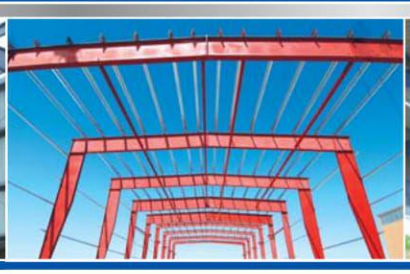
# MAXZIMUS

STEEL BUILDING PVT LTD

## The Reliable Source in Pre-Engineered Steel Buildings






- Single Source Responsibility
- Low Initial Cost
- Engineering Flexibility
- Faster Overall Project Completion
- Low Maintenance
- Fast Modular Expandability

## INTRODUCTION

Maxzimus Steel Building (MSB) is known among consultants, engineers, developers and project owners as THE RELIABLE SOURCE IN Pre-Engineered Steel Buildings (PEB). Since its inception, MSB has grown to become one of the major suppliers of Pre-Engineered Buildings (PEB). The buildings are manufactured in the industrial area Thuvakudi, Trichy, Tamil Nadu. The company is managed by a team of professionals who have a vast experience in all aspects of PEB. The team is headed by the Executive Management who is committed to take MSB to new heights of excellence through Customer Focus, Quality, Reliability, Innovation and Ethical Practices.

The facilities have the capacity to manufacture and supply 200 MT of steel Per Month:

- **Pre-Engineered Steel Buildings (PEBs)**
- **Hot Rolled Steel Structures**

## ORIGIN OF PEBs

Pre-Engineered Steel Buildings (PEBs) originated in the USA where more than a million PEBs are produced annually.

### Applicable U.S. Design Codes

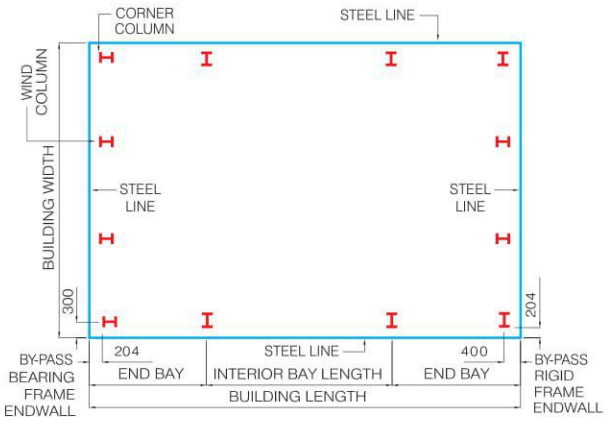
- **American Institute of Steel Construction (AISC)**
  Steel Construction Manual.
- **American Iron and Steel Institute (AISI)**
  Cold Formed Steel Design Manual.
- **American Welding Society (AWS)**
  Structural Welding Code AWS D1.1

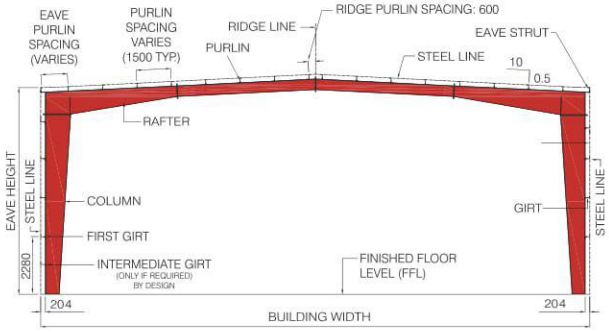
### Applicable U.S. Building Codes

- **Metal Building Manufacturers Association**
  Metal Building Systems Manual


## BASIC BUILDING PARAMETERS

The PEB Steel Structure of a building comprises of interior rigid frames, endwall bearing or rigid frames, endwall wind columns, secondary structural members (roof purlins & wall girts), wind bracing components and the structural framing of optional subsystems such as roof monitors, mezzanines (inclusive of mezzanine deck and deck fasteners), roof extensions, canopies, fascias, parapets, interior partitions, roof & wall framed openings, anchor bolts, connection bolts and sag rods.




