



Research in Progress

Evaluation of Indoor Air Temperature Profile and Cooling Load on Computer Model for Composite Buildings

The study has been made on thermal performance and evaluation of the product manufactured by B A S F India Ltd., Mumbai for roof and wall insulation to be applied in buildings to assess its energy saving potential in air conditioned building and reduction in indoor air temperature to be achieved in unconditioned building during summer season. The computer model TRNSYS, version 16 is very versatile software. In this software heat conduction transfer functions or response factor methodology to predict the thermal history of multi layer slabs, developed by Mitalas, Stephenson and Arseneault have been used for the calculation of transient heat transfer through walls

and roof of building. The most important factor for thermal simulation study of the building design is the climatic condition outdoor. The study on thermal behavior has been made for the building located at New Delhi which falls in the composite climatic zone of India. The solar radiation and climatic data of this station is available in the desired format i.e. TMY2 (New Typical Meteorological Year) as required in TRNSYS Software. The important data elements which are being used as input in the software are hourly values of about 20 parameters listed as follows: Extraterrestrial Horizontal Radiation, Extraterrestrial Direct Normal Radiation, Global Horizontal Radiation, Direct Normal Radiation, Diffuse Horizontal Radiation, Global Horizontal Illuminance, Direct Normal Illuminance, Diffuse Horizontal Illuminance, Zenith Luminance, Total Sky Cover, Opaque Sky Cover, Dry Bulb Temperature, Dew Point Temperature, Relative Humidity, Atmospheric Pressure, Wind Direction, Wind Speed, Horizontal Visibility, Precipitable Water, Aerosol Optical Depth.

In this Issue

✦ Research in Progress	1
✦ Republic Day	3
✦ CSIR-CBRI Foundation Day	3
✦ Vigilance Awareness Period	4
✦ Workshop cum Training Course	4
✦ INDO-US Workshop on Nanotechnology in the Science of Concrete	5
✦ National Conference on Landslide Hazards– Consequences & Challenges	6
✦ National Conference on Recent Advances in Ground Improvement Techniques	7
✦ National Science Day	8
✦ CSIR-CBRI, Roorkee Flag off Lok Awaas Yatra	8
✦ CSIR-CBRI at Technofest 2010	9
✦ CSIR-CBRI participated in Rural Tech. Mela, Hyderabad	10
✦ Workshop on Faculty Training and Motivation and Adoption of Schools & Colleges	10
✦ Colloquium	11
✦ Staff News	12

BUILDING INSULATION

Thermal & Water Insulation of Building Envelope

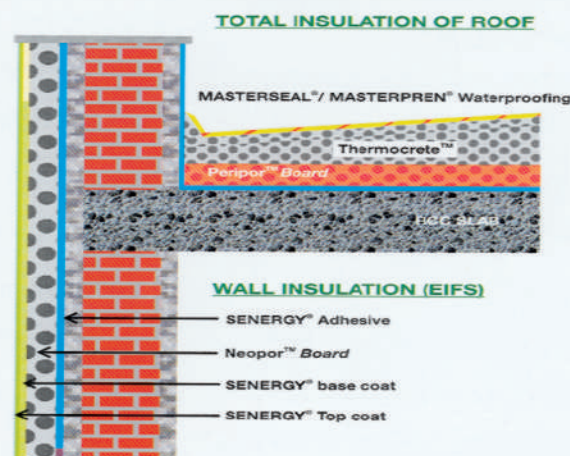


Fig. 1 Insulated system of wall and roof

In the case under study no adjacent or internal wall is considered as all the four walls are external wall each made of non negligible mass. The untreated base case has conventional construction material used. The walls are 0.230m thick brick wall plastered on both side with cement mortar of 0.013m thickness. The total thickness of each of four walls is 0.256m and its U-value is $2.376 \text{ W/m}^2\text{K}$. The solar absorptance of the walls is 0.6 on the front side and 0.6 on the back side. The convective heat transfer coefficient of wall are $11 \text{ kJ/hm}^2\text{K}$ on the front side (inside surface) h_i and $64 \text{ kJ/hm}^2\text{K}$ on the back side (outside surface) h_o . Roof is 0.150m thick heavy reinforced concrete slab plastered inside with thickness of 0.013m. The total thickness of each of roof is 0.163m and its U-value is $4.023 \text{ W/m}^2\text{K}$. The solar absorptance of the roof is 0.6 on the

front side and 0.6 on the back side. The floor of the building is made of marble stone of 0.025m thick laid over heavy concrete of 0.100m, and clay-soil of at least 0.100m thickness. The total thickness of the floor is 0.255m and its U-value is $3.290 \text{ W/m}^2\text{K}$. The treatment such as application of various layers of insulation material on roof as recommended practice followed by BASF India using different insulation materials have been considered in various treated case. Applications of wall insulation along with roof insulation have also been considered. The insulated system of wall and roof are depicted in figure1.

All thermo physical and construction parameters for different cases along with corresponding overall thermal transmittance are given below in the tabulated form.

