

VALUE ADDITION IN PRE ENGINEERED BUILDING (PEB)

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Abstract – TCE in the role of Design engineering Consultant, Owner's engineer or Project management consultant has done significant value additions in concept designs and specifications for PEB buildings. The layouts, conceptual structural framings for the plant buildings are decided after a thorough study and with alternative options to get most economical construction. The total cost including super structure and sub structure is considered while finalizing the options. The vast experience of TCE in design of PEB is captured in the specifications of TCE. Cost optimisation is also done at design review stage. In a nut shell the client gets most techno-economical solution, fulfilling all codal requirements

TCE provides services as Design engineering Consultant/ Owner's engineer/ Project Management consultant for many industrial projects wherein the buildings are generally PEB. TCE plays a crucial role in conceptualisation and framing the specifications of the PEB structures so that client gets the best possible techno-economic solution from a holistic view point and not limited to specific considerations such as cost of PEB, lowest kg/sq mt etc. Following are some of the parameters for value addition considerations in Pre Engineering Buildings :-

1. Economical layouts and structural framings during Design of PEB structures
2. Framing of Specifications of PEB
3. Cost optimisation during Design and Drawing review

The parameters specified above have been briefly explained below:

1. Economical layouts and structural framings during Design of PEB structures

TCE decides the Structural parameters of PEB building to achieve overall economy in building. The analysis includes the Super Structure and sub structure of Building. It is possible that the lighter super structure offered by a Bidder may be increasing the cost of sub structure and may be a costly option when looked at in totality. The Architectural aspects such as functional requirement of Building, Space utilisation, Statutory requirements, Provisions for effective use of daylight and wind, Safety are also considered. Options with respect to bays spacing, width module, type of frame, etc are worked out to decide the best option for Geometry of the Building. The cost benefits vary from 10 - 15% and also have the advantage of lesser construction time.

2. Framing of Specifications of PEB

The specifications of PEB components are decided after considering quality of material, availability, sustainability and cost of material. TCE specifications will ensure that all statutory and codal requirements are met with fully.

TCE has a vast experience of working on PEB structures of more than 20 Lakh sq mt of built up area and specifications have evolved over the last 15 years which ensures

maximum benefit to the client. TCE engineers have visited the plants of different Vendors and a strong database has been developed regarding the techno commercial capabilities of Vendors and only the most suitable Vendor for a particular project will be recommended for the tendering process.

TCE has a team of multidisciplinary engineers working under one roof and offers an integrated solution. The loading, geometry and specifications of PEB Building are decided considering requirements of MEP services prior to finalization of Design of PEB. All future requirements are also built in to the planning.

PEB Buildings are planned and designed considering functional requirement of Plants. Location and placing of different machineries are decided during planning stage so that maximum optimisation of PEB building can be achieved.



3. Cost optimisation during Design and Drawing review

TCE reviews and validates the correctness of Structural Design of PEB Building, Specification used in PEB Building and Architectural features. TCE explores further possibilities of optimisation and accordingly guides the PEB Vendor to economise the PEB building so that client gets the maximum benefit. In one of the projects ***TCE's design optimisation was vetted by IIT Madras and it was specifically mentioned that the optimisation is to such an extent that not even 1kg can be reduced further.***