**Steel Line**: the Plane outside the Secondary members "Z" or "C".

**Building Width**: Distance between sidewall steel lines i.e. out of sidewall girt to out of sidewall girt.

**Building length**: Distance between end wall steel lines i.e. out of end wall girt to out of end wall girt.

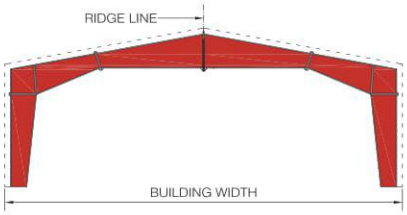
**Building Height**: Distance between top of F.F.L to the outer point of eave strut.

**Interior Bay Length**: Distance between center lines of columns of two adjacent interior rigid frames.

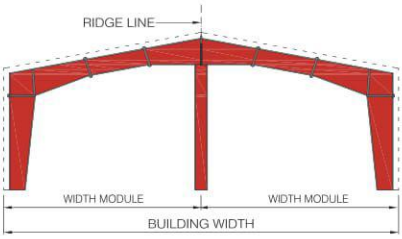
**End Bay Length**: Distance between outside of end wall girts to the center line of the columns of the first Interior Rigid Frame.

## BUILDING TYPES

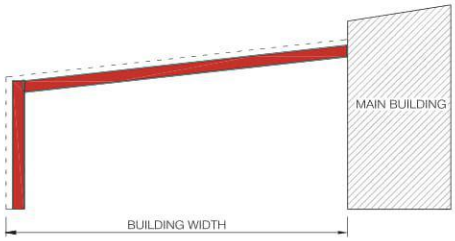
The most common primary framing systems are shown below. All are shown symmetrical about the ridge line. Framing systems unsymmetrical about the ridge line and Multi Span/Multi Gable Framing with unequal width modules are possible. All frames are shown with by-pass sidewall girts (an economical PEB Standard). Flush sidewall girts are a more expensive and less practical option. Practically any frame geometry is possible.



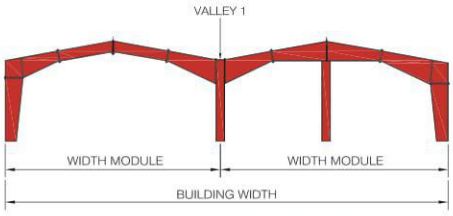

CLEAR SPAN (CS)




MULTI SPAN-1 (MS-1)

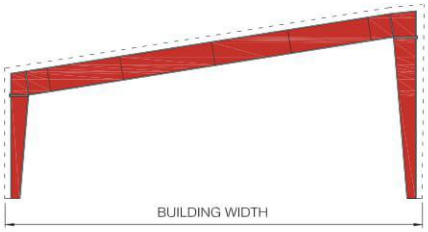



LEAN-TO




MULTI GABLE-1: MG-1 (CS+MS-1)


ROOF SYSTEM




SINGLE SLOPE (CS)

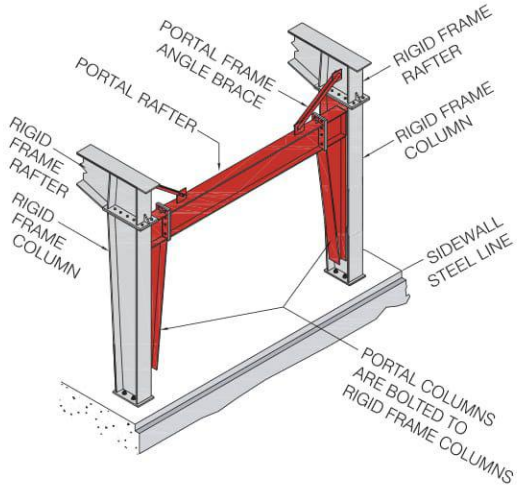
## BRACING SYSTEM

All Horizontal Loads in the longitudinal direction of the building should be carried to the base, Hence the necessity of bracing. There are two Types of Bracing System used in PEB:

