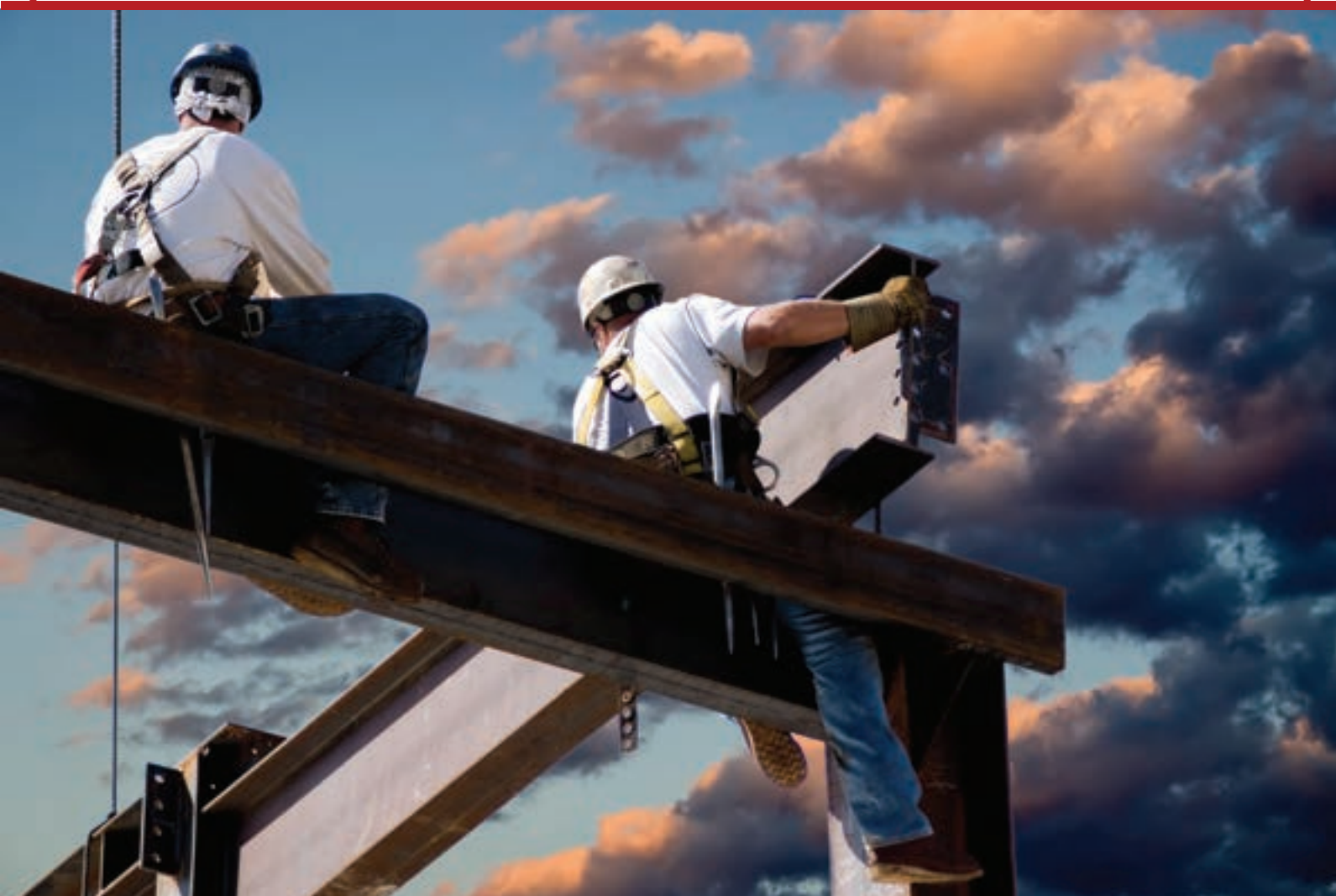
# Frames
## Building Systems FZC

**THE NEW ADDRESS FOR HIGH QUALITY PRE-ENGINEERED BUILDING**








Frames
Building Systems FZC

# Introduction

*'Frames Building Systems FZC' was established in the year 2006 to cater the high demand for superior quality of Pre-Engineered & Hot Rolled Structural Steel Buildings in local, GCC as well as international markets. With our State of the Art Production Plant spread across 7500 sq mtr with an annual production capacity of 6,000 MT we are proficient in providing all solutions under one roof.*

*Our expertise include design, manufacture, supply and erection of pre-engineered steel buildings to be used as factory, warehouse, workshops, exhibition centers, showrooms, aircraft hangars, shopping malls, sports hall, labor camps, supermarkets, cold stores, office buildings, car parking sheds, and practically any two or three storey building.*

# Our vision

*To achieve a strong competitive position in the local and global market by providing the best services in terms of Quality, Material Standards and Punctuality, supported by Efficient & Qualified team of Professionals with latest IT Softwares for designing & detailing of pre-engineered steel buildings*

# Our mission

*To provide Structural Steel Buildings with Highest Quality Standards aiming towards Complete Client Satisfaction and long term business relations.*

# Our Strength

**Right from the top management to the workshop floor, we always strive to provide the best and the most value added services by taking extra efforts to ensure your peace of mind and comforts.**

- Online facility for inquiry & quotations through our website www.**framessteel**.com
- Quotations will be provided within one working day, at most, including proposal drawings for better visualization and understanding of your building.
- Online interactive platform, through our website, with our Engineering department which is ready to provide all the technical support, and clarify your queries.
- The most competitive prices in the market.
- Top quality buildings, as per the latest standards, ensured through our quality management system which is compliant with the ISO 9001:2008 standard.
- Innovative after sales service through an online interactive platform, through our website, where you will be given the opportunity to track the progress of your job and interact with our various departments from sales to engineering until shipment and delivery.
- An experienced and highly professional erection team ready to erect your building and provide technical support to our certified builders to assure successful job completion.

# Our Competences

## Proficiency in Sales and Customer Service

Our sales department along with our highly professional engineers will evidently provide you with the best and the most economical solutions. Our quotations will be provided within 24 hours offering the best competitive prices including proposal drawings for better visualization to serve the purpose of your project.

## Engineering Expertise

We understand that a highly professional design team is one of the most indispensble key for success and customer satisfaction.

Our Engineering department comprises of highly Professional Engineers possessing wide knowledge and experience in pre-engineered steel buildings design. Furthermore, the department is utilizing the latest, efficient and reliable software for designing and detailing of pre-engineered steel building which enables them to provide the most economical design along with very high quality drawings. We strive to submit the drawings maximum within seven working days. The earliest submission of drawings leads to fast processing of your job and early completion of project.

## Production Quality

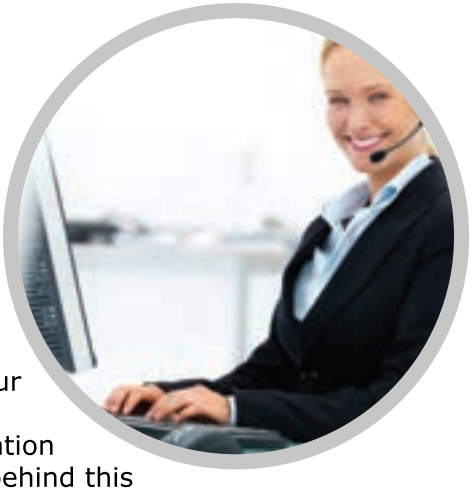
Best design is the primary base of a good building however steel fabrication and manufacturing process also plays a major role in determining the quality of the building.

With our high tech machineries and qualified work force and we continuously aim towards improving our production process and product quality. We have an up to date 'Quality Management System' in compliance with the ISO 9001:2008 standard using the most innovative techniques in enhancing the product quality. We have also implemented 'Total Quality Management Procedures' and 'Quality Control Checks' at each level of Project Life Cycle right from Designing to Fabrication and Dispatch to Erection, so as to ensure utmost accuracy and highest quality of product and services.

## Punctual and Fast Delivery

Our highly efficient team is always committed to deliver on schedule while delivery period not exceeding the range of four to five weeks from the release of shop drawings.

# Order Processing Cycle



## Quotation Request

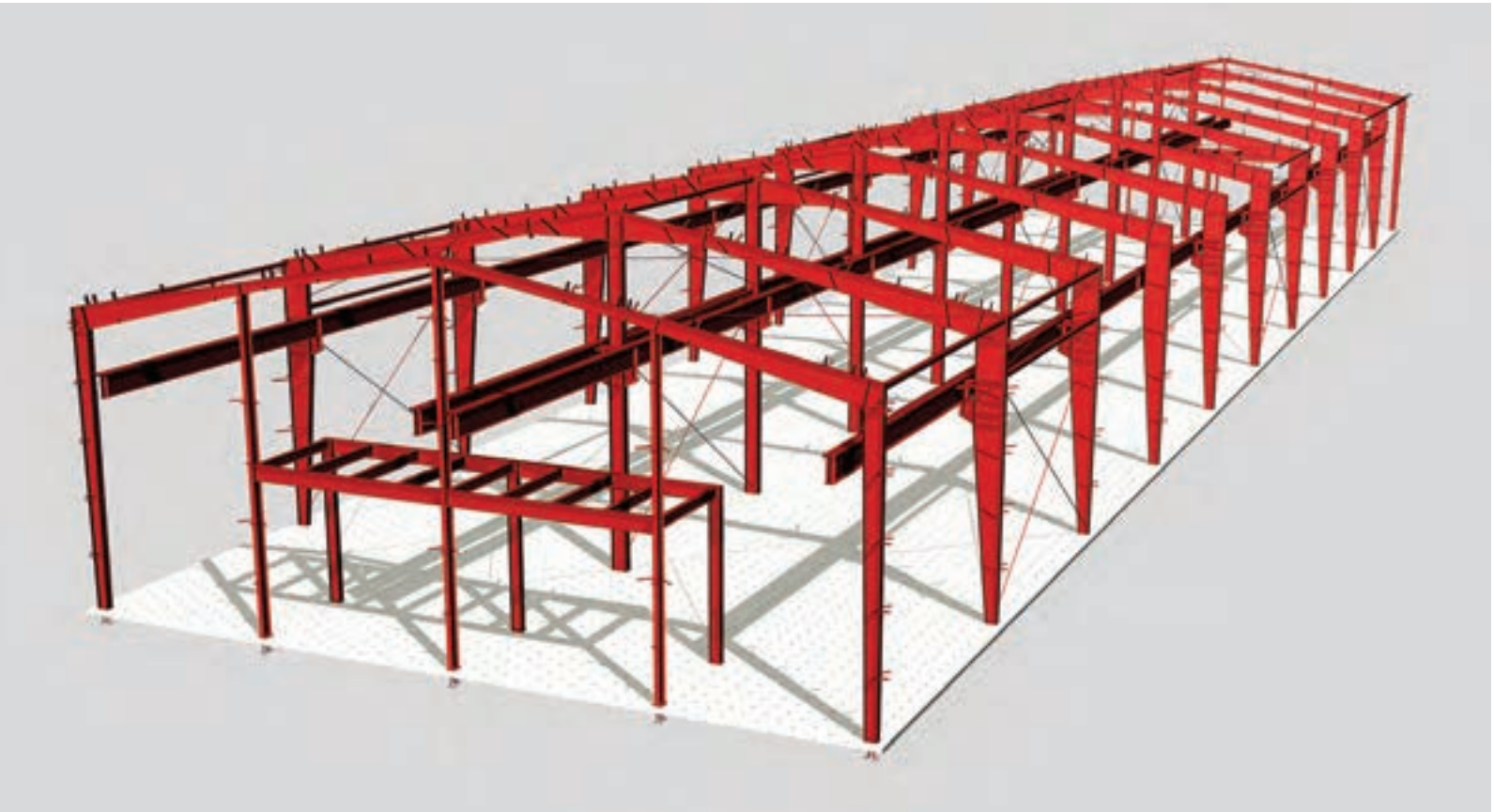
The quotation request process at FBS is very fast and simple. Irrespective of your territory, FBS is providing you with an innovative platform to place an request for quotation. All you have to do is to visit our website (www.framesteel.com) and utilize the REQUEST A QUOTE function and fill in all the data required. We have provided an option to upload your project drawings for our better visualization of the project. Upon submitting your request, you will receive an e-mail including your username and password to login in our website and get in direct touch with the design/estimation engineers engaged in preparing your quotation where you can get direct information about the time required for preparing your quote. Our main purpose behind this service is to provide you with the best quot that satisfies and meets your requirement as well as maintaining high transparency and proficiency in dealing with your project.

