

TRAINING OF MASONS ON HAZARD-RESISTANT CONSTRUCTION

AT

DEHAR PANCHAYAT, SUNDERNAGAR BLOCK, DISTT MANDI HP



Organised by

Himachal Pradesh Council for Science, Technology and Environment, Shimla



In collaboration with

State Disaster Management Authority (SDMA), H.P. Secretariat, Shimla



Under the guidelines of National Disaster Management Authority (NDMA)



FIRST MODULE (8-10 MARCH 2021)

EXECUTIVE SUMMARY

WORK SCHEDULE FOR TRAINING ON "EARTHQUAKE RESISTANT CONSTRUCTIONS" FOR RURAL MASONS"

VENUE: O/o Junior Engineer, Irrigation and Public Health Department, *Dehar*.

PROGRAMME:	8-10 MARCH 2021	PARTICIPANTS	: 33No.
Organised by :	HP Council for Science, T	echnology and Enviro	nment
(HIMCOSTE).			
Sponsored by:	State Disaster Managemen	nt Authority, Shimla.	
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Day/Sessions	Торіс	Copic Resource Person		
Day 1- 18.02.2020 (Thursday)				
09:00- 09:30	Registration and Inaugural session and video film.Inauguration			
09.30 to 10.00	Purpose of training and	Dr. SS Randhawa, Principal		
C 1	Introduction of Scientific Officer,			
	Participants. HIMCOSTE, Shimla			
10.00 to 11.00	Housing Typologies of Sh. Gopal Jain, Scientific			
C 2	the	Officer, HIMCOSTE, Shimla		
	Region: Contribution			
	and Role of Artisans			
11.00 to 12.30	Hazard : Severity, Er. Kalit Bhardwaj, Sr. Te			
C 3	Zonation and Impact on	Asstt, Appropriate Technology		
	Buildings	Centre, Govt. Polytechnic		
		College Sundernagar		
Lunch Break	1			
13:30 to 18.00	Examining Quality of	Gopal Jain, Scientific Officer,		
P 4	Materials importance of Er. Kalit Bhardwaj			
	construction Tools for	Asstt,		
	Good Quality	Er. KanchanKana, Jr.		
	Construction	Research Fellow		
Day 2- 19.02.2020 (Wednesday)				
09:00 to 09:30	Recapitulating the	Sh. Gopal Jain, Scientific		
	previous	Officer, HIMCOSTE, Shimla		
	Day's Learning.	Er. KanchanRana, Jr.		
		Research Fellow		
		HIMCOSTE, Shimla.		
00 30 to 10 30	Principles of Hazard	Fr. KanchanRana Ir		
C 5	Principles of mazaru Er. Kalichankana, J			
	Construction	HIMCOSTE Shimla		
10.30 to 11.30	Hazard Resistant Er. Kalit Bhardwai, Sr. Teo			
C 6	Features for House Size	Asstt, Appropriate Technology		
	and Configuration.	Centre, Govt. Polytechnic		

		College Sundernagar	
11.30 to 12.30	Importance of Site and	Er. KanchanRana, Jr.	
C 7	Soil	Research Fellow	
	Conditions.	HIMCOSTE, Shimla.	
Lunch Break			
13.30 to 14.30	Hazard Resistant	Er. Kalit Bhardwaj, Sr. Tech	
C 8	Features:	Asstt, Appropriate Technology	
	Foundation and Plinth.	Centre, Govt. Polytechnic	
		College Sundernagar	
14:30 to 18:00	Constructing Sample	Gopal Jain, Scientific Officer,	
P 9	foundation and Plinth.	Er. Kalit Bhardwaj, Sr. Tech	
		Asstt,	
		Er. KanchanRana, Jr.	
		Research Fellow	
DAY 3 - 20.02.2020 (Thursd	ay)		
9:00 to 09:30	Recapitulating the	Sh. Gopal Jain, Scientific	
	previous	Officer, HIMCOSTE, Shimla	
	Day's Learning.	Er. KanchanRana, Jr.	
		Research Fellow	
		HIMCOSTE, Shimla.	
09.30 to 12.30	Hazard Resistant	Er. KanchanRana, Jr.	
C 10	Features:	Research Fellow	
	Walls and Openings.	HIMCOSTE, Shimla.	
Lunch Break			
13:30 to 18:00	Constructing Hazard	Gopal Jain, Scientific Officer,	
P 11	Resistant Walls.	Er. Kalit Bhardwaj, Sr. Tech	
		Asstt, Er. KanchanRana, Jr.	
		Research Fellow	

