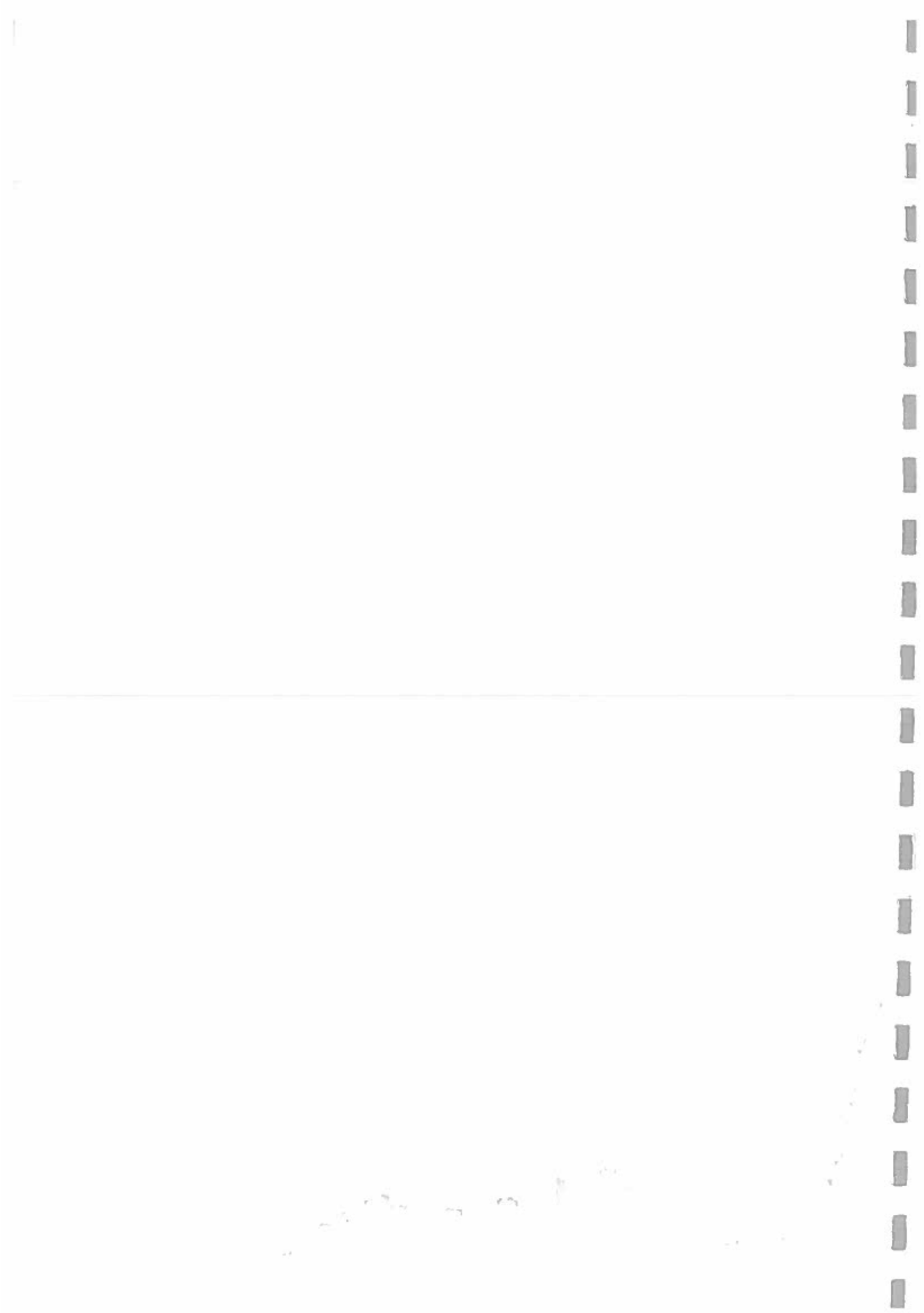


Annual Report 2011-2012



Building Materials and Technology Promotion Council
Ministry of Housing & Urban Poverty Alleviation
Government of India



Annual Report 2011-2012



Building Materials & Technology Promotion Council

Ministry of Housing & Urban Poverty Alleviation, Govt. of India
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FOREWORD

I have great pleasure in presenting the Twenty-second Annual Report of the Building Materials & Technology Promotion Council for the year 2011-2012.

Since its inception in 1990, BMTPC has been into promotion of cost effective, eco friendly and disaster resistant construction technologies, primarily based on locally available materials and local skills. BMTPC has the distinction of successfully transferring number of alternate building materials and building components from laboratory to field level applications. However, in the context of ever changing urban scenario and housing shortage specially in urban areas, BMTPC, in recent years, has made concerted and rejuvenated efforts for spreading awareness and disseminating cost effective technologies. The ground example of use of BMTPC's technologies in mass housing projects has been right in Delhi by DSIDC in their JNNURM projects for providing EWS housing.

Any advocacy is incomplete without actually demonstrating it in the field. BMTPC has initiated model demonstration work in different parts of India and also imparted onsite training not only to engineers including students of architecture and engineering colleges but also to artisans and policy makers. These demonstration projects stand a testimony of cost effectiveness and sustainability of technologies being promoted under the umbrella of BMTPC. The projects undertaken are construction of 24 demonstration houses including onsite infrastructure at Amethi, Sultanpur, U.P., Multi-facility two-storeyed Community Centre with facilities such as Community Hall, dispensary, crèche, library, green room, office, etc. at Village Khojkipur-Naggal, Haryana, construction of 24 demonstration housing project including community centre and multi-purpose meditation room at Pinjore, Distt. Panchkula, Haryana and Model Informal Market in Vishakhapatnam, Andhra Pradesh.

It has been realized that the technologies being promoted by BMTPC has restricted use and there is crying need to embrace industrialized technologies suited for mass housing. There have been number of technologies from abroad as well as few from India which are being studied by BMTPC for suitable adaptation in Indian conditions. BMTPC invited Global Expression of Interest (EOI) from Construction System/Technology Developers/Providers for introducing emerging and alternate cost effective housing technologies suitable to Indian geo-climatic and hazard conditions. The Council received the expression of interest from the 12 agencies for different technologies and systems and the Technology Advisory Group constituted by the Executive Committee of BMTPC for identification, evaluation and selection of the suitable technologies identified seven technologies for further evaluation. In order to promote local materials such as use of bamboo in housing construction, the Council also continued its thrust on promotion of bamboo based housing technologies by setting up Bamboo Mat Production Centres and construction of demonstration structures in North Eastern Region.

The Council through its multi-pronged approach within its core mandate of promotion, development and application of innovative and disaster resistant building technologies continued its involvement in the implementation of Jawaharlal Nehru National Urban Renewal Mission (JNNURM) by way of appraising and monitoring the projects under BSUP and IHSDP. The Council has also involved in capacity building of the municipal functionaries of ULBs in the area of project preparation, appraisal & monitoring and quality assurance & control. Third Party Inspection & Monitoring (TPIM) reports for BSUP and IHSDP under JNNURM are also being reviewed by BMTPC for subsequent releases.

The Council is continuously striving to establish the proactive approach towards disaster mitigation and management and has been in the forefront in educating and creating mass awareness amongst stakeholders and the common man. With the objective of demonstrating retrofitting technologies, BMTPC undertook seismic strengthening of few MCD school buildings in Delhi region. During the year, the Council brought out Guidelines on Multi-Hazard Resistant Construction of EWS Houses, Guidelines on "Aapda Pratirodhi Bhawan Nirman : Sampurn Bharat ke liye Margdarshika" and Training Manual for Ductile Detailing in Hindi.

In order to provide guidance to common man and professionals, the Council brought out the Training Manual for Ductile Detailing in Hindi and Training Manual for Supervisors (English and Hindi). The website of the Council was redesigned during the year making it more informative and user friendly. There is good response on website in the form of general enquiry about product and services. The website of the Council is regularly updated with latest information.

Like preceding years, on the occasion of World Habitat Day 2011, the Council brought out the Special Issue of "Nirman Sarika" on the theme "Cities and Climate Change" chosen by the UN-Habitat for the year. On this occasion, the Council organized a painting competition for Differently Abled Children and the winners were felicitated during the World Habitat Day celebrations.

With the emergence of new building materials, advancement of technologies and the need for disaster resistant construction to mitigate the effect of natural disasters, it is important that working professionals are regularly updated with current information and the construction workforce is provided hands-on training. BMTPC continued its efforts in organizing structured training programmes on subjects related to advancement in the area of building materials for working professionals and construction workforce on regular basis.

With a focus on development and promotion of innovative building technologies, specific projects have been undertaken such as Preparation of Design Package on Alternate House Building Technologies, Preparation of Code of Practices on Alternate Housing Technologies, Development of the Building Components from Sponge Iron Wastes, Utilization of Industrial Waste Materials as Inexpensive Absorbents having Applications in Building Materials, Energy Auditing & Carbon in manufacture of Bamboo Mat Corrugated Sheets and Bamboo Mat Ridge Cap, Development of Design Methodology for Chemically Treated Bamboo Reinforced Concrete Members for Low Cost Housing, Cost-effective Value Added Thermal Insulation Tiles for Insulation Purpose, etc.

It is my privilege to place on record the valuable guidance, support and encouragement received from the President, Members of the Board of Management, the Chairperson and Members of the Executive Committee and Ministry of Housing & Urban Poverty Alleviation for various programmes undertaken and executed by the Council. Special thanks are due to Planning Commission, Parliamentary Standing Committee on Urban Development, JNNURM Mission Directorate, MoHUPA, various State Govts., Municipal Corporations and Urban Local Bodies, Ministry of Home Affairs, Ministry of DONER, Ministry of Agriculture, NDMA, NIDM, MOS&PI, DST, CSIR, IITs, CEPT, IPIRTI, CBTC, CBRI, SERC, ICI, IIHRD, SEP, SPA, HUDCO, BIS, NHB, NCHF, HPL, CGEWHO, CPWD, NSIC, CIDC, UNDP, UNIDO and UN-Habitat for their continued support and interest in strengthening and supporting the efforts of the Council over successive years.

I would also like to place on record my deep appreciation of the cooperation of our officers and staff members in implementing the Council's activities. The Council acknowledges the support and cooperation received from all officers and staff members of the Ministry of Housing & Urban Poverty Alleviation, which helped the Council to meet its mandate and further its objectives.

(Dr. Shailesh Kr. Agrawal)
Executive Director

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Vision

“BMTPC to be world class knowledge and demonstration hub for providing solutions to all with special focus on common man in the area of sustainable building materials, appropriate construction technologies & systems including disaster resistant construction.”

Mission

“To work towards a comprehensive and integrated approach for promotion and transfer of potential, cost-effective, environment-friendly, disaster resistant building materials and technologies including locally available materials from lab to land for sustainable development of housing.”

INTRODUCTION

The Building Materials & Technology Promotion Council (BMTPC), established in 1990, is an autonomous organisation fully supported by the Ministry of Housing & Urban Poverty Alleviation, Govt. of India with the objective of bridging gap between the laboratory development and large scale field application of cost effective, eco-friendly and sustainable building materials and disaster resistant construction technologies.

In order to realise its objectives, BMTPC initiated several multi-faceted activities enshrined in the mandate of the Council and looking at the aspiration of the construction sector. Over the years, the Council has been focussing on the successful transfer of the innovative, cost-effective, environment-friendly and energy-efficient alternate building materials and technologies at grass-root level. The Council has also embarked upon the field level application of alternate building materials and technologies by way of construction of model demonstration housing and other structures such as informal markets, community centre, etc. in different parts of India. In its technology development, promotion and dissemination efforts, the Council developed various technologies for use in housing and building construction including bamboo based housing solutions. The Council also constructed demonstration structures in the North Eastern Region and set up Bamboo Mat Production Centres to make available the quality mats for the production of bamboo mat related products such as corrugated sheets, bamboo boards, etc. leading to employment generation. Apart from bringing out the first ever Vulnerability Atlas of India, the Council regularly publishes valuable guidelines/manuals on disaster resistant construction. In order to mainstream seismic retrofitting, the Council has undertaken retrofitting of few MCD schools in Delhi. The Council has also been designated as one of the Appraisal and Monitoring Agencies for Projects under BSUP and IHSDP under the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) & RAY. The Council in recent years has reoriented its approach towards promotion of not only sustainable technologies through intensive evaluation, dissemination but also looking at prospective technologies from abroad for social mass housing.

Objectives

- **Building Materials & Construction Technologies :** To promote development, standardisation, mechanisation and large scale field application of proven innovative and emerging building materials and technologies in the construction sector.
- **Capacity Building and Skill Development:** To work as a Training Resource Centre for capacity building and promotion of good construction practices to professionals, construction agencies, artisans and marketing of building technologies from lab to land.
- **Disaster Mitigation & Management :** To promote methodologies and technologies for natural disaster mitigation, vulnerability & risk reduction and retrofitting/ reconstruction of buildings and disaster resistant planning for human settlements.
- **Project Management & Consultancy:** To undertake project management and consultancy services including appraisal, monitoring and third party inspection of housing projects under the various Central/State Schemes.

Thrust Areas

- Identification, evaluation of proven and emerging technologies available globally and encouraging joint venture in building materials and construction sector.
- Promoting economy, efficiency and quality in construction.
- Up scaling of technologies, know-how acquisition, absorption and dissemination.
- Field level application of environment-friendly, energy-efficient and disaster resistant technologies for proven, locally available and emerging technologies.
- Formulation of Standards on proven building materials/technologies including emerging technologies/systems and incorporation in the schedule of specifications/rates.
- Documentation of benefits, durability and acceptability of cost effective and innovative building materials and technologies.
- Skill upgradation of professionals and construction workers through capacity building programmes, training programmes, seminars, conferences, workshops, exhibitions nationally as well as internationally.
- Promoting disaster resistant construction technologies.
- Appraisal, monitoring and third party inspection of housing projects including undertaking project management and consultancy services.

MAJOR INITIATIVES AND ACTIVITIES DURING THE YEAR 2011-2012

I. DEMONSTRATION BUILDINGS USING COST-EFFECTIVE TECHNOLOGIES

1. Field level application of cost effective technologies through Demonstration Housing Projects

The most important component for successful transfer of technologies is demonstration construction. BMTPC on regular basis constructs demonstration houses or any other structure using cost-effective and disaster resistant technologies on the land being provided by the State Governments. Also during construction, the public of nearby region, students of Civil Engineering and Architectural colleges and artisans especially masons are sensitized/trained about the technologies.