Another way to request for a quotation is the traditional way, either through one of our sales offices/authorized builders, which are distributed in many countries, or by sending an email to our estimation department at estimation@framessteel.com.

## Design/Estimation Response

FBS is unique, among its competitors, in terms of providing the most transparent quotations, along with an interactive platform to interact with the design and estimation teams in charge of the projects.

We are also committed to provide the most economical solutions in quick time frame accompanied by proposal drawing for better visualization of your projects and better understanding as to what is proposed as a solution by our designers. A typical proposal drawing package will include column layout plan, a frame cross section and four elevations as well as the building accessories if their locations are provided at the inquiry time.



## Project Management


Each job at FBS is managed through our TQM (Total Quality Management) system. This sort of management system includes the involvement of all the employees, commitment of the top management, whole product life cycle management as well as efficient management of all business processes taking place. Due to this exercise, FBS is considered unique in the way of processing a job after contract confirmation. Our job processing cycle, is mainly focused on ensuring customer satisfaction by involving the customer within the main project lifecycle processes. As the job passes from one department to another the interfaces with the customer are automatically identified and the customer will be in direct online contact with the concerned departments through our internet platform. Thus we facilitate customer interaction in all stages of the project lifecycle from sales through engineering, production and logistics thus ensuring a total quality managed project.

## Optimized Job Processing

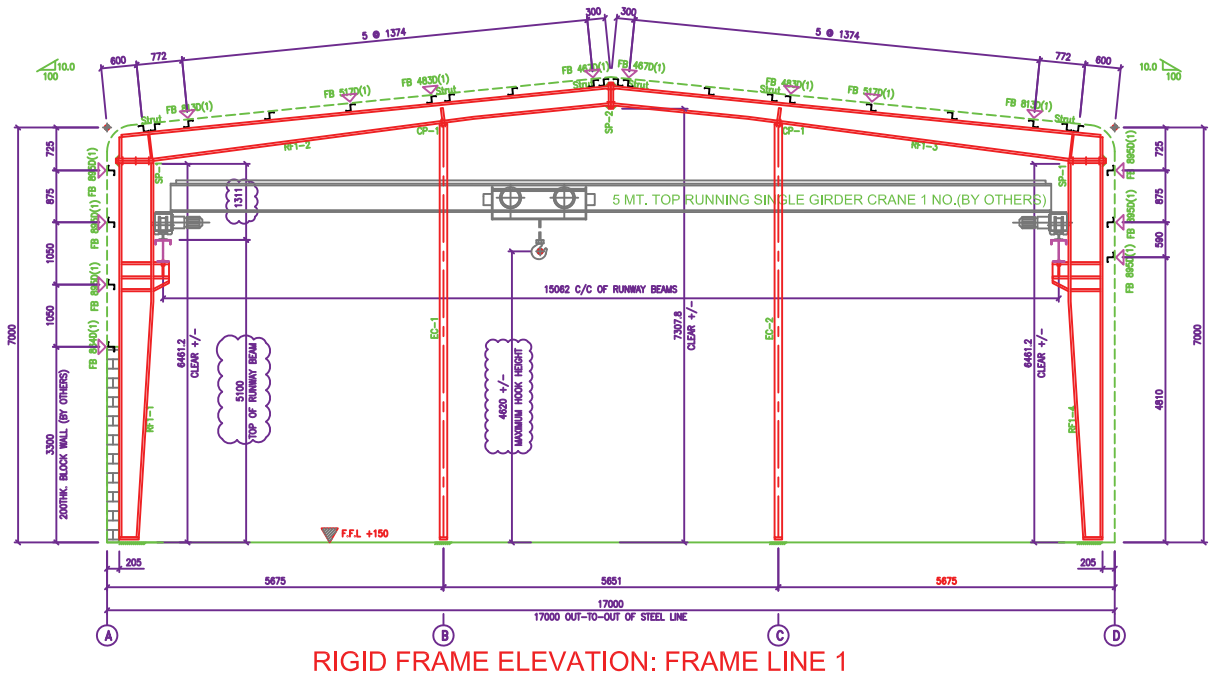
The TQM system thus implemented at FBS enables the client to track the progress of the project at every stage throughout the Project lifecycle. Most importantly the flow of information through our electronic online platform will be the most optimum and adequate, which will also include the notes of each discussions held with the clients and instructions received throughout from the inception to the completion of the project.

# Order Processing Cycle

## Job Processing Activities

**Once the job is confirmed with our Sales department a Job Number is allocated to that particular job and the following activities will take place subsequently:**

- A username and password will be sent to our customer to login through the online platform and start tracking his job.
- Online data and queries can be exchanged between our staff and the customers.
- Preparation of submittal and approval drawings and online submission for preliminary customer approval just by one click.
- Upon receipt of approval, we will immediately start preparation of shop Drawings, Erection Drawings and Bills of Material.
- Upon receipt of the approved drawings from the authorities and fulfillment of payment terms by the customer the production planning and scheduling will take place.
- After all contractual obligations are fulfilled job will be immediately released for production.
- Finished Meterial Shipment to site after production.
- Erection team comes into action.




RIGID FRAME ELEVATION: FRAME LINE 1

FLANGE BRACES ON ONE SIDE ONLY, SIZE: L-40X40X4MM.

## Preparation of Approval Drawings

At **FBS**, a period of 2 weeks is required to prepare the approval drawings of a normal complexity building, and up to 3 weeks for buildings with high complexity.

## Return of Approval Drawings

Generally, the return of approval drawings signed and stamped from the customer is being considered as the longest activity within the job processing cycle. This may evidently cause a delay in processing the job, but absolutely not at **FBS**.

We are the only PEB manufacturer in the region to implement an online platform where we will submit the electronic copy of the approval drawings for our client approval with just one click. This procedure will reduce the job processing cycle time as immediately we will start preparing the Shop Drawings, Erection Drawing an Bills of materials and we will get ready to directly start job production after receiving the approval drawings signed and stamped by the customer.
(At this level payment terms must be fulfilled by the customer towards **FBS** for the job to enter actual production.)

Each drawing in the approval package contains an approval stamp, where the customer has to check only one out of three boxes along with the inclusion of authorized signatory and date. In case of re-submittal, process will be repeated until final approval is achieved.

## Preparation of Shop Drawings and Erection Drawings

**FBS** will start preparation of shop drawings and erection drawings immediately after receiving the electronic approval, through our website, from the customer.

**FBS** needs an average of 2-3 weeks to prepare to complete the preparation of shop drawings and erection drawings for an average building.

## Job Production

Since **FBS**, are equipped with the state of the art machinery and production lines and highly qualified personnel, the production of an average building will take approximately 2-3 weeks time.

# PEB Vs. Conventional Steel

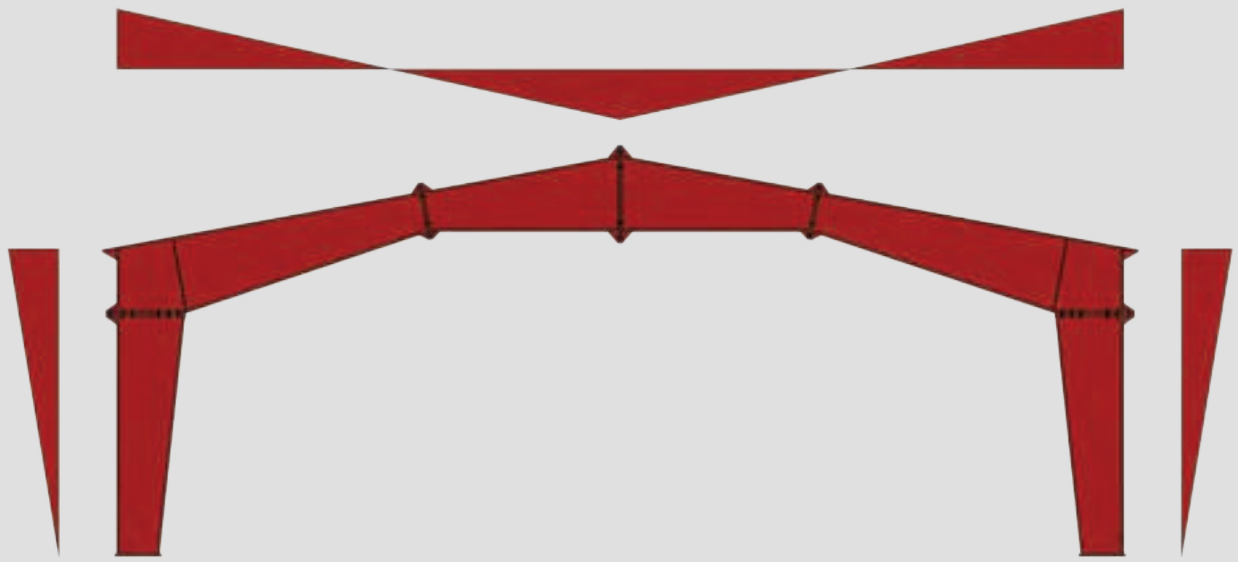
**Generally, pre-engineered steel buildings are the preferred choice for most of low rise buildings due to plenty of reasons some of which are:**

- Low initial cost (Nearly 20% lower than conventional steel buildings).
- Fast delivery due to the ease in manufacturing.
- Architectural versatility
- Possibility for large future expansion of the building.
- Fast and easy erection of the building elements.
- Single source responsibility.
- Low maintenance requirements.

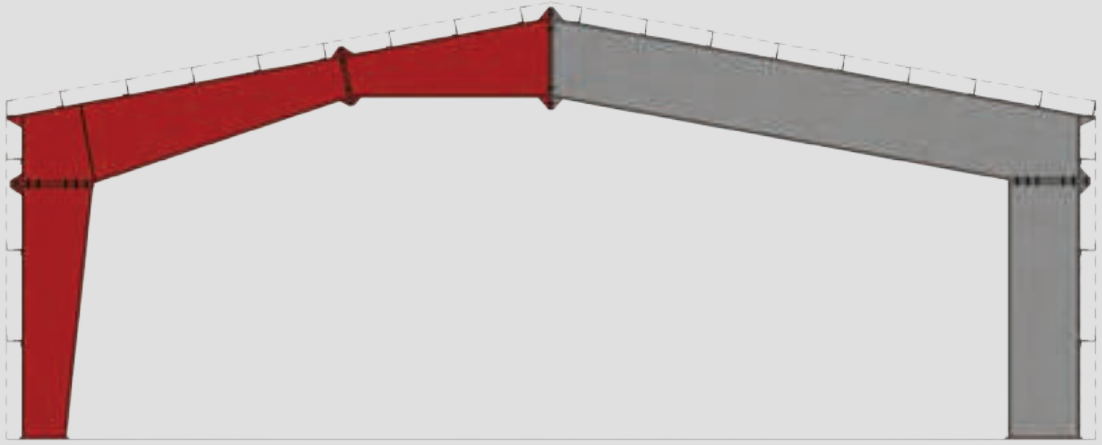
In conventional steel buildings, hot rolled sections (including beams and columns) are used. The size of each member is selected on the basis of the maximum internal stress in the member.