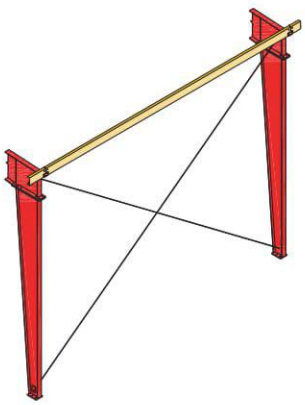
- **CROSS BRACING**
- **PORTAL BRACING**

**CROSS BRACING:** this is more widely used type of bracing. It can be cable, rod or angle depending on the amount of force that is to be transferred to the base.

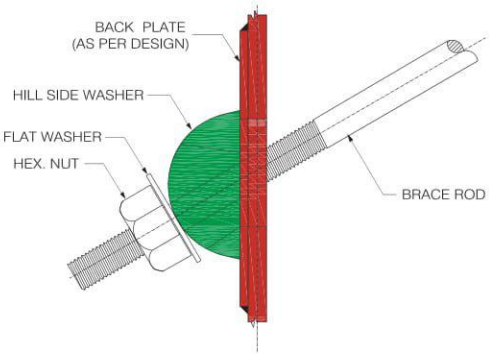
**PORTAL BRACING**: This bracing is used when a clear unobstructed bay is required. This bracing is made of Built up sections.




PORTAL FRAME



DIAGONAL BRACING




ROD BRACING

## CRANE SYSTEMS

The most common type of crane in PEB is the **Top Running Crane**. Our Scope of supply will be the Crane runway beam, kicker angle and crane bracket.

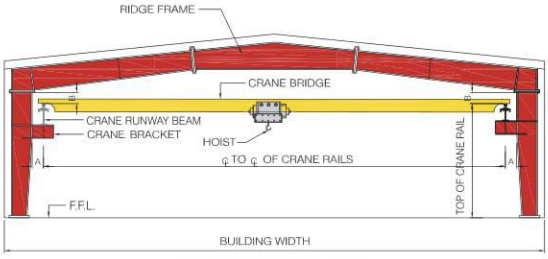
The **Crane Rails** are excluded from our scope of supply.

**The other various types of crane system are:**

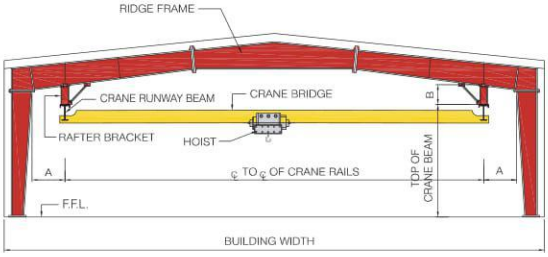
- **Monorail Cranes**
- **Under Hung Crane**
- **Jib Cranes**

**We require the following information for providing you with a most economical design:**

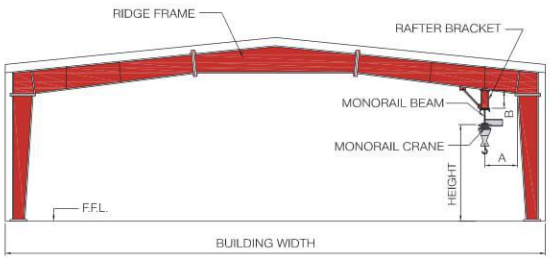
- Location of cranes in the building
- Travel length of cranes
- C.L to C.L of crane rails
- Crane Hook height
- Static wheel loads
- Vertical and horizontal clearances required
- Wheel base and bumper to bumper distances
- Type of crane operations (Cab / Pendent)
- The crane duty cycle (Full capacity lifts per hour)
- No of cranes operating in a single bay