HIMCOSTE, Team Members			
S.	Name	Designation	
NO.			
1.	Dr. S.S. Randhawa	Principal Scientific Officer	
2.	Sh. Gopal Jain	Scientific Officer	
3.	Er. Kalit Bhardwaj	Sr. Tech Asstt.,	
4.	Er. Kanchan Rana	Jr. Research Fellow	

Sh. Shalinder Singh Chauhan, Site Engineer from ACC Cement Company Barmana provides the materials for construction.

Introduction

This training made them aware not only of the critical principles of hazards resistant construction but also provide some practical skills in appropriate and relevant details of Rural Housing Technologies that people use in different regions of India. The objective of this training curriculum is to strengthen the practicing Masons on Hazard Resistant Construction Techniques and features through theoretical and practical sessions.

This training is meant to guide Masons on construction of engineered houses up to two stories and does not cover construction of engineered buildings with reinforced concrete frame for multi storey buildings.

Training methods

This training module is envisaged to be for 3 days. Each training day is designed such that there is ample time for hands-on training of Masons. The classroom sessions are plant using participatory methods with discussions, audio visual presentations models etc. Sessions provide enough time and scope for the trainees to discuss their concerns, questions and issues. The practical construction sessions were to get hands-on experience of hazard resistant features and details used in construction work.





A maximum of 3 dozen Masons were trained at one time with three resource persons training them.

LIST OF PARTICIPANTS OF THREE DAYS TRAINING PROGRAMME ON EARTHQUAKE RESISTANT CONSTRUCTION AT GRAM PANCHAYAT DEHAR TEHSIL SUNDERNAGAR FROM 08-10 MARCH,2021.

Sr. No.	Name	Father's	Address
		Name	
1	Sh. Balkar Singh	Daulat Ram	Vill. Jhanod, P.O. Baroti Tehsil Sundernagar
			Distt. Mandi
2	Sh Beseria Ram	Sh. Kinnu	VPO Sudhan Tehsil Sundernagar Distt.Mandi
		Ram	
3	Sh. Ram Chand	Sh. Ruhalu	Vill. Behna P.O. nalag Tehsil Sundernagar Distt.
		Ram	Mandi
4	Sh. Joginder	Sh. Gopala	Vill. Chakli P.O. Slapper Tehsil Sundernagar,