Since the hot rolled sections have constant depth, many parts within these section (as indicated in the hatched area ) lie within the area of low internal stresses which forms excess in the design requirements (i.e. excess in building weight which is equivalent to higher building cost)

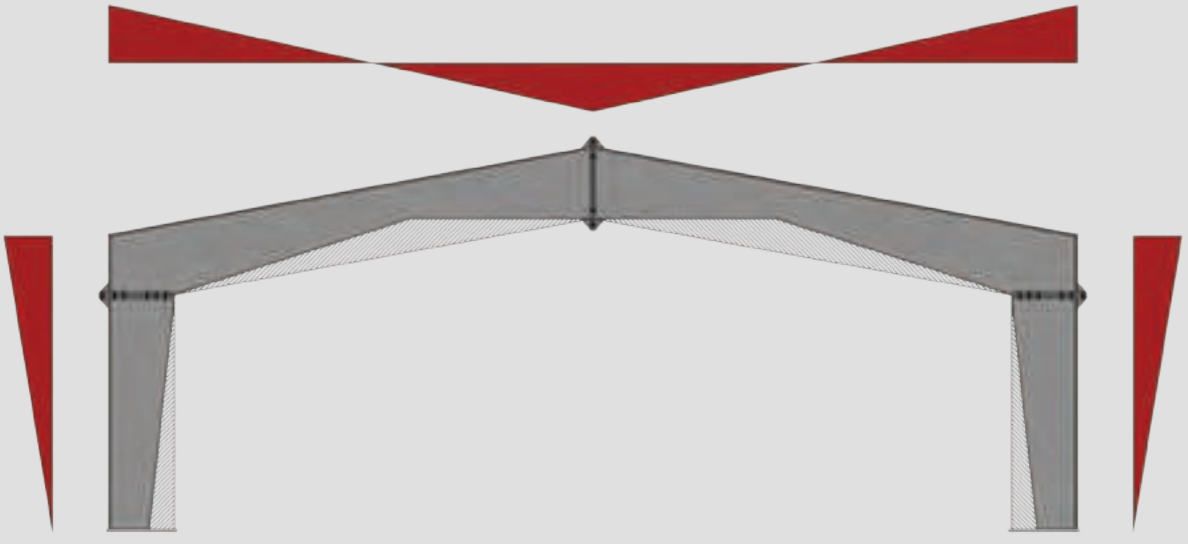
## Pre-Engineered Steel Frame



## Pre-Engineered Vs.Conventional Steel



## Conventional Steel Frame



# Conventional Steel Frame

Alternately the frames of pre-engineered steel buildings are formed of standard plates stocked by the PEB manufacturer. PEB frames are normally tapered and often have webs and flanges of variable thicknesses along the individual members. The frame geometry is matching the shape of the internal stress (bending moment) diagram thus optimizing material usage and reducing the total structure weight (i.e. less weight of building which is equivalent to lower building cost).

# PEB Design Tools

**The Engineering department of FBS is committed to provide its clients with the best design solution for their buildings applying the latest applicable American design codes as well as the best worldwide design and detailing software.**

## Applicable Design And Building Codes

**FBS Engineers are proficient in providing you with the highest quality building using the following codes:**

## Design Code

- American Institute of Steel Construction (AISC).
  Steel Construction Manual: 13th edition 2005.
- American Iron and Steel Institute (AISI).
  Cold Formed Steel Design Manual: 2002 Edition.
- American Welding Society (AWS).
  Structural Welding Code-Steel,AWS D1-1/D1-1M: 2006 Edition.

## Building Code

**FBS will use MBMA as a default building code for the design of a building. MBMA is the worldwide recognized building code for the design and manufacturing of PEB'S.**

- Metal Building Manufacturer's Association Metal Building System Manual : 2006 Edition
- International Code Council, Inc. (IBC) International Building Code: 2006 Edition.

## Engineering Software

FBS ensures to providing its clients with the best engineering services complying the highest quality standards, utilizing the state of the art worldwide engineering and detailing software known as MBS (Metal Building Software). Evidently FBS will be supporting its clients with the most competitive and economic design along with the highest quality drawings reflecting a very clear visualization and realization of your project.

## Design Loads

Unless otherwise specified, FBS pre-engineered buildings are designed for the following minimum loads

**Roof Live Load** : 0.57 km/m2

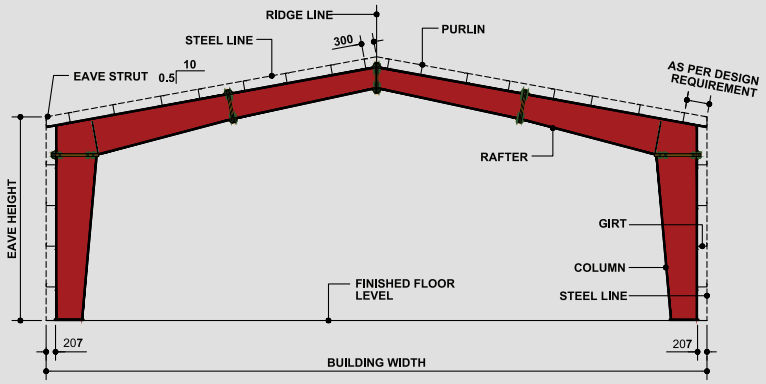
**Design Wind Speed** : 162 kmph

Design for snow loads, earthquake loads and collateral loads, or any other local climatic condition (if required) must be specified at the time of the quotation/inquiry.

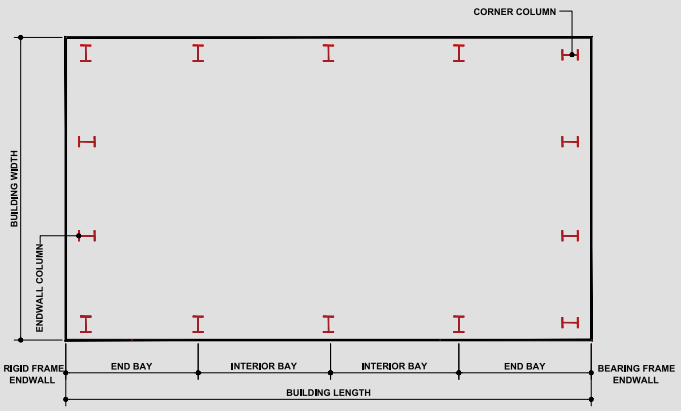
# Basic Buildings Parameters

The PEB steel structure of a building consists of primary rigid frames, end wall bearing frames, secondary structural members (Purlins & Girts) wall & roof sheeting and bracing components. It also consists of additional structural framing such as mezzanines, roof monitors, roof extensions, canopies, fascias, parapets, partitions and roof & wall framed openings, in vaddition to anchor bolts, connection bolts, and fasteners.

## Section




## Plan




**Building width:** The distance between outside of girt/block wall one side wall to outside of girt/block wall of the opposite side wall.

**Building length:** For by-pass endwalls the distance between the outside of wall girts in opposite end walls, for flush endwalls, the distance between the outside flanges of endwall columns in opposite endwalls. Building length is a combination of several by lengths.

**End bay length:** The distance from outside of the girt/block wall to the center line of the first interior frame columns.

**Interior by length:** The distance between the center lines of columns of the two adjacent main frames. The most common bay lengths used in the PEB industry one 5,6,7,9 and 10 m.

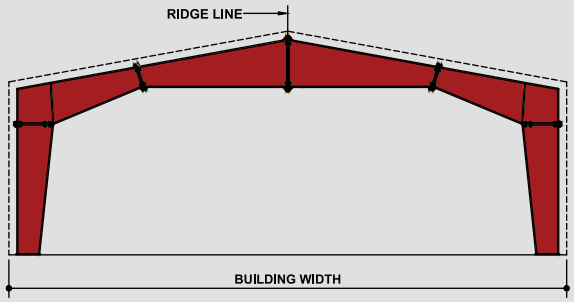
**Building height:** (Eave eight) The distance from Finish Floor Level (FFL) (normally the bottom of the main rigid frames column base plate) to the top outer point of the eave shut. Eve heights up to 30 m are possible.

**Roof slope (x/10):** Angle of the roof with respect to horizontal. The most common roof slopes are 10/0.5 and 10/1. Any practical roof slope is possible.

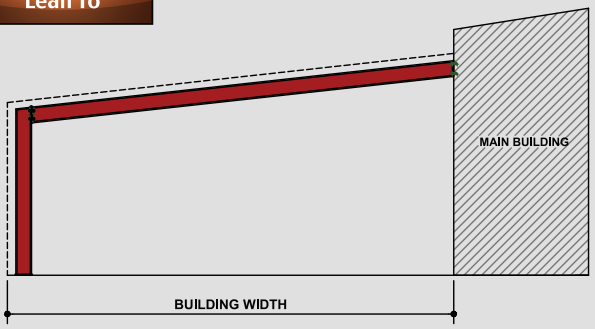
# Primary Framing Systems

The most commonly used primary framing systems are shown below. All are shown symmetrical about ridge line. Framing systems which are unsymmetrical about the ridge line and multi span multi-gable framing with unequal modules are possible but may require more engineering time. Consult a FBS representative for your specific requirements.

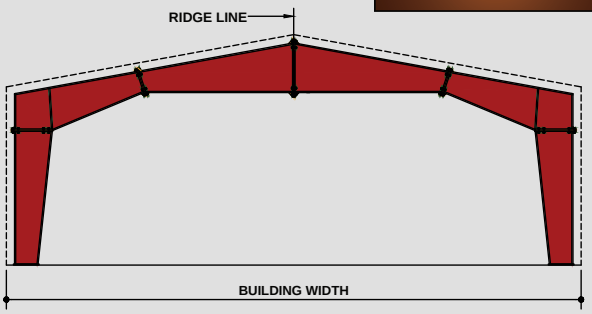
## Clear Span (CS)