Construction of Community Building using alternate construction technologies at Village Khojkipur-Naggal, Ambala

The construction of the Community Centre with facilities of a Community hall, dispensary, crèche, library, green room, office etc. with onsite infrastructure work has been completed at Village Khojkipur-Naggal, Ambala. The covered area of the Community Centre is 728 sq.mt. having ground and first floors. The construction cost achieved with cost effective and alternate technologies is Rs.670/sqft. whereas the cost with conventional technologies is averaged to Rs.850/sqft. In this Centre, a number of alternate cost effective technologies have been used so that local community visiting the Centre get exposure to such technologies. The details of technologies/specifications used in the project are as follows:

Walling

- Rat trap bond in bricks {alternate to English/
Flemish bond
- Interlocking type compressed earth blocks; {Alternate to conventional
burnt clay bricks
- Flyash bricks;
- Modular bricks.

Roof/Floor

- RCC planks and joists;
- Prefabricated brick panels; {As an alternate to
conventional cast-in-situ
RCC slab
- Prefab brick arch panels;
- RCC filler slab;
- Funicular shell roof;
- IPS flooring.

Doors/Windows

- Pre-cast RCC door/window frames in place of traditional frames to achieve cost effectiveness.
- Wood substitute door/window shutters.

Finishing

- Internal plastering.
- External walls exposed finish with water proof cement paint
- Enamel painting on doors/windows

Miscellaneous

- Precast sunshades, Lintels, Staircases
- Earthquake resistant features such as plinth band, lintel band etc.

The project also includes plinth protection, boundary wall, rainwater harvesting and external development work. A few training programmes were organised at the site for the prospective architects and engineers of nearby colleges. Also several interactive meetings with State Engineers were held at the site.

After completion of the Demonstration Community Centre at Village Khojkipur-Naggal, the same has been handed over to the local administration on 2nd November, 2011 by the then Hon'ble Minister of Housing & Urban Poverty Alleviation, Kumari Selja.

Demonstration Housing Project at Pinjore, Distt. Panchkula, Haryana

The Council is constructing 24 demonstration houses with community centre & multi-purpose meditation room at Bitna Road, Pinjore, Distt. Panchkula, Haryana. The construction work of 24 demonstration houses has been completed and the work for construction of multi-purpose room and community centre is in progress. The technologies used are rat-trap bond in bricks, RCC filler slab, precast concrete door/window frames, etc.

In the Community Centre and multi-purpose meditation room, the technology being used are concrete blocks for walling, filler slab for roofing, precast concrete door/window frames etc.

Promotion of Cost-effective Technologies through Construction of Demonstration House during IITF 2011

The Council had put up a BMTPC Pavilion in HUDCO BuildTech on Emerging Housing and Building Technologies including Cost Effective Technologies during India

International Trade Fair 2011 from 14-27 November, 2011. A demonstration house constructed using proven cost effective, environment friendly, energy efficient and disaster resistant technologies having built up area of 350 sq ft with living room, bedroom, kitchen alcove, bath-cum W.C. and balcony was showcased.

The Demo House attracted a number of professionals including general visitors. Many of the visitors requested BMTPC to provide technical assistance for construction of such type of houses in their respective region.

The Specifications of the house constructed for demonstration are given hereunder:

Space Norms:

- Plinth Area of 31.51 Sqm. and Carpet area of 25.17 Sqm.
- Two Habitable Independent Rooms
- Kitchen Alcove
- Combined Bath & Toilet
- Court Yard/Balcony
- Part of a Cluster of 4 Units at one Floor

Building Materials/ Construction Technologies used:

Masonry:

- One wall with Fired Clay Bricks in 1:4 Cement Coarse sand mortar, in Rat-Trap Bond
- One wall with Fly ash Bricks in 1:4 Cement Coarse sand mortar, in Rat-Trap Bond
- One Wall with Cellular Light-weight Concrete Blocks
- One Wall with Fly Ash Interlocking Blocks

Roofing:

- RCC Filler slab with Bricks and earthen Pots as infill
- Precast RC Planks and Joist Roofing
- MCR Tile Roofing

Openings:

- Brick arches
- Inbuilt Brick Jallies
- Brick on Edge Lintels
- RCC Door Frames
- Steel section glazed window
- Brick Corbelling
- Bamboo mat door
- Ferro cement Shelves, Sunshades, Kitchen Slab

Flooring:

- Precast concrete tile flooring

Finishing:

- Cement Pointing

Earthquake/Cyclone Resistant Features:

- RCC Plinth Bands, Lintel Bands, Roof Band and Vertical Steel Reinforcement at corners & junctions



Demonstration Community Centre constructed by BMTPC at Village Khojkipur-Naggal, Haryana



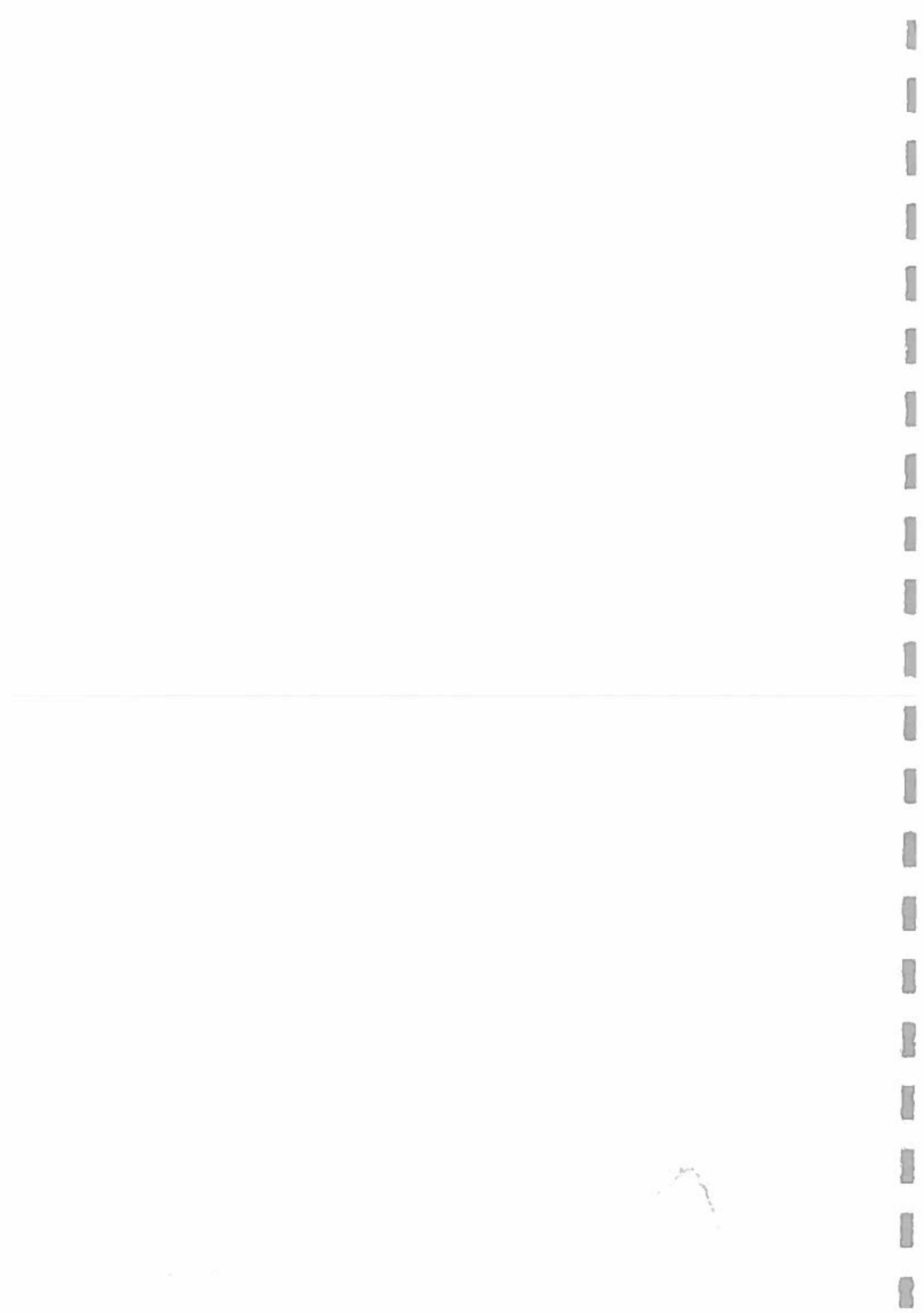
Inauguration of Demonstration Community Centre constructed by BMTPC at Village Khojkipur-Naggal, Haryana by Kumari Selja, the then Hon'ble Minister of Housing & Urban Poverty Alleviation on 2nd November, 2011



Kumari Selja, the then Hon'ble Minister of Housing & Urban Poverty Alleviation, releasing the "Manual on Basic of Ductile Detailing (Hindi)" brought out by BMTPC during the Inauguration of Demonstration Community Centre at Village Khojkipur-Naggal on 2nd November, 2011



Kumari Selja, the then Hon'ble Minister of Housing & Urban Poverty Alleviation, releasing the "Training Manual for Supervisor (Hindi)" brought out by BMTPC during the Inauguration of Demonstration Community Centre at Village Khojkipur-Naggal on 2nd November, 2011

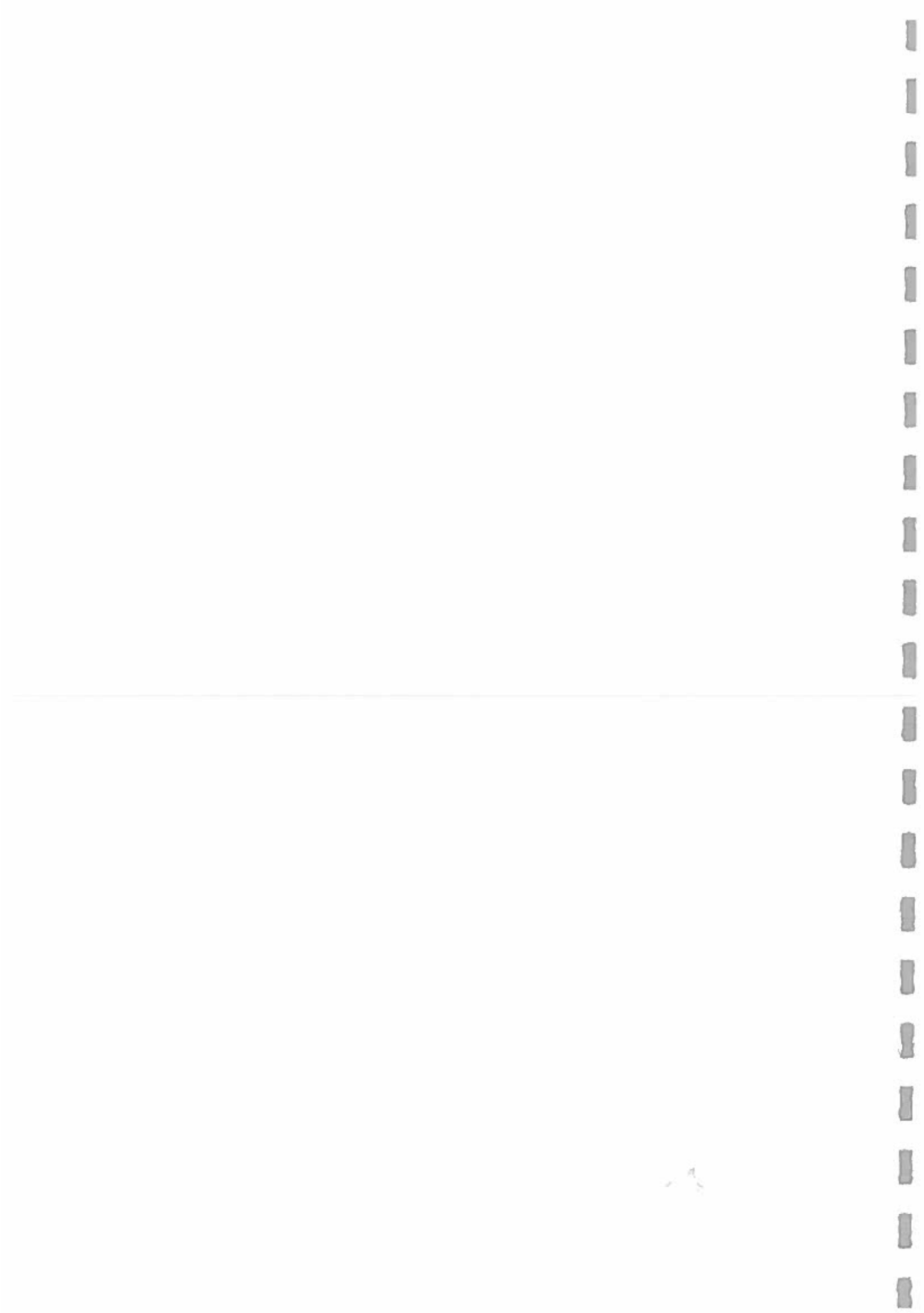




Demonstration Houses being constructed by BMTPC at Bitna Road, Pinjore, Distt.Panchkula, Haryana



Demonstration House of 350 sqft. area using cost effective technologies constructed at BMTPC Pavilion on Emerging Housing & Building Technologies during India International Trade Fair from 14-27 November, 2011



- Cement Coarse Sand Mortar of 1:4
- Designed as per NBC, BIS Specifications

Sustainability:

- Thermal efficiency due to cavity in Rat-Trap Bond Masonry
- Reduction in bricks and mortar quantity due to Cavity in Masonry
- Concrete quantity reduces due to Filler slab, without compromising structural Strength
- RCC Door/Window Frames reduces demand for Timber/Steel
- Brick Jallies eliminates requirements of windows frames and shutters
- Ferro Cement shelves reduces Stone/RCC slab
- No Plastering
- Locally available building materials may be used as per availability and Costing,
- Locally available materials are low Embodied Energy materials
- Embodied Energy of the house can be decreased by about 30 % without increase in Cost
- Cost is dependent on geographical area, volume/scale of work and time, however cost of construction with these technologies is about 10% - 15% less than the cost as per standard specifications of CPWD/States PWDs/ Housing Boards/ Development Authority's
- No Complicated construction Techniques
- A number of such units have already been constructed throughout India.

2. Structural Design Manual for Use of Glass Fibre Reinforced Gypsum (GFRG) Panels in Buildings

The Glass Fibre Reinforced Gypsum (GFRG) Panel System, commonly known as Rapidwall, is an innovative alternate technology for construction of buildings originally developed and being in use for last two decades in Australia. Now RCF, Mumbai has set up a plant for making GFRG panels and ready for its commercial exploitation. BMTPC is also assisting RCF in promotion of these panels. The panels are manufactured in semi-automatic machine using phosphogypsum (an industrial waste from fertilizer plants) and glass fibre rovings. The technology is evaluated by BMTPC under the Performance Appraisal Certified Scheme (PACS). The evaluation of the system is based on various tests performed on the panels. The panels, due to unique configuration and materials have properties different than normal conventional construction. Besides Australia and China, materials properties, strength and behaviour of the panels have also been studied in India at IIT Madras.