	Singh	Ram	Distt. Mandi
5	Sh. Krishan Lal	Sh. Chamaru	Vill. Dushar P.O. Sudhahan Tehsil Sundernagar
		Ram	Distt. Mandi
6	Sh. Roop Lal	Sh. Sihnu	Vill. Chakali P.o. Salapper Tehsil Sundernagar
		Ram	Distt. Mandi
7	Sh. Suresh	Sh. Dhani	Vill. Sawal P.O. Batwara Tehsil Sundernagar
	Kumar	Ram	Distt. Mandi
8	Sh. Budhi Ram	Sh. Narayun	Vill. Behna P.O. Nalag Tehsil Sundernagar Distt.
			Mandi.
9	Sh. Karam	Sh. Ram	VPO Jarol Tehsil Sundernagar Distt. Mandi
	Chand	Saran	
10	Sh.Jeet Ram	Sh. Gulabu	Vill. Jyor P.O. Jambla Tehsil Sundernagar Distt.
		Ram	Mandi
11	Sh. Lal Singh	Sh. Govind	Vill. Luhanu P.O. Bayla Tehsil Sundernagar
		Ram	Distt. Mandi
12	Sh. Kuldeep	Sh. Baradu	VPO Jarol Tehsil Sundernagar Distt. Mandi
	Singh	Ram	
13	Sh. Piar Chand	Sh. Panjku	Vill. Pathkan P.O Dehar Tehsil Sundernagar
		Ram	Distt. Mandi
14	Sh. Ravi Kumar	Sh. Babu Ram	Vill. Alsu P.O. Dehar Tehsil Sundernagar Distt.
			Mandi
15	Sh. Hussan Lal	Sh. Chet Ram	Vill. Sawal P.O. Batwara Tehsil Sundernagar
			Distt. Mandi.
16	Sh.Ramesh	Sh. Dhani	Vill Sayahal P.O. Batwara Tehsil Sundernagar
	Kumar	Ram	Distt. Mandi
17	Sh. Ram Pal	Sh. Lehru	Vill. Thana P.O. Baroti Tehsil Sundernagar Distt.
		Ram	Mandi
18	Sh. Khub Ram	Sh. Parma	Vill. Jaral P.O. batwara Tehsil Sundernagar Distt.
		Ram	Mandi
19	Sh.Jeet Ram	Sh.Tulsi Ram	Vill. Bahal P.O. Vayala Tehsil Sundernagar Distt.
			Mandi
20	Sh.Sunder Singh	Sh. Souju	Vill. Behna P.O. Nalag Tehsil Sundernagar Distt.
		Ram	Mandi

21	Sh. Bineet	Sh.Surender	Vill. Bhantrehar P.O. Barot Teshil Sundernagar
	Kumar	Kumar	Distt. Mandi
22	Sh. Suresh	Sh. Sukh Ram	Vill. Chanol P.O. Taleli Tehsol Sundernagar
	Kumar		Distt. Mandi
23	Sh. Dev raj	Sh. Munshi	Vill. Chanol P.O. Taleli Tehsil Sundernagar Distt.
		Ram	Mandi
24	Sh. Balak Ram	Sh. Baradu	Vill. Aalodhon P.O. Vayala Tehsil Sundernagar
		Ram	Distt. Mandi
25	Sh.Rameshwar	Sh. Gokul	Vill. Luhnun P.O. Vayala Tehsil Sundernagar
			Distt. Mandi
26	Sh.Roshan Lal	Sh. Dilu Ram	Vill. Luhnu P.O. Baila Tehsil Sundernagar Distt.
			Mandi
27	Sh. Bholu Ram	Sh. Sohanu	Vill. Behna P.O. Nalag Tehsil Sundernagar Distt.
			Mandi
28	Sh.Daya Ram	Sh. Gokal	Vill. Behna P.O. Nalag Tehsil Sundernagar Distt.
			Mandi
29	Sh. Pankaj	Sh. Inder Dev	Vill. Jabal P.O. salwana Tehsil Sundernagar
			Distt. Mandi
30	Sh.Manish	Sh. Karam	VPO Jarol Tehsil Sundernagar Distt. Mandi
		Chand	
31	Sh. Sanjay	Sh. Bakshi	Vill. Lehar P.O. Baroti Tehsil Sundernagr Distt.
	Kumar	Ram	Mandi
32	Sh. Jeet Ram	Sh. Chajju	Vill. Also P.O Dehar Teshil Sundernagar
		Ram	
33	Sh. Amar Nath	Sh. Bansi	Vill. Alsoo P.O. Dehar Tehsil Sundernagar Distt.
		Ram	Mandi

Training Sessions

Inaugural Session

The opening speech is given **Er. Kalit Bhardwaj,** Sr. Tech Asstt, Appropriate Technology Centre, Govt. Polytechnic College Sundernagar. The esteemed dignitaries present were, **Dr. SS Randhawa, Principal Scientific Officer,** HIMCOSTE, Shimla, **Sh. Gopal Jain** Scientific Officer HIMCOSTE, **Er. Kanchan Rana,** Jr. Research Fellow HIMCOSTE and the audience. While inaugurating the training lauded that such trainings may help in adoption of suitable Earthquake Resistant Technologies and serve the larger interest of the Himalayan State, which falls in Zone IV & V by the norms of the earthquake definitions.

