

Report of Three Days Training Program on “Innovative Housing Technologies” to masons/rural artisans organized at Govt. Polytechnic, Sundernagar by Appropriate Technology Centre, Sundernagar from 28-30 January, 2015

Appropriate Technology Centre, State Council for Science Technology & Environment, H.P, Govt. Polytechnic, Sundernagar organized a three days training to masons/ rural artisans of the Development Blocks namely; Sundernagar, Mandi, Sarkaghat, Bhoranj, Gohar and Kunihar of the State on “Innovative Housing Technologies” from 28-30 January, 2015 at Appropriate Technology Centre, Sundernagar.

The participants were registered at the venue of the training programme i.e. Govt. Polytechnic College, Sundernagar by Mrs. Neena Sharma, DEO, ATC, Sundernagar on 28-01-2015 from 10am to 11am. During registration a video film on earthquake was shown to participants. The three days training was organized as per the technical schedule prepared for organization of the training by the ATC. The participants were distributed the literature on innovative technologies by the ATC.



Welcome By Er. R.K. Sharma, Principal Govt. Polytechnic, Sundernagar

At the outset of the training programme the participants were welcomed by Er. R. K. Sharma, Principal, Govt. Polytechnic, Sundernagar on behalf of the State Council Science, Technology & Environment, H.P and briefed the masons / rural artisans about the purpose of the three days training programme.

28.01.2015
Technical Session-I



Lecture delivered by Sh. Prem Lal Thakur

The Technical session-I, was started with a lecture and presentation delivered by Sh. Prem Lal Thakur, Assistant Architect, State Council for Science Technology & Environment, H.P. Shimla on “Solar Passive Housing/Building Construction” to the participants. He highlighted the advantages of solar passive housing construction in the hilly State not only in H.P but all over the north eastern and western states of the country for comfortable living throughout the year. He elaborated the various aspects related to the construction detail of Solar passive housing/buildings namely effect of Sun Radiation on Building, Planning of Building, Trombe Wall, Solar Wall, Sky Lights for Winter Solar Gain, Solarium, Sun Space, Insulation in False Ceiling, Cross Ventilation etc. to the participants.

Technical Session –II

In the 2nd technical session started with the lecture of Sh. Kalit Bhardwaj, STA, ATC, Sundernagar on “Solar Passive Housing Technologies”. He began with an introduction about the Appropriate Technology Centre, Sundernagar and the relevance of technologies used in building activity. He showcased work already done by the ATC, Sundernagar in the form of Greenhouses and poly-houses constructed all over Himachal Pradesh in various parts with various materials and scales utilized for production of crops by providing thermally controlled environments by the farmers.



Technologies Demonstrated at Building Centre

The basics of solar passive design were explained to the participating masons / rural artisans. On being asked which orientation of the building receives maximum sun, the masons incorrectly responded “east”. The view was quickly corrected and the path of the Sun in the hilly regions of Himachal Pradesh was shown to them through diagrams and simple explanations of how the Sun behaves during various seasons in the hilly State.

A visit of the participants was made at the Demonstration Centre where various technologies namely Thermosyphonic Air Heating Panel, Trombe Wall, Solar Water Heater, Hand maize Sheller, Greenhouse etc. were shown and demonstrated to the participants by Sh. Kalit Bhardwaj, STA, Appropriate Technology Centre.

29.01.2015

Technical Session-III



Lecture delivered by Er. Chander Shekhar, HOD (Mechanical)

In the 3rd technical session. Er. Chander Shekhar, HOD (Mechanical), Govt. Polytechnic, Sundernagar delivered a lecture on the Rainwater Harvesting Technologies. He informed the participants that many countries have no water sources, whereas Himachal Pradesh is having source of water in the form of rivers, ponds, lakes, wells and Khaitri etc. The main source of water is through rain/snow. Rainwater in the form of rain / snow can stored rainwater harvesting tanks / ponds / reservoirs and we can use it for drinking purpose by filtering and for irrigation agriculture / horticulture fields during the lean periods by the farming communities in the State. He gave presentation about a Rain Water Harvesting technology to the participants. Different aspects related to construction of rainwater harvesting structures were elaborated to the participants by the Resource Person for their thorough understanding the basics connected with the theoretical and practical aspects related with rainwater harvesting technology.