TOP RUNNING CRANE




UNDERHUNG CRANE

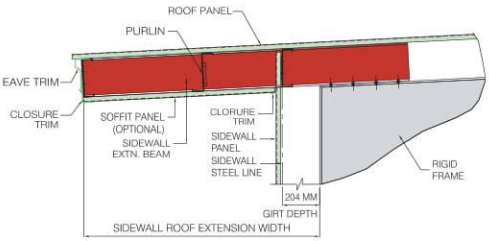



MONORAIL CRANE

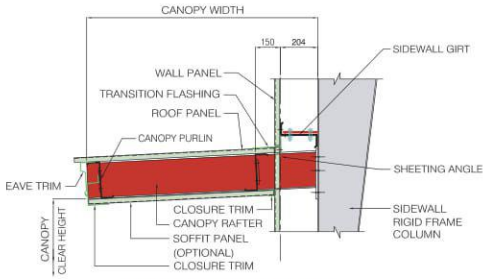
## SUB STRUCTURE

We provide you with the following substructure that will enhance the aesthetical view of you building:

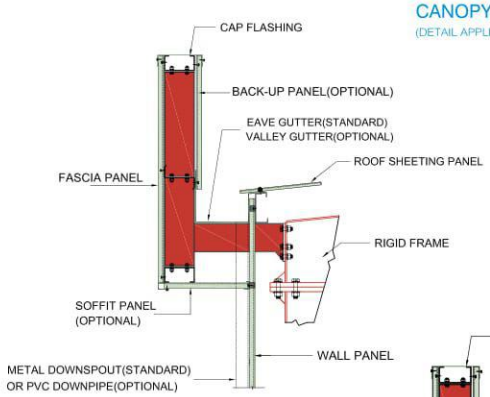
- **Eave Extension** – this is a roof extension along the sidewall of the building at the eave
- **Gable Extension** – this is a roof extension along the end wall of the building at the gable
- **Canopy** – this is an extension located mostly above Double sliding doors and roll up doors
- **Fascia** – this is an architectural element that is provided around the periphery of the roof



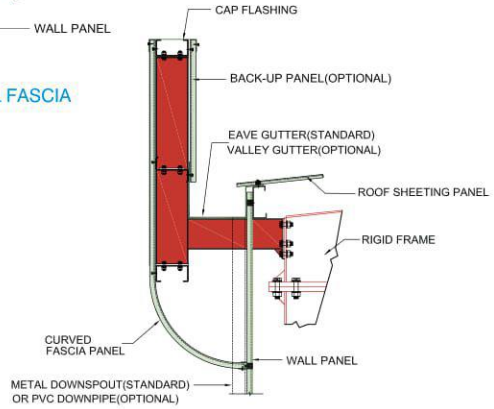

SIDEWALL ROOF EXTENSION
(DETAIL APPLICABLE UPTO 1500 mm)




CANOPY AT SIDEWALL
(DETAIL APPLICABLE UPTO 1500 mm)




VERTICAL FASCIA



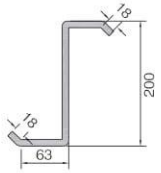

BOTTOM CURVED FASCIA (TYP.)

## COLD FORMED MEMBERS

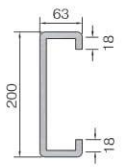
The Cold Formed members include roof purlins, wall girts, eave struts, C-sections, Gable angle and based angles. They are made from material equivalent to ASTM A653M Grade SS:340 Class I G90. They are designed with the cold formed steel design "AISI" – The American Iron and steel institute.

