सीएसआईआर - केंद्रीय भवन अनुसंधान संस्थान, रूड़की
CSIR - Central Building Research Institute, Roorkee

5 Days' workshop cum Brainstorming on

Low-cost Construction Techniques derived from the North-Western Himalayan Region

June 23 - 27, 2025

CBRI is working on **Low-Carbon Building Construction Materials derived from traditional North Western Himalayan Region knowledge** under the R&D Seed Fund (RDSF) FY under CSPS – 2024. This research project focuses on studying and analyzing the available traditional building materials in the hilly regions of the North Western Himalayan region. Further, to develop simplified construction details from the rural construction manuals using traditional building materials. To meet one of the objectives a 5-day workshop and brainstorming Program is curated and sponsored by the project IHP240003, titled "Low-Carbon Building Construction Materials Derived from Traditional Knowledge of the North-Western Himalayan Region."

The "Low-Cost Construction Techniques Derived from North-Western Himalayan Region" workshop aims to study, analyze, and conduct a hands-on traditional construction method such as Wattle and Daub, Adobe blocks, Cobb walls, and Dhajji Dewari. These techniques utilize natural materials like mud, stone, and wood, which are low-carbon building materials with the least adverse environmental impacts.

Additionally, a brainstorming module using Exploratory Scenario Planning is integrated to inspire participants to innovate and apply low-cost construction strategies by blending top-down planning with bottom-up community-driven approaches. A limited number of participants were selected based on the questionnaire circulated.

Table 1: Programme Schedule

HOURS	23rd June, 2025	24th June, 2025	25th June, 2025	26th June, 2025	27th June, 2025
10:00-11:00	Workshop Inauguration	Innovations in Earth Architecture & Natural Building *Ar. Mannat Singh and Ar. Atul Chad*	Lecture by Imarat Centre for Earth Architecture	The act of building Sustainably *Ar. Mannat Singh*	Traditional Architecture of North Western Himalayan *Ar. Amandeep Mattu and Ar. Yogesh Kumar*
11:00-11:15	**Tea Break**				
11:15-12:00	**CBRI Visit** Exhibition Hall NEETF Laboratory 3D Printing Laboratory Rural Technology Park	**Hands-on** *Ar. Mannat Singh, Ar. Atul Chad and Rashid*	**Hands-on** *Ar. Mannat Singh, Ar. Atul Chad and Rashid*	Building a Sustainable Environment *Ar. Anup Kumar Prasad*	Brainstorming and Group Activity
12:00-13:00				Various types of Housing typology within the Garhwal region of Uttarakhand *Dr. Naveen Nishant*	
13:00-14:00	**Lunch Break**				
14:00-15:00	Traditional construction methods in affordable MasHousing in India – Case Studies *Ar. S.K.Negi*	**Hands-on** *Ar. Mannat Singh, Ar. Atul Chad and Rashid*	**Hands-on** *Ar. Mannat Singh, Ar. Atul Chad and Rashid*	Building Resilient and Equitable Communities in the Face of Increasing Uncertainty *Ar. Anup Kumar Prasad*	Brainstorming and Group Activity
15:00-15:15	**Tea Break**				
15:15-17:30	Ikra and confined Masonry *Dr. Ajay Chourasia* Unraveling the Earthquake-resistant Kath-Kuni Architecture of Himachal *Er. Ashish Pippal*	**Hands-on** *Ar. Mannat Singh, Ar. Atul Chad and Rashid*	**Hands-on** *Ar. Mannat Singh, Ar. Atul Chad and Rashid*	Brainstorming and Group Activity	Certificate Distribution

Table 2: List of External Experts/Speakers needed

S.No.	Expert	Contact
01	Ar. Mannat Singh	+91 7027000848
02	Ar. Chad Atul Virambhai	+91 9429873417
03	Mr. Rashid	-

