

LIGHT HOUSE PROJECT INDORE, MADHYA PRADESH

Pre-Fabricated EPS Sandwich Panel Technology



The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, is a German development agency that provides services in the field of international development cooperation with a goal to deliver effective solutions that offer people better prospects and sustainably improve their living conditions.

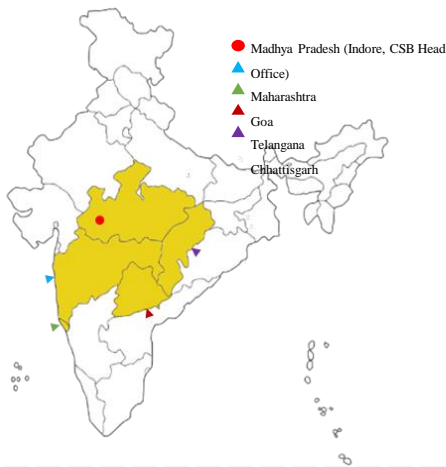
For over 60 years GIZ has been working jointly with partners in India for sustainable economic, ecological, and social development.

The Climate Smart Buildings (CSB) programme is aligned with the commitments made by the Indian Government to meet its objectives submitted under SDG 11.

IGEN's programme, Climate Smart Buildings (CSB) proposes to extend technical assistance and cooperation for the following:

- Technical assistance in developing thermal comfort action plan for climate resilience building for mass scale application in selected states for Affordable Housing
- Technical support in implementation of Global Housing Technology Challenge-India (GHTC-India)

Cluster States



LIVE MONITORING

Facilitate implementation and monitoring of Light House Projects (LHP's)



TECHNICAL ASSISTANCE

Technical assistance to enhance Thermal Comfort in upcoming Demonstration Housing Projects (DHP) and Affordable Rental Housing Complexes (ARHCs)



BYE-LAWS INTEGRATION

Inclusion of Climate Resilience and Thermal Comfort requirements in the Building Bye-laws and Local Government Framework



CAPACITY BUILDING

Sensitization among Govt. Officials and Capacity building of Private Stakeholders

WP 1 Facilitate implementation and monitoring

- Report - Demonstrable Technologies for LHP
- Manual on Technology
- Report on International best practices
- Report on construction monitoring performance and verification
- Report on live laboratories
- Impact assessment & LCC
- Develop Awareness material brochures
- Report on process learning's and outcomes



WP 3 Inclusion of and thermal comfort requirements in building byelaws

- Proceedings - Steering and Technical committee meetings
- Roadmap for implementation in state(s)
- Draft notification for integrating thermal comfort in Bye laws
- Regional specific material recommendations and availability mapping
- Report on process of amendments key learning's and recommendation



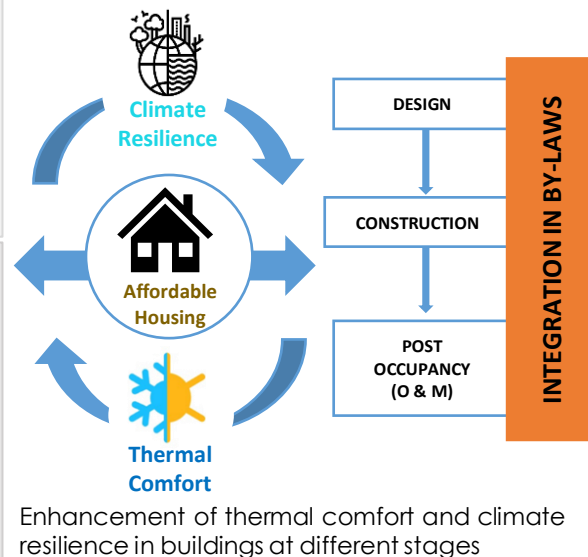
WP 2 Technical assistance to enhance thermal comfort in Demo Project

- Highlights - Identified DHP & ARHCs projects
- List of 10 housing projects approved by MoHUA
- Performances monitoring report of housing projects post occupancy
- Report on process learning's and outcomes



WP 4 Capacity development on thermal comfort

- Training materials
- Proceedings of Trainings-A,B,C,D
- Proceedings of Awareness - A & B
- Report of all the training programme



THERMAL COMFORT



Thermal comfort is defined as that condition of mind which expresses satisfaction with the thermal environment.

American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)



The PHYSIOLOGICAL aspect of thermal comfort

Human bodies, as with all mammals, are thermal engines that generate and dissipate energy.

We have different ways to balance our constant heat exchange with the environment.

For example, by shivering...



perspiring...

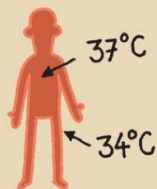


or modifying our blood flow to regulate heat distribution.



A lack of thermal comfort makes us feel **stressed**, annoyed, distracted, feel sleepy, tired and lacking concentration. In turn, thermal comfort inevitably has an impact on well-being, productivity

The objective of our metabolism is to regulate our body temperature with minimal effort (if possible).



Hence the need to be able to control the physical environment surrounding us.



1

SHADE

reduces radiant gains to the occupants and building surfaces



2

AIR MOVEMENT

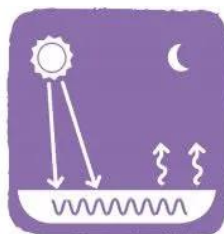
improves evaporative cooling at the skin level



3

EVAPORATIVE COOLING

promoted by water features



4

THERMAL MASS WITH EMBEDDED PIPES

promotes radiant cooling



5

GREEN SURFACES

reduces solar gains in surfaces exposed to the sun

LIGHT HOUSE PROJECT, INDORE



Project Details

Land Area – 41920 sqm
 Net Plot Area – 34276 sqm
 No's of Dwelling Unit – 1024
 No's of Tower – 08
 No's of Floor – SF + 08
 No's of DU / Tower – 128
 Community Hall – 169.5 sqm



Unit Plan



DWELLING UNIT VIEW WITH AREAS



DWELLING UNIT PLAN

This factory made Prefabricated Sandwich Panel System is made out of calcium silicate boards and cement mortar with EPS granules balls, & act as wall panels. These replace conventional brick & mortar walling construction practices and can be used as load-bearing and non-load bearing walling for residential and commercial buildings. The panels having tongue and groove are joint together for construction of the building. Here at Indore LHP, houses are being constructed using below three major system.

- Structure System - Pre-Engineered Steel Structural System
- Walling System – Pre-Fabricated Sandwich Panel System
- Slab system – Deck Sheet Slab

TECHNOLOGY OVERVIEW

Advantages

- ✓ Speed in Construction
- ✓ No use of water for curing
- ✓ Panels bring resource efficiency, better thermal insulation, acoustics & energy efficiency
- ✓ Light Weight & Cost Effective
- ✓ Fire Proof
- ✓ Water & Damp Proof
- ✓ Non Toxic & Environment friendly
- ✓ Energy Saving
- ✓ Smooth and flat surfaces thus no plastering needed
- ✓ High sound insulation
- ✓ Cost Effective
- ✓ Ground Staf optimization
- ✓ Increase in carpet area up to 15% which saves money



EPS PANEL AS WALLING



PEB & DECK SLAB STRUCTURE



FINISHED DWELLING UNIT



FOR FURTHER DETAILS, PLEASE CONTACT

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