While evaluating the system, it was realized that the design Manual used in Australia for the system, needed appropriate modifications to ensure conformity with the prevailing Indian standards and to incorporate the research findings of the studies undertaken at IIT Madras. Accordingly, the Designs Manual has been prepared which deals with the engineering design aspect of GFRG Panels and endeavours to provide guidelines to the engineers who intend to design building using GFRG Panels.

This Manual is mandatory and required to be followed for design of any buildings using GFRG Panels manufactured by RCF as per the design specifications.

II. DISASTER MITIGATION - REPAIR, RECONSTRUCTION AND RETROFITTING

1. Study for Seismic Retrofitting of Bara Hindu Rao Hospital in Delhi

A request was received from Municipal Corporation of Delhi for retrofitting of existing hospital building of Hindu Rao Hospital. In this connection, several meetings were held with MCD and Medical Superintendent of the hospital. Based on the priority of the hospital authorities, study of 250 bedded ward was taken up in association with Earthquake Engineering Department of IIT Roorkee.

In this connection, seismic evaluation studies including non-destructive tests have been carried out in the building. The final report has been prepared and presented to MCD. The retrofitting work based on the findings of the report is yet to be taken by MCD.

2. Guidelines on “Aapda Pratirodhi Bhawan Nirman : Sampurn Bharat ke liye Margdarshika”

In order to constantly sensitize the public about earthquake disaster, BMTPC published the Hindi translation of UNDP - Ministry of Home Affairs, Govt. of India English Manual on Disaster Resistant Construction : Safety of housing being constructed without engineers. The Guidelines are entitled “Aapda Pratirodhi Bhawan Nirman : Sampurn Bharat Ke Liye Margdarshika”. The document is quite useful in creating awareness amongst common people as regards disaster resistant techniques.

Further in India, constructions of houses are undertaken by the local masons without the help of engineers in the semi-urban and rural areas. These masons are not formally trained and their ability depends upon the ability of master mason who teaches them about the trade. Similarly, in these construction lacks disaster resistant features. Therefore, it is imperative to provide practical training to the masons in the area of disaster resistant construction.

These Guidelines are easy to understand, illustrative and user-friendly. Various activities required for Repair and retrofitting are also shown with the help of simple illustrations. These will be useful to masons, construction supervisors, engineers also besides common man.

3. Preparation of Updated Earthquake Hazard Zoning Maps and Atlases

In its pursuit towards mainstreaming disaster risk reduction in housing sector, BMTPC has made significant contributions in the area of disaster mitigation and management. BMTPC was first to develop the first ever Vulnerability Atlas of India in 1996 which was later updated and revised on digitized format with latest data in 2006. The Vulnerability Atlas of India contains hazard maps with respect to earthquakes, cyclones, and floods and indicates risk levels of different types of housing stock district-wise for the entire country against these hazards.

Looking at the overall importance of seismic hazard in Indian context and associated risks involved, the National Disaster Management Authority (NDMA), Government of India entrusted BMTPC the task of preparing updated earthquake hazard maps up to district level incorporating latest data as available from Survey of India, Census and Geological Survey of India, India Meteorological Department etc. An Memorandum of Understanding (MOU) has been signed with NDMA in this regard.

The Council has initiated work on the project and the work for collection of data from various agencies has been started. The Council has collected the digital vector database of administrative boundary data of the country upto taluka level required for preparation of maps from Survey of India, although there has been some delay in getting the data from Survey of India as they had temporarily stopped giving data in view of updation of the data. The data related to earthquake epicentres (upto October 2010) have also been received from India Meteorological Department (IMD).

An Advisory Group consisting of representatives from Geological Survey of India (GSI), India Meteorological Deptt. (IMD), Survey of India (SOI), SERC Chennai, CBRI Roorkee, Earthquake Engg. Dept. IIT Roorkee, Former ADG (GSI) and Dr. A.S.Arya, Professor Emeritus IIT Roorkee has been constituted to guide BMTPC in preparation of the maps. The first meeting of the Advisory Group is being held in the month of April, 2012 to discuss the proposed Hazards Maps at District, State, and country levels.

4. Organisation of Training Programmes on “Earthquake Resistant Design and Construction”

BMTPC in its endeavour to promote earthquake resistant design and construction, organizes a series of Short Term Training Programmes on Earthquake Resistant Design and Construction on yearly basis.

In this series, during the year, two Training Courses on ‘Earthquake Resistant Design and Construction’ were organized from 1-3 September 2011 and from 28-30 December, 2011 in collaboration with Centre of Excellence in Disaster Mitigation & Management, IIT, Roorkee at New Delhi. There were around 25-35 participants in each programme mainly comprising of engineers and architects at higher and middle level both from public and private organizations.

The lectures were delivered by the Faculty of IIT Roorkee, CBRI, BMTPC and other experts in the areas in class-room environment. The topics covered were as follows:

1. Elements of Structural Dynamics and Seismic Response Estimation of Structures
2. Lessons Learnt during Past Earthquakes
3. Philosophy and Principles of Earthquake Resistant Design and Construction
4. Earthquake Resistant Design of Masonry Buildings and codal provisions
5. Design of R.C. buildings including Ductility Provisions including code of practices
6. Earthquake Resistant Design of Steel Frame Buildings
7. Seismic Analysis and Design of Multi-storeyed Buildings
8. Seismic Base Isolation and Supplemental Energy Dissipation Techniques
9. Seismic evaluation of buildings including vulnerability assessment
10. Seismic retrofitting of existing buildings
11. Case Studies

III. ACTIVITIES IN NORTH-EASTERN REGION

1. Significant Activities in North-Eastern Region through Demonstration Structures

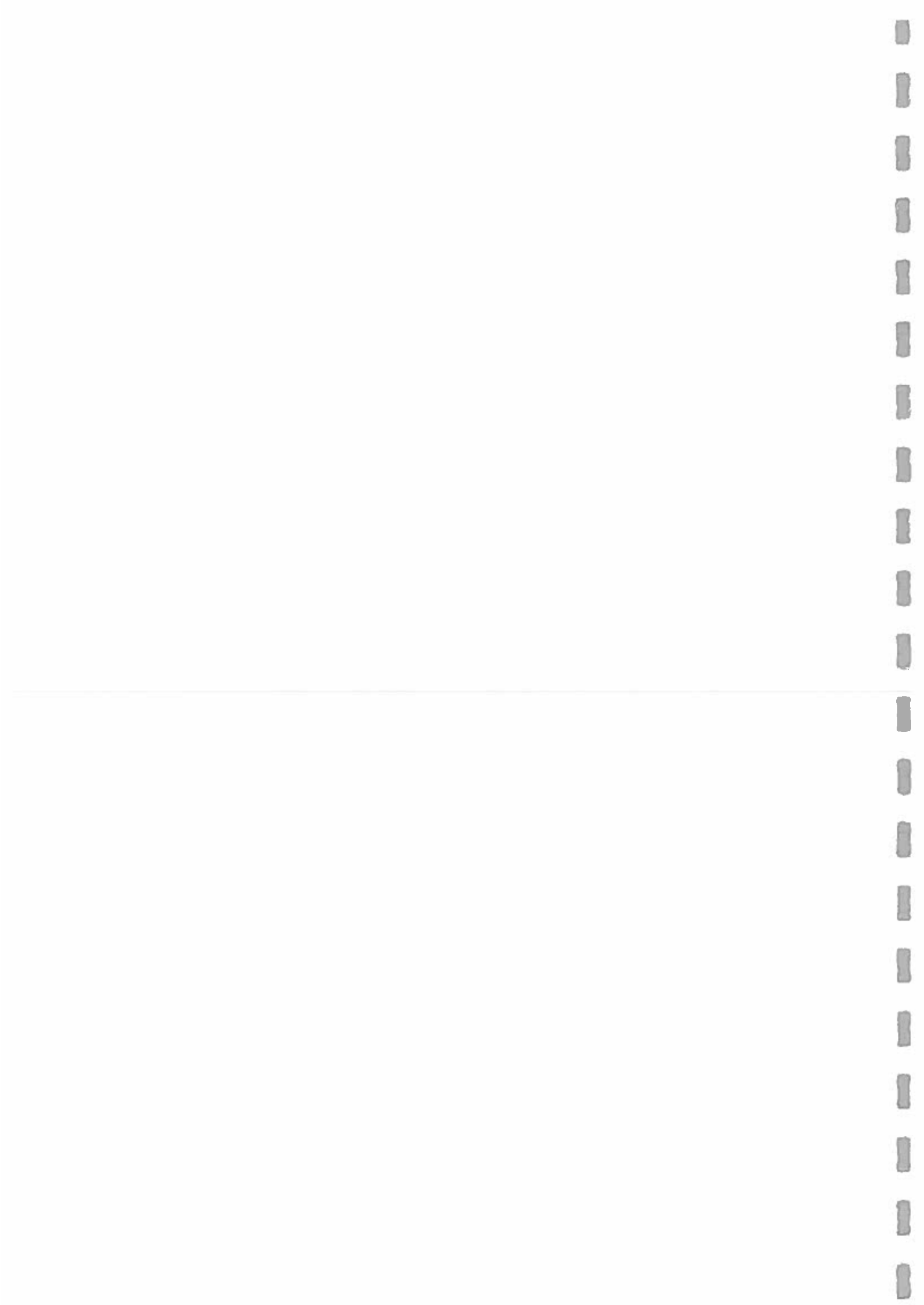
BMTPC is actively involved in developing and promoting bamboo based technologies in the North-Eastern Region and other bamboo growing areas, by setting up of Bamboo Mat Production Centres for processing of bamboo,



BMTPC-IIT Roorkee Short Term Course on 'Earthquake Resistant Design and Construction' from 1st to 3rd September 2011 at New Delhi.



BMTPC-IIT Roorkee Short Term Course on 'Codal Practices on Earthquake Resistant Design and Construction' from 28th - 30th December 2011 at New Delhi



encouraging commercial production of bamboo based products, and construction of demonstration houses/structures. The Council is constantly imparting training to the local artisans in processing of bamboo and making them aware regarding bamboo based construction. The progress of the various activities in the North Eastern Region are:

- Setting up of a Bamboo Mat Production Centre at Nongchram, East Garo Hills, Meghalaya is in advanced stage of completion. An MoU was signed between BMTPC and local agency for implementation of the project. After construction of shed for the Centre, the machines required have been installed. Training to supervisors and local bamboo workers is being provided on the working of various machines.
- Setting up of Bamboo Mat Production Centre in Nagaland has been initiated. An MoU has been signed between BMTPC and Nagaland bamboo Development Agency (NBDA). After the finalization of site in consultation with NBDA, the machines required for the Centre has been ordered by the Agency and the same are under fabrication.
- For establishing Bamboo Mat Production Centre in Arunachal Pradesh, the State Government of Arunachal Pradesh has identified the site at Mopaya Village and has agreed to provide shed and infrastructure facility for the Centre. The implementing agency has been identified by the State Govt. and the revised MoU has been sent the agency for their consent. Response is awaited from the implementing agency.
- The Council organized a two weeks Residential Training Programme on Bamboo Housing Technologies jointly with CBTC at Majuli, Jorhat District, Assam. During the Training Programme a small Post Office was constructed using bamboo based technologies.

IV. STRENGTHENING THE INFORMATION AND DATABASE IN THE CONSTRUCTION SECTOR

1. Publication of the “Nirman Sarika” – Special Issue of BMTPC Newsletter

On the occasion of World Habitat Day 2011 celebrated by the Ministry of Housing & Urban Poverty Alleviation on 3rd October, 2011, BMTPC brought out a Special Issue of its Newsletter “Nirman Sarika” on the theme “Cities and

Climate Change”, chosen by United Nations to mark the occasion. This special publication focused on the various issues related to the theme of the World Habitat Day besides highlighting the activities of the Council. The “Nirman Sarika” was released by Hon’ble Kumari Selja ji, the then Minister for Housing & Urban Poverty Alleviation during the celebration ceremony of World Habitat Day 2011.

2. Publication of Training Manual for Supervisor

Millions of people are employed every year in the construction industry and yet there has been dearth of skilled workforce in this sector. The overwhelming majority of unskilled manpower has been creating such structures which may not last long and require serious maintenance right from inception, thereby increasing life-cycle cost. Therefore, it is of paramount importance to train various tradesmen involved in construction industry. This a mammoth task and no single institute or organization can undertake it. To further exacerbate the problem, there is no standardized literature or module available at the national level for artisans. It is often seen that artisans graduate the construction practices through mere observations and in the process stick to the hackneyed practices prevalent in the region.

BMTPC being into training of artisans for more than two decades seized the initiative and undertook the assignment to develop well-meaning training capsules for artisans and brought out the Training Manual for Supervisors. The supervisor at the construction site is one person who is responsible for coordination of multi-faceted activities of various artisans i.e. masons, carpenters, plumbers etc. and, therefore, must have overall understanding of whole spectrum of construction activities. The manual attempts to cover all the aspects, however, it is not possible in a manual of this kind to take up all construction features and therefore, restricted to the activities of supervisors only.

The Training Manual was released by Kumari Selja, the then Hon’ble Minister for Housing & Urban Poverty Alleviation on 3rd October, 2011 on the occasion of World Habitat Day 2011 at New Delhi.

3. Publication of Training & Certification Manual for Field and Lab Technicians Working with Concrete

BMTPC brought out the Training & Certification Manual for field and lab technicians working with concrete jointly with Indian Concrete Institute (ICI). ICI has been in the forefront as regards concrete technology and dissemination of best construction practices. It has been their endeavor to build



Kumari Selja, the then Hon'ble Minister of Housing & Urban Poverty Alleviation, releasing the Guidelines on "Aapda Pratirodhi Bhawan Nirman : Sampurn Bharat ke liye Margdarshika (Hindi)" during the World Habitat Day on 3rd October, 2011



Kumari Selja, the then Hon'ble Minister of Housing & Urban Poverty Alleviation, releasing the "Training Manual for Supervisor" during the World Habitat Day on 3rd October, 2011



Training & Certification Programme for "Field and Lab Technicians in Concrete"
 organised jointly with Indian Concrete Institute (ICI)
 at Bangalore on 19th March, 2012



capacities amongst professionals including artisans so that the structures constructed with concrete are made long lasting. This Manual elaborates various tests and procedures so as to have check and balances on the concrete being produced at site. The manual further provides the technical framework for field and lab technicians who are primarily responsible for handling concrete works and its quality control and assurance. The manual will not only serve as guide to the field and lab technicians but also improve their understanding towards how to perform various field & laboratory tests mandatory to produce good quality concrete.

