

➤ **Very low thermal conductivity**

building material ICF (Insulated concrete formwork) to create the walls with thermal resistance of R-19 (as against R-0.4 to R-1 for conventional building materials).

➤ **Very low air infiltration rate**

due to triple layer composite structure (as low as 0.8 ACH or Air Change per Hour at 50 Pascal as against 5-7 ACH for conventional) ensures an air tight building with zero heat ingress through convection mode.

➤ **High thermal inertia**

because of 150 mm concrete core (high mass and hence high specific heat) contained within airtight insulation panels on both internal and external surfaces of the exterior walls, thus ensuring low indoor temperature fluctuations despite variations in the ambient.

➤ **Zero heat ingress through thermal bridging**

as concrete is insulated from ambience even in slabs and lintel beams.

➤ **Higher structural strength with monolithic "Box" design for disaster resistance**

loadbearing, Concrete shear walls & Steel rebar continuity from foundation to roof slab in every floor; no joints, not even in openings for doors and windows. Hence, capable of withstanding seismic shocks of above 8 points on the Richter scale.

➤ **Adiabatic concrete curing**

initial water in concrete mix retained within insulated formwork and using heat of hydration. Hence no extra water or labor required for wall curing at site

➤ **Straight, smooth walls** for ease of render

with only 5-8 mm thick layer of polymerized, reinforced stucco, as wall surface is free from undulations or bulges

➤ **Low embodied energy of construction**

light weight, modular ICF Blocks of large surface area with interlocking edges allows **super fast** assembly, with minimal waste and no highly skilled manpower and hence construction speed saves valuable costs of labour, interest and alternate occupancy

➤ **Post tension concrete**

used in roof slabs, enabling column free spans of 14m

➤ **Window area reduced**

to < 20% of wall area, thus reducing heat gains substantially. This strategy is vital for energy efficiency, as it is cheaper in terms of total HVAC load. Lighting, wherever required, is provided with low watt LED.

➤ **Low energy, Zero maintenance, closed loop Geothermal pumps**

for further reduction of HVAC load, thus enabling low wattage HVAC systems that can be run on solar energy.

➤ **Solar energy panels on roof and aesthetic shades over sitting areas in garden**

to meet the total energy requirements (including lights and lifts) resulting in net zero building with installations of **44 watts /sqm and energy usage of only 112 kWhrs/sqm/annum**

➤ **Other Salient features -**

Acoustic Insulation – prevents sound infiltration upto 60 decibel level

Fire Resistance – for 3 to 4 hours

Note : The above has been planned, designed and submitted (currently under approval) as per drawings and requirement of a proposed building under a Central Government Ministry.