CONVENTIONAL CONSTRUCTION (UNTREATED)

CASE 1. Wall Specification (U-Value= $2.376 \text{ W/m}^2\text{K}$)

Layers	Thickness (m)	Thermal conductivity (W/mK)	Thermal capacity (K joule/KgK)	Density (Kg/m ³)
Cement plaster	0.013	1.07	0.84	2000
Brick	0.230	0.85	0.84	1750

Roof specification (U-Value= $4.023 \text{ W/m}^2\text{K}$)

Layers	Thickness (m)	Thermal conductivity (W/mK)	Thermal capacity (K joule/KgK)	Density (Kg/m ³)
Cement plaster	0.013	1.07	0.84	2000
Heavy Reinforced Concrete	0.150	1.89	0.84	2400

Floor specification (U-Value= $3.290 \text{ W/m}^2\text{K}$)

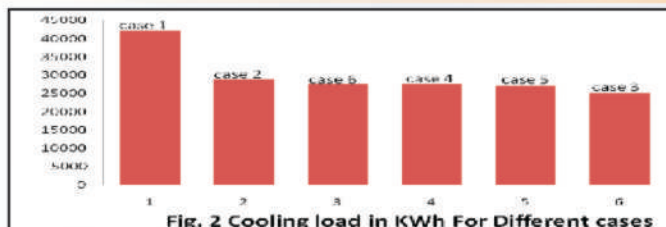
Layers	Thickness (m)	Thermal conductivity (W/mK)	Thermal capacity (K joule/KgK)	Density (Kg/m ³)
Marble	0.025	2.52	0.84	2550
Heavy Concrete	0.100	1.46	0.84	2200
Soil	0.100	1.29	0.84	1500

The other five treated cases have been described here. The main thermal insulation has been changed in all the five cases remaining basic building materials same.

CASE 2. Roof Specification (U-Value= $0.425 \text{ W/m}^2\text{K}$), (with same Wall and Floor specification)

Layers	Thickness (m)	Thermal conductivity (W/mK)	Thermal capacity (K joule/KgK)	Density (Kg/m ³)
Cement plaster	0.013	1.070	0.84	2000
Heavy Reinforced Concrete	0.150	1.890	0.84	2400
Elastopor	0.150	0.0249	0.84	44.32
Thermocrete	0.100	0.230	0.84	752
China Mosaic	0.003	1.030	1.00	2000

In the cases of 3, 4, 5 and 6 only thermal insulation Elastopor has been replaced by Peripor, Neopor, Elastospray and Styropor respectively and their overall thermal transmittance values are found to be 0.511, 0.508, 0.401 and 0.536 W/m²K respectively. Cooling load with and without insulation treatment of AC room is shown in figure 2.



Republic Day

The Republic Day was celebrated at the Institute on January 26, 2011. Prof. Sriman Kumar Bhattacharyya, Director unfurled the National Flag and addressed the members of the staff. Students of Bal Vidya Mandir and CBRI Junior High School participated in cultural programmes in CBRI Main Lawns. A cricket match was also arranged. The CBRI staff club distributed sweets on the occasion.



CSIR-CBRI FOUNDATION DAY

The CSIR-Central Building Research Institute (CBRI) Roorkee, the premier institute of the country for higher studies and research in building technology, celebrated its 65th foundation day on 10th February 2011 with usual gaiety and fanfare. The institute, which is one of the leading units of the Council of Scientific and Industrial Research (CSIR) was set up in 1947 to develop technology suited to people of different income groups in various geo-climatic regions of the country with focus on indigenous material, local skills and eco friendly approach.

Some of the landmarks achieved by the institute are the utilization of agricultural and industrial wastes for building materials, developing technology for earthquake resistant construction, rehabilitation work in natural disasters hit areas in the country and development of a device of gravitational and settling chambers of brick kilns to make them pollution free.

Speaking in the function organized on the occasion, the Chairman of the Kinetic Engineering Ltd., Pune, Mr. Arun H. Firodia said that the CBRI should use its technology to develop model villages where people should feel proud to live in and stop migrating towards the cities. He further said that the task of the constructing cost effective and durable habitats, in sync with the requirements of a particular region, could only be

achieved by combining applied engineering and research. "If we could do so, the whole scenario of the country, through building model villages, will

undergo a radical transformation within the next 30-40 years", he remarked.

The former director of the institute, Dr Rajendra Kumar Bhandari, Guest of Honour, lauded the

pioneering efforts of the institute in providing most appropriate economic solutions for housing to the poorest of the poor while also providing expertise for the highly specialized structures in the country. Highlighting the recent strides taken by the institute, Prof. S. K. Bhattacharyya, Director said that the institute is fully geared up, to face the challenges of future. Steps have been initiated to meet human resources crunch and, along with research, higher studies courses have been launched in the institute. Prof. S.K. Bhattacharyya, Director highlighted a new vision and the thrust of the forthcoming R&D programmes of the Institute.

The foundation day function was also marked with the release of the CBRI Annual Report 2009-10, CBRI Information Brochure and a booklet on Ferro cement at the hands of the dignitaries on the dias.

On this occasion, a Diamond Jubilee Director's award specially instituted for development of technology/innovation/know-how having maximum societal impact for the year 2010-11 was given jointly to Dr. B. Singh and Dr. Manorama Gupta, Scientists for their work on "Production of Bituminous Polyurethane Water proofing/Sealing Compounds".



The award comprises of a citation and cash award of Rs.5000/-. The technology know how was recently transferred to the industrialist who intends to set up a manufacturing plant at Gwalior, Madhya Pradesh.

The function was convened by Sri Y. Pandey, senior scientist of

the institute. He briefed on the history of the institute highlighting its main R&D achievements, professional & societal contribution of CSIR-CBRI. He also introduced the guests to the audience. Sri S.G. Dave, Scientist 'G' presented a vote of thanks.