29.01.2015
Technical Session-III



Lecture delivered by Ar. Gopal Sharma, HOD Architecture

On 29.01.2015 a lecture was delivered by Ar. Gopal Sharma, HOD Architecture, Govt. Polytechnic, Sundernagar on “Low Cost Housing Technology”. He explained about the orientation of building, energy conservation by educating the user and economy in the material. If the building is oriented facing long edges toward East West then maximum surface area will be exposed to Sun in winter which is required and in the design maximum window if possible should be fixed towards South. Design should be prepared according to temperature and humidity. Wherever possible locally available material should be used for construction which is environment friendly and reduces cost of transportation. He explained about CC blocks and stone filled blocks. All the construction material has to be made cost effective and the material to be used for construction eliminating doors and windows frames or use Ferro-cement door and window frames including Shutters.



Visit of the participants was made at Jawahar Lal Nehru Govt. Engineering College, Sundernagar. A lab established by ACC at JLN Govt. Engineering College was visited. Dr. Madhu, Asstt. Professor (Civil) demonstrated the models and bar binding details. Then a under construction building was visited where JE PWD Er. Chandel interacted with the participants and explained the latest construction techniques..

Technical Session-IV



Practical session by the Masons

Practical session was conducted for the participants under the supervision of Sh. Tajender Kumar, Master Trainer, Appropriate Technology Centre, State Council for Science Technology and Environment, H.P. Ferro-cement Blocks and Flower pots were fabricated by the participants

30.01.2015

Technical Session-V



Lecture delivered by Arch. Hans Raj Lecturer

On 30.01.2015 the technical session started with a lecture by Ar. Hans Raj, Lecturer, Architecture, Govt. Polytechnic, Sundernagar on “Earthquake Resistant Technology”. He highlighted the participants about the disaster occurring through earthquakes. He informed the participants that the State of H.P lies in the sensitive zone of earthquakes and reminded them of the impacts of the disasters accrued during the past in the State and stressed the need for construction of earthquake resistant houses in the State in future by them. He explained and elaborated about the Construction details of Earthquake Resistant Housing, what happens to a building when an earthquake shakes it and how the unnatural pressures exerted upon by incidences of tremors during earthquakes in such situations can be averted/dealt effectively and efficiently by us. With a number of diagrams and examples, he explained them the do’s and don’ts in building Earthquake Resistant Structures about the building Design, Construction and its importance.

30.01.2015
Technical Session-VI



Lecture delivered by Arch. P.L. Thakur

Thereafter, a lecture along with presentation on the topic “Construction details in buildings, calculation of material” was delivered by Sh. Prem Lal Thakur, Assistant Architect, State Council for Science Technology & Environment, H.P, Shimla to the participants. He elaborated the construction details in buildings, calculation of materials like iron, sand and bricks etc. Discussion was held with the participants and various issues raised were clarified on the spot to the participants.



Practical session was conducted for the participants under the supervision of Sh. Tajender Kumar, Master Trainer and Sh. Prem Lal Thakur, Assistant Architect, State Council for Science Technology and Environment, H.P. Rat-Trap Bond technology fabricated by the participants.

Closing ceremony



A feedback session was conducted and Performa was distributed among the participants. Closing ceremony was organized at the end of the training on 30.01.2015. Arch. Meena Guleria, HOD Arch., Govt. Polytechnic, Sundernagar, District Mandi, H.P was the Chief Guest at the occasion. While addressing the participants she stressed the need for application of innovative technologies through active participation of the Masons/Artisans in the State. She distributed the Certificates to the participating masons/ rural artisans and thanks the trainees for participation in the Training.