Table 3: List of Internal Experts/Speakers members

S.No.	Expert	Contact
01	**Ar. S.K.Negi**, Chief Scientist, CSIR – Central Building Research Institute, Roorkee	sknegi@cbri.res.in Mobile: +919412968993
02	**Dr. Ajay Chourasia**, Chief Scientist, CSIR – Central Building Research Institute, Roorkee	ajayc@cbri.res.in Mobile: +91 9897209050
03	**Er. Ashish Pippal**, Sr. Scientist, CSIR – Central Building Research Institute, Roorkee	ashish@cbri.res Mobile: +91 8287066539
03	**Dr. Naveen Nishant**, Scientist, CSIR – Central Building Research Institute, Roorkee	naveen@cbri.res.in Mobile: +91 9162735002
04	**Ar. Anup Kumar Prasad**, Scientist, CSIR – Central Building Research Institute, Roorkee	anupkumar@cbri.res.in Mobile: +91 7349049007

Day 1 (23rd June 2025)

The workshop was inaugurated on 23rd June 2025. The occasion was graced by Director CSIR-CBRI Roorkee, Prof. R Pradeep Kumar, *Ar. S.K. Negi,* chief scientist and head of the architecture, planning, and energy efficiency group, Dr. *Ajay Chourasia*, the chief scientist and head of the structural engineering, and Dr. Tabish Alam, Sr. Scientist and Head (Acting) Outreach & Dissemination Services group. 30 participants across India attended the inauguration of the unique hands-on workshop.

On 23rd June 2025, our in-house experts shared their vast experience and knowledge with the participants. Ar. S.K. Negi discusses traditional construction methods for affordable mass housing in India – Case Studies. Dr. Ajay Chourasia shared his expertise and knowledge on Ikra and confined Masonry and Er. Ashish Pippal explained his findings from his ongoing research on Unraveling the Earthquake-resistant Kath-Kuni Architecture of Himachal.

Day 2 and 3 (24th and 25th June 2025)

Hands-on activity conducted by external experts, Ar. Mannat Singh and Ar. Atul Chadd from "Imarat Center for Earth Architecture," based in Chandigarh. They shared their practical experience in practicing earth architecture, and guide us with hands-on.

Figure 1. On-field theory session by Ar. Mannat Singh and Ar. Atul Chadd

Figure 2. Hands-on with Bamboo

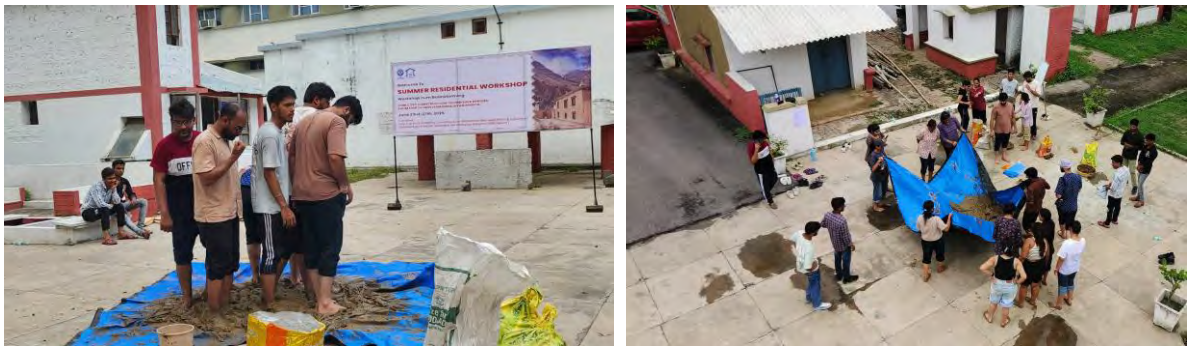

Figure 3. Preparation of Daub by mixing clay, cow dung, straw and sand and pugging

Figure 4. Adding layers of daub on wattle

Day 4 (26th and 27th June 2025)

In the last two days, participate actively participated in the brainstorming led by Ar. Naveen Nishant and Ar. Anup Kumar Prasad

Figure 5. Group activity and Brainstorming

Figure 6. Certificate Distribution on the 27th June 2025

Figure 7. Group photo – Participants with their earned certificates on the 27th June 2025

The workshop ended with positive feedback.