

Three Days Training Program on “Innovative Housing Technologies” to masons/rural artisans organized at Govt. Polytechnic, Sundernagar by Appropriate Technology Centre, Sundernagar from 17-19 September, 2014

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 Block namely; Rampur, Nankhari and Pachhad of the State on “Innovative Housing Technology” from September 17-19 September, 2014 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 17-09-2014 from 10am to 11am. 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.



At the outset of the training programme the participants were welcomed by Sh. Kalit Bhardwaj, STA, ATC, 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.

017.09.2014

Technical Session-I



Lecture delivered by Sh. Prem Lal Thakur

The Technical session-I, was started with a lecture and presentation was 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.

Thereafter, a lecture along with presentation on the topic “Construction details in buildings, calculation of material etc.” 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.

Technical Session –II



**Technologies Demonstrated at Building Centre
& Practical session**

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. Practical Session was working by the Participants.



18.09.2014

Technical Session-III

In the 2nd technical session. a lecture of Er. Chander Shekhar, HOD (Mechanical), Govt. Polytechnic, Sundernagar 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 be stored in rainwater harvesting tanks / ponds / reservoirs and used for drinking purpose by filtering and for irrigation in agriculture / horticulture fields during the lean periods by the farming communities in the State. He gave a presentation about a Rain Water Harvesting technology to the participants. Different aspects related to the construction of rainwater harvesting structures were elaborated to the participants by the Resource Person for their thorough understanding of the basics connected with the theoretical and practical aspects related to rainwater harvesting technology.



Lecture Delivered by Arch. Gopal Sharma HOD Architect

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 installed towards South. Design should be prepared according to temperature and humidity. 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.

Technical Session-IV



Practical Session

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. Ferro-cement Blocks and Rat-Trap Bond were fabricated by the participants.

19.09.2014
Technical Session-V



Lecture delivered by Arch. Hans Raj Lecturer

On 19.09.2014 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 zones 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 a 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.



Practical session by the Masosns

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. Ferro-cement Blocks and Flower pots were fabricated by the participants.



During the Technical Session-VI On 19.09.2014 the 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 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.

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 incorrectly “east”. The view was quickly corrected and the path of the Sun in the wet and 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 was made at the Demonstration Centre where various technologies namely Thermosyphonic Air Heating Pannel, 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.

Technical Session-VI



Lecture delivered by Er. Kalit Bhardwaj



Demonstrat Pine Needle Biomass

Sh. Kalit Bhardwaj, STA, ATC, Sundernagar delivered a lecture to the masons about “Conversion of Pine needles biomass into Briquettes” and demonstration for conversion was given to the participants by Sh. Tajender Kumar, Master Trainer of Appropriate Technology Centre State Council for Science Technology and Environment, H.P at the venue to the

Masons/artisans. Biomass of Pine needles was converted into Briquettes and some briquettes prepared by the ATC previously were burnt to show the efficiency of the briquettes. The participants prepared the briquettes themselves and showed great keen and interest for organization of the training workshop to the rural people at their Panchayats in future.



Closing ceremony



certificate distributed By Joint Director Technical Education HP

A feedback session was conducted and Performa was distributed among the participants. Closing ceremony was organized at the end of the training on 19.09.2014 Sh. A.K. Aahuja, Joint Director Technical Education and Er. R.K. Sharma, Principal/Co-ordinator, Govt. Polytechnic, Sundernagar, District Mandi, H.P was the Chief Guest at the occasion. While addressing the participants He stressed the need for application of innovative technologies through active participation of the Masons/Artisans in the State. Joint Director Technical Education distributed the Certificates to the participating masons/ rural artisans and thanks to visit the Training. Joint Director also asked the question that they attend that type of workshop in future or Past.

LIST OF MASONS DURING THREE DAYS TRAINING PROGRAMME ON “INNOVATIVE HOUSING TECHNOLOGY” AT APPROPRIATE TECHNOLOGY CENTRE, SUNDERNAGAR ON 5-7 AUGUST,2014.

