

“ These six light house projects would give a new direction to the housing construction in the country. This will reduce the construction time and prepare the more resilient, affordable and comfortable homes for the poor. In a way, these projects will be incubation centres and our planners, architects, engineers and students will be able to learn and experiment with new technology. ”

- Hon'ble Prime Minister
(01.01.2021)



LHP: LIVE LABORATORIES



GLOBAL
HOUSING
TECHNOLOGY
CHALLENGE INDIA

**Webinar series: e-learning & webcasting of
LHPs for TECHNOGRAHIS**



Live Laboratories

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'. Under the Mission, Ministry of Housing and Urban Affairs (MoHUA), provides Central Assistance to implementing agencies through States and Union Territories for providing all weather pucca houses with all basic amenities to all eligible families/beneficiaries in urban area.

In order to meet the rigorous targets and introduce new innovative ways of construction, MoHUA initiated **Global Housing Technology Challenge- India (GHTC-India)** in 2019 with an aim to identify and mainstream a basket of innovative construction technologies from across the globe for housing construction sector that are sustainable, eco-friendly, and disaster-resilient. It aims to demonstrate and deliver ready to live-in houses in minimum time and minimum cost with high-quality of construction in a sustainable manner.

Under GHTC-India, **54 proven innovative construction technologies** were identified which were grouped into six broad categories namely (i) Precast Concrete Construction System - 3D Precast volumetric (ii) Precast Concrete Construction System - Precast components assembled at site (iii) Light Gauge Steel Structural System & Pre-engineered Steel Structural System (iv) Prefabricated Sandwich Panel System (v) Monolithic Concrete Construction, and (vi) Stay in Place Formwork System. To demonstrate the new-era construction technologies, six Light House Projects (LHPs) consisting of about 1,000 houses each with physical & social infrastructure facilities have been constructed at Chennai - Tamil Nadu, Rajkot - Gujarat, Indore - Madhya Pradesh, Lucknow - Uttar Pradesh, Ranchi - Jharkhand, and Agartala - Tripura. The foundation stone of all 6 LHPs was laid by the Hon'ble Prime Minister on 01.01.2021.

Of the six LHPs, the projects in Chennai and Rajkot were inaugurated by Hon'ble Prime Minister in 2022 and thousands of families are spending a dignified life in their homes at these two places. LHP Indore, LHP Lucknow and LHP Ranchi are nearing completion while LHP Agartala is in advanced stage of construction.

Taking inspiration from Hon'ble Prime Minister's vision, these LHPs are promoted as **Live Laboratories** for learning, facilitating transfer of technology to the field and its further replication. The objective of Live Laboratories is to encourage large scale citizen participation and create technical awareness for technical learning, learning by doing, finding ideas for solutions, experimentation and encouraging innovation.



Agenda for webinar

To facilitate mass replication of these new-age innovative technologies, MoHUA has started a nationwide trainings and pool of experts’ initiatives – TECHNOGRAHIs. It includes faculty and research students, technical professionals, Central/States/ULB officials, construction agencies, builders/ developers, start-ups/entrepreneurs/innovators, and other concerned stakeholders. So far, over 37,000 TECHNOGRAHIs have enrolled themselves.

MoHUA is organizing 'e-Learning series on new age construction process' to widespread the knowledge about the new age technology, construction process, sustainability, and mass cum fast construction to TECHNOGRAHIs. These webinars aims to create awareness of the different technologies used in the new age construction and enhance technical capacity. The volume 3 of this series will share international perspective via experts from Fraunhofer, Germany on innovative technologies along with latest concepts to learn the use the new age technologies, innovate and adapt to mainstream them in the country.

| Session | Speaker |
|---|--------------------------|
| Welcome Address & Introduction | BMTPC |
| Keynote Address | JS & MD (HFA), MoHUA |
| Short film on LHP Rajkot | MoHUA |
| Technical Details on the LHP Technology of Rajkot | BMTPC |
| International Perspective on LHP technology | Fraunhofer IBP, Germany |
| Q&A | BMTPC and Fraunhofer IBP |
| Vote of Thanks | GIZ |



Focus areas of the webinars

The training sessions cover a wide range of topics on different technologies, construction processes of the LHPs and need for thermal comfort. The main outline of the training sessions are focus on use of new-age technologies, materials, and processes in the construction sector. The broad areas of topics to be covered during the series of webinars are:

- Emerging Construction Technologies
- Different Technologies used in construction of LHPs – various construction phases
- Importance of Building Construction Materials and functional requirements of building Thermal Comfort in Affordable Housing

The webinar also focuses on explaining the construction process as mentioned below. Overall construction process covered in each webinar is as below:



Planning aspects – this contains the entire design process and selection of technologies as per geographic location etc.

- Design approach and Selection of Technologies
- Site investigation



Sub Structure – this contains initial work like excavation, footing till plinth level work.

- Sub structure design and laying
- Materials excavation- Quality aspects
- Fabrication of components



Super Structure – this contains work like technology used, for example PEB structure column & beam, deck slab work, lift shear wall work, staircase work and EPS panelling work etc

- Construction of Super Structure
- Description of specific technology used at LHP site
- Materials used in construction conventional process w.r.t technology used at LHP site



Internal and External Services – this contains plumbing, electrical, flooring, door & window work and painting works, Rainwater Harvesting, Community Hall, Landscape area development etc.

- Detailed process of designing of internal and external services with new age construction process and techniques
- Quality assurance during construction
- Key Design Components
- Green initiatives at construction site

Stakeholders

The webinars / training sessions are focused on Faculty and research students, technical professionals, Central/ States/ ULB officials, construction agencies, builders/ developers, start-ups/ entrepreneurs/ innovators who have enrolled themselves as “TECHNOGRAHIs” as well as other concerned stakeholders including State Govt, Public/Private Entities, and other Practitioners.

Outcomes & Benefits

Create wide scale knowledge dissemination and awareness

Learn the use of latest technology in LHP construction for further replication in other housing or real estate projects

Exposure to the innovative construction technologies

Technograhis to act as catalysts to transform the urban landscape for new urban India to fulfil vision of AatmaNirbhar Bharat.





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