Welcome Address

At the outset of the Programme, **Sh. Gopal Jain, Scientific Officer,** HIMCOSTE, Shimla of esteemed dignitaries and the entire audience. Setting the Programme's premise he highlighted the growing concern around hazard resistant techniques. He appreciated the effort of HIMCOSTE for taking up an interesting societal programme. She advised the trainee participants to learn appropriate techniques with full dedication and a commitment in order to take and transfer them further for field implementations in all future construction activities. He also suggested for inclusion of a discussion on suitable retrofitting techniques in the training curriculum so as to help and get them implemented in the improvement of the existing houses and making them earthquake resistant.

The training comprises of theory and practical sessions, The sessions are named in sequence of 1 to 13 and the prefix letter indicates the nature of session i.e. "C' for classroom session and "P" for practical exercises.

Session C1 was introductory classroom session where Sh. Gopal Jain, Scientific Officer, HIMCOSTE, Shimla discussed about the coarse objective. The participants interacted with each other and with the trainers. Their expectations from this training program were defined in this session.

The participants were encouraged to discuss the role the artisan play in influencing the choices of the house owners and promoting hazard resistant specifically in context of self build of self build houses.

Session C2 In this session, participants were introduced the to good construction practices in the country. He focused on regional context of the trainees. This establishes linkages between the building typologies and materials available as well as construction skills in the region. This session led discussion on important role artisans have played in evolving these typologies.



Session C3 In this session, **Er. Kalit Bhardwaj**, Sr. Tech Asstt, Appropriate Technology Centre, Govt. Polytechnic College Sundernagar, discussed about how to examine quality of materials and importance of construction tools for good quality of construction. He also discussed different natural hazards and focused on the locally experienced hazards, their severity, frequency and their impact on buildings.



Er. Kanchan Rana, Jr. Research Fellow HIMCOSTE, Shimla the natural hazards covered under different topics is earthquake, flood, cyclone, tsunami and landslides. There is flexibility to include other local hazards that may affect the particular region. The session gives conceptual understanding of different hazard zones that the country is divided into and the impact a particular region would have certain hazards. A specific discussion was initiated in the session on multiple hazards striking a particular region. Further impact of the above hazards on buildings is discussed.





Session P4 was a practical session which is meant to instil the importance of good quality materials and workmanship in construction. In this session, masons visited the Demonstration Centre with **HIMCOSTE Team.** Layout and Construction of Sample Foundation was done. Simple steps, rules and techniques were expected to be performed by participants to know their understanding of basics of construction. The session helped the trainers to know the skill levels of the participants so as to customise future instructions.





Session C5 was a classroom session given by Er. Kalit Bhardwaj, Sr. Tech Asstt. This session was focused on Recapitulation of previous Day's Learning on the principles of hazard resistant construction. While discussing various hazards that induced damage, this session identified the characteristics that help buildings survive earthquake forces. Basic

structural principles were discussed in this session with simple and often day to day life examples.



Session C6, Er. Kalit Bhardwaj, Sr. Tech Asstt, Appropriate Technology Centre, Govt. Polytechnic College Sundernagar discussed about the Hazard Resistant Features for House Size and Configuration.







Session C7, Er. Kanchan Rana, Jr. Research Fellow HIMCOSTE, Shimla, discussed about the Importance of Site and Soil Conditions.



Session C8, Er. Kalit Bhardwaj, Sr. Tech Asstt, Appropriate Technology Centre, Govt. Polytechnic College Sundernagar told the masons about the Hazard Resistant Features for House Size and Configuration.

Session P9, was a practical session which was meant to construct the Hazard Resistant Foundations with corner vertical bars. This session was led by **HIMCOSTE Team**. The plinth is constructed on site.





The bars are provided at the corners of walls to make the building earthquake resistant.





Session C10was a classroom session in which House size and shape and damage due to hazards was discussed. **Ar. Prem Lal Thakur, Asstt. Architect, HIMCOSTE, Shimla** made all masons aware about size, shape, scale and proportions of building and its elements that play important role in determining whether or not the building is prone to damage during hazards.