The Council is also organizing certification programmes with ICI to have a roadmap for certification of technicians. It is often seen that despite of concrete being high tech material, it is being used in the manner masons & supervisors wanted it, without having prior knowledge or training in handling/working with concrete. The manual will also serve as a guide to all these workers involved in concrete construction.

The objective of the preparation of training manual is to initiate and implement the training and certification program throughout the country to provide a large number of well-trained and certified personnel to the construction industry. The Training Manual has been published and being used for conducting such training programme. The same has been used during the first Pilot Training Programme organised jointly with ICI in Bangalore from October to December 2011 and the certificate distribution function was held on 19th March, 2012.

4. Information Dissemination through Website of the Council

The Website of the Council (www.bmtpc.org) is being visited by professionals of various disciplines globally. It is being used as a reference source in the area of innovative building materials and construction technologies. The website of the Council acts as a repository on cost-effective building materials and construction in line with its mandate to create enabling environment of affordable housing for all.

The website was redesigned during the year so as to give it aesthetically pleasant look as well as make it more informative. There is good response on website in the form of general enquiry about product and services. The website of the Council is regularly updated with latest information such as hire and purchase requirements, Tender Notices, training programmes, Right to Information Act and others as required from time to time.

5. Standardization and Product Evaluation

Performance Appraisal Certification Scheme (PACS)

Performance Appraisal Certification Scheme (PACs), being operated by BMTPC, is a third party voluntary scheme for providing Performance Appraisal Certificate (PAC) to manufacturers or installers of a product which includes building materials, products, components, elements and systems etc. after due process of assessment.

The following products have been issued PACs by BMTPC, so far :

1. **HDF Board Solid Core Door Shutter:** These doors manufactured by M/S Kutty Flush Doors and Furniture Co., Chennai are solid core flush doors incorporating phenolic bonded oil tempered HDF panels with rails, stiles and core strips of non-forest timber. These are used for internal locations in residential, commercial and factory buildings.
2. **Moulded Raised HDF Panelled Door Shutter:** These doors manufactured by M/S Kutty Flush Doors and Furniture Co., Chennai are pre-primed high density fibreboard with deep moulded raised panel designs and with wood grains etched on the panels. These doors are used for internal locations in residential, commercial and official buildings.
3. **Gypcrete/ Rapid Wall Panel:** Gypcrete/ Rapid wall panels are factory made panels manufactured by M/s Gypcrete Co., in collaboration with an Australian firm. These panels are made from phospho-gypsum and are used in high rise and other buildings for faster construction.
4. **Block Making Machine:** Block Making Machine Manufactured by M/s Susanji Udyog, Hyderabad is an electrically or diesel operated machine using vibration for compaction of mix placed in a mould on top plate connected to the vibrator. The machine is used for making solid blocks, hollow blocks, pavement blocks etc. using stone chips, sand, cement, fly ash, marble slurry etc
5. **Pan Mixer:** Pan Mixer manufactured by M/S Susanji Udyog, Hyderabad is an electrically operated machine used for homogeneous mixing of aggregates (upto 6mm) with fine material such as fly ash, lime, marble slurry, stabilized mud for manufacture of bricks/blocks and pavers. It can also be used for mixing mortar for plastering.
6. **Recron 3S Fibre:** Recron 3S fibres manufactured by M/S Reliance Industries, Mumbai are made from polymerization of pure terephthalic acid and mono

ethylene glycol using catalyst. These polyester staple fibres are mixed in concrete and mortar to enhance certain properties.

7. **Plastocrete Panel:** Plastocrete panels manufactured by M/s Sintex Industries, Gujarat consist of outside plastocrete wall and inside wall of various materials such as PVC hollow sections, PUF panels attached PVC layer, AC Sheet and also plastocrete. These are light weight, easy to install with simple tools & require low labour. These panels are suitable for construction of school buildings, site office, security cabins, housing, modular toilets, hospitals etc.
8. **Insulated Roof Panel:** Insulated Roof Panels manufactured by M/s Sintex Industries, Gujarat are formed by plain precoated sheet in between foamed with polyurethane foam (PUF) which acts as core that gives excellent insulation. These are built with leak proof ceiling and thermally insulated walls which are water proof, dust proof and rot proof. These are of light weight modular design for easy and quick assembly. These panels can be used for construction of telecom shelters, office blocks, toilet blocks and industrial sheds etc.
9. **Underground Water Storage (Sump) Tanks:** Underground Water Storage Tank (Sump) manufactured by M/s Sintex Industries, Gujarat are one piece moulded tanks made of polyethylene. These are non-porous and do not allow contamination of water kept in the tank. These underground tanks are suitable for houses, school, hospitals, offices etc.
10. **Endura Door:** Endura doors manufactured by M/s Sintex Industries, Gujarat are made by combining hot pressed Sheet Moulding Compound (SMC) sheets on both sides. The core of the door is filled with polyurethane foam (PUF). These medium duty doors are suitable for internal and external locations. These doors are available in different sizes and are of off-white shade.
11. **Fomura Door:** Fomura doors manufactured by M/s Sintex Industries, Gujarat consist of tubular MS frame covered with PVC foam sheet. These light duty doors are suitable for internal locations. These doors are available in different sizes and in grey, ivory and white shades.
12. **PVC Flush Door:** PVC Flush Doors manufactured by M/s Sintex Industries, Gujarat are made out of one piece multi-chamber extended hollow PVC sections with the core filled with high density Polyurethane foam (PUF). The door is provided with a MS tube structure on the hinge side for fixing hinges. These medium duty doors are suitable for

internal locations. These doors are available in different sizes and Thai teak and steam beach shades.

13. **PVC Profile Door:** PVC Profile doors manufactured by M/s Sintex Industries, Gujarat are made of PVC extruded profile sections. These doors are provided with suitable polymeric reinforcement. These light duty doors are suitable for suitable for internal locations. These doors are available in different sizes and in standard shades.
14. **Frontura Doors:** Frontura doors manufactured by M/s Sintex Industries, Gujarat are made with Fiberglass Reinforce Plastic (FRP) panels on either side and the core of the door is filled with high density Polyurethane Foam (PUF). These heavy duty doors are suitable for indoor and outdoor locations. These are available in different sizes.
15. **HDPE Cover Blocks:** HDPE Cover Blocks are made of High Density Polyethylene. These blocks are used in place of concrete cover blocks. These blocks not only help to keep the reinforcement bars at the specified place but they also offer convenience of use. Cover blocks are available in various shapes and sizes. Testing agencies have been requested to confirm whether the tests of the product can be done in their laboratory.
16. **Low Cost Marble Slurry Binder:** Low Cost Marble Slurry Binder is made from recycling marble slurry waste, fly ash and hydrated lime. This can be used in place of cement for masonry and plaster. Inspection of the premises has been carried out and samples of the product given for testing.
17. **Underground Septic Tanks:** Underground Septic Tanks are made from polyethylene. These are suitable for houses, schools and hospitals.
18. **Continuous Sandwich Panels:** Continuous Sandwich Panels are formed by plain Pre-coated sheet in between foamed with Polyurethane foam (PUF) along with corrosion resistant metallic facing. These are built with leak proof ceiling & thermally insulated walls. These can be used as Industrial sheds, Malls, Multiplexes and Workshops etc.
19. **FRP Manholes:** FRP Manholes can be used in underground sewer pipe lines, storm water pipe lines and water pipe lines.
20. **uPVC Windows:** uPVC Windows are made out of extruded uPVC multi-chamber hollow profiles and reinforced with galvanized steel. These are available in single & double glazing and are partially fixed & openable. These can be used in residential, commercial and official buildings.

21. **Monolithic Formwork:** Monolithic Formwork is the system by which the formwork for all the components of the structure is erected at one time. It consists of hundreds of standard pieces of form work equipment.
22. **Monolithic Concrete Construction:** Monolithic Construction is a method by which walls and slabs are constructed together giving the structure a complete box like shape. In this method fluid of cement concrete is poured in light weight formwork system. This method is ideal for multistoried construction.
23. **Marshal Doors:** Marshal Door Shutters are made out of G I Precoated Sheet on both sides with core of the shutter filled with High Density Polyurethane foam. These are used for residential, commercial and official complexes.
24. **Glass Fibre Reinforced Gypsum Panel System:** PACs have been awarded to M/s RCF, Mumbai & M/s FACT-RCF Building Products Ltd. (FRBL, Cochine). Maintenance manual is also prepared to facilitate the basics to the users.

Since the Scheme is operated for the product/system where no relevant Indian Standard is available, it is required to first work out the desired specifications for Performance Appraisal. For the items under considerations, International procedures are also to be studied. In few cases the specifications recommended by the manufacturers have been modified based on international practices. One such item is Underground Septic Tank where specification & performance is modified based on Australian/New Zealand Standard. Another item is Deep Penetrating Sealer which is an imported material for which no testing facilities are available in India.

One of the constraints faced for evaluation is lack of proper testing facilities in accredited independent laboratories in India. In view of this, facilities available with the firms are being utilized. Third party agencies having adequate exposure & experience are being involved for in-house testing wherever laboratory testing is not operational.

Technical Inputs to Sectional Committees of BIS

Apart from PACS, the Council is providing technical inputs to various Sectional Committees of Bureau of Indian Standards for formulation of Indian Standards on various subjects related to Civil Engineering such as Cement and Concrete; Flooring, Wall Furnishing and Roofing Materials; Earthquake Engineering; Housing Prefabricated

Construction; Hill Area Development; National Building Code; etc.

While certifying uPVC Windows under PACS, a detail specification, based on the international practice was formulated. It covers the requirements of raw materials as well as finished products ready for installation. Performance requirement includes corner weld strength test, air permeability test, water tightness test, wind load resistant test, mechanical strength test, warping test, racking test, torsion test, diagonal deformation test and test for locking, opening or restricted opening devices.

The document was forwarded to the Bureau of Indian Standards (BIS) for formulation of Indian Standard. A Working Group is drafting the specifications and input from BMTPC has been utilized for the draft specification.

Besides, the Council prepared Code of Practice for Construction of Walls with Rat-Trap Bond Technology and Code of Practice for Construction of Floor and Roof with Filler Slab. These Draft Codes have also been sent to Bureau of Indian standards for consideration by the concerned Technical Committee of the Bureau of Indian Standards (BIS).

V. PROMOTIONAL AND CAPACITY BUILDING ACTIVITIES AT NATIONAL AND INTERNATIONAL LEVEL

1. Regional Sensitization Programmes on Confidence Building in Appropriate Housing Technologies

The Council has initiated the Pilot Project on "Confidence Building in Alternate Housing Technologies through Demonstration Construction & Training". The Pilot Project on Confidence Building in Alternate Housing Technologies aims to facilitate wide spread dissemination and adoption of both existing proven and emerging cost-effective and sustainable building materials and construction technologies as an alternate to the conventional, in a manner and by a strategy that will promote knowledge, confidence and create enabling environment for the large scale adoption of such materials & technologies in different geo-climatic parts of the country, thus making housing cost-effective, accessible and sustainable. The implementation of the Pilot Project will be through demonstration construction based on the Design Package developed by BMTPC using cost effective, eco-friendly construction technologies for a cluster of 60 houses with carpet area of 25 sqm. each, community centre (built-up area 300 sqm.), primary school (built-up area 250 sqm.), shops/kiosks ((built-up area 100 sqm.) including on-site infrastructure development for the various regions of the

country having different geo-climatic condition and topography.

In order to spread awareness about the alternate housing technologies and study the mindsets of the stakeholders in various States, the Regional Sensitization Programmes were organised at following places. These programmes were attended by the State officials from various States. The participants shown keen interest in the alternate housing technologies.

| S. No. | Zones | Dates | Venue | States covered |
|--------|--------------------|-----------------|-----------|---|
| 1 | West/ Central Zone | 23 July, 2011 | Ahmedabad | Rajasthan, Gujarat, Maharashtra, Madhya Pradesh, Chhattisgarh, Daman & Diu and Dadra & Nagar Haveli |
| 2 | North Eastern Zone | 5 August, 2011 | Guwahati | Assam, Manipur, Meghalaya, Nagaland, Tripura, Arunachal Pradesh, Mizoram and Sikkim |
| 3 | East Zone | 16 August, 2011 | Kolkata | West Bengal, Bihar, Orissa and Jharkhand |

2. **BMTPC Pavilion on Emerging Housing and Building Technologies including Cost Effective Technologies during IITF 2011**

BMTPC Pavilion on Emerging Housing and Building Technologies including Cost Effective Technologies in HUDCO BuildTech during India International Trade Fair 2011 from 14-27 November, 2011, was inaugurated by the then Hon'ble Minister of Housing and Urban Poverty Alleviation and Minister of Culture, Kumari Selja ji.

The main attraction of the BMTPC Pavilion was the demonstration of proven cost effective technologies as well as emerging housing technologies from India and abroad. Besides the house constructed with proven cost effective technologies, the emerging technologies demonstrated were:

- (i) Panel building system using steel mesh, polystyrene core and chipping concrete from Malaysia,
- (ii) Technology using expanded steel mesh panels, polystyrene beads and alleviated concrete from U.K.,
- (iii) Prestressed precast prefab technology using hollow core slab, beams, columns, solid walls, stairs etc. from Finland,
- (iv) Monolithic concrete technology using plastic / aluminum composite formwork from USA/India,
- (v) Precast concrete panels, using concrete, welded mesh and plates, polystyrene core from New Zealand,
- (vi) Bamboo based technologies such as bamboo mat corrugated sheet/bamboo mat ridge cap for roofing,

- bamboo mat board for walling, partitioning and false ceiling from India,
- (vii) GFRG / Rapid wall Building System Technology using precast panel made of gypsum plaster reinforced with glass fibres from Australia/India,
- (viii) Maintenance free Bio Digester Toilet for Sanitation.

With fast depleting natural resources; need for environment protection to protect green house effect; need for bringing more speed, durability and quality in construction, these showcased technologies have potential for possible application in mass housing as a cost effective substitute for conventional system. These technologies/systems have been selected based on Global Expression of Interest and Performance Appraisal Certification Scheme (PACS) of BMTPC.

3. International Seminar on Cost-Effective, Energy Efficient & Ecologically Appropriate Building Materials & Technologies for Housing at New Delhi

As a culmination of the BMTPC Pavilion during India International Trade Fair 2011, an International Seminar on Cost-Effective, Energy Efficient & Ecologically Appropriate Building Materials & Technologies for Housing was held on 26th November, 2011 jointly by BMTPC and HUDCO at Conference Complex, Pragati Maidan, New Delhi. Apart from Representatives of SAARC, more than 150 representatives from R&D and Academic Institutions, NGOs, Building Centres, Professionals, Manufacturers, Builders, Real Estate Consultants, Housing & Urban Development Authorities, public and private sector departments/agencies working in the area of housing and building construction participated in the International Seminar. The Seminar was inaugurated by the Secretary, Ministry of Housing and Urban poverty Alleviation.