Vigilance Awareness Period

The Institute celebrated Vigilance Awareness Period during October 25 – November 01, 2010. Different programmes which include special lectures, poster competition for school children of staff wards, debate competition for staff members etc. have been organized during the week. The valedictory function was organized in the Institute's auditorium on November 01, 2010. Prof. S.K. Bhattacharyya, Director CBRI presided over the function and gave away the prizes to the winners of the different competitions. Dr. S.K. Saini, Scientist 'F', Chairman, organizing Committee presented a brief of the programme organized during the week and the function was concluded by a



vote of thanks presented by Shri S.C. Tyagi, Vigilance Office and Controller of Administration.

Workshop cum Training Course

A six days workshop cum training course on "Seismic and Wind Resistant Design of Building Structures" followed by "International Advance School in Wind Engineering (IAS 7)" jointly organized by Central Building Research Institute (CBRI), Roorkee, and Indian Society for Wind Engineering (ISWE), Roorkee at CSIR Science Centre, New Delhi during Dec. 3-8, 2010.

The course on "Seismic and Wind Resistant Design of Building Structures" was inaugurated on 3rd Dec. by Prof. Michael Kasperski, Ruhr University, Bucham, Germany (Chief Guest), Prof. S. K. Bhattacharyya, Director, Central Building Research Institute, Roorkee, India was the Guest of Honor. Dr. A.K. Mittal, Course Coordinator and Hon. Sec. ISWE presented an overview of the course and the activities of ISWE. The proceedings of introductory course were also released during the opening ceremony.

Eminent speakers like Prof. Prem Krishna, Prof. S.K. Bhattacharyya, Prof. P.D. Porey, Dr. N. Lakshmanan, Dr. S. Arunachalam, Prof. P.K. Pande, Prof. D.K. Paul, Prof. Abhay Gupta, Prof. Y. Singh, Dr. Naveen Kwatra and Dr. Achal Mittal delivered lectures on the following topics:

Dynamics of structures, Basic nature of wind, Bluff body aerodynamics, Wind loading on tall buildings with their codal provisions, Wind loading on low rise buildings with their codal provisions, Use of wind tunnels, Seismic codes of India, Structural health monitoring, Commonalities and contradictions between wind and earthquake, Tutorials and examples covering analysis of buildings

A large number of delegates from Govt. and private sectors were benefited from this workshop. Round table discussions also took place during the workshop. Engineers/Professionals from many organizations like Consulting Engineering Services, Mahagun India Pvt. Ltd., Mehro consultants, Construction Catalysers Pvt. Ltd., NTPC, Jaypee Associates Ltd., RWDI Consulting Engineers, HUDCO and CBRI attended the programme. Faculty members from IIT Kanpur, IT-BHU Varanasi, NIT Trichy, NIT Surathkal, NIT Durgapur and research scholars also participated in this course.

A training programme "International Advance School in Wind Engineering (IAS 7)" jointly organized by CBRI, Roorkee and ISWE, Roorkee from 6th December onwards was also organized with the support of Global Centre of Excellence, Tokyo Polytechnic University, Japan.

The programme was inaugurated by Prof. Yukio Tamura, Tokyo Polytechnic University, Japan. Prof. Prem Krishna, Vice President, INAE & Chairman RC, CBRI, Roorkee, graced the occasion and presented his views on the state of Wind Engineering in India. Prof. S. K. Bhattacharyya, Director, Central Building Research Institute, Roorkee, India presided over the function. Dr. A. K. Mittal, Course Coordinator presented an



Inaugural Function of Introductory course



Release of the proceedings of Introductory course



Inaugural Function of Advance course (IAS 7)



Release of the proceedings of Advance course

Lighting of lamp by dignitaries



Faculty and Participants

overview of the activities of ISWE being carried out. The dignitaries released the lecture notes proceedings also. Experts in Wind Engineering from different parts of the world including Prof. Yukio Tamura, Japan, Prof. Michael Kasperski, Germany, Prof. YouLin Xu, Hong Kong, Prof Chii Ming Cheng, Taiwan, Prof Chris Letchford, Australia, Prof. Ted Stathopoulos, Canada, Prof. Partha Sarkar, USA, Prof. Prem Krishna, India, were invited to discuss the new areas of research that are being taken up in their respective countries and also to address the issues concerning the Indian designers and practice engineers. The

ongoing areas of research and development are as follows:

- ❖ Aerodynamic database and wind resistant design of tall buildings
- ❖ e-wind: An integrated engineering solution package for wind sensitive buildings
- ❖ Wind loads on component and cladding of low rise buildings
- ❖ Test methods to assess performance of components and cladding under wind loads
- ❖ Efficient observation of random fields – meaning of POD and points to note
- ❖ Windborne debris and application to impact testing
- ❖ Climatology of extreme winds,
- ❖ Interference effect of surrounding buildings on wind loads
- ❖ Rain-wind induced and dry cable vibration of stay cables
- ❖ Damping in buildings and estimation techniques
- ❖ Aerodynamic load and response of slender structures in time domain
- ❖ Typhoon wind simulation
- ❖ Monitoring of long span bridges
- ❖ Estimation of design wind speed
- ❖ Identification of effective pressure distribution

Finally, the closing ceremony was held on 8th December, in which Prof. Yukio Tamura, Tokyo Polytechnic University, Japan, distributed the certificates to the participants. Prof. P.D. Porey, President, ISWE presided over the function and emphasized the need of similar activities in future also. Dr. Achal Kr. Mittal, conducted the event and proposed a vote of thanks.