Session P11 was a practical session in Gopal Jain, Scientific Officer, Er. Kalit Bhardwaj, Sr. Tech Asstt, and Er. Kanchan Rana, Jr. Research Fellow Team talked about Hazard Resistant Features and construction of Foundation and Plinth. The masons are made familiar with the good construction practices, directions of windows, slab thickness, steps to be followed in stone masonry and brick masonry, techniques of shuttering, positions of windows and doors, construction of staircases.

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Participants understand how to construct foundations incorporating hazard resistant features. The foundations chosen in these exercises were selected from the locally practiced typologies. Also, participants were exposed to the basics of reinforced concrete footings and details of horizontal bands.

In a practical session in which construction of earthquake resistant plinth band was done. Er. Kalit Bhardwaj, Sr. Tech Asstt, discuss facts of building site, different soil types and hazard resistant features of the house.

Specific soil conditions like house on black cotton or Sandy soils as well as special incidents like liquefaction are discussed in this section.

Specifications of foundation for hilly Terrain and landslide prone regions are discussed in this session.

The Major Things learned from this workshop: -

1. Construct CL stubs and mark CL and level. Protect stubs from damage. Protect stubs from damage.

- 2. Always check dimensions and corners by 3-4-5 method or equal diagonal method.
- 3. Check the level of construction at different levels.
- 4. Check that the courses are in level.
- 5. After checking the level plumb the bob.
- 6. Apply mortar to brick face before putting it in the course and fill all the mortar joints.
- 7. Consume mortar within 30-60 minutes of adding water.
- 8. Ensure perfect bond.
- 9. Provide RC band and corner steel as per design and detail.

The final structure made is shown in the following picture.

Feedbacks

1. They like the Training programme because they learned new techniques for hazard resistant construction.

2. They don't use the horizontal and vertical bands in the construction of buildings, now they said they will use.

3. They commit that they will use centre line method and will use stubs in construction.

4. They said that they will teach other masons these techniques.

5. In village they don't use bands in load bearing structures, but now will use.

6. They said that they have learned 50% new techniques.

The training through its various learning sessions covers housing typologies hazard occurrence and impacts principles of hazard resistant construction importance of site and soil conditions specific safety features for foundation and plinth walls and roof.

P12 & P13 is a session which is meant to introduce participants to Constructing Hazard Resistant and various other house elements where hazard resistant features need to be incorporated these elements are staircases, parapets, balconies, chajjas, verandas extra. Vulnerability due to furniture and service installations is also discussed and necessary steps are evolved by a participatory method.

P14 this session introduces participants to Field Visit: Rural House Construction and Materials Available and understanding the implications of hazard resistant features on cost of construction through comparative cost estimation. Here, it is stressed that safety is a choice that the owner and Mason make along with aesthetic choices. In case of budget constraints often safety is compromised over specific choice of elements and materials. Such questioning it is hoped will help and guide the participants to make correct choices when restraint bi limited budget or other such limitation.

C15 This session includes Hazard Resistant Features for Other Construction Elements and listing various elements of construction based on the house designs provided by the trainers with brick and stone walls using appropriate foundation. Based on local construction practices more material options may be taken up.

C16 This session also includes Estimation of Quantities and Costs and quantities of materials required for each of the building elements like foundation walls bands roofs roofing materials vertical reinforcements and openings.

Rates of materials collected from local market and participants and trainers knowledge. Cost estimation for each elements of the house and overall cost of the house in absolute and per square metre terms.

C17 is session which includes Clarification of Questions and Cost comparison with or without be hazard resistant materials in absolute and per square metre terms. In this session the method included was finding and identifying various house elements material requirements quantities of those materials rates based on question answers and consensus building through participative discussion.

C18 it is meant for Concluding Session and clarifying any new questions for an answer questions on hazard resistant construction that participants may have. This gives opportunity to discuss the test questions and understand correct answers.