LIST OF THE MASONS DURING THREE DAYS TRAINING PROGRAMME ON “INNOVATIVE HOUSING TECHNOLOGY” AT APPROPRIATE TECHNOLOGY CENTRE, SUNDERNAGAR ON 28-30 JANUARY, 2015.

S. No.	Name	Father name	Address
1.	Sh. Mahender Lal	Sh.Banarsi Dass	VPO & Panchayat Kapahi Tehsil Sundernagar Distt. Mandi
2.	Sh. Kartar Singh	Sh. Paras Ram	VPO & Panchayat Kapahi Tehsil Sundernagar Distt. Mandi
3.	Sh. Bhup Singh	Sh. Luria Ram	Vill. Ptrahan P.O. Kapahi Panchayat kapahi Tehsil Sundernagar Distt. Mandi
4.	Sh. Karam Chand	Sh. Puran Chand	Vill. Dodhwan P.O. Bhojpur Panchayat Kapahi Tehsil Sundernagar Distt. Mandi
5.	Sh. Tara Singh	Sh. Jaswant Singh	VPO & Panchayat Kapahi Tehsil Sundernagar Distt. Mandi
6.	Sh. Prem Chand	Sh. Titu Ram	Vill. Dhanarsi P.O. Barthyian Panchayat Tal Tehsil Sadar Distt. Hmirpur
7.	Sh. Mast Ram	Sh. Sant Ram	VPO & Panchayat Patta Tehsil Bhoranj Distt. Hmirpur
8.	Sh. Suresh Kumar	Sh. Longu Ram	Vill. Kather P.O. & Panchayat Bahanwin Tehsil Bhoranj Distt. Hamirpur
9.	Sh. Tej Singh	Sh. Hardev Singh	Vill. Jakher P.O. Kalkhar Panchayat Patrighat Tehsil Sarkaghat Distt. Mandi
10.	Sh. Mohan Lal	Sh. Dani Ram	Vill. Jakher P.O. Kalkhar Panchayat Patrighat Tehsil Sarkaghat Distt. Mandi
11.	Sh. Shyam Singh	Sh. Brestu Ram	Vill. Dodhwan P.O. Bhojpur Panchayat Kapahi Tehsil Sundernagar Distt. Mandi
12.	Sh. Bhupender Kumar	Sh. Prem Singh	Vill. Dodhwan P.O. Bhojpur Panchayat Kapahi Tehsil Sundernagar Distt. Mandi
13.	Sh. Davender Singh	Sh. Joginder singh	Vill. Ropari P.O. & Panchayat Kapahi Tehsil Sundernagar Distt. Mandi
14.	Sh. Babu Ram	Sh. Maru Ram	VPO & Panchayat Navgaon Tehsil Arki Distt. Solan
15.	Sh. Nand lal	Sh. Thkur Dass	Vill Gawah P.O. & Panchayat Darlaghat Tehsil Arki