INDO-US Workshop on Nanotechnology in the Science of Concrete

The INDO-US Workshop on 'Nanotechnology in the Science of Concrete' was held at CSIR-CBRI, Roorkee during December 14-15, 2010. The workshop was jointly organized by CSIR-CBRI and INDO-US Science & Technology Forum (IUSSTF), New Delhi. Uttarakhand State Council for Science and Technology (UCOST), Dehradun also supported the workshop. The objective of the workshop was to arrive at appropriate direction of research in the area of concrete and possible collaborative activities between Indian and US institutions with industrial support in the area of concrete research with impetus on Nano-technology.

Distinguished speakers from US and India participated and deliberated in the workshop with their thought provoking presentations and deliberations. Eminent speakers from US side included, Prof. S.P. Shah, Director, Centre for Advanced Cement Based Materials, Northwestern University, Illinois; Dr. Paramita Mondal, University of Illinois, Urbana Champaign; Dr. N. Neithalath, Clarkson University; Dr. Zachary C. Grasley, Texas A&M University and Prof. R. Panneer Selvam, University of



Arkansas. From Indian side, Prof. B. Bhattacharjee, IIT, Delhi; Prof. Ananth Ramaswamy, IISc, Bangalore; Prof. Ravindra Gettu, IIT, Madras; Prof. Sudhir Mishra, IIT, Kanpur; Dr. Absar Ahmad, Scientist, CSIR-NCL, Pune; Dr. Rakesh Kumar, Scientist, CSIR-CRRI, New Delhi, Dr. Umesh Sharma, IIT, Roorkee and from industry side Dr. Subrato Chowdhury, Joint President, UltraTech, Mumbai and Dr. Chetan Hazaree, R&D Manager,

HCC, Mumbai made their respective presentations. Three presentations from CSIR-CBRI were made by Prof. S.K. Bhattacharyya, Director, Dr. L.P. Singh, Scientist (Workshop Coordinator) and Dr. P.C. Thapliyal, Scientist.

The Workshop was divided in four thematic sessions viz. (i) Synthesis & Modification of Materials at Nanoscale (ii) Nanoscale Characterization (iii) Design and Modeling of Materials based on Nanotechnology and (iv) Performance Enhancement of Concrete. The speakers made their presentations in the respective areas. Thematic group discussion was followed on the topics viz. (i) Nanoscale Modification and Characterization (ii) Design and Modeling of Material at Nanolevel and (iii) Nanotechnology for Sustainable



Development. The two days presentations, brainstorming and discussion emerged out with the following futuristic goals:

- To achieve ultra high strength and durable concrete, it is necessary to focus on the fundamental research with the applications of Nanotechnology in the area of concrete. It is essential to understand the behavior of cement paste at nano level to obtain durable concrete material.
- To establish a research consortium amongst Universities and Institutions to promote and lead nanotechnology based concrete research. It is very important to form a coalition of major research groups to generate knowledge base.
- The consortium shall include experts on construction materials, materials scientist, computational modeling etc.
- To establish a website on key research progress and outcomes in the area of concrete with emphasis on nanotechnology. The website will also secure/establish a link amongst researchers during research in progress.
- To create a bilateral forum for interaction amongst S&T community of both countries to establish broader strategies.
- Creation of network of scientist, technologists and entrepreneurs to work together to promote joint research and development to foster the mutually beneficial innovation and entrepreneurship.

National Conference on Landslide Hazards – Consequences & Challenges

The Institute organised a three days National Conference on “Landslide Hazards – Consequences & Challenges” during 10-12 February 2011. The conference was organized to provide a platform to the scientists and academicians to discuss and transfer the knowledge into field practice to reduce the impact of disaster.

Many experts, academicians, scientists, practitioners, policy makers and students from different parts of the country participated in the conference. The conference was inaugurated by the Chief Guest Mr. B. Bhattacharjee, Member, National Disaster Mitigation Authority, New Delhi. The inaugural function was presided by Prof. S. K. Bhattacharyya, Director, CBRI and Patron of the conference. The theme lecture of the conference was delivered by Dr R.K. Bhandari, Former Director, CBRI.

The Abstract volume, which contains 42 papers, was also released in the inaugural function. The papers were presented in 6 technical sessions in the areas of hazard & risk mapping, instrumentation, monitoring & warning, impact of climate change, geotechnical investigation, slope stability analysis and control measures. Conference proceedings with full length papers and key note lectures will be published as post conference volume.

After three days of deliberations, it was recommended that dialogues have to be initiated amongst various organizations



to form teams to undertake important issues both on the policy levels and on the implementation level. The Valedictory function was chaired by Shri G.M. Prasad, General Manager, THDC.

The conference was sponsored by CSIR, Ministry of Earth Sciences, NDMA, NIDM, AIMIL Ltd. and THDC and co-sponsored by National Jute Board and NTPC Ltd. The participant hoped that the policy makers, researchers and the field engineers were benefited by the deliberations during the conference and will be able to draw a framework to meet the challenges associated with landslide disaster.

National Conference on Recent Advances in Ground Improvement Techniques

A two days National Conference on "*Recent Advances in Ground Improvement Techniques*" (RAGIT 2011) has been organized by CSIR-CBRI Roorkee in association with Indian Geotechnical Society, Roorkee chapter during 24 – 25th Feb 2011 at CSIR-CBRI Roorkee.