In this session the trainer ask again about the situations which they face in regards to building hazard resistant homes which has not been dealt with in the training program. Other participants encouraged answering these questions and the trainers clarify the unanswered questions. Questions by trainees were first attempted by other trainees. The training culminates with concluding session in which feedback of trainees is sought on the training and trainers. Trainer's feedback on the entire group of participants is sought in this session. To conclude the training missions handbook and participation certificate are distributed.

The participants understand relevant variety of housing typology in the region traditional and conventional. They also know different materials, construction systems and template on the relevance of the choice of materials to make his are resistant houses. Participants understand role play by using available materials and help evolve the typologies in the region and its importance in adding hazard resistance to houses. Participants understand different hazards their currencies and frequency in the region. They also know about celebrity of disasters and methods of measuring their intensity.

Participants discuss different zones of hazards and locate their own region to relay with the intensity of possible hazards. Trainers evaluate the existing knowledge of the participants in using different tools.

Contextualizing the vulnerability in local construction:

Anchoring: to ensure the entire house is well and curd the joinery between plinths and was between adjoining walls falls and roof and between different roof elements must be secured safely to ensure that they do not get damaged during an earthquake or a cyclone. Plasticity this is the property of a material to be able to come back to its original position.

For practical purposes these cannot be the only materials used in the building and therefore it becomes important to design buildings well to ensure that elastic materials are at the right place and in the right quantity. A house should be able to come back to its original position after a hazard. The final structure is shown as follows.

Also materials that are elastic but which break suddenly when their limit of elasticity is crossed need to be used carefully in the construction.

Materials like Timber bamboo and steel are more elastic than materials like concrete blocks and earthen materials. Homes made of plastic materials may be able to come back to original positions more easily.

Earthquake-resistant construction, the fabrication of a building or structure that is able to withstand the sudden ground shaking that is characteristic of earthquakes, thereby minimizing structural damage and human deaths and injuries. Suitable construction methods are required to ensure that proper design objectives for earthquake-resistance are met.

Construction methods can vary dramatically throughout the world, so one must be aware of local construction methods and resource availability before concluding whether a particular earthquake-resistant design will be practical and realistic for the region. The Earthquake resistant opening (window) should be like this.

Training feedback: Looking back from the first day in up cards and assessing if the objectives and expectations of each person have been met.

Trainer feedback: The trainers ask the trainees to share their experience weather their expectations we met and also elaborate on the parts of the training that will help them in their future engagement in construction.

Trainee feedback: Trainers talk about the response of the trainees. The part of the training the trainer responded well and part where the trainer's expectations were not met well and where the trainees can further improve through training hand out.

Distribution of hand-out: explanation of how Masons main use it in their daily work. **Certificate distribution:** Certificate distribution was done in the End Session.

News and Media Coverage

एक नजर भूकंपरोधी तकनीक से भवन निर्माण सीखे रहे राजमिस्त्री डैहर। जिला मंडी के डैहर उपतहसील में लोगों व राजमिस्त्रियों को भूकंपरोधी तकनीकी से भवन निर्माण हेतु जागरूक किया जा रहा है। इसके लिए लिए जिला आपदा प्रबंधन, विज्ञान प्रौद्योगिकी एवं पर्यावरण परिषद द्वारा राजमिस्त्रियों व बार बाइंडरों के लिए प्रशिक्षण शिविर का आयोजन किया गया है। प्रशिक्षण कार्यक्रम में सुंदरनगर उपमंडल की विभिन्न पंचायतों के 32 राजमिस्त्री भाग ले रहे हैं। इस प्रशिक्षण कार्यशाला में सुंदरनगर विकास खंड की ग्राम पंचायत डैहर में बहुतकनीकी सुंदरनगर के विशेषज्ञों के सहयोग से गृह निर्माण की सुरक्षित तकनीक के बारे में अवगत करवाते हुए विस्तृत जानकारी दो गई। इस अवसर पर विज्ञान प्रौद्योगिकी एवं पर्यावरण विभाग के अधिकारियों ने कहा कि भवन निर्माण कार्यो में भूकंप रोधी तकनीक अपनाकर भूकंप से होने वाले नुकसान को कम किया जा संकता है। उन्होंने उपस्थित राजमिस्त्रियों से आग्रह किया कि कार्यशाला में बताई जाने वाली भूकंप रोधी तकनीकों का प्रयोग भवन निर्माण में करते हुए लोगों की सुरक्षा सुनिश्चित करे।

