

Karuna Bhawan (Makeshift Hospital for COVID – 19)

CSIR-Central Building Research Institute (CBRI), Roorkee, has developed a rapid construction/erectable Make Shift Hospital structure to deal with COVID-19 emergency, which could be directly responsible for driving into permanent generational slavery, if not handled intelligently.



(a)

(b)

Prototype Under Construction Makeshift Hospital
With (a) Bubble insulation system (b) Mineral Wool Insulation System for enhanced comfort

A portable, prefabricated, foldable steel structure has been designed with adequate insulation and water proofing features. The structure is modular by design and can be constructed at site to meet the space requirements and site conditions. This structure named as '**Karuna Bhawan**' has the following salient features:

- A lightweight steel Portal Frame Structure with vertical sides, of 30.23 Sq.m per module plinth area, is a prefabricated structure that can be easily assembled at site.
- The design complies to relevant standards for make-shift hospitals. Makes use of light weight prefabricated steel portals that are foldable, easily to erect, reusable, safe, comfortable to the occupants and cost-effective.
- Necessary electric, water-supply, heating/cooling services along with other medical service lines like oxygen supply etc can be integrated with this design.
- The structure is easy to assemble with a foldable Truss of MS angle, supported on vertical steel columns.
- Plan makes use of optimum space utilization, scalability (both ways), appealing aesthetics.
- **Erection can be carried out by 5 semi-skilled fabricators at a speed of 1.5 hr / bed for Make-shift hospitals.**
- Internal Foldable partitions provide freedom of configuration of internal spaces as per actual requirement and use. Each module has 4 Windows and 4 Vents sufficient for cross ventilation of the living area.

- Optimum space utilization with all the minimum facilities desired for Make-shift hospitals are housed.
- Foundation could be of steel plates anchored to ground through RCC precast or in-situ pedestals over which the Portal frames are fixed.
- Change in size is possible to meet the actual use at site. The current size is for use as a 10 bedded hospital for COVID-19 with all relevant service and facilities.