4. Evolving Building Artisan Friendly Certification Programme

One of the core areas, in which BMTPC is currently working, has been preparation of standardized training modules and certification system for the construction work force. The whole exercise is being undertaken with the aim to standardize this unorganized sector so as to produce quality masons.

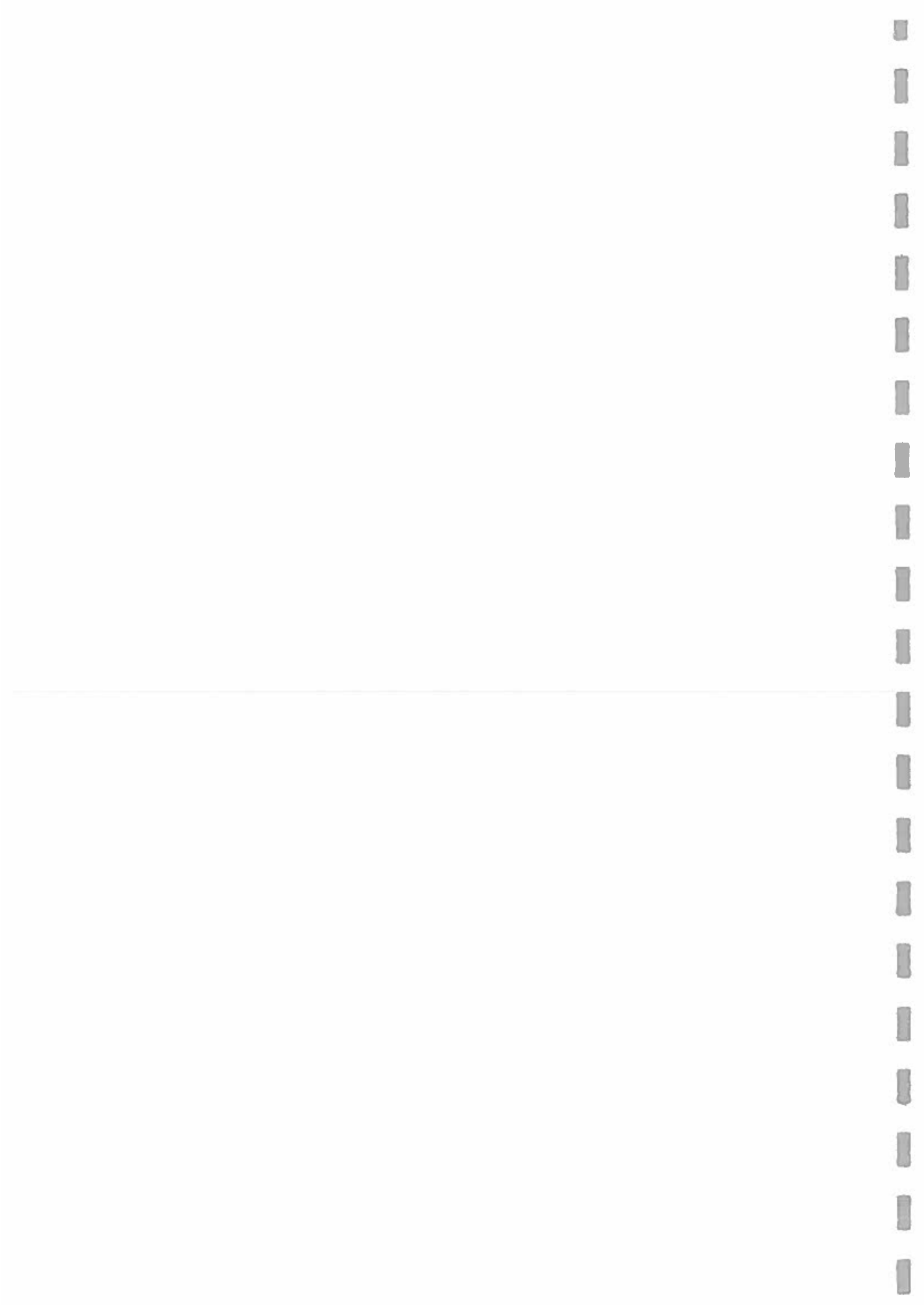
Under this activity, for Evolving Building Artisan Friendly Certification Programme linked to Decentralized Modular Training Programme for Enhancing Skill Levels and Livelihood Capacity Project was awarded to the Centre for Ecocentric Development and People's - Action, Ahmedabad. Under this project, the benchmark survey in the State of Gujarat has already been completed by the



Regional Sensitization Programme to discuss in detail the Design Package for Western Zone developed by BMTPC on 23rd July, 2011 at Ahmedabad



Regional Sensitization Programme to discuss in detail the Design Packages for North Eastern Zone developed by BMTPC on 5th August, 2011 at Guwahati





Kumari Selja, the then Hon'ble Minister of Housing & Urban Poverty Alleviation, visiting the BMTPC Pavilion on Emerging Housing & Building Technologies during India International Trade Fair from 14-27 November, 2011



BMTPC Display in HUDCO BuildTech 2011 during India International Trade Fair from 14-27 November, 2011



International Seminar on Cost Effective, Energy Efficient and Ecologically Appropriate Building Materials & Technologies for Housing on 26th November, 2011 organised by BMTPC during IITF at Pragati Maidan, New Delhi



implementing agency. On the basis of the survey report, a Core Group meeting was held on 28th February, 2012 at Ahmedabad in which a broad guideline for preparation of course content and certification system for masons and assistant mason was finalised. Once the course content and certification system is in place, the same will be used for conducting pilot training programmes for further implementation of this scheme in other states.

5. Course Curriculum and Teachers Handbook on Sustainable Building Technology

One of the bottlenecks faced in actual application of sustainable building technologies is lack of awareness and apathy among engineers & architects about cost-effective building materials & construction technologies. Realizing this, BMTPC is striving to develop Course on Sustainable Building Technology for Engineering and Architecture Colleges so as to enable the engineers and architects to get familiar with the emerging trends. Based on a Brain Storming Session, Course Content has been developed, as an elective subject for Engineering Colleges. The Course Contents for Civil Engineers include:

Introduction : The problem of Energy and Carbon Emissions with reference to Economic Development. Building Material Resources and their implications for Sustainable Development. The approach to alternatives/ renewable energy resources. Concept of green buildings for Sustainable development.

Energy and Buildings: Energy and Building Materials. Embodied Energy in Bricks, Blocks, Cement, Steel, Sand, Aggregates and Aluminium. Case studies of embodied energy calculation. Embodied Energy of Buildings. Implications of various building Technologies. Operational energy in Buildings. Concept of life cycle energy. Alternatives to reduce operational energy consumption.

Low Energy and Low Carbon Building Technologies: Energy Efficient Building Blocks. Use of Stabilised Mud, hollow Concrete and hollow clay blocks and local stones. Carbon Emission Implications of Alternatives. Alternative Cements and Plasters. Utilisation of Industrial Waste Products. Construction and Demolition wastes and their utilisation. Role of Timber and Bamboo in low energy alternatives. Timbers of India from different climatic zones.

Introduction to Structural Masonry: Use of load bearing Masonry for moderately high rise buildings. Design Example of a 5storied Masonry Building. Alternative walling

techniques like Rammed Earth, Rat-trap Bond and Composite Masonry. Use of BIS codes for Masonry wall design

Other Components: Energy Efficient concepts for foundations, Lintels and Sunshades.

Efficient Roofing Systems: Filler Slabs. Beam and Panel Roofs (composite construction). Partially precast components for Roofing. Modern Jack Arch Terraces. Use of reinforced brick/block slabs. Design Calculations for Alternative Roofing Systems.

Domes, Vaults and Shell Roofs: Using unreinforced/reinforced masonry for curved roofs. Brick, Stabilised Mud Blocks and Hollow Block Masonry for Roofs. Case studies of Dome and Vault construction in Ancient and Recent Times. Thermal Comfort Implications of Dome and Vaulted roofs. Walls and Roofs to improve thermal Comfort in various climatic zones and seasons.

Earthquake Resistant Buildings: Reinforced masonry for Earthquake Resistance. Traditional Solutions using Timber and Masonry. Use of Confined Concrete for Earthquake resistant framed Structures. Influence of Structural Configuration on Earthquake Resistance. Use of Indian Codes for Earthquake Resistant Buildings.

Planning: Planning of Buildings for Cost/Energy reduction and thermal comfort. Building Design Exercises to achieve cost reduction and thermal comfort.

The draft is under circulation for views / comments. Based on the above syllabus, a Handbook will be developed as a resource material for teaching. It is also planned to organize orientation programmes for teachers on the subject.

6. Technical Cooperation Programme between India and Africa Countries in the field of Housing & Human Settlements

To strengthen the South-South cooperation, a Project Proposal for India-Africa Technical Cooperation Programme in the field of Housing and Human Settlements was prepared and submitted to Ministry of External Affairs by Ministry of Housing & Urban Poverty Alleviation, Government of India. The project envisages implementation of cooperation programme between India and five African countries.

The major components of the project are :

1. Establishment of Human Settlement Centre (Regional Centre).

2. Establishment of Technology Demonstration and Diffusion Centre (Sub Centre).
3. Adaptation of technologies, R&D for adaptation, testing, certification, prototype development and batch production
4. Facilitation for technology transfer including support to the professionals, students, delegations for training
5. Organisation of Seminar/Exhibition across the region including public private partnership
6. Construction of 40 demonstration houses
7. Construction of 400 houses with the funding support of Govt. of India's contribution of 10% and 90% by the host country (OPTIONAL)
8. Training of engineers, skilled & semi-skilled workers, small entrepreneurs, project managers both in India and host country.

Detailed action plan and schedule for implementation have also been prepared and submitted to Ministry of External Affairs for consideration. The following MoU's to be signed between the different agencies have also been prepared and submitted to Ministry of External Affairs :

- i. Government of India and the African Union
- ii. Ministry of Housing & Urban Poverty Alleviation and five member states of African Union
- iii. Ministry of External Affairs and Ministry of Housing & Urban Poverty Alleviation

The following Countries have been identified by Ministry of External Affairs for implementation of plan:

- i. Togo
- ii. Mauritania
- iii. D. R. Congo
- iv. Kenya
- v. Zambia

The detailed questionnaires seeking appropriate information for establishment of Human Settlement Centre has been prepared for all 5 selected Countries and have been forwarded to respective Countries by Ministry of External Affairs.

Three countries namely, D.R. Congo, Kenya and Togo, have responded to the questionnaires and are ready to undertake the project in their respective countries. The MoU for these countries have also been prepared and submitted to MEA.

BMTPC will implement this programme as per the direction of the Ministry of HUPA and MEA.

7. Celebrations of World Habitat Day 2011

On the occasion of World Habitat Day 2011, the Council undertook the following activities:

Painting Competition for Differently Abled Children

Organised Painting Competition for Differently Abled Children on the theme: "Cities and Climate Change". These children included differently abled children in the categories namely (i) Mentally Challenged, (ii) Visually impaired, (iii) Hearing Impaired and (iv) Autistic children at 14 schools in Delhi. The Council received 184 entries in the competition. The prizes were awarded to winning entries by the then Hon'ble Minister for Housing & Urban Poverty Alleviation & Tourism during the celebrations of World Habitat Day on 3rd October, 2011 at New Delhi.

Release of Publications

- i. Special issue of Newsletter of BMTPC "Nirman Sarika"
- ii. Guidelines on "Aapda Pratirodhi Bhawan Nirman : Sampurn Bharat Ke Liye Margdarshika" (Hindi)
- vi. Training Manual for Supervisors involved in Building Construction

These publications were released by the then Hon'ble Minister of Housing & Urban Poverty Alleviation and Minister of Tourism, Kumari Selja, during the celebrations of World Habitat Day 2011.

VI. TECHNOLOGY DEVELOPMENT, DIFFUSION AND TRANSFER

1. Global Expression of Interest (EOI) for Introducing Alternate/ Emerging Housing Technologies in Different Parts of India

BMTPC has been promoting cost-effective, environment-friendly, energy-efficient and disaster resistant technologies developed in India. In order to bring in speed, quality and durability in the construction, it has been felt that there is a need to identify and adopt well proven emerging technologies available within and outside the country. BMTPC invited Global Expression of Interest (EOI) from Construction System/Technology Developers/Providers for introducing emerging and alternate cost effective housing technologies suitable to Indian geo-climatic and hazard conditions through construction of demonstration houses at various parts of the country.

The Council has received the expression of interest from the 12 agencies for different technologies and systems. The



Kumari Selja, the then Hon'ble Minister of Housing & Urban Poverty Alleviation, visiting the Exhibition on Painting Competition of Differently Abled Children organised by BMTPC during the World Habitat Day on 3rd October, 2011



Kumari Selja, the then Hon'ble Minister of Housing & Urban Poverty Alleviation, giving away the Prizes to the winners of Painting Competition of Differently Abled Children organised by BMTPC during the World Habitat Day on 3rd October, 2011



Kumari Selja, the then Hon'ble Minister of Housing & Urban Poverty Alleviation, giving away the Prizes to the winners of Painting Competition of Differently Abled Children organised by BMTPC during the World Habitat Day on 3rd October, 2011



Kumari Selja, the then Hon'ble Minister of Housing & Urban Poverty Alleviation, releasing the Special Issue of "Nirman Sarika" during the World Habitat Day on 3rd October, 2011



Technology Advisory Group (TAG) visited project sites of EMMIDUE Panel Building System at Kolkata on 27th January, 2012 & at Chandigarh on 4th March, 2012 and 3S Technology of M/s B.G.Shirke, New Delhi on 4th February, 2012



Technology Advisory Group was constituted by the Executive Committee of BMTPC for identification, evaluation and selection of the suitable technologies.

The Technology Advisory Group (TAG) through various meetings shortlisted seven technologies/systems for identification and evaluation of the suitable technologies. The visits by the TAG members are being organized to see ongoing projects from these technologies/systems. In this connection, the project sites of EMMIDUE Panel Building System at Kolkata on 27th January, 2012 & at Chandigarh on 4th March, 2012 and 3S Technology of M/s B.G.Shirke, New Delhi on 4th February, 2012 have already been visited.

2. Preparation of “Design Package on Alternate House Building Technologies” for various regions of the country

BMTPC initiated development of Design Packages which are customized to the local needs and includes regional specific appropriate technologies. The packages which include a cluster of 60 houses about 25 sqm. each, school, community hall and commercial spaces specifically designed so as to include cost effective technology in the same. The most important aspect is that it is not been considered as a demonstration project but does include only those technologies which are local and have are proven over time. Also, the technology should compete by being financially feasibility with respect to conventional technologies.