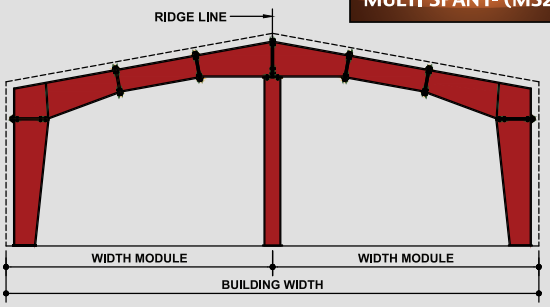

## Lean To



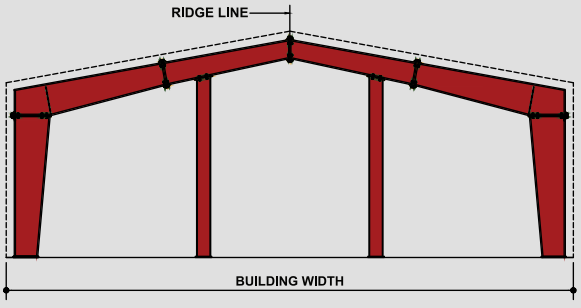

## MULTI SPAN1- (MS2-)



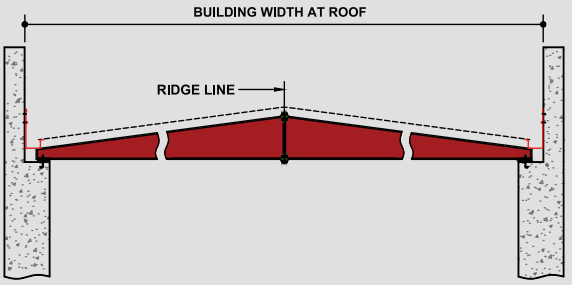

## MULTI SPAN1- (MS2-)



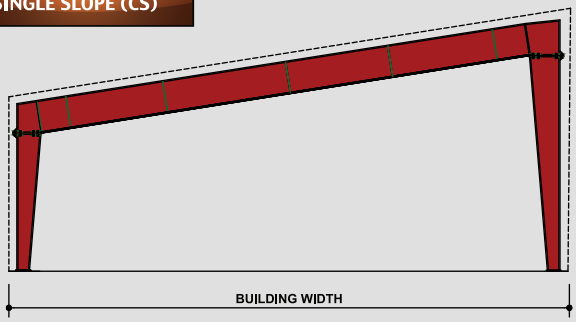

## MULTI GABLE 1- MG1- (CS+CS)



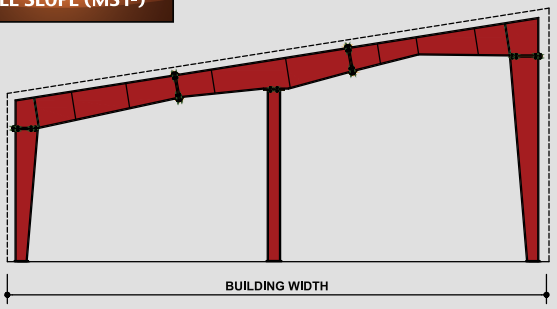

## ROOF SYSTEM




## SINGLE SLOPE (CS)




## SINGLE SLOPE (MS1-)



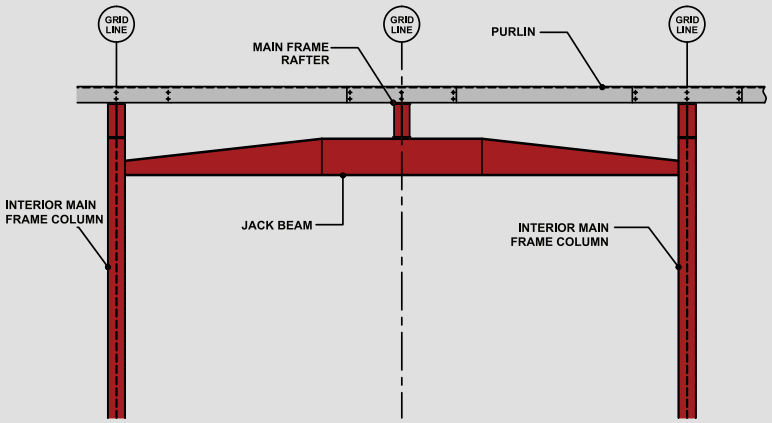
# Basic Building Components

## Jack Beams

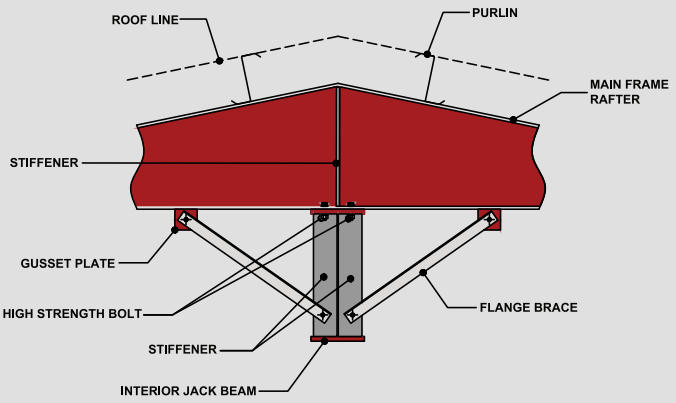
Jack Beams are used to make economical as well as safe approach for creating longer bay lengths when large unobstructed space in required. Common bay lengths (& 9 ,8 ,7 ,6 ,5 10m) can be doubled with the use of Jack Beams making it possible to have 18 ,16 ,15 ,12 and 20m clear bay lengths in areas where unobstructed space is required.

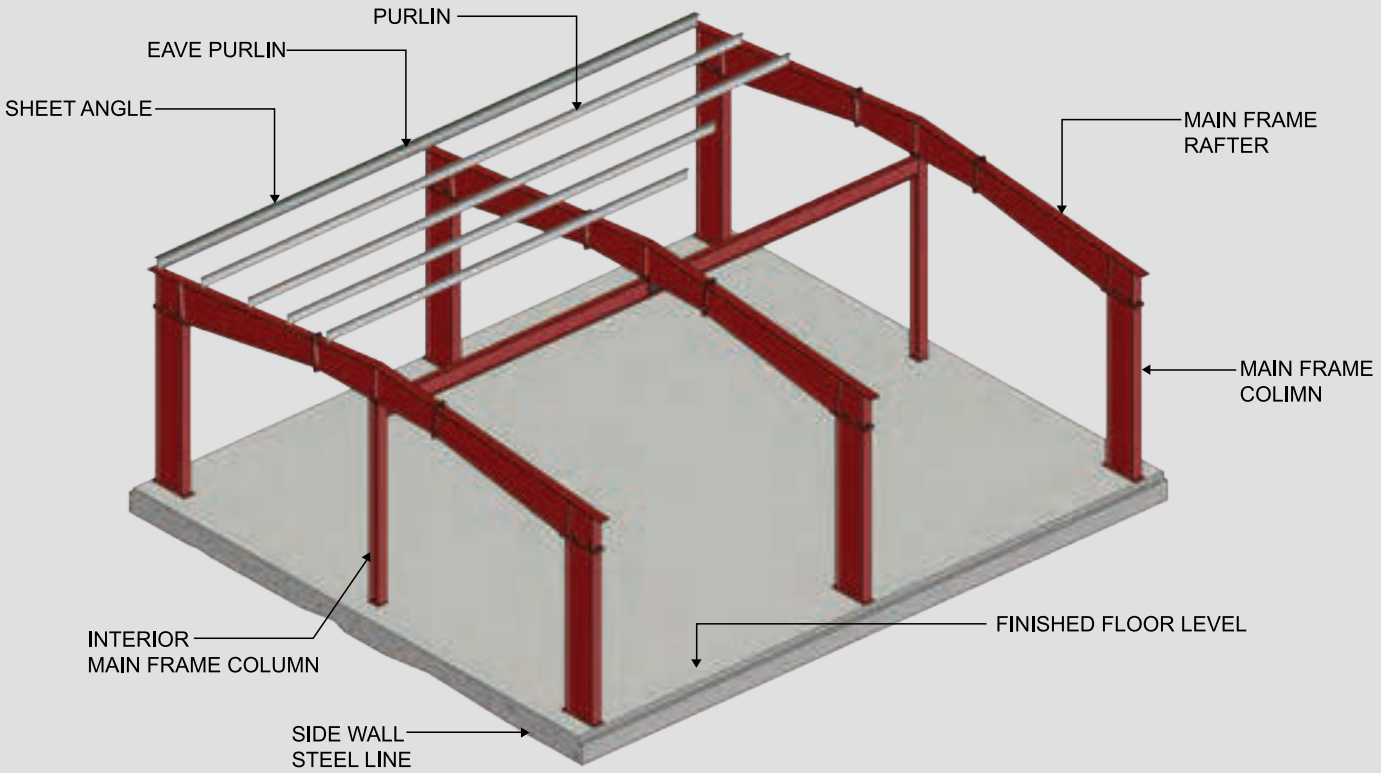
For example, if the customer specified to have 16 m bay lengths instead of the more economical 8 m bay length, Jack Beams will be used in the interior of the building to make the possible. Jack Beams may also be used on the exterior sidewalls in the same way.

### INTERIOR JACK BEAM




### JACK BEAM AT MIDDLE OF RAFTER

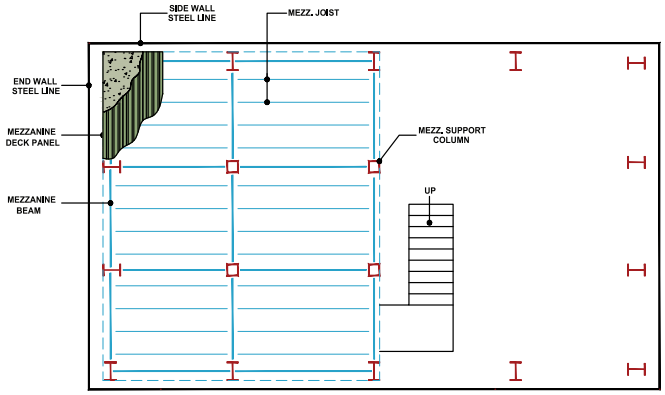


# Mezzanine Systems

A mezzanine system is used to provide a separate floor in the building. A mezzanine consists of independent support columns, main beams, joists and deck panels.

- Independent mezzanine columns may be square tube or built-up sections as required y the design. Mezzanine beams or joists can be connected directly to main frame columns.
- Mezzanine beams are built up I sections that are normally spanning in the direction of rigid frame rafters.

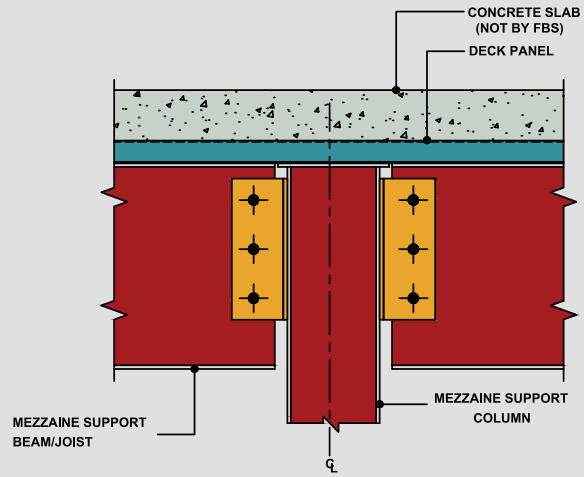



- Mezzanine joists are built up or hot rolled I sections that are normally spaced at 1.5 m, for a 10 mm thick concrete slab. Joists connects into mezzanine beams with flush type connection. The clear height below the mezzanine is normally 3 m above the finished floor level.

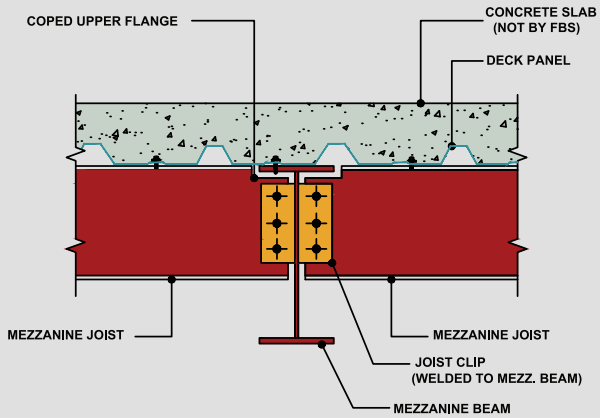
- Mezzanine concrete slab should be design by a qualified structural engineer to support the specified dead, live and collateral loads.

- Mezzanine deck fasteners are 5.5 mm diameters, self drilling screws with hexagonal thread nut but without a scaling, and are spaced at 333 mm on centers.

