

Climate Smart Buildings: Development of Training Modules on Thermal Comfort in Affordable Housing

Situation

India has a rich tradition of climate responsive architecture with varied passive design strategies, from the beginning of the civilization, to achieve comfortable indoor living conditions for the inhabitants which were responsive to the local climatic conditions and geography. However, building houses has changed dramatically in the recent past.

The residential sector will become the largest consumer of electricity in the country with 36.5% share of the total electricity consumed in 2032. India is at a unique crossroads where two-thirds of the commercial and high-rise residential structures that will exist in 2030, are yet to be built. Thus, implementing energy efficiency in buildings that are being constructed in the next ten years, highlights a singular opportunity to reduce the locked in energy, alter future consumption patterns and enhance cost savings for the several decades.

The Government of India has been implementing its flagship programme- Pradhan Mantri Awas Yojana- Urban (PMAY-U) since 2015 to fulfil the vision of Hon'ble Prime Minister of India to provide 'Housing for All' by 2022. The houses built under the Mission will last at least 50-60 years. The decisions taken during implementation have an impact on the level of thermal comfort that these dwellings provide to its occupants, thus impacting their energy use and costs and the associated carbon emissions over the lifetime of the buildings.

the last few decades, its knowledge is not mainstreamed in the relevant academic and professional curriculum. With over 11.2 million houses being constructed in line with the vision of "housing for all" by 2022 under the Pradhan Mantri Awas Yojana – Urban (PMAY-U), there lies a prospect of enhancement. This project, therefore, attempts to address this theme through direct capacity-building interventions at varying levels and for relevant target audiences, in line with the UN SDGs 11 and 13.

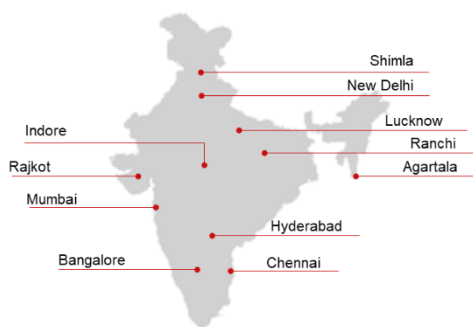
Objective

For over 60 years, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH has been working jointly with partners in India for sustainable economic, ecological, and social development. For capacity development on Thermal Comfort in Affordable Housing in India, Indo-German Energy Programme" (IGEN) has launched the project titled 'Development of Training Module on Thermal Comfort in Affordable Housing' and has appointed CEPT-CRDF as the knowledge partner.

The project aims to:

- Development and delivery of training modules on thermal comfort in affordable housing.
- Development of an online platform for hosting e-modules on thermal in affordable housing
- Gamification of training modules on e-learning platform
- Develop and conduct Training of trainer's program

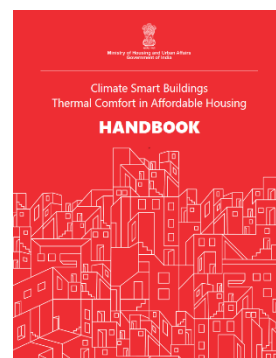
Tentative Training Locations

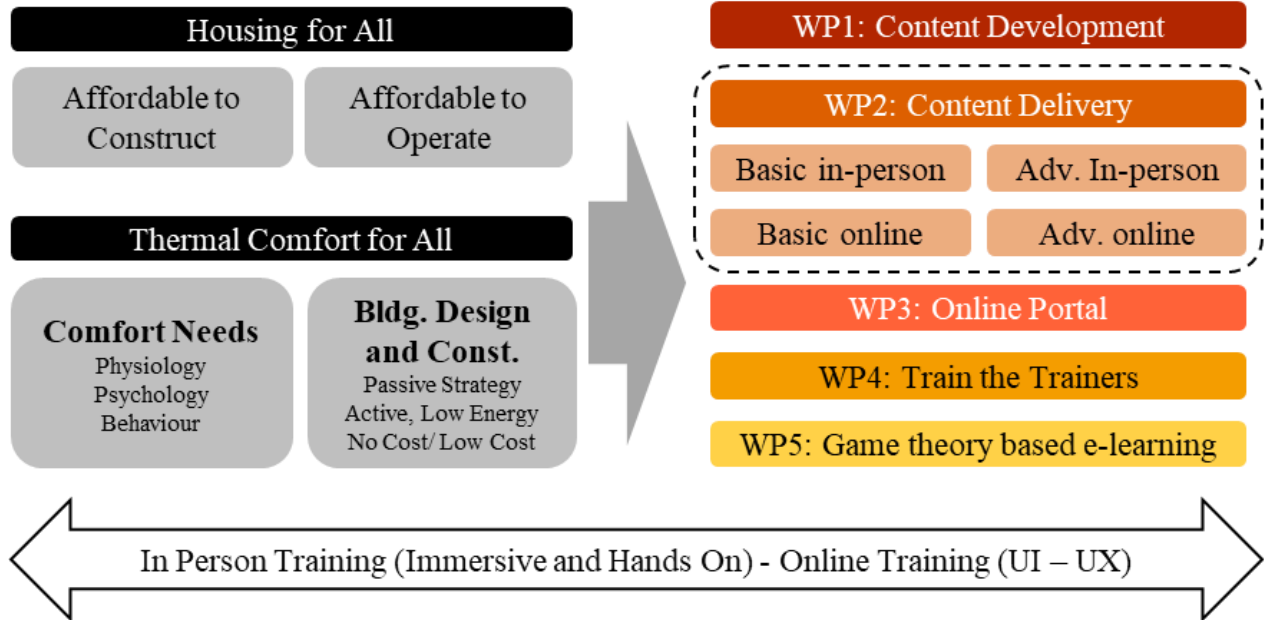


In order to ensure popular access to affordable and thermally comfortable buildings in the near future, it is crucial to emphasise the capacity-building of the stakeholders at the levels of policy, industry, and academia. While a few islands of thermal comfort research have been thriving in India for

Approach

The project aims to develop training modules and handbook to acquaint a larger audience with the nuances of thermal comfort through a multi-layered understanding of the phenomenon and low/no-cost interventions. It aims to add to the high-level understanding of the senior government officials at the ULB, state, and central levels; in addition, it aims to lend





depth to the knowledge of professionals and technical officials at various levels of government.

The training modules will cover the three broad themes of – the importance of thermal comfort for all, the psychological-physiological dimensions of thermal comfort, and ensuring thermal comfort through building envelope optimisation.

Besides the development of training knowledge material and delivery of training, the project will develop self-paced learning e-modules and games accessible to a wider audience throughout India, making the learning process interactive and enjoyable.

Expected Outcomes

Component 1: More than 500 trained in-service professionals, including govt. officials and practitioners such as engineers, architects, building services professionals etc.

Component 2: An online platform where users can take self-paced e-modules on thermal comfort in affordable housing

Component 3: Gamified e-modules, a fun way to learn concepts of thermal comfort and climate smart building design.

Component 4: More than 120 trained Trainers for disseminating concepts of thermal comfort in affordable housing to a wider audience.

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