**The below are our cold formed profile with standard 200mm depth.**

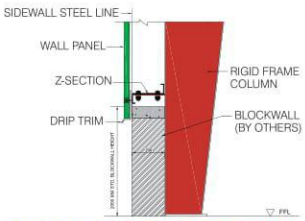
### C & Z 200 Section



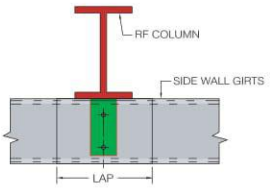

Z-SECTION



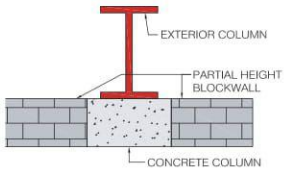

C-SECTION



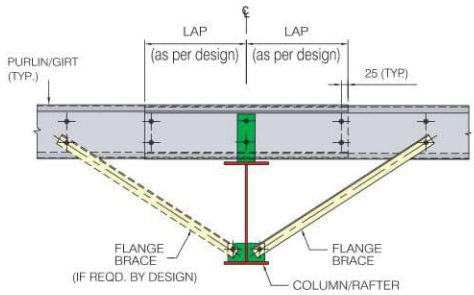

PARTIAL BY-PASS BLOCKWALL




BY PASS GIRT




BY-PASS BLOCKWALL

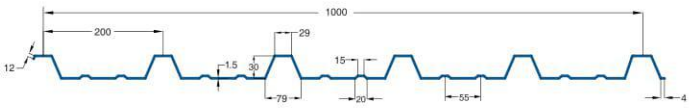



FLANGE BRACE WITH LAP

## SINGLE SKIN PANELS

The Profile of the Single Skin available in **Aluzinc** / **Galvanized** Coated Steel in 3 colors are shown below:

**The Thickness of Panel is 0.5mm (TCT).**



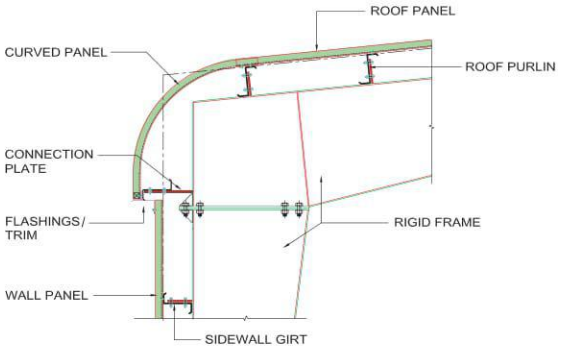

CORRUGATED PROFILE

**White** **Blue** **Green**

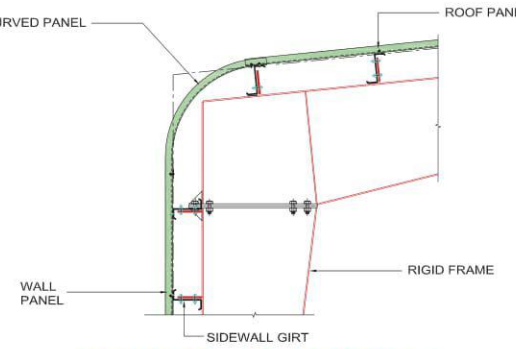
## CURVED EAVE

Curved eaves are an option in building eaves. There are two details for curved eaves. We recommend the curved eave with projection because it is considerably easier to erect. Fitting the ribs of the curved eave panels simultaneously with the ribs of both the roof and wall panels is a very difficult task whereas fitting the ribs of the curved eave panels with the ribs of the roof panels only is considerably easier.