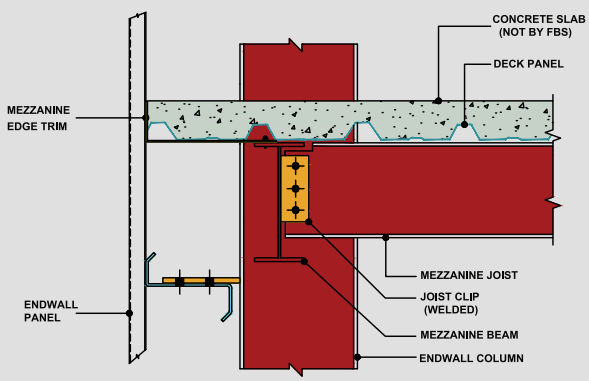
## BEAM/JOIST CONN.TO MEZZ.COLUMN



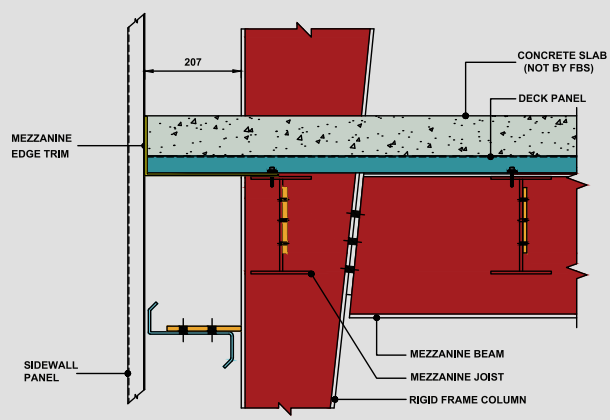

## FLUSH MEZZ.JOIST CONNECTION MEZZ.BEAM




## JOIST CONNECTION TO MEZZ.BEAM AT ENDWALL




## MEZZANINE CONNECTION TO MAIN FRAME COLUMN



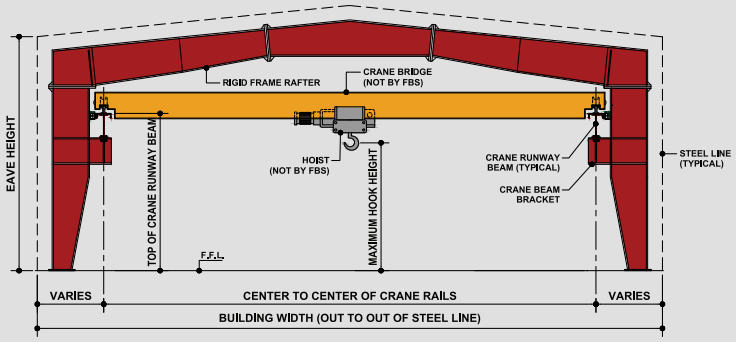
# Basic Building Components

## Crane Systems

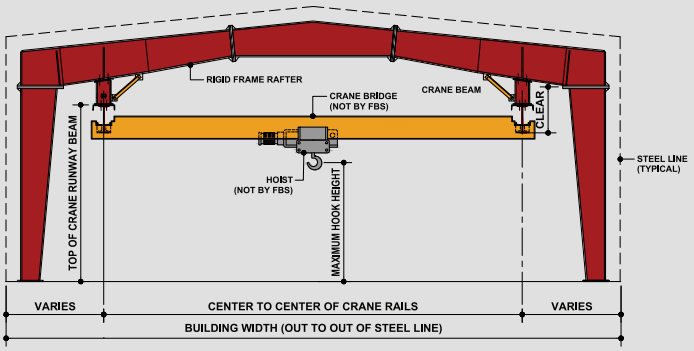
When crane systems is required, FBS supply includes column/rafter brackets, crane runway beams & lateral tie that support crane systems. FBS request the customer to provide complete crane information from the crane manufacturer in order to design and estimate crane buildings.

**The most common types of the crane systems in pre-engineered steel buildings are:**

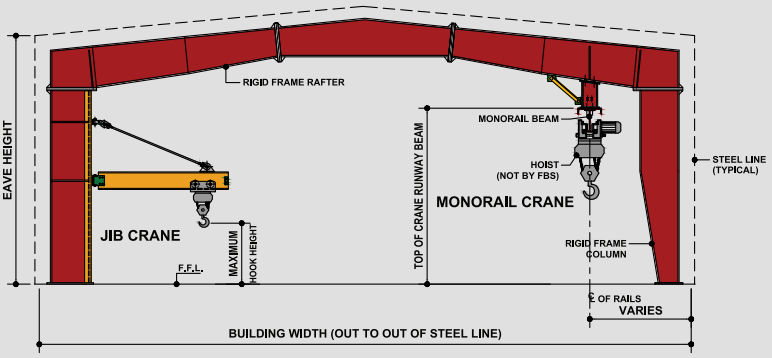
### TOP RUNNING CRANE



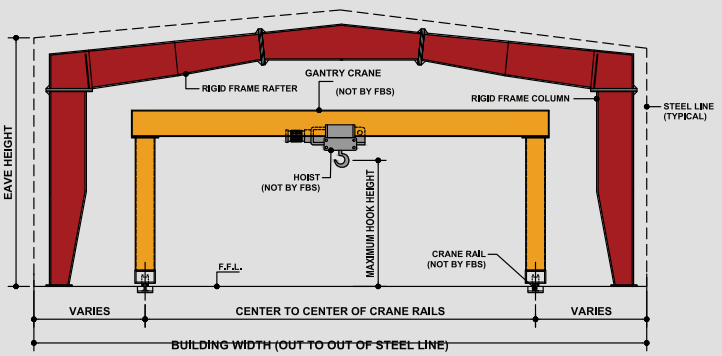

### UNDERHUNG CRANE



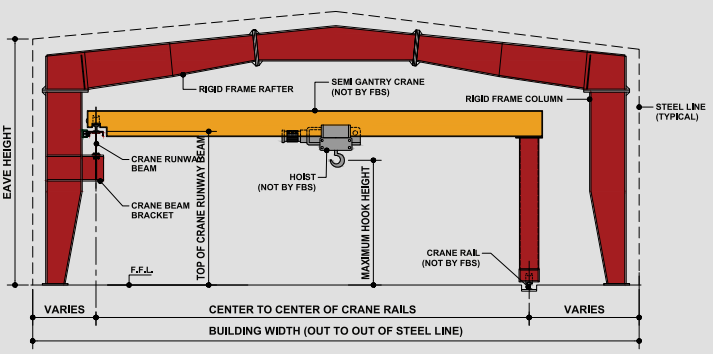

### JIB AND MONRAIL CRANE




### GANTRY CRANE




### SEMI GANTRY CRANE



# Roof Monitors, Roof Extensions and Canopies

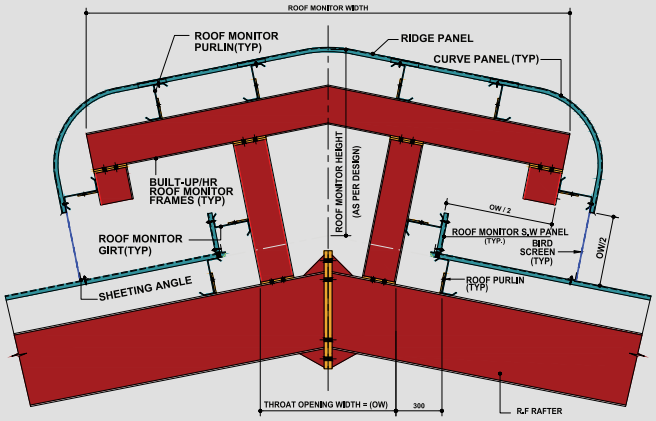
Standard roof monitors have a throat opening width of 1m and are made of hot rolled (or) built up sections; wider throat opening widths are also possible. Panels for the roof monitors are made of the same materials as the roof panels, unless otherwise specified. Eaves are constructed with curved panels. A bird screen mesh is provided along both side walls of the roof monitor..

Standard sidewall roof extensions are 1.5 m wide. They are made of 200 mm deep hot rolled or built up section rafter and 200 mm flush eave struts and purlins making it possible to add an optional soffit panel without the need of additional framing. Wider extensions and extensions that support fascias are achieved using tapered built-up rafters and by-pass purlins.

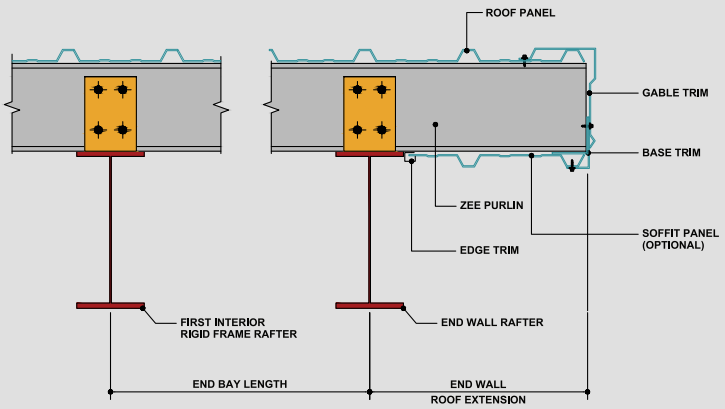
Standard endwall roof extensions are 1.5 m wide. They are achieved by extending the end bay purlins beyond the endwall steel line. They can accommodate an optional soffit panel without the need for additional framing; longer extensions may require heavier endwall purlins that are deeper than 200 mm.

Standard canopies are 1.5 m, wide. They are cantilevers beyond the steel lines of a building at a height that is below the eave. Their rafters are made of hot rolled or built up sections.
The canopies can be supplied with or without soffit panel.

## ROOF MONITOR CROSS SECTION

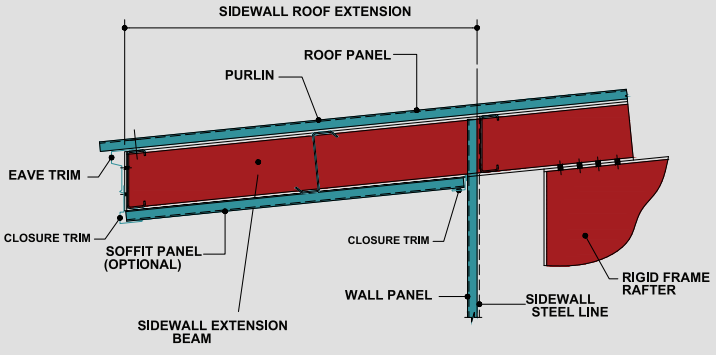



## END WALL ROOF EXTENSION



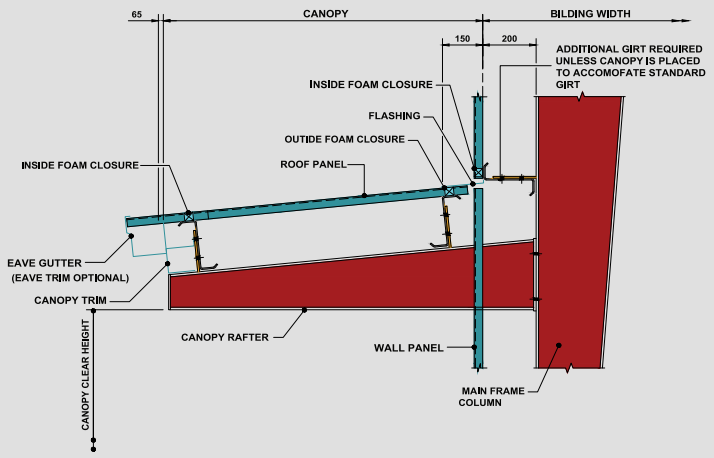

## SIDEWALL ROOF EXTENSION

1500M mm DETAIL APPLICABLE UP TO




## CANOPY AT SIDEWALL

1500M mm DETAIL APPLICABLE UP TO



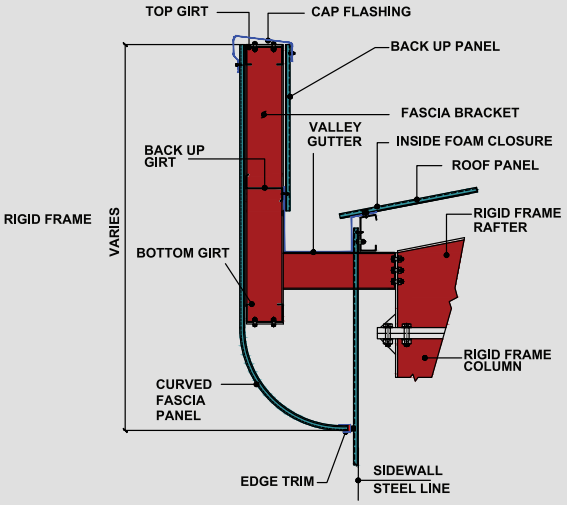
# Basic Building Components

## Fascias

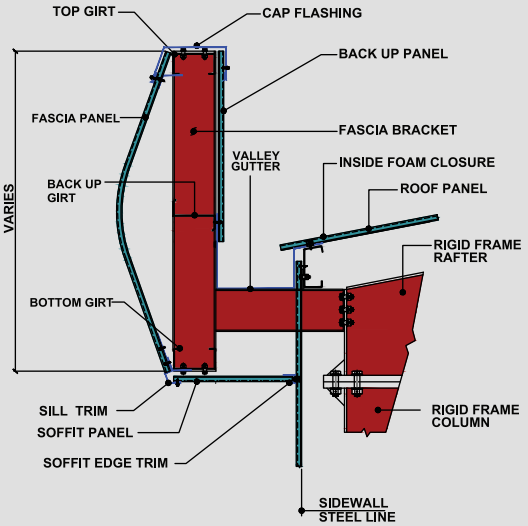
**There are five common types of fascias. When panels and panels accessories are not in FBS scope, only the fascia framing will be supplied.**

If the main purpose of a fascia is to conceal the gable/roof slope of a building, FBS recommends the use of vertical fascia's and center curved fascias because they can be used without the added expense and maintenance requirement of valley gutters.