The conference was aimed to bring together the design, research and practicing engineers working in the field of geotechnical engineering to foster and promote exchange of ideas on the recent advances in the field of ground improvement. The Conference themes were -

- Mechanical and Chemical Stabilisation of Soils
- Accelerated Consolidation of Clayey Soils
- Deep compaction of Granular Soils
- Soil Reinforcement
- Grouting
- Thermal Stabilisation of Soils
- Deep Soil Mixing, Micropiles, Stone Columns, Granular Piles
- Innovative Techniques in Ground Improvement
- Evaluation of Ground Improvement
- Environmental Aspects

The Conference was inaugurated by Prof. Prem Vrat, Former Director (IIT Roorkee) & Former Vice Chancellor (U.P. Technical University) as Chief Guest. A Conference proceeding in the form of Book and CD on this occasion was also released. The function was also graced by Prof. S.K. Bhattacharyya, Patron of the Conference & Director CBRI, Prof. Gopal Ranjan, DG College of Engg. Roorkee, Prof. K.S. Rao, President, IGS National Body.

A number of National and International Experts from field and Academic front have presented their papers. Six Key Note Speakers invited were - Prof. Robert Liang (USA), Dr. V.R. Raju (Singapore), Prof D. M. Dewaikar (IIT Bombay), Prof M. R. Madhav, Prof. Sarvesh Chandra & Prof. Basudhar (IIT Kanpur) and contributed papers by authors from other reputed institutions and organizations. The field problems or experimental investigations carried out related to different aspects of Ground Improvement Techniques have been presented. The research work being carried out during the recent few years has been discussed in details by the Key note speakers who are amongst the best few research workers in this field of research. Prof. Gopal Ranjan, Former IGS president and Chairman has delivered his theme-speech on this topic, where as Prof. S. K. Bhattacharyya, has appreciated the effort of IGS Roorkee chapter to associate with CBRI to organize this National Conference on the emerging research area - Ground Improvement, which is the need of present day for a common man. This is also in order with the present



research programmes of ongoing research activities at CBRI. Prof. Prem Vrat, has encouraged the Conference participants to seriously work in near future on problems related to ground improvement. He is of the opinion that working out for various problems related to the theme shall certainly be useful to take care of building construction activity on the scarcely available land particularly in the urban area of the country or on the land which is hardly suitable for construction of civil engineering structures.

The general opinion of everyone participated in this event was that in view of rapid infrastructural development all over world & in India as well, all civil engineers have to adopt some ground improvement technique, particularly when the foundations are to laid on weak sub soil deposits before any Civil Engineering structure is constructed. This becomes more relevant in the present scenario when the suitable lands are scarcely available & construction activities are essentially required to be carried out on the weak lands that may not be adequate to support the foundation with safety.

Prof K.S. Rao, Professor (IIT Delhi) & President, IGS (National Body) has appreciated the initiative of IGS Roorkee chapter for selecting such an important theme for this Conf. He also described the various activities and initiatives of the national body of IGS for information of delegates participating from different parts of the country.

The valedictory function of the Conference was held on 25th Feb. 2011. Prof. Prem Krishna, Chairman, Research Council (CBRI) & former Head, Civil Engineering Department, Univ. of Roorkee (now IIT) was the Chief Guest.

In the Feed back sessions the participants and key note speakers have appreciated the efforts made by the organizers.

The Organising Committee had eminent persons like Prof. Ram Pal Singh, Dr. Pradeep Kumar (Organising Secretary of Conference & Honorary Secretary, IGS Roorkee Chapter), Sh. A. Ghosh Scientist 'G', CBRI and the faculty members from IIT Roorkee Dr. V.A. Sawant, Dr. M.N. Viladkar, Dr. N.K Samadliya & Dr. M. Singh. Organising Committee has received appreciation for organizing this successful event at CBRI Roorkee.

National Science Day

The Institute celebrated National Science Day on 28th February, 2011 to commemorate Raman Effect of the Nobel Laureate Sir C.V. Raman. The day celebration offered an opportunity to bring issues of science in the centre stage and provide awareness to the public of immediate concern. This resulted into purposeful interaction between the science fraternity and the common people for mutual benefit.

Prof. S.K. Bhattacharyya, Director, CSIR-CBRI narrated the contribution of Sir C.V. Raman in the field of Spectroscopy for a wide range of scientific investigations and industrial applications. He stressed the role of National Science Day's objectives in transforming our society. CBRI is pursuing faculty training and motivation for School and College faculty and students – A programme of CSIR to create interest, excitement and excellence in science education at the school and undergraduate level to raise the standard of science education and capabilities. He felt that it is an opportunity to take stock on the status of science in India. Such introspection is



necessary as science and technology have become the most important drivers of the economy of the country.

On this occasion of National Science Day, Prof. T. Nautiyal, Department of Physics, IIT, Roorkee has delivered National Science Day lecture on "Nanomaterials : A journey from Bulk to Nano". Her lecture had been widely appreciated by the scientists and college students. She had also interacted with college students on the models and charts prepared by them. An exhibition on Building Materials has also been organized by Dr. B. Singh, Sc. 'F'. Dr. L.P. Singh, Scientist proposed a vote of thanks.

CSIR-CBRI, Roorkee Flag off Lok Awaas Yatra

CBRI flag off Lok Awaas Yatra of Northern Region from the institute Technology Park, Roorkee on 6th December, 2010, a programme of Basin South Asia and Development Alternatives. The main focus of the Lok Awaas Yatra programme is to spread the message and create awareness on :

Low Carbon Construction Technologies , Habitat infrastructure promoting use of local artisans & skills, Habitat based livelihoods supporting free livelihoods, Renewable Energy Technologies, Water and Sanitation Technologies including rain water harvesting for eco habitat, Social Housing targeting government habitat schemes and Disaster safe durable construction.

