

Introduction of PEB:

Technological improvement over the years has contributed immensely to the enhancement of quality of life through various new products and services. One such revolution was the pre engineered buildings.

Initially only off-the-shelf products were available aided by the technological development, tailor made solutions are also made using this technology in very short durations. Although PEB systems are extensively used in industrial and many other non residential constructions world wide, it is relatively a new concept in India.

Pre engineered steel buildings can be fitted with different structural accessories including mezzanine floors, canopies, fascias, interior partitions etc. and the building is made water proof by use of special mastic beads, filler strips and trims. This is very versatile buildings systems and can be finished internally to serve any functions and accessorized externally to achieve attractive and unique designing styles. It is very advantageous over the conventional buildings and is really helpful in the low rise building design.

Pre engineered buildings are generally low rise buildings however the maximum eave height can go upto 25 to 30 metres. Low rise buildings are ideal for offices, houses, showrooms, shop fronts etc. The application of pre engineered buildings concept to low rise buildings is very economical and speedy. Buildings can be constructed in less than half the normal time especially when complemented with the other engineered sub systems.

The most common and economical type of low rise buildings is a building with ground floor and two intermediate floor plus roof. The roof of low rise buildings may be flat or sloped. Intermediate floors of low rise buildings are made of mezzanine systems.

Applications of Pre Engineered Buildings (PEB)

- WAREHOUSES
- FACTORIES
- WORKSHOPS
- OFFICES
- GAS STATIONS
- VEHICLE PARKING SHEDS
- SHOWROOMS
- AIRCRAFT HANGARS
- METRO STATIONS
- SCHOOLS
- RECREATIONAL
- INDOOR STADIUM ROOFS
- OUTDOOR STADIUM CANOPIES
- BRIDGES
- RAILWAY PLATFORM SHELTERS

Advantages of Pre Engineered Buildings

Reduced Construction Time :

Due to the systems approach, the use of high strength steel, use of tapered built-up sections which are optimized by the computerized design program and the use of continuous light gage secondary steel section, there is an overall reduction in steel weight, cost and time relative to conventional steel construction.

Pre-engineered buildings are a predetermined inventory of raw materials that has proven over time to satisfy a wide range of structural and aesthetic requirements. The components are engineered beforehand and standardized. Use of these standard components reduces the engineering, production and erection time. Use of customized software for design & drafting increases the speed of the project.

The production line is highly sophisticated, having Auto welders, multi-cutting torches, shear cutting machines etc., which greatly reduce the time of fabrication of built-up components. Roll forming machines for producing Z & C members and sheeting, having standard dimension, increases the production capacity of secondary members. Use of standard accessories greatly increases the speed of production & erection.

Buildings are typically delivered in just a few weeks after approval of drawings. Foundation and Anchor Bolts are cast in parallel with manufacture of the building. Site assembly is fast, as all building components are delivered finished, ready for site bolting. It can reduce total construction time on a project by at least 50%. This will allow faster occupancy and earlier realization of revenue.

Design : Since PEB's are mainly formed of standard sections and connections, the design time is significantly reduced. Specialized computer analysis and design programs optimize material require. Drafting also computerized using standard details that minimizes project custom details. The low-weight flexible frames offer higher resistance to seismic forces.

Lower Cost : Due to the systems approach, there is a significant saving in design, manufacturing and site erection cost. The structural elements are shaped to follow the stress diagram of the member, thus reducing weight, cost and load to foundations. The secondary members and cladding nest together reducing transportation cost. The overall price per square meter may be reduced as much as 30% lower than conventional steel.

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

Erection : Since all the connections of the different components are standard, the erection time is faster.

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

Large Clear Spans : Buildings can be supplied to around 60M clear spans.

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

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

Energy Efficient Roof and Wall Systems : Buildings can be supplied with polyurethane insulated panels or fiberglass blanket insulation to achieve required 'U' values.

Architectural Versatility : Buildings can be supplied with various types of fascias, canopies, and curved eaves and designed to receive pre-cast concrete wall panels, curtain walls, block walls and other wall systems.

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