			Distt. Solan
16.	Sh. Rati Ram Sharma	Sh. Najaru Ram	Vill. Pansora P.O. Navgaon Panchayat Sanyardi Mode Tehsil Arki Distt. Solan
17.	Sh. Pawan kumar	Sh. Khajana ram	Vill. Nagan P.O. & Panchayat Pingla Tehsil Sarkaghat Distt. Mandi
18.	Sh. Bittu	Sh. Sher Singh	Vill. Nagan P.O. & Panchayat Pingla Tehsil Sarkaghat Distt. Mandi
19.	Sh. Yashwant Singh	Sh. Dile Ram	Vill. Tunna P.O. Jachh Panchayat Tunna Tehsil Gohar Distt. Mandi
20.	Sh. Bhupender Kumar	Sh. Badamu Ram	Vill. Dari P.O. Shalla Panchayat Tunna Tehsil Gohar Distt. Mandi
21.	Sh. Ludramani	Sh. Rattan Lal	Vill. Ger P.O. Jachh Panchayat Tunna Tehsil Gohar Distt. Mandi
22.	Sh. Khem Chand	Sh. Mishru Ram	Vill. Dari P.O. Shalla Panchayat Tunna Tehsil Gohar Distt. Mandi
23.	Sh. Gangu Ram	Sh. Kahan Singh	Vill. Karnala P.O. Jachh Panchayat Tunna Tehsil Gohar Distt. Mandi
24.	Sh. Upender Singh	Sh. Hukam Chand	Vill. Kala P.O. & Panchayat Jamani Tehsil Sarkaghat Distt. Mandi
25.	Sh. Hukam Chand	Sh. Sohan Lal	Vill. Kothiropa P.O. & Panchayat Tikkri Tehsil Sarkaghat Distt. Mandi
26.	Sh. Nota Ram	Sh. Purvia Ram	Vill. Dandhal P.O. Samrahan Panchayat Dhanyara Tehsil Kotli Distt. Mandi
27.	Sh. Karam Singh	Sh. Bansi Lal	Vill. Kalar P.O. & Panchayat Jamni Tehsil Sarkaghat Distt. Mandi
28.	Sh. Biri Singh	Sh. Lalu Ram	Vill. Binol P.O. Ghrahn Panchayat Mehani Tehsil Sadar Distt. Mandi
29.	Sh. Saran	Sh. Kalu ram	Vill. Binol P.O. Ghrahn Panchayat Mehani Tehsil Sadar Distt. Mandi
30.	Sh. Chander Mani	Sh. Sevak	Vill. Binol P.O. Ghrahn Panchayat Mehani Tehsil Sadar Distt. Mandi

WORK SCHEDULE OF THREE DAYS TRAINING TO RURAL MASONS ON “INNOVATIVE HOUSING TECHNOLOGIES”

DATE : 28-30 JANUARY, 2015

VENUE : APPROPRIATE TECHNOLOGY CENTRE, GOVT. POLYTECHNIC SUNDERNAGAR. HP.

ORGANIZED BY: APPROPRIATE TECHNOLOGY CENTRE, STATE COUNCIL FOR SCIENCE TECHNOLOGY & ENVIRONMENT, GOVT. POLYTECHNIC, SUNDERNAGAR.

Date/Day	10:00 to 11:30 am (TECHNICAL SESSIONS)	11:30 to 1.30 pm. (TECHNICAL SESSIONS)	2:00 TO 5:30(PRACTICAL SESSION)
28th Jan. 2015 Tuesday	Registration of Participants (By: Neena Sharma) Inauguration of Training (By:Er. R.K. Sharma)	Lecture on construction details of Solar Passive Features in Buildings. By: Arch. Prem Lal Thakur	Visit to Demonstration Centre & Ferro-cement systems Casting of Flowers Pots. Demonstration of Low Cost Housing techniques like Frameless Windows, C.C. Blocks and Waste Water Disposal System with Soak-pit BY: Er. Kalit Bhardwaj
29th Jan. 2015 Wednesday	Lecture on Rain-Water Harvesting Technology. By: Er. Chander Shekhar	Lecture on latest trends & practices in construction. By: Arch. Gopal Sharma	Visit to JLN Govt. Engineering College Labs and building sites. Constructions of rat trap bond masonry. Laying of earthquake resistant bands with corner vertical bars in various types of masonry Rat-trap bond / cavity wall demo using block model. By: Arch. Prem Lal Thakur
30th Jan. 2015 Thursday	Lecture on Earthquake Resistant Housing Technology By: Arch. Hans raj	Lecture on Cost Effective Construction Technologies. By: Sh. Arch. Prem Lal Thakur	Casting of flower pots, Solid Concrete block and stone filled concrete blocks. Feed Back from Participants. By: Tajender Kumar Closing ceremony Certificate Distribution. By: Er. R.K. Sharma (Principal)

Tea breaks at 11:30 to 11:45 AM & 3:15 to 3:30PM. Lunch break at 1:30 to 2:00 PM.

Co-ordinator,

ATC, Sundernagar.