

CATEGORY

**BUILDING SYSTEMS**



PRODUCT / TECHNOLOGY



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Technology Detail

**LGSF STRUCTURES (HABINEST) & PUF SANDWICH PANEL (NESTUDIO)**

*Alternate to conventional RCC framed structure with bricks/blocks as infill walling material and conventional bricks/blocks masonry wall & Non load bearing roof*



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**BRIEF**

**Light Gauge Steel Frame Structure (HabiNest)**

Light Gauge Steel Framed Structures (LGSF) is based on factory made galvanized light gauge steel components. The components/sections are produced by cold forming method and assembled as panels at site forming structural steel framework of a building of varying sizes of wall and floor. The assembly is done using special types of screws and bolts. LGSF is typically ideal for one to four storey high buildings, especially for residential and commercial buildings & for buildings higher than G+3, it can be used with hot rolled Steel sections.

The flooring / slab can be with deck sheet supported on floor joists with in-situ reinforced concrete on the top or in-situ conventional RCC slab. Wall cladding used (high density cement fiber board, concrete panels etc.) shall resist the wind load & conform to the functional requirements.

The sequence of construction comprises of foundation laying, fixing of tracks, fixing of wall panels with bracings as required, fixing of floor panels, fixing of roof panels, decking sheet, fixing of electrical & plumbing services and finally fixing of insulation material & walling panels.

HabiNest LGSF (Light gauge steel frame) construction is based on factory made Galvalume (AZ 150) light gauge cold formed steel of 550 Mpa, assembled as panels at site forming structural framework of a building of varying sizes of wall and floors. As these are light in weight requires a nominal civil foundation and excellent earthquake resistance making it ideal for building in difficult terrains such as mines.

- Structural Members (LGSF) consist of Mild steel Galvanized Structure with the yield strength not less than 550 MPa and a Zinc and aluminium coating AZ 150. The Size and thickness will be based on design criteria
- Roofing (Pitched / Flat roof) : With PPGL .45 mm sheet and 50mm insulation / with 0.8mm deck sheet and 75mm concrete flooring
- Boarding: 2 layers of High-density Fiber cement boards (6 mm + 9mm HD FCB) external 2 layer of fiber cement board and gypsum board internal (8mm FCB + 12.5mm Gypsum) all with 100mm rock wool insulation.





### PUF Sandwich Panel (Nestudio)

Sandwich panels are single piece, prefabricated, modular, factory made units which consist of an insulating layer of rigid polyurethane foam between two layers of metal sheets. The panels comprise of PUF bonded between two sheets of Pre-coated GI sheets of 0.5 mm thick to produce straight-to-finish panels.

Insulation core provides effective insulation and strong bonding for better structural stability to facilitate higher loading and wider spans.

- 0.5mm Sandwich panel, RMP wood coated steel, 60mm thickness panel filled with PUF, ensuring fire, acoustics, and thermal insulation.



### SALIENT FEATURES

#### Light Gauge Steel Frame Structure (HabiNest)

- As these are light in weight requires a nominal foundation.
- High earthquake resistance making it ideal for building in difficult terrains
- Cost effective & high speed of construction.
- Steel is recyclable, making it environment friendly
- High thermal insulation & acoustics can be achieved.
- LGSF (HabiNest): Lightweight structure performance is very good in high earthquake zone (projects done in north east)
- Designed for suitable wind speed (completed cyclone shelter in high cyclonic zone like Odisha).
- Environmentally friendly (very less water usage)
- Superior insulation property





### PUF Sandwich Panel (Nestudio)

- Cost effectiveness : Overall life cycle cost is lesser than RCC
- Resource efficiency (saving of natural resources like sand, limestone water etc): Eco-friendly technology, leading to almost zero pollution.
- Quality & durability: High quality steel. Structures designed for 25years of life and can be designed for 50+ years too.
- Environment friendliness including use of Agro-industrial wastes and sustainable technology
- Ease of Working : Very easy to execute
- Energy efficiency: High on energy efficiency and can also be integrated with solar panels.
- Speed in construction: Very high speed of construction as compared to RCC construction.

### ECONOMIC ASPECT

- Reduced structural load requirements.
- Reduces construction time.
- Overall life cycle cost is lesser than RCC
- Environment friendliness including use of Agro-industrial wastes

### SUSTAINABILITY ASPECT

- Uses very less water
- Uses recyclable materials
- High thermal insulation reduces cooling loads.

### SUITABILITY AND AVAILABILITY

- Suitable for all climate conditions.
- Available across the Country.





## LIMITATIONS, IF ANY

- PUF Panel (Nestudio): NA
- LGSF (HabiNest): Lightweight structure best performance in high earthquake zone (projects done in north east). Designed for suitable wind speed ( completed cyclone shelter in high cyclonic zone like Odisha)

## MARKET LINKAGES

- Pan India Availability.

## MAJOR PROJECTS

- PUF Panel (Nestudio): 100+ Projects all across India, ranging from 200SFT to 6000SFT independent houses.
- LGSF (HabiNest) : > 1.5 lakh Sq.ft already executed in various locations across India. More than 3 lakh Sq.ft work under execution.

## CERTIFICATION/INDIAN STANDARD/ENDORSEMENT

- HabiNest is certified by IIT.