**The Curved Eave Increases the aesthetical view of the building as it does not require an eave gutter.**

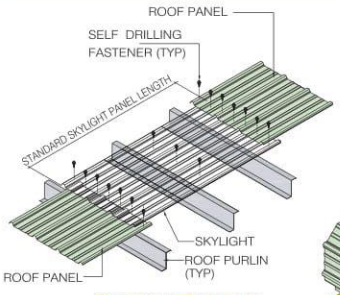



CURVED EAVE WITH PROJECTION

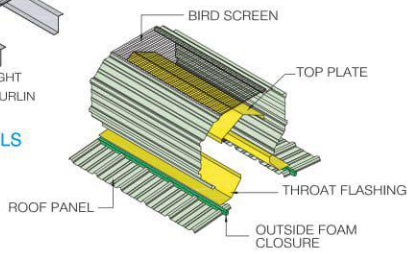



CURVED EAVE WITHOUT PROJECTION

## BUILDING ACCESSORIES




SKYLIGHT PANELS



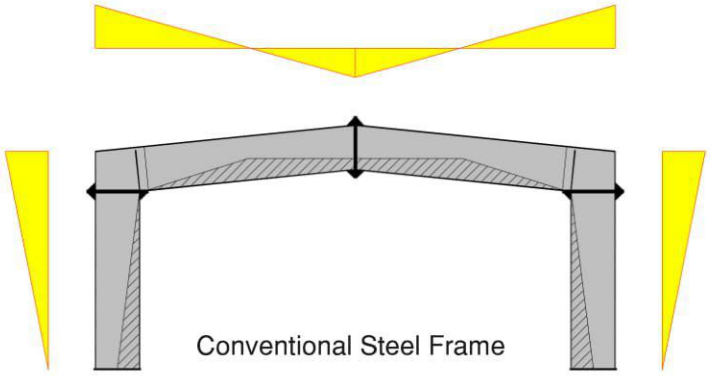

RIDGE VENTILATORS

## PEB vs Conventional Framing

### The Primary Framing System

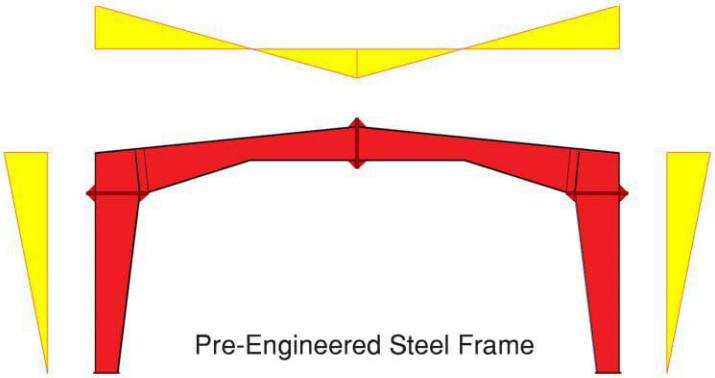
In conventional steel buildings, mill-produced hot rolled sections (beams and columns) are used. The size of each member is selected on the basis of the maximum internal stress in the member.

Since a hot rolled section has a constant depth, many parts of the member (represented by the shaded area), in areas of low internal stresses are in excess of design requirements.



Conventional Steel Frame

Frames of pre-engineered buildings are made from an extensive inventory of standard plates stocked by the PEB manufacturer. PEB frames are normally tapered and often have flanges and webs of variable thicknesses along the individual members.

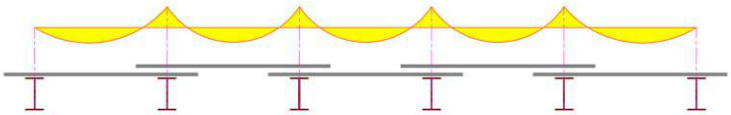


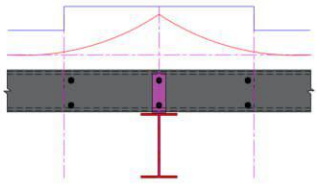
Pre-Engineered Steel Frame

### The secondary framing system

Z-shaped roof purlins and wall girts are used for the secondary framing. They are lighter than the conventional hot-rolled C-shaped sections in conventional steel buildings.

Nesting of the Z-shaped members at the frames allows them to act as continuous members along the length of the building. This doubles the strength capacity of the Z-shaped members at the laps, where the maximum internal stresses normally occur.





