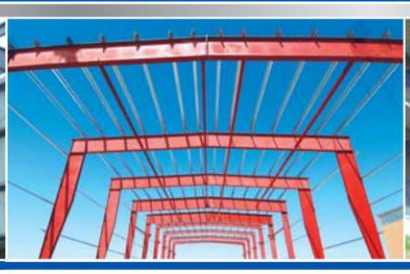
MAXZIMUS

STEEL BUILDING PVT LTD

[PEB VS CONVENTIONAL STEEL FRAMING]

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

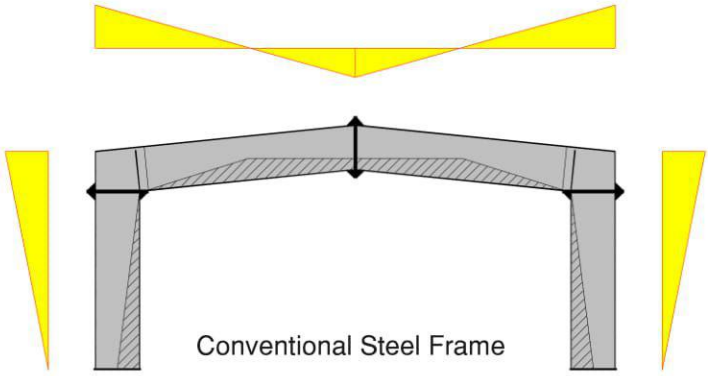
INTRODUCTION

The Primary Framing System

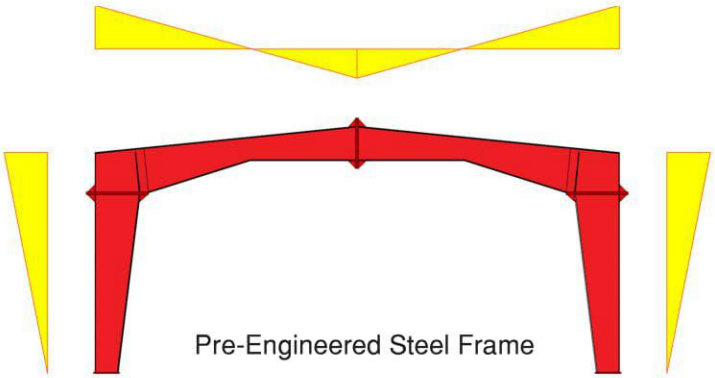
In conventional steel buildings, mill-produced hot rolled sections (beams and columns) are used. The size of each member is selected on the basis of the maximum internal stress in the member.

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.

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.



Conventional Steel Frame

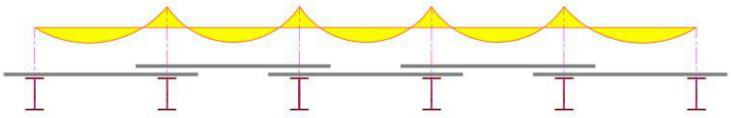


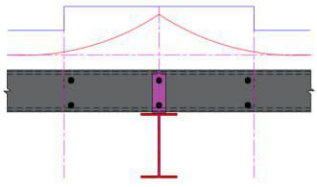
Pre-Engineered Steel Frame

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

Description	Pre-Engineered Steel Buildings	Conventional Steel Buildings
Structure Weight	Pre-engineered buildings are on the average 30% lighter through the efficient use of steel. Primary framing members are tapered (varying depth) built- up plate sections, with larger depths in the areas of highest stress. Secondary members are light gage (light weight) roll-formed (low labor cost) "Z" or "C" shaped members.	Primary steel members are selected from standard hot rolled "I" sections, which are, in many segments of the members, heavier than what is actually required by design. Members have constant cross-sections regardless of varying magnitude of the local stresses along the member length. Secondary members are selected from standard hot rolled "I" and "C" sections, which are heavier.
Design	Quick and efficient; since PEB's are mainly formed of standard sections and connections, design time is significantly reduced. Basic designs are used over and over. Specialized computer analysis and design programs optimize material required. Drafting is also computerized using standard details that minimize project custom details. Design, shop detail sketches and erection drawings are supplied free of charge by the manufacturer. Approval drawings are usually prepared within 2 weeks. PEB engineers design and detail pre-engineered buildings almost every day throughout the year resulting in faster and more efficient designs. Consultant's in-house design and drafting time is considerably reduced, allowing more time for co- ordination and review, and increased margins on design fees.	Each conventional steel structure is designed from scratch by the Consultant, with fewer design aids available to the Engineer. Substantial engineering and detailing is required on every project. Generalized computer analysis programs require extensive input/ output and design alterations. Extensive consultant time is devoted to design and drafting, as well as co-ordination and review, often at a significant expense. Each project is a separate case, engineers need more time to develop the designs and details of the unique structure. More complicated design requiring extensive design and drafting time from Consultants.
Delivery	Average 6 to 8 weeks.	Average 20 to 26 weeks.
Foundations	Simple design, easy to construct and light weight.	Extensive, heavy foundations required.
Erection Simplicity	Since the connections of the components are standard, the learning curve of erection for each subsequent project is faster. Periodic free-of-charge erection support at the site is usually provided by PEB manufacturers.	The connections are normally complicated and differ from project to project, resulting in longer learning curves of erection for new projects.