The design packages have been developed for following zones:

- Western/Central Zone
- Northern Zone (Plain)
- North-Eastern Zone
- East Zone
- South Zone
- North Zone (Hilly)

While developing the present design package a specific care has been taken so as to choose only those Cost effective technologies which are appropriate in context and are proven over time. While developing the entire design package, apart from economy, regional context, disaster resistant features, gender context, disable friendly features, etc has also been considered. The Design Packages also attempts to compare the cost of construction with conventional technology so as to clearly reflect the advantages of using cost effective technologies. Further, the Design Packages also provide, detailed quantities, actual Rate analysis of cost effective technologies, etc. so as to

impart all the basic information help in adopting the package directly.

The Design Packages are being submitted to State Governments for their commitment to take it forward through demonstration construction by BMTPC.

3. Pilot Project on Confidence Building in Alternate Housing Technologies

The Council has prepared a Pilot Project on Confidence Building in Alternate Housing Technologies. BMTPC is involved in promotion of innovative, eco-friendly, cost-effective building materials and construction technologies including disaster resistant construction with necessary S&T intervention, standardization and demonstration, wherever necessary to suit the requirements of housing sector. The Government through the National Urban Housing & Habitat Policy aims to promote development of cost-effective, quality approved building materials and technologies with a view to bringing down the cost of EWS/LIG houses and whereas disaster resistant technology and achieving Green Rating for buildings are mandatory, adoption of alternate, environment-friendly, energy-efficient, cost effective and disaster resistant technologies has become a necessity.

In the context of the massive construction initiatives by the Government of India, State Governments under various programmes as well as shortage of housing in affordable sector, an urgent need is felt around the country to propagate and popularize the cost effective options and introduce appropriate technical interventions so as to close the gap between availability of these technology options and application of the same increasingly in mass housing initiatives.

The Pilot Project on Confidence Building in Alternate Housing Technologies aims to facilitate wide spread dissemination and adoption of both existing proven and emerging cost-effective and sustainable building materials and construction technologies as an alternate to the conventional, in a manner and by a strategy that will promote knowledge, confidence and create enabling environment for the large scale adoption of such materials & technologies in different geo-climatic parts of the country, thus making housing cost-effective, accessible and sustainable.

The implementation of the Pilot Project will be through demonstration construction based on the Design Package developed by BMTPC using cost effective, eco-friendly construction technologies for a cluster of 60 houses with carpet area of 25 sqm. each, community centre (built-up

area 300 sqm.), primary school (built-up area 250 sqm.), shops/kiosks ((built-up area 100 sqm.) including on-site infrastructure development for the various regions of the country having different geo-climatic condition and topography (may be changed as per requirement of the State). The demonstration construction of the project would be accompanied by:

- (a) Complete documentation of the project giving details of cost of materials, labour, training, vis-à-vis conventional including safety, durability, maintenance, energy aspects to prove their cost effectiveness by demonstration as well as through third party i.e. Academic Institutions identified by the State Government.
- (b) Training of trainers for technologies
- (c) Capacity Building of artisans through organizing training programmes during construction.
- (d) Wider dissemination through website of BMTPC and State Government.
- (e) Propagation through print & electronic media.

In addition to the known technologies, new and emerging technologies considered to be cost effective from around the world and assessed as suitable to Indian conditions would be identified, and put through the same process of proving and perfecting for adoption by demonstration in collaboration with the States.

The funding for construction costs of demonstration structures including onsite infrastructure development will be taken up in conjunction with the Centrally funded Schemes such as JNNURM/ RAY/ IAY or any State Govt. scheme, as applicable. In addition, the BMTPC will bear the 25% of the State share under the project for the construction component of the demonstration projects to reduce the State Government share. The rest of the expenditure would be borne by the State Government. For this, BMTPC will assist the State Government to prepare a Detailed Project Report (DPR) based on already developed Design Package. After the preparation of the DPR, the DPR will be submitted to the concerned Committee/Authority of the respective Central/State Schemes for funding by State Govt.

The aim is to establish the cost effectiveness of known and scientifically proven, as well as emerging, building materials and construction technologies and simultaneously to plug the gaps in the process of their adoption by mainstream construction agencies; and to do so with the involvement of the States so as to obtain State's commitment for the adoption of such cost effective materials and technologies in

the country by construction agencies and its widespread dissemination.

The State Governments of Haryana, Orissa, Maharashtra, Tripura and Mizoram have agreed in principle to take up the Pilot Project in their States for propagation of cost effective technologies. The detailed estimates for construction of demonstration houses have been prepared for Haryana.

4. Preparation of Code of Practices on Alternate Housing Technologies

With the rising cost of construction and drive for green buildings, there is imperative need to use proven appropriate cost effective, energy efficient materials and technologies for building construction, especially for Mass housing. Amongst various time tested technologies, constructing masonry walls by Rat Trap Bond and roofs by Filler Slabs are the important technologies, which not only utilizes locally available materials but also brings down the requirement of bricks to about 20-35 percent and also save mortar and concrete.

Code of Practice for Construction of Walls with Rat-Trap Bond Technology

This draft code is intended for the construction of brick walls with rat-trap bond. This type of bond can be used for the construction of 230 mm (9") thick wall.

Rat Trap bond is a modular system of brick masonry. Wall construction using rat-trap bond masonry is advantageous over other brick bonds as it brings down requirements of materials and saves tedious labour. Also the air cavity created within the wall adds an advantage of thermal comfort to the building (reducing temperature during summers and vice versa). The cavity wall also has lesser dead weight compared to solid masonry, which is an added advantage as the dead load on the supporting elements decreases and so can be their designs also; eventually the load on the foundation decreases which further economises the foundation design. All works such as pillars, sill bands, tie beams, services etc. can be concealed and hence only brick masonry work may be kept exposed. The load bearing tests done at the Anna University has proved that a wall in rat-trap bond performs as good as the usual English bond and can carry nearly the same load as a solid wall. Thick partition walls and also most importantly Load bearing walls of one brick thick can be constructed by this masonry technique.

Depending on the soil conditions and the structural load on the structure, load bearing walls upto three storeys high can

be constructed with this technology. The provisions of this standard do not limit its application to cases where only modular bricks are used; on the other hand, they can be applied with equal advantage to traditional bricks constructions. It is considered that this unified approach in the standard will be particularly advantageous during the period of transition from traditional brick construction to modular brick construction resulting in significant savings of the vegetative top soil, and also high energy materials such as bricks and cement promoting sustainability and eco-friendly construction technologies.

It may be noted that the requirements bearing directly on the dimensions of bricks have been so worded as to be applicable both to modular and traditional bricks. For example, when the requirements for thickness of wall is stated as 'one brick' this will mean 20 cm nominal thickness in case of modular brick and 230 mm (9") nominal thickness in the case of traditional brick of size 230 mm x 110mm x 75 mm (9" x 4½" x 3").

Code of Practice for Construction of Floor and Roof with Filler Slab

Floor and roof construction using filler material / blocks in the bottom fibres of the slab, replacing unwanted concrete from tension zone, is termed as filler slab. This technique of construction is advantageous over the conventional type of reinforced cement concrete solid slab. This technique involves placing of filler material/block at suitable spacing between the reinforcement grid and then remaining portion of the slab is concreted. This type of slab construction is lighter in weight, provides better sound and thermal insulation with equal durability as a conventional solid RCC slab. It does also decrease the dead load on all the supporting structural members and thus onto the foundations. It does require skilled manpower for construction of a filler slab. The construction of floor and roof with filler blocks is simple, time tested and ensures speed in construction. For the support of the slab, simple shuttering is adequate.

This type of floor should be used with caution and adequate additional checks; where the floor is likely to be subjected to heavy impact load and vibrations. This standard is intended to provide guidance for construction of floor and roof with filler blocks. The filler block may be selected as per local availability. Some examples of filler materials are Mangalore tiles, Hollow concrete block, Burnt clay bricks/pots, Stabilised mud blocks or any locally available inert material fulfilling the properties as discussed further in this standard.

In the formulation of this standard due weight-age has been given to the practices prevailing in different parts of India, especially work done in Southern India in addition to extensive research work carried out at Anna University, the field practice adopted by various government bodies like BMTPC, HUDCO, COSTFORD and various NGO's.

These Draft Codes have been sent to Bureau of Indian standards for consideration by the concerned Technical Committee of the Bureau of Indian Standards (BIS).

5. Development of the Building Components from Sponge Iron Wastes

The Council has undertaken a project for "Development of the Building Components from Sponge Iron Wastes" in association with Central Building Research Institute (CBRI), Roorkee. The objective of the project is to develop building bricks utilizing sponge iron waste. Sponge Iron contains 8-10% unburnt carbon. This unburnt coal can gainfully be used in the manufacturing of fired clay bricks. It is expected that addition of optimized quantity of sponge iron in clay will add to huge quantity fuel saving required for the manufacture of burnt clay bricks.

The present study leads to the following inferences:

- Bulk utilization of sponge iron waste such as dolochar in manufacturing of bricks in the proximity of steel industries is feasible.
- The sponge iron waste bricks have adequate strength and have potential as a replacement for conventional burnt clay bricks.
- Bricks of compressive strength 80-90 kg/CM² and water absorption below 20 percent can be manufactured commercially from clay and sponge iron waste.
- When the developed product subjected to an accelerated weathering environment, no significant deterioration in the engineering properties observed.
- No substantial deterioration in strength properties of product was noticed when exposed to saline environment upto 300 days.
- Marginal fall in strength and increase in porosity was observed in sponge iron waste bricks when exposed to ambient atmospheric conditions for period up to 300 days. No deterioration in characteristics of fired clay bricks could be noticed on exposure to ambient

atmospheric conditions.

- No deterioration in the properties of fired bricks subjected to cyclic mild heating (up to 600 °C) and cooling to ambient temperatures was observed up to 300 days. Dolomitic bricks also did not show any significant deterioration up to 300 days of similar heating and cooling cycles.
- Wetting drying cycles of dolomitic briquettes/bricks did not cause significant deterioration in properties up to 300 days of testing. Fired clay bricks also did not show significant alteration in properties on exposure to such cyclic wetting drying up to 300 days.
- Bulk density of both type of bricks showed minor alteration under exposure to different aggressive weathering environments.
- Both compressive strength and water absorption properties of clay & sponge iron waste bricks exhibit analogous response under aggressive environment of weathering.
- Data presented in the report are indicative of relative performance of briquettes/bricks under aggressive conditions and could be used for approximation of good performance of bricks.

6. Utilization of Industrial Waste Materials as Inexpensive Adsorbents having Applications in Building Materials

The Council in association with CBRI Roorkee undertook a project entitled "Utilization of Industrial Waste Materials as Inexpensive Adsorbents having Applications in Building Materials". The aim of this project was to develop low cost adsorbent from waste materials for removing aqueous pollutants from water and waste water. The following were the expected outcome of this study:

- To develop effective adsorbents from waste products viz. flyash, red mud, blast furnace slag, dust, sludge etc.
- To study kinetics and capacity of such adsorbents for removing important aquatic pollutants (viz. toxic metal ions, dyes, phenols, pesticides etc.) from natural and wastewater.
- To perform pilot studies
- To develop a model for simulating and predicting adsorption column performance
- To carry out immobilization and leaching studies with

pollutants-laden adsorbents by fixing them into cement or building materials.

Under the project investigation of following various aspects were undertaken:

- Solidification/Stabilization study using OPC and Red Mud
- Physico-chemical Analysis of Cement, Chemical Analysis of Red Mud
- Solidification/Stabilisation study using OPC and Red Mud
- Determination of Consistency
- Consistency of Control Mix
- Determination of Setting time
- Leaching Studies
- Setting time of cementitious binders
- Compressive strength solidified cementitious binders
- Bulk density of solidified cementitious binders

Bricks and Blocks using optimized cement flyash/red mud binder and electroplating waste were developed. The different binder compositions utilizing red mud and flyash are made and investigated to determine the leaching study. Studies reveal that OPC and fly ash as well as red mud blended cement are the adequate binders to confine the hazardous heavy metal ions such as Chromium, lead and Zinc concentration for reduction of negative impact on land and ground water quality. It is recommended that the mix proportion of 60 parts of cement, 30 parts of fly ash and 10 parts of electroplating waste by wt % can be used for the production of bricks good quality of bricks. These bricks can be used as different walling elements in the building. The study also established that the various solidification and stabilization process for the fixation of heavy metal ion is the acceptable technique for the disposal of hazardous waste. The different method and composition can utilized for production for production of blended cement and building bricks in manner that the leachability of the toxic metals may also be kept within the permissible limits. The study may be utilized for finding the different ways for stabilization and utilization of hazardous waste coming out from the industry.

7. Project on Energy Auditing & Carbon in manufacture of Bamboo Mat Corrugated Sheets and Bamboo Mat Ridge Cap

The Council in past developed a technology for manufacture of Bamboo Mat Corrugated Roofing Sheets (BMRC) in association with Indian Plywood Industries Research & Training Institute (IPIRTI), Bangalore. A commercial plant for manufacture of BMCS was established at Byrnihat, Meghalaya. This plant is manufacturing BMCS on large scale and supplying to the various government

departments, public etc. Later on the Council in association with IPIRTI, Bangalore developed a technology for manufacture of Bamboo Mat Ridge Cap (BMRC) to cover the ridge portion of the sloping roof.

On the advice of the Executive Committee, the Council initiated a project on "Energy Auditing & Carbon in manufacture of Bamboo Mat Corrugated Sheets and Bamboo Mat Ridge Cap" jointly with Indian Plywood Industries Research & Training Institute (IPIRTI), Bangalore. The objectives of the projects are as under:

1. To study energy requirement in different stages of production of BMCS in terms of electrical energy, fossil and other organic fuel.
2. To assess the entire route of processing of BMCS from harvesting of bamboo to ready to use product by the consumers to assign the BMCS as eco-friendly product.
3. To investigate whether any harmful pollutant is discharged during processing of BMCS and the extent of pollution of environment due to such discharge.
4. Formulate standard process for manufacture of BMCS with minimum energy and least discharge of harmful emission and pollutant.

The use of biodegradable bamboo as raw material for manufacture of durable roofing sheet is unique by itself. The present study has conclusively shown that it is low energy consuming compared to conventional roofing sheet like GI, plastic, aluminum etc. Although the energy consumption in the manufacture of BMCS is higher than ACC sheet, BMCS is ecofriendly while ACC sheet is unhygienic in nature. Moreover, using bamboo in making roofing sheet, a substantial amount of CO₂ is removed from air and stored in BMCS as lignocelluloses material. Polluting effect of environment due to effluent or emission during manufacture of BMCS is very low.