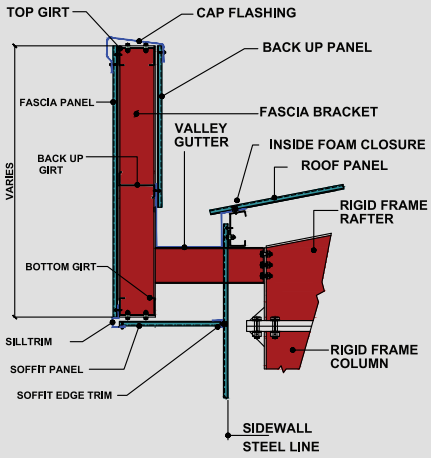
### VERTICAL FASCIA



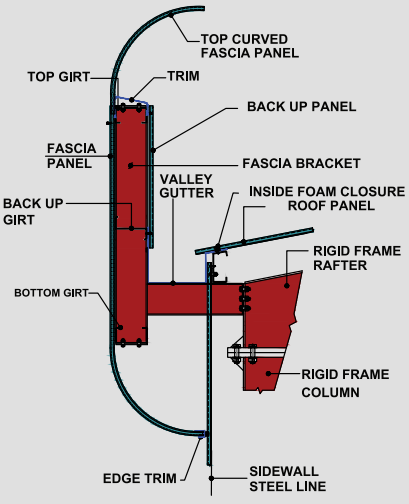

### CERNTER CURVED FASCIA



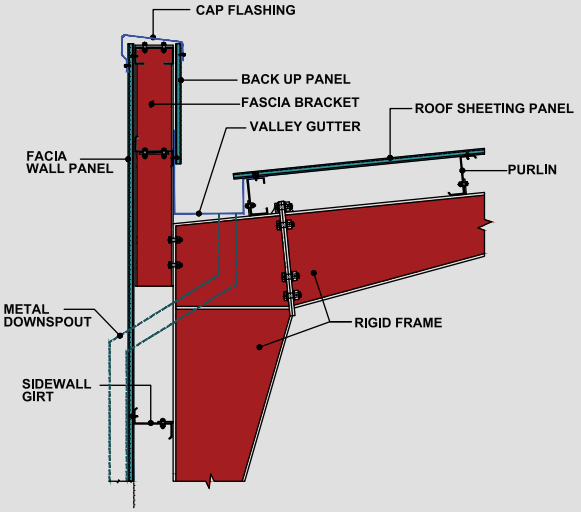

### BOTTOM CORVED FASCIA




### TOP & BOTTOM CORVED FASCIA




### PARAPET FASCIA



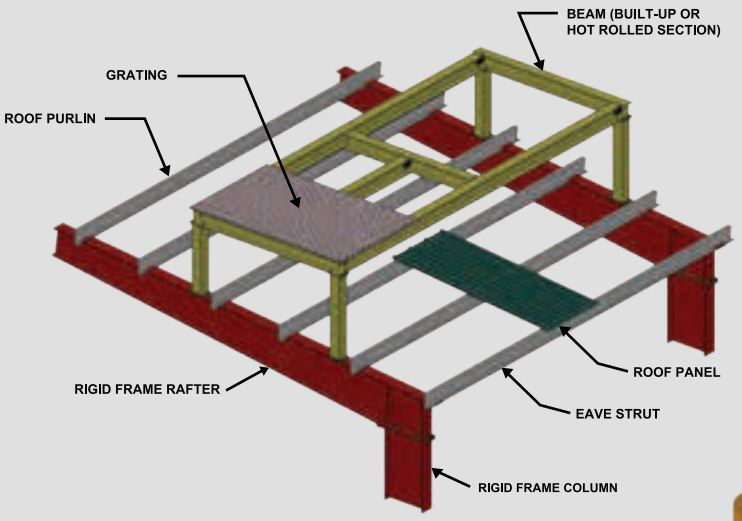
# Interior Partitions and Roof Platforms

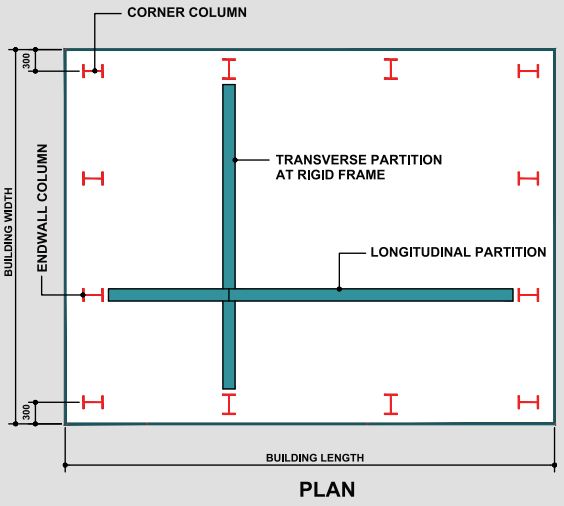
**Interior partitions are used to divide the space in a building. It will not carry any loads from the roof. Following are the types of partitions:**

**Transverse partitions may be located along a rigid frame line or in between rigid frames.**

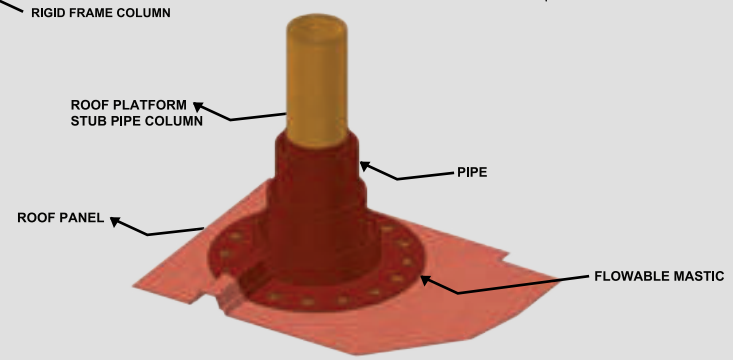
**Longitudinal partitions may be located anywhere between sidewalls. Partition framing is normally designed for a lateral wind load of 0.25 KN/m2.**

**Roof Platforms:** Are made up of hot rolled pipe stub columns and structural framing that is located above the roof panels, often for the purpose of supporting A/C units, equipment, water tanks, etc. the structural framing is made of built-up or hot rolled sections. Stub columns and the structural framing are epoxy to the atmosphere, pipe flashing is used around pipe columns to prevent potential water leaks