शक्ति चंद ताकर को सौंपी प्रधान की कमान

भूकंप रोधी तकनीकी से भवन बनाने की दी जानकारी इंहर। सुंदरनगर उपमंडल की ग्राम पंचायत डेहर में जिला आपदा प्रबंधन और विज्ञान प्रौद्योगिकी एवं पर्यावरण परिषद द्वारा राजमिस्त्रियों के लिए आठ से लेकर दस मार्च तक तीन दिवसीय प्रशिक्षण कैंप का आयोजन किया जा राह है, जिसमें सात पंचायतों के 32 राजमिस्त्री विशेषज्ञों से भूकंपरोधी तकनीकी से भवन निर्माण की विधि की बारीकियां सिख रहे हैं। इसी क्रम के तहत कैंप के दूसरे दिन मंगलवार को जिला प्रशासन की ओर से खंड विकास अधिकारी सुंदरनगर सुरेंद्र ठाकुर द्वारा उपस्थिति दर्ज करते हुए विशेषज्ञों से राजमिस्त्रियों को भूकंपरोधी तकनीक से भवन निर्माण देने का ज्याजा लेते हुए विस्तृत जानकारी हासिल की। बीडीओ सुंदरनगर द्वारा मेला ग्राउंड डेहर में भी प्रैक्टिकल के रूप में भूकंपरोधि तकनीक से तैयार किए जा रहे भवन का भी निरीक्षण करते हुए जायजा लिया गया।

राजमिस्त्रियों को दिया भूकंपरोधी भवन निर्माण का प्रशिक्षण

डेहर। सुंदरनगर उपमंडल की डेहर उपतहसील में आठ से दस मार्च तक हिमाचल प्रदेश काउंसिल फॉर साइंस एड टेक्नोलॉजी व पर्यावरण हिमकोस्ट शिमला द्वारा राजमिस्त्रियों को भूकंपरोधी भवन निर्माण के लिए प्रशक्षित करने हेतु तीन दिवसीय कार्यशाला का बुधवार को समापन हो गया। समापन अवसर पर वतौर मुख्यातिथि ज्वाइंट मेंबर सेकेटरी निशांत ताकुर हिमाचल प्रदेश काउंसिल फॉर साइंस, टेक्नोलॉजी एंड पर्यावरण शिमला ने शिरकत की। इस तीन दिवसीय कार्यशाला में सुंदरनगर उपमंडल की सात पंचायतों के कुल 32 राजमिस्त्रियों ने भाग लिया, जिसमें विभाग के अधिकारियों व विशेषज्ञों द्वारा हिमाचल प्रदेश में भूकंपरोधी मकान निर्माण को लेकर विस्तुत

जानकारी दी। कार्यशाला के अंत में मुख्यातिथि के कर कमलों द्वारा 32 राजमिस्त्रियों को प्रमाण पत्र भी भेंट किए गए। इस अवसर पर कार्यशाला के समापन पर निशांत वाकुर ज्वाइंट मेंबर सेक़ेटरी हिमकॉस्ट शिमला, डा. एसएस रांधवा प्रिंसीपल साइंटिफिक अधिकारी हिमकॉस्ट शिमला, गोपाल जैन साइंटिफिक ऑफिसर हिमकॉस्ट शिमला, इंजीनियर शैलेंद्र सिंह ठाकुर, सीनियर टेक्निकल इंजीनियर एसीसी सीमेंट वर्कर्स बरमाणा, इंजीनियर कलित भारद्वाज, सीनियर टेक्निकल असिस्टेंट एटीसी सुंदरनगर हिमकॉस्ट और इंजीनियर कंचन राणा, जूनियर रिसर्च फेलो हिमकॉस्ट सहित राजमिस्त्रियों ने उपस्थिति दर्ज की।