The net Carbon dioxide released during the production of BMCS & BMRC per ton is found to be 1.308 tons and that of steel being 3.8 tons and for Aluminum and plastic is 1.5 tons and 3.0 tons respectively. The carbon dioxide released during the production of BMCS & BMRC is less by 14%-19% when compared to the other existing roofing materials.

The energy audits determined that the combined total energy consumption was 22784 MJ for the manufacture of one ton of BMCS, while for Aluminum Galvanized iron and fiber reinforced plastic corrugated sheets consumption is 32,541.7 MJ and 77,190 MJ respectively which are very

high compared to BMCS & BMRC while for Asbestos roofing sheet the energy consumption is 430 MJ which is very less compared to all the existing roofing materials. However during the processing of Asbestos roofing sheet the health hazards (carcinogenic) is higher and is being banned in most of the countries.

From the study it is concluded that the formaldehyde emission levels are higher in the resin manufacturing zone which exceeds the E2 emission level, but subsequently during the actual processing and conversion into the final product the emission level is well within the tolerance limits of E1 emission level prescribed by the European standards. The manufacture of BMCS is thus has an edge over the other competitive roofing material with respect to energy efficiency, green house effect, storage of carbon and effect on environment.

8. Development of Design Methodology for Chemically Treated bamboo Reinforced Concrete Members for Low Cost Housing

The Council in association with IIT Kharagpur undertook a project for Development of Design Methodology for Chemically Treated bamboo Reinforced Concrete Members for Low Cost Housing.

Natural calamities indifferent forms such as flood, cyclone and earthquake etc. cause disasters on different types of structures especially non-engineered structures in rural areas. Thousand of dwelling units get destroyed due to such natural calamities in every year. Hence, it is necessary to pay attention to such non-engineered structures to provide safe and economical dwelling units affordable to rural and semi-urban masses. In this project, it is intended to develop a methodology for improving the efficacy of bamboo reinforced concrete components of buildings using polymers/chemicals on the bamboo surface and thus to increase the interface bonding of bamboo with concrete matrix which will result a strong, durable and lightweight concrete. Also, based on the developed materials, dwelling units of different modules will be developed to produce a safe and economical structural form, usable by common mass.

Thus, the focus of the present work as outlined is as follows:

- I. Development of bamboo reinforced concrete members such as column, beam, roof, slab wall and technologies which would be environment conducive and cost effective.
- II. Development of modular design of various types of DUs for different group of people. Provision of basic amenities such as a multipurpose room, a bath, a

W.C. and a kitchen will be made in each unit.

Following work has been completed under the project:

1. Preliminary work
 - Problem Definition and Model Objectives
 - Literature Study
 - Inventory and Preliminary Information
2. development of bamboo Reinforced Concrete Members
 - bamboo reinforced concrete beam, column
 - bamboo mat as reinforcing material for wall, slab and roof
 - increase of bond strength through chemical treatment
 - development of design methodology of different members
3. Design and Construction of Model houses
 - Compact design of model building unit
 - Construction and cost estimation of model houses(in progress)
 - Demonstration of model houses

The work has been completed till design of model building unit. The plan and other details of one bed room model houses have been finalized. Work is in progress on the cost estimation and construction of model houses using bamboo reinforced concrete members.

5. Cost Effective Value Added Thermal Insulation Tiles for Insulation Purpose

The Council has undertaken a project on 'Cost Effective Value Added Thermal Insulation Tiles for Insulation Purpose" in collaboration with Central Building Research Institute, Roorkee. The objectives of the project are:

- To develop roofing tiles using exfoliated vermiculite, cement and polymer binder.
- Characterization and optimization of develop tiles as per IS specifications.
- Optimization of operating parameters and to make prototype for field trials.

It is proposed in the project to work for achieving the following targets:

- Product i.e. Thermal insulated tiles
- Process know-how for commercialization
- Research papers and patent

The developed vermiculite cement tiles exhibited low water absorption, better strength properties and low thermal conductivity as compared with the conventional clay tiles

used for thermal insulation purpose. The tiles will be used to provide thermal insulation to the air conditioned room for housing, computer, equipments, cold storages etc.

It is found that increase of vermiculite content decreases compressive strength and increases water absorption of the resulting mixes. At higher loading, w/c ratio of the mix is comparatively more than the mix containing low vermiculite content because of porous nature of vermiculite flakes. The thermal conductivity of sheet is found in the range of 0.12-0.18 Kcal/m/hr/°C .when compared with conventionally used tiles, it is observed that water absorption is 33% less after 2 hrs soaking and 28% after 24 hrs respectively. About 61% increase in the flexural strength is noted probably due to reinforcing effect of vermiculite. The value of compressive strength of vermiculite cement tiles is comparable to the conventional tiles. The strength properties of vermiculite cement tiles determined after 7 days curing are almost same as that of 28 days water curing. This is attributed to the formation of polymer layer on the cement particles surface as a result water is trapped inside and contributing towards hydration of cement. Based on the results, it is concluded that vermiculite cement tiles exhibited low water absorption, better strength properties and low thermal conductivity compared with the conventional clay tiles used for thermal insulation purpose. Durability studies showed that there is no significant change in the appearance as well as strength properties of tiles.

VII. JAWAHARLAL NEHRU NATIONAL URBAN RENEWAL MISSION (JNNURM)

1. BMTPC's Role in Implementation of JNNURM

The Ministry of Housing & Urban Poverty Alleviation, Govt. of India, is implementing Basic Services to Urban Poor (BSUP) and Integrated Housing & Slum Development Programme (IHSDP) under the Jawaharlal Nehru National Urban Renewal Mission (JNNURM). The activities undertaken by BMTPC in implementation of the JNNURM are as given below:

Appraisal of Detailed Project Reports (DPRs)

BMTPC has been involved in the implementation of the JNNURM sub-components Basic Services to Urban Poor (BSUP) and Integrated Housing & Slum Development Programme (IHSDP) for Appraisal of DPRs, Monitoring of Projects, Third Party Inspection & Monitoring (TPIM) Reviews, and organization of capacity building programmes. The projects appraised by the Council include housing and other infrastructure services such as roads, water supply, sewerage, storm water drains, community facilities, health centres, education facilities etc.

During the year, the Council appraised 39 DPRs of BSUP projects received from Gujarat (8), Uttar Pradesh (1), Karnataka (4), West Bengal (12), Andhra Pradesh (3), Chandigarh (4), Arunachal Pradesh (2), Maharashtra (2), Tripura (1), Delhi (1) and Madhya Pradesh (1). The proposals worth Rs.2881.62 crores with Government of India share of Rs.1307.43 crores covering 73884 Dwelling Units.

The Council appraised 67 DPRs of IHSDP projects received from Maharashtra (15), Karnataka (7), Gujarat (12), Goa (1), Rajasthan (8), Haryana (8), Uttarakhand (1), Bihar (7), Mizoram (3), Nagaland (2), Manipur (1), Madhya Pradesh (1) and Himachal Pradesh (1). The proposals were worth Rs.1459.92 crores with Government of India share of Rs.771.79 crores covering 46857 Dwelling Units.

Monitoring of BSUP and IHSDP Projects

The Council is also designated as Monitoring Agency for monitoring of the BSUP and IHSDP projects. A detailed monitoring mechanism in consultation with the Ministry of HUPA has been evolved for effective monitoring of these projects. During the period, monitoring visits were undertaken at the following sites:

| S. No | State | City/Town | Location | No. of Projects |
|----------------------|------------------|----------------|---|-----------------|
| BSUP Projects | | | | |
| 1 | Maharashtra | Pune | Pimpri Chinchwad (Phase-I), for construction of 4960 DUs | 5 |
| | | | Pimpri Chinchwad (Phase-II), or construction of 4960 DUs | |
| | | | Pimpri Chinchwad (Phase-III) | |
| | | | Vithalnagar Slum | |
| | | | Wajre | |
| 2 | Uttar Pradesh | Varanasi | Jaiprakash Nagar Malin Basti | 3 |
| | | | Maheshpur Malin Basti, Distt. Varanasi | |
| | | | Ruppanpur Malin Basti, Distt. Varanasi | |
| | | Agra | BSUP scheme (Ph-IV) for the City of Agra with 3640 DUs | 1 |
| 3 | West Bengal | Kolkatta | Pujali Municipality (BSUP) | 1 |
| | | Asansol | Ph -1 | 4 |
| | | | Ph-II | |
| | | | Ph-III | |
| | | | Ph-IV | |
| 4 | Delhi | Delhi | Baprola Ph-II | 4 |
| | | | Bawana | |
| | | | Khanjawala, Ghogha & Baprola | |
| | | | Bawana, Narela & Bhorgarh (Bawana - II) | |
| 5 | Himachal Pradesh | Shimla | Shimla | 1 |
| 6 | Meghalaya | Shillong Ph-01 | Shillong (Ph-01) | 1 |
| | | Shillong Ph-02 | Shillong (Ph-02) | 1 |
| 7 | Gujarat | Surat | Surat | 2 |
| | | | Surat (Vip-Ref-irrglts in implm of JNNURm projects in Surat) | |
| | | Vadodra | Phase-I | 2 |
| | | | Phase-II | |
| | | Ahmedabad | AMC (Rehabltn of taxi men's and vendors) | 1 |
| 8 | Andhra Pradesh | Hyderabad | 1856 DUs ph-II | 5 |
| | | | 1976 DUs ph-1 | |
| | | | 2784 DUs ph-V | |
| | | | 2814 DUs ph-VII | |
| | | | 2800 DUs ph-VII | |
| 9 | Kerala | Kerala | Thiruvananthapuram Municipal Corporation | 1 |
| 10 | Jammu & Kashmir | Jammu | BSUP Project at Rajiv Nagar, Jammu | 2 |
| | | | Implementation of BSUP Project at Bhagwati Nagar, JAMMU | |
| 11 | Madhya Pradesh | Indore | Slum Redevelopment Scheme at different locations, Indore | 4 |
| | | | BSUP for 3000 DUs under Slum redevelopment and rehabilitation of identified slums | |
| | | | Housing for Urban Poor at Scheme No.134 | |

| S. No | State | City/Town | Location | No. of Projects |
|--|-------|-----------|---|-----------------|
| | | | BSUP for 3000 DUs under Slum redevelopment and rehabilitation of identified slums | |
| | | Ujjain | BSUP for 1320 DUs under Slum redevelopment and rehabilitation of identified slums | 1 |
| Total No. of Mission Cities Visited | | | | 17 |
| Total No. of BSUP Projects sites monitored | | | | 37 |

| S. No | State | City/Town | Location | No. of Projects |
|---------------------------------------|---------------|----------------------------|--|-----------------|
| IHSDP Projects | | | | |
| 1 | West bengal | Birnagar Municipality | Birnagar Municipality | 2 |
| | | Cooper's Camp Municipality | Cooper's Camp Municipality | |
| 2 | Jharkhand | Chatra | Chatra | 1 |
| 3 | Gujarat | Prantij | IHSDP Project for construction of 449 DUs at Prantij, Gujarat | 3 |
| | | Boriavi | HSDP Project for construction of 611 DUs at Boriavi, Gujarat | |
| | | Unjha | IHSDP Project for construction of 624 DUs at Unjha, Gujarat | |
| 4 | Uttar Pradesh | Sudamapuri, Ghaziabad | IHSDP project for construction of 1236 DUs at Sudamapuri, Ghaziabad, Uttar Pradesh | 1 |
| Total No. of IHSDP Towns Visited | | | | 7 |
| Total No. of IHSDP Projects monitored | | | | 7 |

Review of TPIM Reports

The Council is undertaking review of Third Party Inspection & Monitoring (TPIM) Reports for BSUP and IHSDP projects. During the year, TPIM Review of the following projects were undertaken and submitted to the JNNURM Mission Directorate:

| S.No | Name of State | TPIM Review Reports Submitted to Mission Directorate |
|------|-------------------|--|
| 1 | Andhra Pradesh | 6 |
| 2 | Arunachal Pradesh | 0 |
| 3 | Assam | 5 |
| 4 | Chandigarh | 2 |
| 5 | Chhattisgarh | 3 |
| 6 | Delhi | 4 |
| 7 | Gujarat | 3 |
| 8 | Haryana | 8 |
| 9 | Himachal Pradesh | 4 |
| 10 | Jammu & Kashmir | 0 |
| 11 | Karnataka | 24 |
| 12 | Kerala | 4 |
| 13 | Madhya Pradesh | 26 |
| 14 | Maharashtra | 17 |

| S.No | Name of State | TPIM Review Reports Submitted to Mission Directorate |
|-------|---------------|--|
| 15 | Manipur | 1 |
| 16 | Meghalaya | 1 |
| 17 | Mizoram | 3 |
| 18 | Nagaland | 2 |
| 19 | Orissa | 11 |
| 20 | Pudducherry | 1 |
| 21 | Punjab | 1 |
| 22 | Rajasthan | 3 |
| 23 | Tamilnadu | 5 |
| 24 | Tripura | 0 |
| 25 | Uttarakhand | 1 |
| 26 | Uttar Pradesh | 79 |
| 27 | West Bengal | 15 |
| Total | | 229 |

Capacity Building Programme on “Quality Assurance and TPIM of BSUP & IHSDP project under JNNURM”

On behalf of the Mission Directorate, JNNURM, Ministry of Housing & Urban Poverty Alleviation, Government of India, a number of Capacity Building Programmes on “Quality Assurance and TPIM of BSUP & IHSDP project under JNNURM” was organized by BMTPC. These include:

| S.No. | Location | Date | No. of Participants |
|-------|---------------------|----------------------|---------------------|
| 1. | Faridabad (Haryana) | 21-22-September 2011 | 22 |
| 2. | Indore(M .P) | 8-9-December 2011 | 52 |
| 3 | Patna (Bihar) | 27-28 December, 2011 | 24 |
| 4 | Chandigarh (UT) | 16-17 feb. 2012 | 49 |
| | Total | | 147 |

The objectives of these programmes were to enhance the capacity of the technical personnel of SLNA, ULB, PMU, PIU and representatives of State and Central TPIM agencies through presentations on various aspects of Quality Assurance during execution of Housing and infrastructure works. The programme also includes orientation of TPIM agencies and interaction with the State Govt. officials and field engineers on Quality Assurance and TPIM.



BMTPC Monitoring Teams visiting various BSUP and IHSDP project sites under Jawaharlal Nehru National Urban Renewal Mission (JNNURM)





Capacity Building Programme on Quality Assurance and TPIM for BSUP and IHSDP Projects under JNNURM organised by BMTPC at Indore from 8-9 December 2011



Capacity Building Programme on Quality Assurance and TPIM for BSUP and IHSDP Projects under JNNURM organised by BMTPC at Chandigarh from 16-17 February, 2012

ORGANISATION

The organizational structure depicting different functional units in the establishment of the Council is shown in form a chart at next page. As on 31st March, 2012, BMTPC had a staff strength 41 comprising 17 officers and 24 support staff and technicians/professionals hired on contract on project basis.