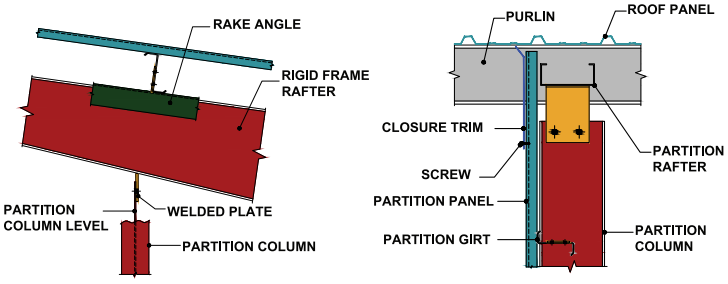


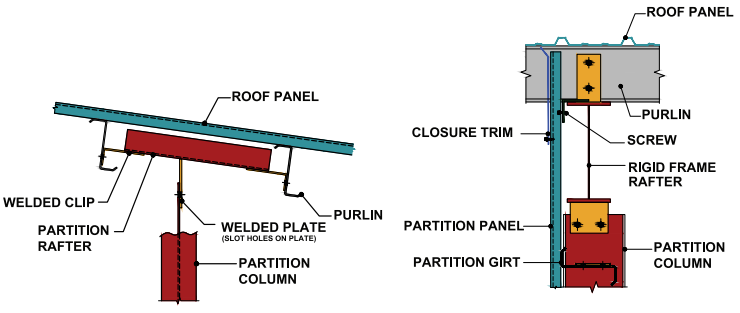

PLAN




PIPE FLASHING




SECTION OF TRANSVERSE PARTITION AT RIGID FRAME

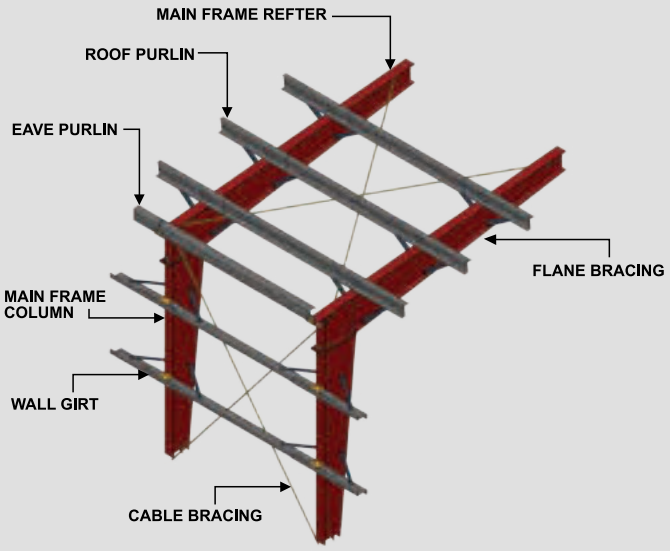



SECTION OF LONGITUDINAL PARTITION AT RIGID FRAME

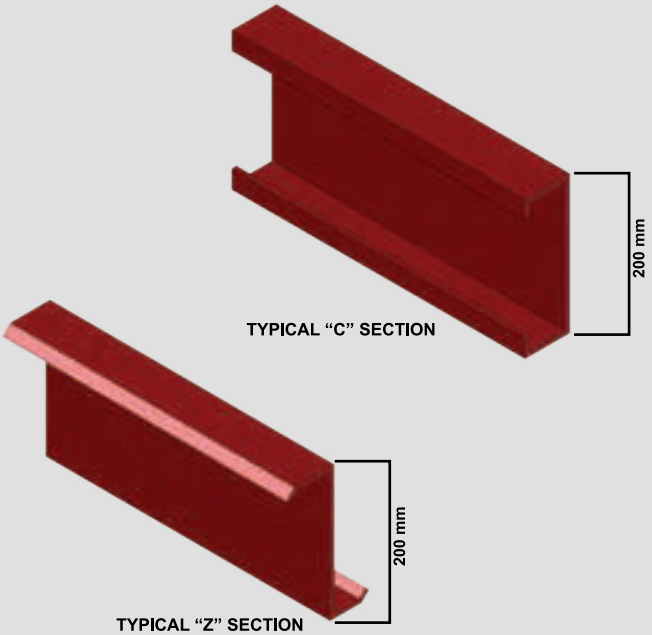
# Basic Building Components

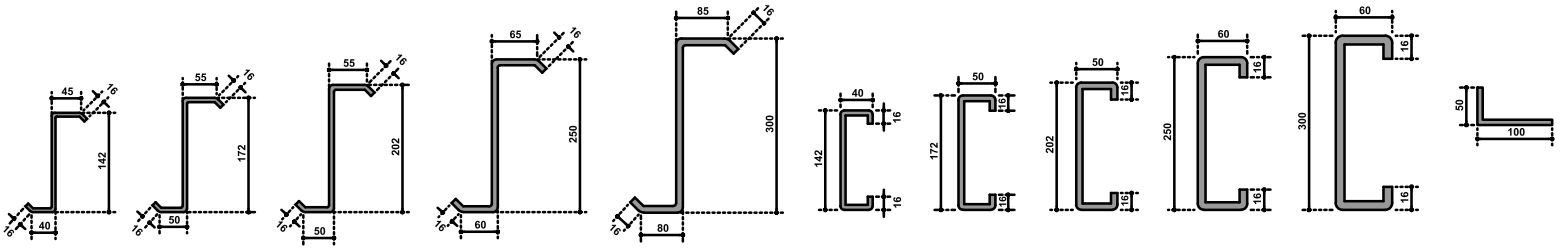
## Secondary Structural Members

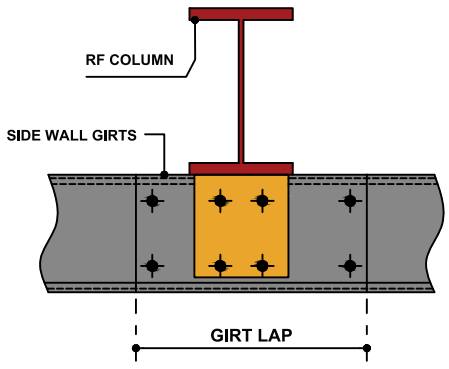
Secondary structural members are made from material that conform to ASTM A653M grade SS: 340 G90 class 1 and are designed in accordance with the 2002 edition of the American Iron and Steel Institute (AISI), Cold formed Steel Design Manual. It includes roof purlins, wall grits, eave struts, C- Section, flange braces, gable angles and base angels and base angels. Purlins, Girts, Eave Struts and C-Section are rolled formed from 345mm wide galvanized coils in thickness of 2.25 ,2.0 ,1.75 ,1.5 and 2.5 mm.



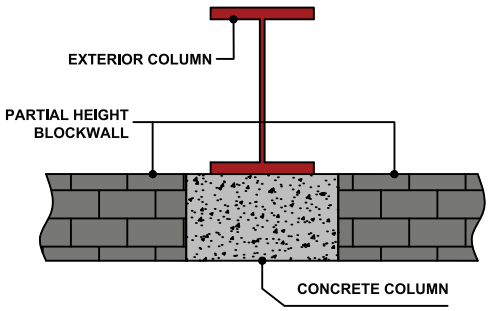

ROOF SIDE WALL BRACING





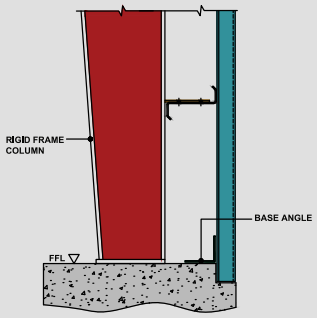

BY PASS GIRT



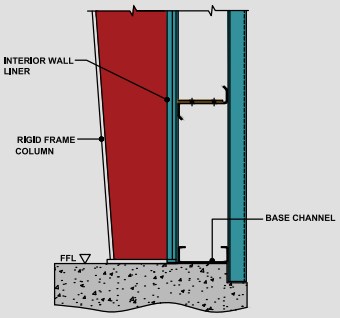

BY PASS BLOCK WALL

A common practice in the PEB industry is to connect the sidewall girts to rigid frame column and to connect the end wall girts to wind columns in a by-pass condition.

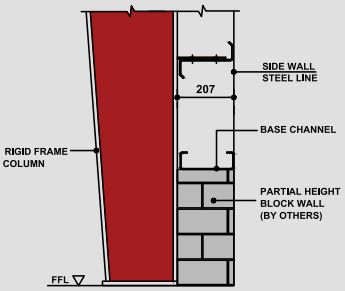
The by-pass condition is more practical in endwalls because it allows cables, pipes, etc. to be laid within the 200 mm girt line all around the building. It also allows a better construction of partial height block walls (normally 2.25 to 3.00 m high) which are very common in this region.



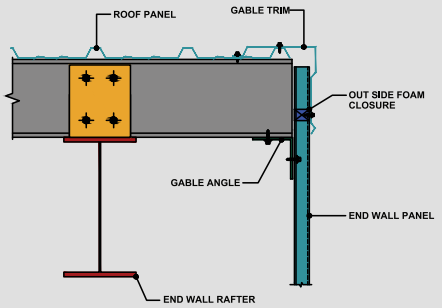

BASE ANGLE




BASE CHANNEL




BASE CHANNEL




GABLE DETAIL

Gable Angles are connected to bottom flanges of roof purlins at building ends using self drilling fasteners. They transfer the wind load from the endwall panels which are fastened to this gambles angle to the roof purlins, at the gables of the building.

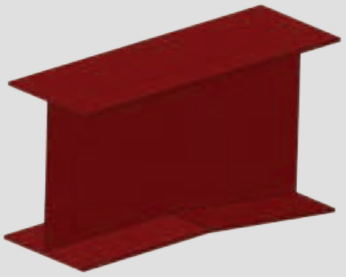
Base Angles are fastened to the concrete floor with masonry nails at 500 mm on centers. They transfer the wind load from wall panels directly to the slab. When interior wall liner is required, a base channel is used instead of a base angle.

## Primary Built Up Members

High grade steel plate conforming to ASTM A572 grade 50.

**TYPICAL COLUMN**

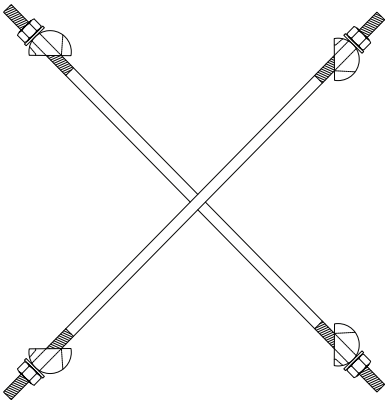
**TYPICAL RAFTER**



# Basic Building Components

## Bracing Systems

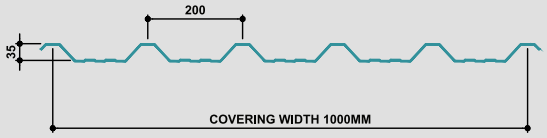
Rod bracing in shown. Rod bracing shall confirm to ASTM A36 or equivalent with minimum yield stress of 34.5 KN/cm2.There are many types of bracing systems available among the options of FBS engineering Department.



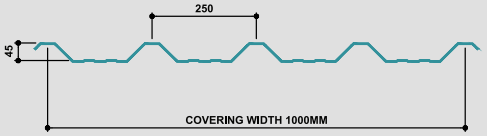
## Roof and Wall Panels

### Single skin Panels

Single skin wall and roof panels are produced in FBS 35/200 & 45/250 profile either as 0.5 mm AluZinc Coated Steel or 0.7 mm Aluminum. The panels are available in both mill finish and pre painted finish (See standard FBS steel panel colors).Interior line panels, partition panels, fascia panels and soffit panels are made using the same mentioned profile in either 0.5 mm or 0.7 mm pre-painted AluZinc Coated Steel.



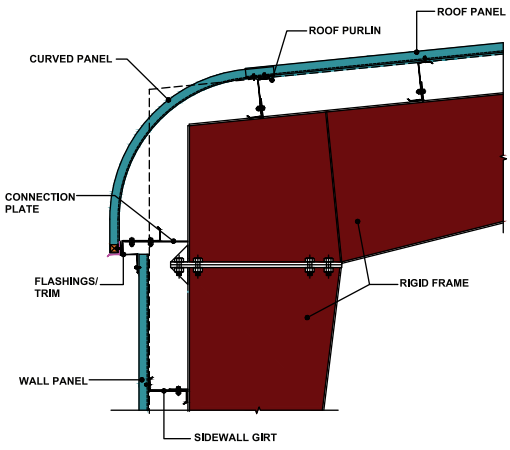

FBS 35/200 PROFILE



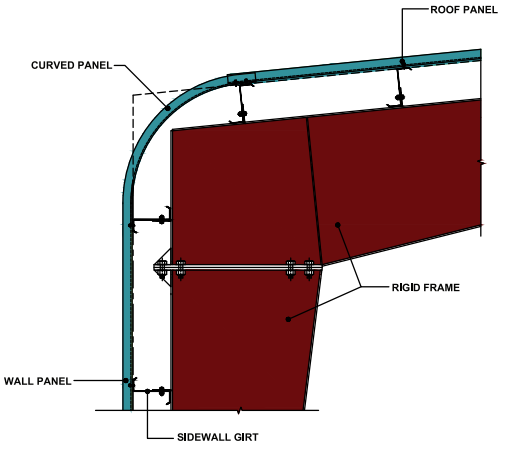

FBS 45/250 PROFILE

## Curved Eaves

These are standard in roof monitors but optional in building eaves. Shown are the two details for curved eaves: with projection and without projection. FBS highly recommends the curved eave with projection due to the ease in erection as fitting the ribs of the curved eave panels simultaneously with the ribs of both the roof and wall panels is a very difficult and time consuming task whereas fitting the ribs of the curved eave panels with the ribs of the roof panels is considerably easier and saves erection time.




CURVE EAVE WITH PROJECTION

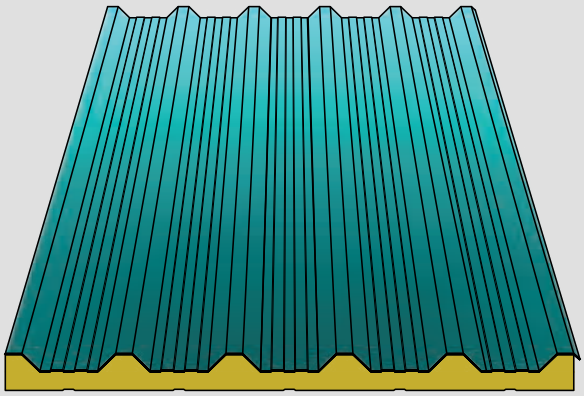



CURVE EAVE WITHOUT PROJECTION

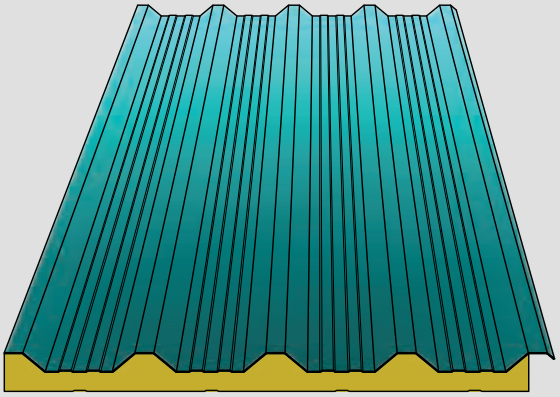
# PU (Polyurethane) Injected Sandwich Panels

These are factory-injected polyurethane panels which have a thermal conductivity of 0.018 W/m2k and a density of 40 kg/m3. These types of panels are widely used nowadays in most of the steel buildings due to their high insulation properties despite their high price compared to single skin panels.

