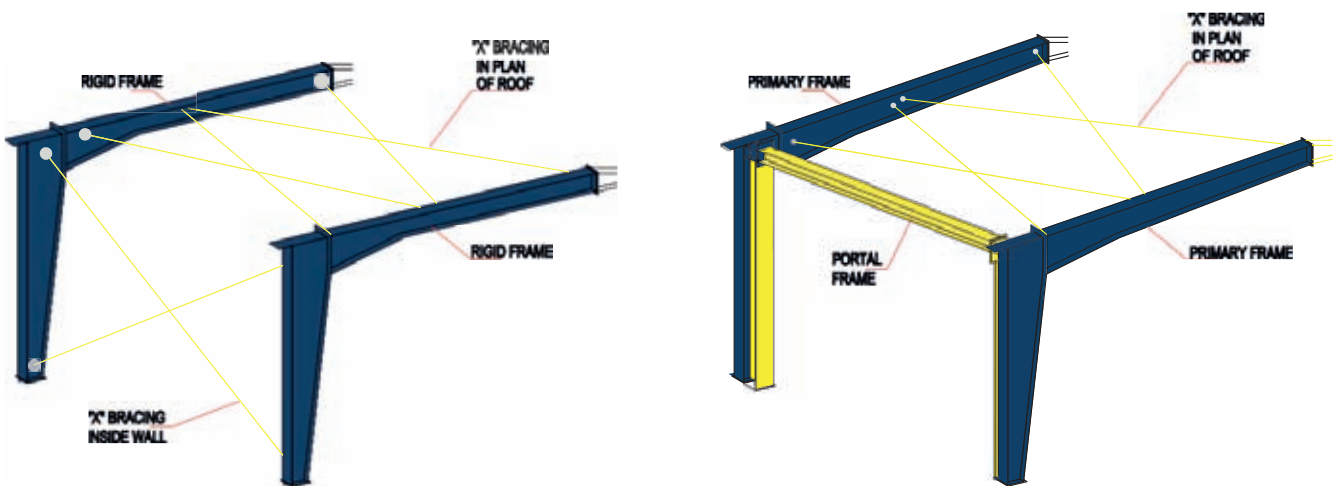
Flange bracing is standard on all steel buildings, consisting of structural angles connected between rafters and purlins to prevent the rafters from warping under a load.



**KNEE BRACING**

Cross-bracing (X-bracing), is used to provide lateral stability to the structure against wind, seismic force, cranes or other forces by transferring their loads from their point of application on the structure to the column, 'X' bracing uses steel angles or cables to tightly connect various parts of the frame together.

When the sidewall has to be open for access, portal bracing is provided, when access is required in the braced bay which is a longitudinal frame between columns of main frame.



**X BRACING**

**PORTAL FRAME BRACING**



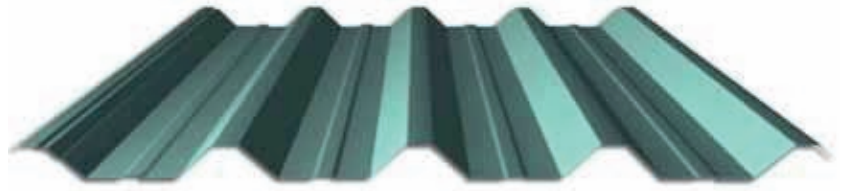
# Cladding

## Wall and Roof Cladding (sheeting)

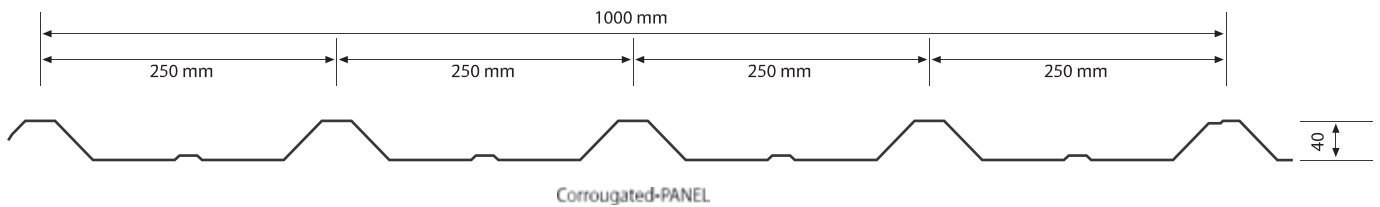
### Panels and Insulation

Single skin profile steel sheets are used as roof and wall sheeting, roof and wall liners, partition and soffit sheeting. The steel sheets are cold rolled from steel coils of thicknesses 0.50mm and 0.70mm.

The profile used is 250 / 40mm profile with 4 ribs to give more strength to the sheet to withstand the governing loads (dead/live/wind) etc.



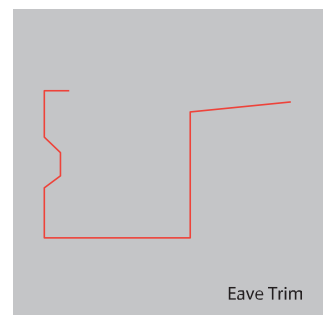
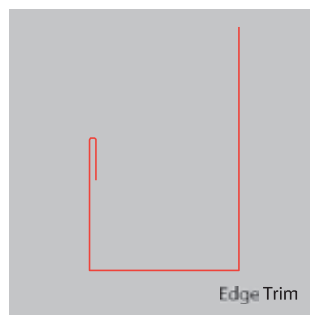
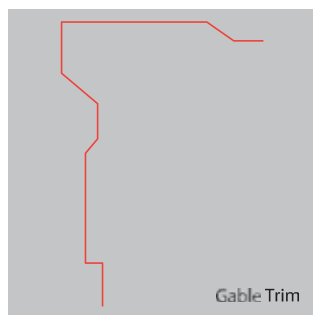
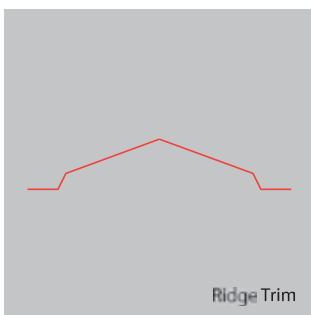
The steel sheets are normally galvanized, zincalume or aluminum profiled sheets coated with 25 microns polyester paint. These sheets can be properly insulated by providing fiberglass insulation rolls or rockwool rolls placed below the sheet and above the purlins, in similar pattern a double skin insulated roofing system can also be erected by adding another steel sheet layer below the purlin.



## Trims and Flashings

Flashings and trims are steel metal closures press broken from 0.50mm or 0.70mm steel sheets. They are designed to provide weather tightness and good appearance at all the junctions and corners of the building.

They are supplied with all accessories of the building as roof monitors, roof extensions, partitions, canopies, fascias, doors and windows framed openings.





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