Lok Awaas Yatra is a journey to celebrate the achievements of select initiatives in rural habitat development that have improved the quality of life without environmental losses. The Yatra has been initiatives for exploring pathways towards ecohabitat. Most importantly, it promotes learning from the experiences of those villages and settlements that are more sustainable, disaster resistant and most suited to the needs of the people in rural India.

The 5 regional yatras one each in Southern, Northern, Eastern, Western and Central regions across the country with overall thrust on environmental sustainability promoting towards Social Equity, Risk Reduction and People's participation.

The Northern Region yatra having about 25 participants including young Engineers and Architects, NGO representatives and students are expected to visit few recently completed model habitat projects of Uttarakhand and Himachal Pradesh and share their experiences finally with other yatra volunteers in Lok Awaas Karmi Sammelan at the National level workshop.

Many CBRI R&D achievement and construction technologies have been prominently included in a technology booklet of the yatra for generating awareness among the rural masses. Some of these includes : C-Brick, Clay Flyash Board, COIR-Cement Board, Sisalana Panels, IPN-CON Coating, IPN-RB Coating, EPS



Door Shutter, Gypsum Binder, Brick Making Machine, High Draught Kiln, Vertical Shaft Lime Kiln, Sand Lime Brick Plant, Concrete Block Making Machine, Burnt Clay Fly ash Bricks and Construction Technologies like Stone Masonry Blocks, Solid Concrete Blocks, Precast Roofing Technologies, Under Ream Piles etc.

At CBRI, the yatra participants were given a technical exposure on CBRI developed innovative materials and construction technologies, their use in model habitat projects and the ongoing CSIR-800 RSWNET programme.

After the flag off function the yatra further begin its march to Dehradun to visit other habitat demonstration projects in Uttarakhand. Subsequently, the Yatra will visit to Sundernagar, Himachal Pradesh to march and share with their similar experiences.

The yatra is a new beginning, may be the first of its kind, towards the joint effort with related partner stake holders to reach and extend appropriate rural eco-habitat technologies by sharing mutual experience of associated agencies all across the country as a part of an activity under CSIR-800 RSWNET programme at CBRI, Roorkee.

CSIR-CBRI at Technofest 2010

Science and Innovation for Transforming India

CSIR-Central Building Research Institute, Roorkee enthusiastically participated in CSIR-Technofest 2010 at India International Trade Fair (IITF) during 14th-27th November, 2010 at Pragati Maidan, New Delhi.

The impressive and useful R&D of the CBRI, Roorkee on Innovative Housing Technologies having an impact on user masses and building industry in the R&D areas like :

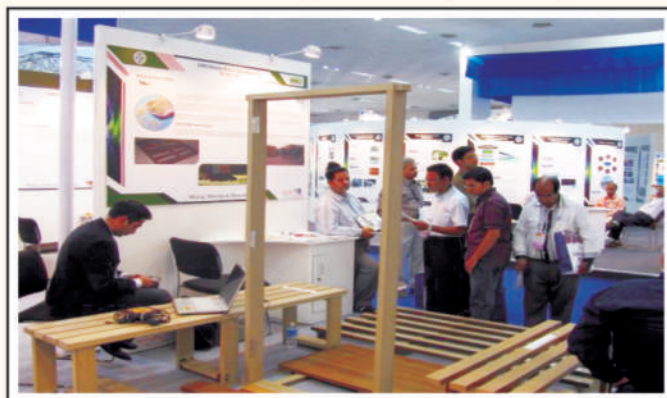
- High Performance Materials and Composites
- Energy Efficient Green Housing,
- Cleaner and Environment Friendly Technologies,
- Health Monitoring & Rehabilitation of Structures and
- Disaster Mitigation were showcased under four theme areas namely :
- **Mining, Minerals & Materials** : Rice Husk Plastic Wood, Pine Needle Composites, Geo-polymer Bonded Bricks, Energy Efficient Gypsum Calcinators, Brick Making Machine and Improved Brick Production Technologies.
- **CSIR-800** : Innovative Technologies for Rural Housing, Precast Roofing Systems, Low Cost Fire Extinguisher and Disaster Resistant Shelter.
- **Strategic Sector** : Early Warning System for Landslide in Chamoli.
- **Ecology & Environment** : Improved Brick Technologies and R&D on Flyash Utilization.

Shri Kapil Sibbal, Union Minister, HRD and Science & Technology accompanied by DGCSIR, Lab Directors & Sr. Scientists, while taking a round of technofest soon after the inaugural opening of the CSIR-Technofest Pavilion on 14th Nov. 2010, was received at CSIR-800 theme pavilion by Dr. P.G. Rao, Director, NEIST Jorhat and theme coordinator along with Sri S.G. Dave, Dr. A.K. Kundaliya and Senior Scientists of other participating labs. CSIR Technofest 2010 is the first of its kind event organized by CSIR to showcase its contributions in driving forward the competitive industrial growth coupled with sustainable inclusive growth towards improving the quality of living of the common masses were mainly exhibited in the technofest. The event is a part of the India International Trade Fair (IITF) held every year at Pragati Maidan, New Delhi. This fair throws light on the potpourri of the industrial competence and cultural diversity of India, hence appealing to an drawing in millions of people from across the world, a large number of whom are also important stakeholders of CSIR.