Strength Capacity is double at lap

Nesting of Two Purlins

## NOTES

## COMMON APPLICATIONS OF PEB'S IN THIS REGION

### INDUSTRIAL

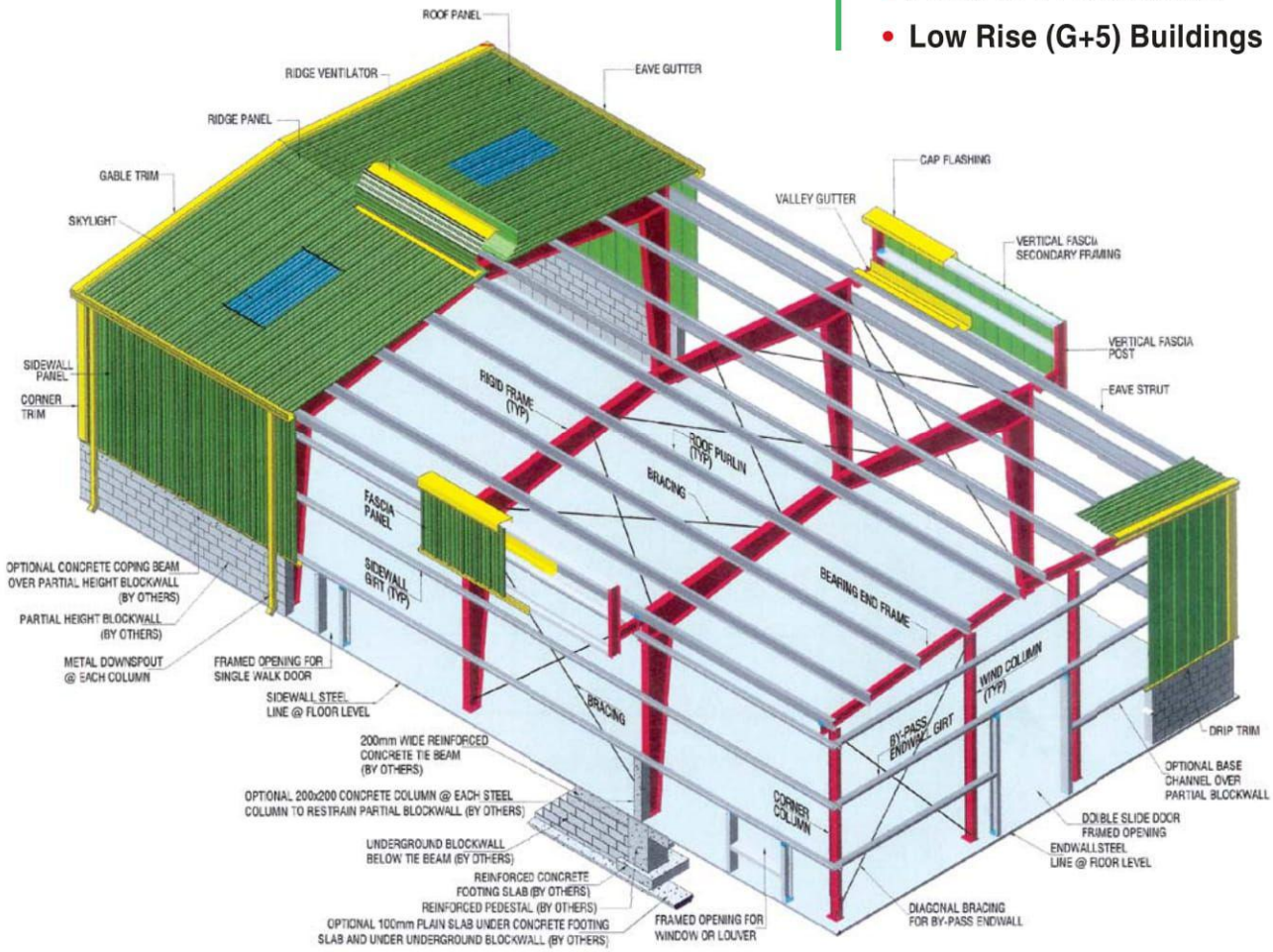
- Factories
- Workshops
- Warehouses
- Rolling Mills
- Cold Stores
- Slaughter Houses

### INSTITUTIONAL

- Schools
- Exhibition Halls
- Hospitals
- Theaters/Auditoriums
- Sports Halls
- Libraries

### COMMERCIAL

- Shopping Malls
- Showrooms
- Distribution Centers
- Supermarkets
- Hypermarket
- Labor Camps
- Fast Food Restaurants
- Low Rise (G+5) Buildings




**3D Illustration of a Typical Pre-Engineered Building (PEB)**

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