Description	Pre-Engineered Steel Buildings	Conventional Steel Buildings
Erection Cost and Time	Both costs & time of erection are accurately known, based upon extensive experience with similar buildings. PEBs are often erected by specialized PEB builders with extensive experience in the erection of similar buildings, offering very competitive rates. PEB builders usually have a stock of standard components, in their camps, enabling them to complete jobs on time should any shortage or site damage occur to materials. The erection process is easy, fast, step by step and with hardly any requirement for equipment.	Typically, they are 20% more expensive than PEB. In most of the cases, the erection costs and time are not estimated accurately. Erection is slow and extensive field labor is required. Heavy equipment is often needed.
Seismic Resistance	The low-weight flexible frames offer higher resistance to seismic forces.	Rigid heavy weight structures do not perform well in seismic zones.
Overall Price	Price per square meter may be as much as 30% lower than conventional steel.	Higher price per square meter.
Architecture	Outstanding architectural design can be achieved at low cost using standard architectural features and interface details. Traditional wall and fascia materials, such as concrete, masonry and wood, can be utilized.	Special architectural design and features must be developed for each project, which often require research and thus resulting in much higher costs.
Sourcing & Coordination	Building is supplied complete with cladding and all accessories, including erection (if desired) from one single source.	Many sources of supply; project management time is required to co-ordinate suppliers and sub-con-tractors.
Cost of Change Orders	PEB manufacturers often stock a large amount of basic raw materials that can be flexibly used in many types of PEB projects. Change orders are easily accommodated at all stages of the order fulfillment process. Little or no material is wasted even if a change order is made after fabrication starts.	Substitution of hot rolled sections, that are in- frequently rolled by mills, is expensive and time consuming. Change orders that are made, after hot rolled sections are shipped for fabrication, often result in redundancies to a lot of hot rolled sections, which ultimately results in more cost to the end user.

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Building Accessories	Designed to fit the system, with standardized, inter- changeable parts, including pre-designed flashing and trims. They are mass produced for economy and are available with the building. They have been tried in thousands of existing buildings.	Every project requires special design for accessories and special sourcing for each item. Flashing and trims must be uniquely designed and fabricated.
Future Expansions	All project records are kept in electronic format in- definitely, making it easy for the owner or designer to obtain a copy of his building records at any time. Future expansion is simple, easy and cost effective. One supplier can co-ordinate changes.	It would be difficult to obtain project records, after a long period of time. It is required to contact more than one party, involved in the project, to obtain accurate information. Future expansion would be more difficult and, more likely, costlier.
Responsibility	Single source of supply results in total responsibility by one supplier, including design liability. PEB manufacturers can be relied upon to service their buildings long after they are supplied to protect their reputation.	Multiple responsibilities can result in questions of who is responsible when components do not fit properly, insufficient material is supplied, or materials fail to perform, particularly at the supplier/ contractor interface. The consultant carries total design liability.
Performance	All components have been specified and designed specifically to act together as a system, for maxi- mum efficiency, precise fit, and peak performance in the field. Experience with similar buildings, in actual field conditions worldwide, has resulted in design improvements over time, which allow dependable prediction of performance.	Components are custom designed for a specific application on a specific job. Design and detailing errors are possible when assembling the diverse components into unique buildings. Each building design is unique, so prediction of how components will perform together is uncertain. Materials which have performed well in some climates may not do so in other environments.
Global Experience	Maxzimus Steel is a global supplier of pre-engineered buildings to over 50 countries. The company has acquired vast experience in the performance of PEBs in different climatic conditions. Make Maxzimus Steel your Trusted Partner.	Normally, suppliers of conventional steel are oriented to their local markets with experience in local climatic conditions only.

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