



TECHNO SALES INTERNATIONAL LTD.

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ADVANTAGES OF PRE-ENGINEERED MODULAR BUILDINGS

No limit to design and use

Today's Pre-Engineered Buildings (PEB) can be hospitals, community centres, schools, residences, offices or sports arenas. The structures can incorporate many architectural finishes—including masonry, brick, tilt-up, ornamental metal or stucco façades—while still being cost competitive. Basic elements apply to all metal buildings: primary rigid frames, secondary members (wall girts and roof purlins), cladding and bracing. All of those elements work together to create an efficient building system. Engineered systems are designed to code and withstand extreme loading from disasters such as earthquakes and hurricanes.

What is a PEB?

"Pre-Engineered" is no longer an accurate term. All these buildings are "custom" engineered using automated design programs. The building is fabricated at the manufacturer's plant and assembled at the client's site. Metal building system manufacturers use computer tools to custom design each building system and all building components based on each customer's needs and specifications. Based on local and national building codes, each metal building system is engineered to the required dimensions and designed to meet the loading conditions with the specified material. Once the building is designed and detailed, computerized instructions are sent to the fabrication plant where steel members are cut to exact standards. This precision custom manufacturing also reduces construction waste.

PEB's are GREEN!

Made using metals and other material, PEB's have always been GREEN! Conventional buildings are constructed using bricks, sand and cement which results in environmental pollution. Steel buildings are environmentally friendly and can also help meet green initiatives. Up to 75 per cent of steel used in metal buildings comes from recycled products and steel is 100 per cent recyclable. Further, there is no requirement for any kind of welding process for construction, which helps save energy. These buildings are pre-drilled, pre-cut and pre-welded. The roofing systems are designed to meet LEED requirements for solar reflectance and heat emissivity.

PEB's have longevity

Due to the permanence, durability, stability and quality of metal buildings, life cycles can reach up to 100 years. In addition, metal buildings are easy to insulate and, when paired with cool roofing, can help lower heating and cooling costs. Steel does not rot, warp, shrink or split – and it is non-combustible. Any PEMB that by its appearance is obviously a metal structure (such as a storage facility or airplane hangar) will come with a long lasting finish. For example they can be made from Galvalume or coated with Kynar which typically carries a 40 year warranty. Therefore even PEB's with an exposed metal skin will not require maintenance such as painting.

Installation

As the design, engineering and fabrication of the new building is done at the manufactures facility; the pre-fabricated components are shipped to the site for immediate erection. Typically this is performed by local crews certified and trained by the manufacturer.

Finishes

These buildings are eminently suitable for any type of use and are offered with many exterior wall options, glazing and finishes including masonry, brick, ornamental metal or stucco façades.

Reduced construction time

We can provide new build structures in less than half the time required for traditional construction.

Reduced on-site activities

Our off-site construction techniques require less time on site. This could be in the order of 40% of the time required using traditional methods.

Reduced on-site disruption

As the majority of construction work is carried out off-site, the impact to the existing site is significantly low. In comparison to traditional construction, there is a reduction in noise, dust, and light pollution and the site will also benefit from less vehicle movements. As a result, the hospital is able to carry on its operation with minimum disruption to the daily activities.

Reduced health & safety risks

Due to a much shorter exposure to nearby construction activities, health and safety risks are minimised. The construction works are carried out off-site and major installation works are typically limited to weekends and carried out in strict accordance with detailed method statements.

Improved quality control

Off-site construction makes possible a higher degree of quality assurance due to the factory-controlled environment. Both contractor and client are able to 'prove' the building before installation on site, reducing the amount of snagging and callbacks at a later stage.



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Reduced constraints on on-site parking

With less time required on site there is a reduced need for parking, which is a major issue on many hospital and other sites during a major development. The majority of construction related traffic is directed to the factory, causing less impact on the hospital site.

Increasing site utilisation

Many hospital sites are very congested and struggle to accommodate much needed new facilities. The nature of modular construction enables us to provide healthcare facilities in many challenging locations such as over rooftops, on gantry style support structures and in enclosed courtyards .Also,

1. Compared to traditional methods, fast-track construction approach can save up to 60% of the time required to provide a new modular building. This leads to an earlier start of service provision and an earlier return on investment.
2. A shorter construction time is achieved because:
3. Enabling works and foundations are prepared simultaneously with off-site manufacturing and fit-out of building sections
4. The main construction takes place in a factory environment, eliminating weather disruptions and lowering the risk of over-runs and delays
5. Construction processes are standardised and simplified due to the repetition in the design of building modules
6. Greater quality control reduces the time spent on corrections and call-backs
7. A short off-site construction programme means less construction activities on site, fewer deliveries and less on-site labour. All this leads to less disruption to the operation of the existing hospital.
8. Furthermore, fast-track construction can help reduce the build time during traditional hospital development schemes. This is achieved by outsourcing the construction of complex clinical areas, such as operating theatres, to be built off site, whilst the main superstructure is being erected on site.
9. Compared to traditional methods, fast-track construction approach can save up to 60% of the time required to provide a new modular building.

Expertise of Techno Sales International Ltd and Partners

- a. Our partners are the leading specialist in the world in the design and build of high specification Pre-engineered modular healthcare, schools, residential and offices facilities in the shortest possible timeframes, using modern off-site construction methods.
- b. They have completed @120+ successful turnkey hospital buildings ranging from individuals operating theatres to large multi-storey complexes covering most healthcare disciplines, schools, offices, residence, etc.
- c. Extensive partnership experience working closely with clients at every stage of the project and adhering to client's requirements.
- d. They have an in-house design team to include architects, healthcare concept designers, off-site technical experts, engineers, consulting doctors.
- e. An approved pre-engineered turnkey hospital by the UK National Health Service and meets with UK and European regulations
- f. Lloyds Certification for Building Life
- g. An approved UN/NATO contractor
- h. Quality System is ISO 9001:2000 certified.
- i. Fully compliant with current UK & European Building Regulations
- j. Can design and built to have a structural design life of over 60 years