Name	Father name	Address
Sh. Chet Ram	Sh. Charan Dass	Vill. Kraki P.O. & Panchayat Dansa Tehsil Rampur Distt. Shimla.
Sh. Ram Krishan	Sh. Suni Ram	Vill. Kraki P.O. & Panchayat Dansa Tehsil Rampur Distt. Shimla
Sh. Nand Lal	Sh. Maghu Ram	Vill. Kraki P.O. & Panchayat Dansa Tehsil Rampur Distt. Shimla
Sh. Jayoti lal	Sh. Badru Ram	Vill. Shaneri P.O. & Panchayat Shingla Tehsil Rampur Distt. Shimla
Sh. Layak Ram	Sh. Gudru Ram	Vill. Shaneri P.O. & Panchayat Shingla Tehsil Rampur Distt. Shimla
Sh. Ranjan Kumar	Sh. Mohar Singh	Vill. Khaneoli P.O. & Panchayat Devnagar Tehsil Rampur Distt. Shimla
Sh. Kapil Darhal	Sh. Raksh Pal	Vill Panail P.O. Lalion Panchayat Barach Tehsil Rampur Distt. Shimla
Sh. Sudheer Kumar	Sh. Bahadur Singh	Vill. Khaneoli P.O. & Panchayat Devnagar Tehsil Rampur Distt. Shimla
Sh. Surat ram	Sh. Karam Chand	Vill. Suru P.O. & Panchayat Koot Tehsil Rampur Distt. Shimla
Sh. Mukesh Kumar	Sh. Mangat Ram	Vill. Suru P.O. & Panchayat Koot Tehsil Rampur Distt. Shimla
Sh. Mohar Singh Negi	Sh. Belu Ram	Vill. Suru P.O. & Panchayat Koot Tehsil Rampur Distt. Shimla
Sh. Naveen Kumar	Sh. Mohar Singh	Vill. Suru P.O. & Panchayat Koot Tehsil Rampur Distt. Shimla
Sh. Prakash singh	Sh. Shyam Singh	Vill. Suru P.O. & Panchayat Koot Tehsil Rampur Distt. Shimla
Sh. Om Prakash	Sh. Surat Ram	Vill. Suru P.O. & Panchayat Koot Tehsil Rampur Distt. Shimla
Sh. Shishu Pal	Sh. Gopi Chand	Vill. Suru P.O. & Panchayat Koot Tehsil Rampur Distt. Shimla
Sh. Sarjeet Kumar	Sh. Mehar Singh	Vill. Suru P.O. & Panchayat Koot Tehsil Rampur Distt. Shimla

Sh. Jagdish Kumar	Sh. Chaain Ram	VPO Sarpara Panchayat Sarpara Tehsil Rampur Distt. Shimla.
Sh. Jeeva Nand	Sh. Sari Ram	VPO Sarpara Panchayat Sarpara Tehsil Rampur Distt. Shimla
Sh. Rajesh Sharma	Sh. Sukhdev Sharma	VPO & Panchayat Sholi Tehsil Rampur Distt. Shimla
Sh.Sandeep Kumar	Sh. Ishwar Dass	Vill. Majhuti P.O. Devnagar Panchayat Kaleda Majhuti Tehsil Rampur Distt. Shimla
Sh. Ram Lal	Sh. Hera lal	Vill. Thelichakati P.O Chakati Panchayat Theilichakati Tehsil Rampur Distt. Shimla
Sh. Yas Pal	Sh.Hardyal Singh	Vill. Chakati P.O & Panchayat Thelichakati Tehsil Rampur Distt. Shimla
Sh.Sanjeev Chauhan	Sh. Mast Ram	Vill. Chakati P.O & Panchayat Thelichakati Tehsil Rampur Distt. Shimla.

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

DATE : 17-19 SEPTEMBER, 2014

VENUE : APPROPRIATE TECHNOLOGY CENTRE, GOVT. POLYTECHNIC SUNDERNAGAR,
DISTT. MANDI.

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 1.00 pm. (TECHNICAL SESSIONS)	2:00 TO 5:30 (PRACTICAL SESSION)
17TH Sept., 2014 Wednesday	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
18th Sept. 2014 Thursday	Lecture on Rain-Water Harvesting Technology. By: Er. Chander Shekhar	Lecture on latest trends & practices in construction. By: Arch. Gopal Sharma	Construction 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: Tajender Kumar
19th Sept. 2014 Friday	Lecture on Earthquake Resistant Housing Technology By: Arch. Hans raj	Lecture on Cost Effective Construction Technologies . By: Sh. Kalit Bhardwaj	Casting of Solid Concrete block and stone filled concrete blocks. Feed Back from Participants. By: Tajender Kumar Closing ceremony Certificate Distribution By: Sh A.K. Aahuja, Joint Director Technical Education)

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