The DG CSIR while narrating about the Technofest informed



that the exhibition showcases CSIR's expertise in the field of science & technology through 15 theme pavilions. This mega event envisages to strengthen CSIR linkage with existing and potential industry partners and to effectively disseminate the benefits of knowledgebase to the masses. It also showcases CSIR's R&D competence, the technologies or products successfully used by the industry and made available for commercialization, and many more achievements of CSIR. The added attractions of the mega event are special talks, business-



to-business meetings and interactive sessions with captains of the industry, leading technopreneurs and academicians. This exhibition lies not so much in the exhibition itself but the spirit in which it was conceived as the industries benefited from the CSIR's knowledgebase have displayed their success ventures in the exhibition on behalf of CSIR. It is an acknowledgement of all that CSIR has contributed to the national cause.

The industry partners participated in Technofest as CBRI associates includes :

- Adlakha Associates Pvt. Ltd.
 - Civil Engineering Technology Development Centre, SATI and IIHRD Vidisha
 - Shivaye Namah Manufacturing Company Pvt. Ltd., New Delhi
- On, the theme day of Mining, Minerals & Materials, 17th Nov., 2010 Shri Bhupesh Khanna, M.D. M/s Shivaye Namah Manufacturing Company (SNMC) Pvt. Ltd. spoke on successful transfer and absorption of the technology and appreciated the efforts of CBRI scientists in inventing the wonderful product and its successful extension to his industry.

Shri Pramod Adalakha, M/s Adalakha Associates Pvt. Ltd., New Delhi spoke on 22nd November, 2010, the theme day of CSIR-800, on his recently completed housing projects of about 15,000 housing units in Delhi using CBRI developed materials and prefabricated technologies like machine made Clay Bricks, Flyash Bricks, Under Ream Pile Foundation, RCC Planks & Joists Roofing units etc.

The CBRI team led by the Director Prof. S.K. Bhattacharyya along with Shri S.G. Dave, Sc. 'G', & Nodal Officer and S&T Staff explained the R&D technologies to the VIP's and large number of visitors.

CSIR-CBRI participated in Rural Technology Mela, Hyderabad

CSIR-Central Building Research Institute, Roorkee participated in 8th Rural Technology Mela from 2nd to 5th February, 2011 organized by National Institute of Rural Development, Hyderabad, an arm of the Ministry of Rural Development, Govt. of India, at Rural Technology Park, NIRD, Hyderabad. The mela was inaugurated by Shri Mathew C. Kannumkal, IAS, Director General, NIRD in the presence of the faculty & staff of the institute, exhibitors and village groups.

While inaugurating the rural mela exhibition, Shri Mathew C. Kannumkal, IAS, DG, NIRD spoke about the relevance and importance of the fair. He informed that this is the 8th rural craft mela organized at RTP, NIRD, Hyderabad and this time the mela has been arranged especially focusing on rural technology transfer. He further informed that NIRD aims to reach to 1 lakh village people to help in resolving their sustainable livelihood problems and invited participation of all stake holders in this endeavour.

Over 150 Govt. organizations and NGO's associated with Rural Development activities had participated and displayed their technologies and products/crafts in mela which was witnessed by over 1 lakh entrepreneurs, professionals, NGO's, villagers and students.

Besides CBRI, the other 7 CSIR institutions participated in mela/workshop include:

- Indian Institute of Chemical Technology, Hyderabad
- National Geophysical Research Institute, Hyderabad
- Institute of Himalayan Bioresource Technology, Palampur
- Central Food Technological Research Institute, Mysore
- National Environmental Engineering Research Institute, Nagpur



- Institute of Minerals and Materials Technology, Bhubaneswar
 - Advanced Material and Processes Research Institute, Bhopal
- DG, NIRD alongwith Prof. Senthil Vinayagam, programme coordinators visited CBRI exhibition stall and held encouraging dialogues with the pavilion scientist. He desired to have closer interaction with CBRI in popularizing the housing technologies all over the country. The Chief Guest was told about CSIR-800 RSWNET Programme and other CBRI achievement. Dr. Senthil further informed that NIRD has been asked by the Govt. of Afghanistan to set up similar institute in Afghanistan and would invite CBRI to associate in this task.

CSIR-AMPRI, Bhopal jointly with NIRD, Hyderabad organized One Day National Workshop on Rural Technologies for Sustainable livelihood on 4th February, 2011 which was attended by over 80 Senior delegates, executives, NGO, Exhibitors and representatives from DST etc. The workshop was inaugurated by Dr. G. Perumal, Former Director of Extension Education, TNAU Coimbatore social activists & reformer and chaired by Dy. DG, NIRD. A case-study paper on ***"Field Demonstration of Appropriate Low Cost Housing in 7 regions of India was presented"***.

Interestingly many cost effective rural housing technologies are on display in the RTP of NIRD mela through permanent demonstration and house models.



Workshop on Faculty Training & Motivation and Adoption of Schools & Colleges

One day workshop was organised at CBRI Roorkee to promote interest, excitement and excellence in science education for students and faculty members of schools and colleges of Roorkee under Faculty Training and Motivation and Adoption of Schools & Colleges programme of CSIR. Mr. R. Nath and Mr. Kapil Tripathi, Scientists of Vigyan Prasas (VP) helped in workshop at CBRI Roorkee.

Twelve science faculty members and more than fifty students

of K.L. DAV (PG) College, Methodist Girls Inter College, 7th Day Adventist Inter College, Government Inter College, Bal Vidya Mandir & CBRI Junior High School of Roorkee participated in the workshop. In addition Mr. H.K.Jain, PTO and Mr. Nagesh Babu Balam, Scientist CBRI, Roorkee also attended the workshop.