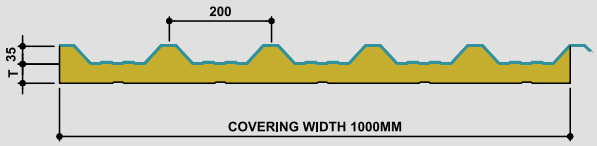
PU inject Roof and Wall panels are produced in FBS 45/250with the top skin being either 0.5 mm AluZinc Coated steel or 0.7 mm Aluminum



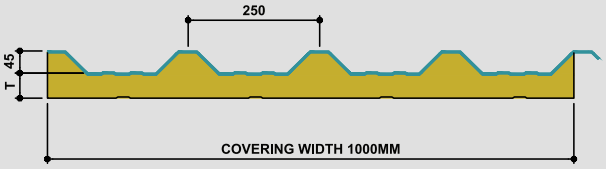
SANDWICH PANEL FBS 35/200 PROFILE



SANDWICH PANEL FBS 45/250 PROFILE




SANDWICH PANEL
FBS 35/200 PROFILE




SANDWICH PANEL
FBS 45/250 PROFILE

## Standard FBS Panel Colors

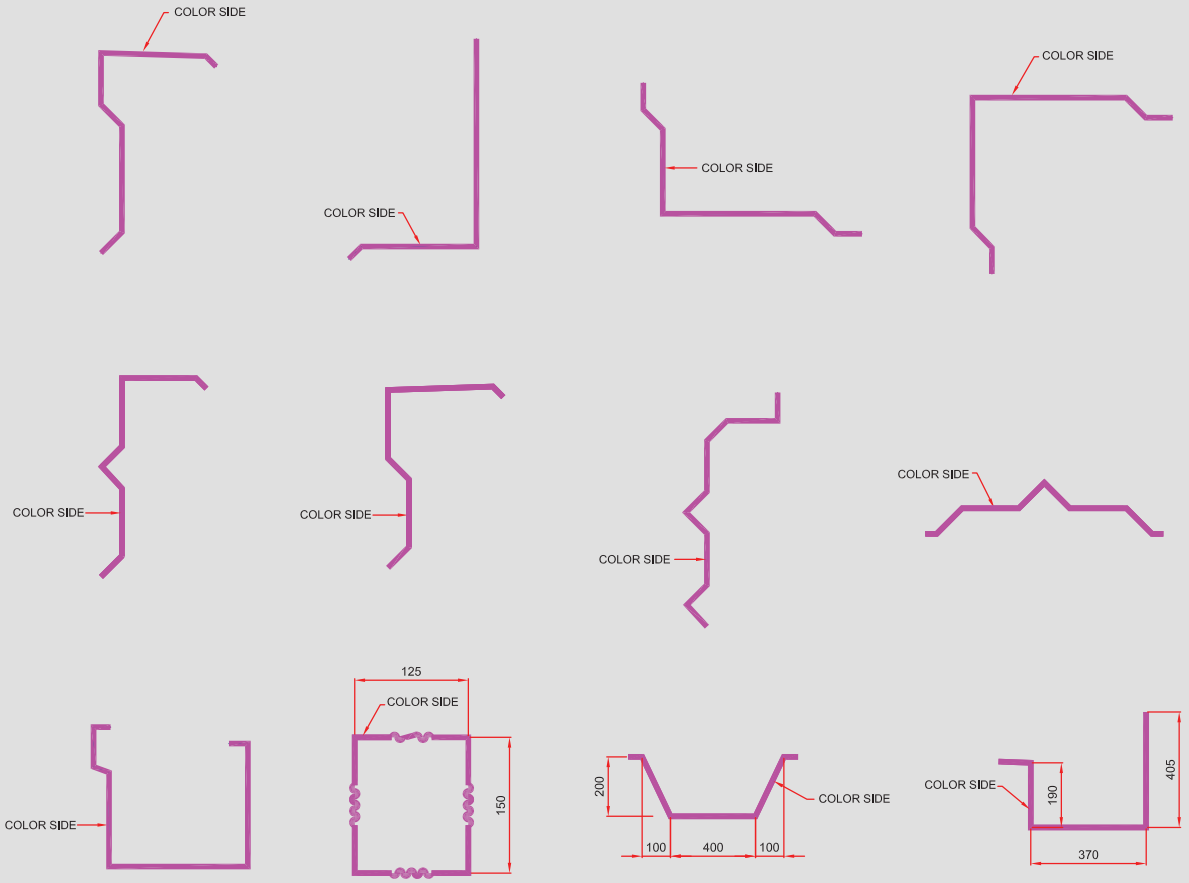
Our standard panel colors are displayed below. For big project, other colors could be considered as option

# Basic Building Components

## Trims, Roof Drainage Components and Panel Sundry Items

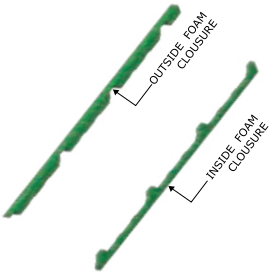
Standard trims, including corner trim eave trim, gable trim, transaction trim, eave gutters and downspouts are manufactured from 0.7 mm pre-painted Aluzinc / G.I. Steel in any FBS standard color. They are strong, less prone to

Damage and can be supplied in longer lengths providing a better appearance. Wall trims are made of the same color as wall panels unless a different FBS Standard Color is specified.

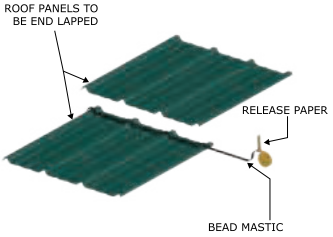



### SELF DRILLING FASTENER

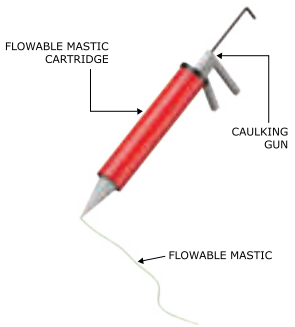
### FILLER BLOCKS



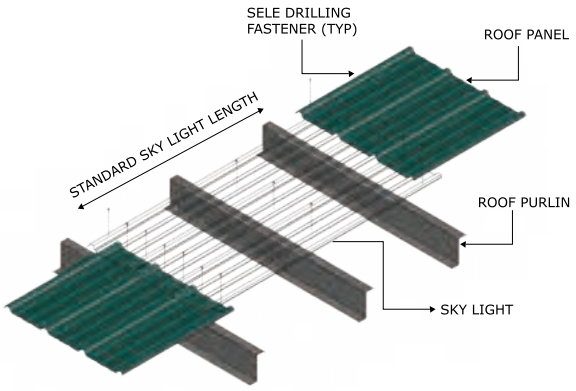

### BEAD MASTIC



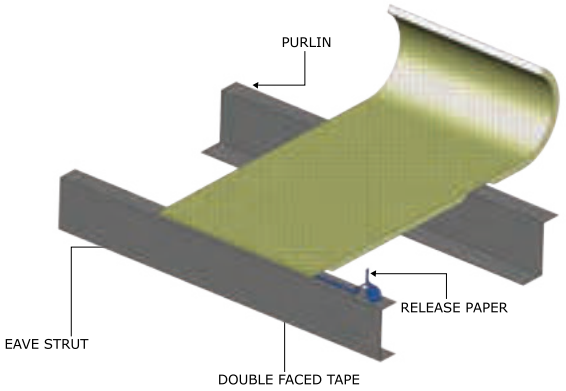

### FLOWABLE MASTIC



# Building Accessories

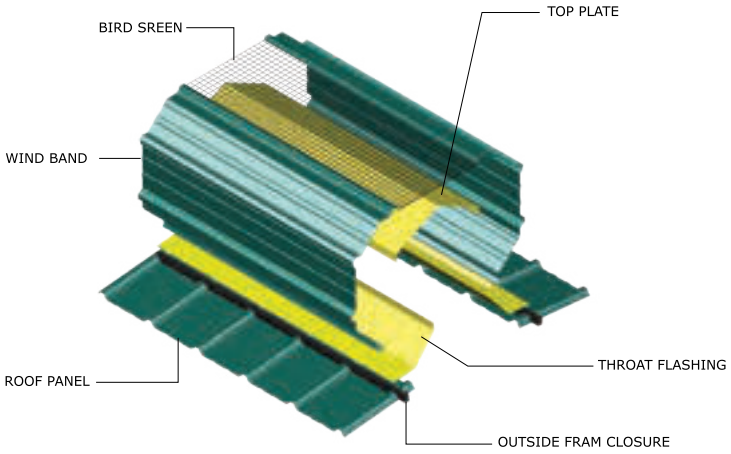



**SKYLIGHT PANEL ROOF**

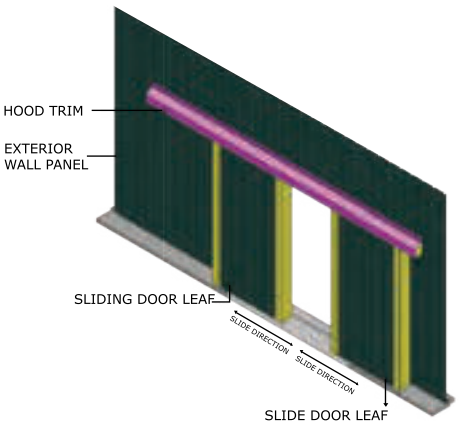



**FIBERGLASS INSULATION**

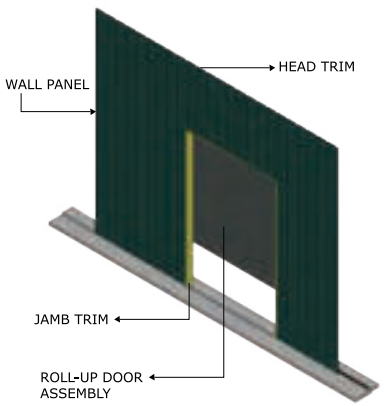
**RIDGE VENT**



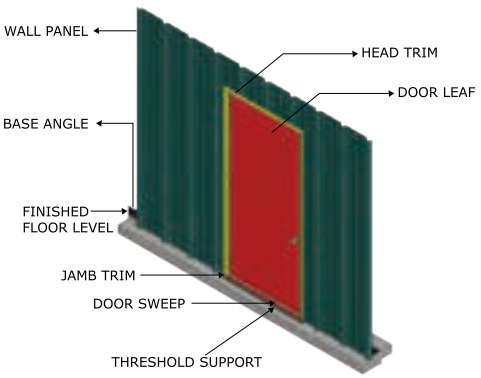

**DOUBLE SLIDING DOOR**



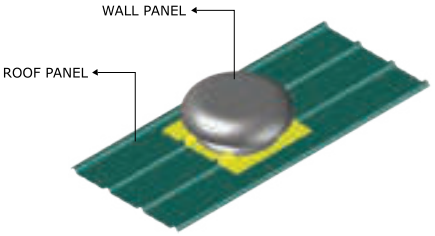

## Roll-up Door




## Single Walk Door




## Power Ventilator



# PEB Application

## Common application of PEB's in this region

### Industrial

- Factories
- Rolling mills
- Workshops
- Cold Store
- Warehouses
- Slaughter House

### Commercial

- Shopping Malls
- Showrooms
- Distribution Centers
- Supermarkets
- Hyper Markets
- Labor Camps
- Fast Food Restaurants
- Low Rise Office Buildings

### Institutional

- School
- Exhibition Halls
- Hospitals
- Theaters/Auditoriums
- Sports Hall
- Libraries

### Specialty Buildings

**Specialty buildings require additional considerations, more engineering time and longer delivery time.**

- Aircraft Hangers
- Vehicle Parking Shelters
- Bulk Storage Building
- Fuel Stations
- Poultry Farms

# Typical PEB Building