The Workshop was inaugurated by Sh. S.G.Dave, Scientist 'G' and Head (DC&E), CBRI and coordinated by Dr. P.K.Bhargava,

Sc.'F' and Coordinator of the programme. Shri Dave during inauguration said that workshop is a unique opportunity for school students to learn basic principles of science through real experiments. Such experience gained in workshop will imprint on the minds of the students and create permanent impression which will benefit to the students and their families.

Scientists from VP demonstrated Hands-on-Innovative activities covering the following basic principles of Physics:

- § Basic principles of reflection and refraction of light
- § Convergence and divergence of light rays
- § Experiments based on the phenomenon of surface tension
- § Effect of Pressure on boiling point of water
- § Induced magnetic induction experiments based on Fleming's Left Hand Rule and Lenz's law
- § Demonstration of Newton's laws

PC Interface science experiment on following activities were also demonstrated

- § Measurement and control of light intensity using light sensor (LDR)
- § Temperature measurement & control using sensor
- § Measurement and control of sound intensity using sound sensors

Kits on 'Emergent of Modern Physics' and CDs on 'Innovative Activities in Physics' were given to participants by Sh. S.G.Dave.



The activities of the workshop were successfully completed mainly due to encouragement, motivation and continuous guidance of Prof. S.K.Bhattacharyya, Director CBRI and Adviser of the programme.

Dr. P.K.Bhargava, SC(EB) & Coordinator of the programme said that one day workshop on demonstration of basic principles & laws of Physics are great opportunity to students and faculty members to learn and interact with senior and experienced scientists of Vigyan Prasara. This will certainly be useful to create scientific awareness and interest towards science among the faculty members and students participated in the workshop. Dr. Bhargava appreciated the efforts of VP scientists in conducting the workshop and also thanked the faculty members and students who participated in the workshop.

Colloquium

5th October 2010

Control of Vortex Induced Oscillations of Chimney

Ms R. Deepthi, Scientist, CBRI Roorkee

13th October 2010

KASTHAHARIKA

Dr. B S Rawat, Scientist, CBRI Roorkee

20th October 2010

Overview of Specifications and Construction Practices of Road Embankment and Pavement Layers

Dr Vasant G.Havanagi, Scientist CRRRI New Delhi

3rd November 2010

Tunnelling in the Himalayas

Dr. R. K. Goel, Scientist, CIMFR Regional Centre, CBRI Roorkee

26th November 2010

Smart NDT & SHM for Civil Infrastructure with Hybrid Optoacoustic Sensors

Dr. Dipyan Sanyal, Scientist, CGCRI Kolkatta

1st December 2010

Firefighting

Mr. Sean Collins Myrtle Beach, Fire Department, USA

16th December 2010

Building and Bridge Aerodynamics Using Computational Wind Engineering

Prof. R. Panneer Selvam, Department of Civil Engineering, BELL 4190 University of Arkansas, Fayetteville (USA)

5th January 2011

Response Control of Buildings Using Tuned Liquid Dampers

Prof S K Bhattacharyya, Director, CBRI Roorkee

12th January 2011

Performance of Concretes with Mineral Admixtures against Chloride Ion Penetration, Carbonation and Corrosion

Dr. B K Rao, Scientist, CBRI Roorkee

19th January 2011

Concepts of Landslide Warning

Shri Y. Pandey, Scientist, CBRI Roorkee

9th February 2011

Polymer Modified Bitumen

Dr. B. Singh, Scientist, CBRI Roorkee

9th March 2011

Environmental Audit For Chemical & Process Industries- A Case Study For Cement Industries

Dr. Neeraj Jain, Scientist, CBRI Roorkee

16th March 2011

Fire Hazards & Their Minimization Through Passive Fire Protection

Dr. N K Saxena, Scientist, CBRI Roorkee

23rd March 2011

Housing the Urban Poor: Challenges and Opportunities

Shri R K Garg, Scientist, CBRI Roorkee



Staff News

Honors/Awards



Shri Umesh Bhatnagar (50+ Age group) participated in Airtel Delhi Half Marathan, 22 Km. (International) Competition on 21 November 2010 and won the prizes (Finisher Medal & Time Certificate) and participated in 9th Master's Athletics Championship in Central School , ONGC, Kolagarh, Dehradun during 8-9 January, 2011 and won the prizes:

800 m Race	Silver Medal
400 m Race	Silver Medal
5000 m Race	Bronze Medal
400 m Relay Race	Silver Medal



Shri Pradeep Kumar Bhargava, Scientist 'F' was awarded Ph. D. Degree by Ch. Charan Singh University, Meerut for his Research in Physics on "*Investigation on Utilisation of Wind Energy in Buildings*".

Appointments

Rashmi Devi
Section Officer
22.11.2010



Pawan Kumar
Assistant (G) Gr.I
27.01.2011

Superannuations

Sushil Kumar	Farrash	05.10.2010
H.C. Madan	Assistant	30.11.2010
S.L. Kaushik	Wireman	30.11.2010
Yash Pal Singh	Section Officer (G)	31.01.2011
M.K. Nazir	Tech. Gr II (4)	31.03.2011

Transfer

Transferred from CBRI
Nand Kishore, Tech. Gr-II(4) NBRI, Lucknow 24.02.2011

Promotions

Shiv Kumar	Lab Assistant Gr-I(4)	24.12.2007
Gayatri Devi	Technical Assistant Gr.III(2)	08.09.2008
Amar Singh	Sr. Technician (1) Gr.II(3)	12.01.2010
Sameer	Technical Assistant Gr.II(2)	01.06.2009
Deepti Karmakar	Technical Officer 'A' Gr III (3)	20.07.2009
Rajendra Singh	Sr. Technician (1) Gr.I	