The Council has continued following administrative measures for bringing transparency, responsiveness and greater participation of the employees:

- Committee among the SC/ST officers and staff members for the welfare of the individual/people.
- Internal Committee for smooth functioning of the organization:
 - Construction Committee
 - Investment Committee
 - Advertisement Committee
 - Printing Committee
 - Local Purchase Committee
 - Store Purchase Committee
 - Transport Committee
 - Contractual Payment Committee
- BMTPC nominated an officer as nodal officer for implementation of the national IPV6 development road map;
- The Council has implemented the Result-Framework document (RFD)
- To redress citizen grievances, online handling of the public grievances through centralized public grievances redress and monitoring system has been initiated.
- Nominated an officer as the Director of grievances and an officer as Welfare Officer for smooth functioning of the organization and to find out the solution of the grievances of the staff members.
- Initiated appointment of the officers/staff on vacant posts on the basis of roster for SC/ST/OBC/General categories.
- Implementation of RTI Act, 2005
- Committee for Prevention of Sexual Harassment of women at workplace.

BUILDING MATERIALS & TECHNOLOGY PROMOTION COUNCIL

ORGANIZATIONAL STRUCTURE

PRESIDENT

Minister of Housing & Urban Poverty Alleviation

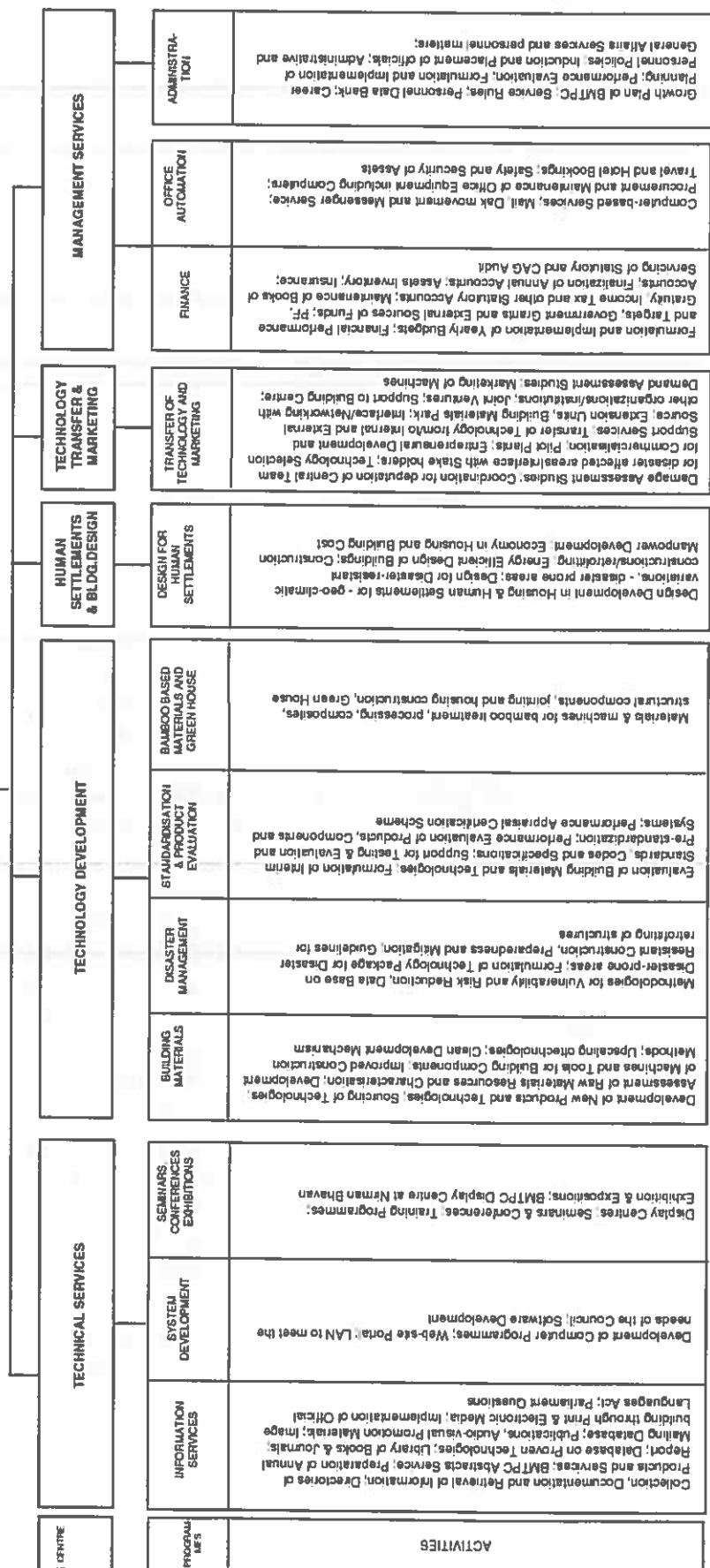
VICE-PRESIDENTS

Minister of State and Secretary, Ministry of HUPA

EXECUTIVE COMMITTEE

Chairman : Secretary, Ministry of HUPA

EXECUTIVE DIRECTOR



STAFF STRENGTH (as on 31.3.2011)

| <u>S.No.</u> | <u>Name & Designation</u> | <u>Date of Joining</u> |
|--------------|---|------------------------|
| 1. | Dr. Shailesh Kr. Agrawal <i>Executive Director</i> | 17.01.08 |
| 2. | S.Balasrinivasan <i>Chief-Finance</i> | 08.04.92 |
| 3. | J.K.Prasad <i>Chief-Building Materials</i> | 01.09.03 |
| 4. | M. Ramesh Kumar <i>Chief- Human Settlements & Building Design</i> | 01.04.03 |
| 5. | Arun Kumar Tiwari <i>Chief-Project Monitoring & Training & Administration</i> | 22.07.03 |
| 6. | S.K.Gupta <i>Deputy Chief- Technology, Demonstration Extension & International Cooperation</i> | 26.10.93 |
| 7. | Arvind Kumar <i>Deputy Chief- Management Information Systems</i> | 15.04.99 |
| 8. | Dr. Amit Rai <i>Deputy Chief</i> | 05.11.98 |
| 9. | Chandi Nath Jha <i>Deputy Chief- Standardization & Product Development</i> | 09.09.99 |
| 10. | Pankaj Gupta <i>Deputy Chief-Information & Documentation</i> | 14.10.99 |
| 11. | Richhpal Singh <i>Senior Field Officer- Demonstration Construction & Administration</i> | 23.02.94 |
| 12. | Dalip Kumar <i>Senior Field Officer- Demonstration Construction & Exhibition</i> | 04.03.91 |
| 13. | Alok Bhatnagar <i>Senior Field Officer- Evaluation & Exhibition</i> | 05.10.98 |
| 14. | Akash Mathur <i>Senior Field Officer- Architect</i> | 01.01.02 |
| 15. | S.M.Malhotra <i>Principal Private Secretary</i> | 09.04.99 |
| 16. | Anita Kumar <i>Sr. Programmer</i> | 03.10.96 |
| 17. | M.Ramakrishna Reddy <i>Liaison Officer (On deputation to Ministry of Corporate Affairs)</i> | 29.10.03 |
| 18. | Pankaj Gupta <i>Personnel Officer</i> | 01.03.94 |
| 19. | Praveen Suri <i>Systems Analyst</i> | 01.09.94 |
| 20. | S.S.Rana <i>Library Officer</i> | 01.04.98 |
| 21. | D.Prabhakar <i>Field Officer</i> | 29.01.04 |
| On Lien | | |
| | D.P.Singh <i>Engineering Design & Product Evaluation (30.12.2010)</i> | 05.10.98 |

ACCOUNTS

The Council received grants of Rs.550.00 lakhs from the Ministry of Housing & Urban Poverty Alleviation, Government of India. In addition, receipts from other sources like Fees, Consultancy, Training, JNNURM, Interest, Publications, etc. was Rs.530.76 lakhs during FY 2011-2012. The Council has also brought forward specific projects fund and grants to the tune of Rs.82.46 lakhs from the previous year.

The total expenditure incurred during the period from April, 2011 to March, 2012 was Rs.822.14 lakhs as detailed below:-

| Major Heads | Amount (In Rs.) |
|---|--------------------|
| • Expenses towards Infrastructure facilities, computers & automation systems | 10,06,123 |
| • Personnel Expenses | 2,56,71,949 |
| • Administration and Other Expenses | 83,29,153 |
| • Organisation and participation in various Seminars, Conferences, Workshops in India and abroad, Dissemination of technical know-how in form of brochures, leaflets, manuals, guidelines, etc., Capacity building cum hands-on training programmes for professionals as well as construction workforce | 1,03,96,433 |
| • Construction of Demonstration Housing Projects and other Structures in different parts of India including Tripura & under Vambay Scheme, expenditure on Financial Assistance for technology development/application and Sponsored Studies | 1,91,97,784 |
| • Expenses towards Appraisal, monitoring, capacity building and training programmes, Monitoring Cell and other activities relating to JNNURM and others | 1,76,12,495 |
| TOTAL | 8,22,13,937 |

The Accounts have been audited by M/s Matta & Associates, Chartered Accountants, the balance sheet and the statement of accounts of the year 2011-2012 is placed in the report.

MATTA & ASSOCIATES

Chartered Accountants

308, R.G. Trade Tower,
Plot No-B-7, Netaji Subhash Place,
Pitampura, New Delhi- 110 088.
matta_ca@yahoo.com
mattaassociates@gmail.com
www.mattaassociated.com

AUDITOR'S REPORT

The Members,
Building Materials & Technology Promotion Council,
New Delhi

1. We have audited the annexed Balance Sheet of '**Building Materials and Technology Promotion Council**', a society Registered under the Societies Registration Act, 1860 as on 31st March , 2012 together with the income and Expenditure Account and Receipts and Payment Account for the year ended on that date. These financial statements are the responsibility of the Council's management. Our responsibility is to express an opinion on these Financial Statements based on our audit.
2. We conducted our audit in accordance with auditing standards generally accepted in India. These standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of materials misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.
3. We further report that:
 - a. We have obtained all the information and explanations, which to the best of our knowledge and belief were necessary for the purpose of our audit;
 - b. In our opinion, proper books of accounts have been kept by the Council, so far as appears from our examination of the books of the Council;
 - c. The Balance Sheet, Income & Expenditure Account and Receipts & Payment Account dealt with by this report are in agreement with the books of account;
 - d. In our opinion and to the best of our information and according to the explanations given to us, the said accounts read with the accounting policies and notes forming part thereof give a true and fair view;
 - i. In the case of the Balance Sheet, of the state of affairs of the Council as at 31st March, 2012;
 - ii. In the case of Income and Expenditure Account of the excess of income over expenditure for the year ended on that date; and
 - iii. In the case of Receipt & Payment Account, of the receipts and payments made during the year ended on that date.

FOR MATTA & ASSOCIATES
CHARTERED ACCOUNTANTS

(Anil Matta) FCA,
PARTNER
M. No. 84835
F.R.N: 04259N

PLACE: DELHI
DATED: 26-09-2012



BALANCE SHEET AS ON 31 MARCH 2012

| | | Amount (₹) | |
|---|----------|--------------------|--------------------|
| | Schedule | 2011-12 | 2010-2011 |
| <u>CORPUS/CAPITAL FUND AND LIABILITIES</u> | | | |
| CORPUS/CAPITAL FUND | 1 | 1,000,000 | 1,000,000 |
| RESERVES AND SURPLUS | 2 | 210,057,332 | 187,032,035 |
| EARMARKED FUNDS | 3 | 5,890,967 | 8,245,879 |
| CURRENT LIABILITIES AND PROVISIONS | 4 | 3,362,329 | 2,255,033 |
| TOTAL | | 220,310,628 | 198,532,947 |
| <u>ASSETS</u> | | | |
| FIXED ASSETS | 5 | 40,592,387 | 41,157,818 |
| CURRENT ASSETS, LOANS & ADVANCES ETC. | 6 | 179,718,241 | 157,375,129 |
| TOTAL | | 220,310,628 | 198,532,947 |
| SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS | 15 | | |

S.B. Srinivasan
(S. Balasrinivasan)
Chief - Finance


(Dr. Shailesh Kr. Agrawal)
Executive Director

As per our report of even date attached.
for MATTA & ASSOCIATES
Chartered Accountants



Anil Matta, FCA
Partner
M.No.-084835
Firm No. 04259N

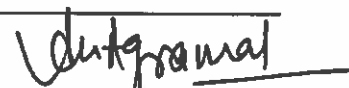
Place : Delhi
Date : 26/9/2012

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31 MARCH 2012


Amount (₹)

| | Schedule | 2011-12 | 2010-2011 |
|--|----------|--------------------|-------------------|
| INCOME | | | |
| Grants / Subsidies | 7 | 55,000,000 | 48,344,409 |
| Fees/Subscriptions | 8 | 35,184,144 | 6,967,325 |
| Income from Publications and PAC's Fee etc. | 9 | 509,109 | 1,256,208 |
| Interest Earned | 10 | 10,383,838 | 12,967,376 |
| TOTAL (A) | | 101,077,091 | 69,535,318 |
| EXPENDITURE | | | |
| Establishment Expenses | 11 | 25,939,651 | 24,786,277 |
| Administrative Expenses etc. | 12 | 8,331,003 | 7,210,608 |
| Expenditure on Training Programmes, Seminars/Workshops & JNNURM etc. | 13 | 25,289,592 | 17,521,273 |
| Expenditure on Financial Assistance, Sponsored Studies etc. | 14 | 16,919,994 | 11,824,479 |
| Depreciation | 5 | 1,571,554 | 1,715,796 |
| TOTAL (B) | | 78,051,794 | 63,058,433 |
| Excess of Income over Expenditure (A-B) | | 23,025,297 | 6,476,885 |
| BALANCE BEING SURPLUS / DEFECIT CARRIED TO BALANCE SHEET | | 23,025,297 | 6,476,885 |
| SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS | 15 | | |

S.B. Srinivasan
(S. Balasrinivasan)
Chief - Finance


(Dr. Shailash Kr. Agrawal)
Executive Director

As per our report of even date attached.
for MATTA & ASSOCIATES
Chartered Accountants


Anil Matta, FCA
Partner
M.No.-084835
Firm No. 04259N

Place : Delhi
Date : 26/9/2012



Building Materials & Technology Promotion Council
Ministry of Housing & Urban Poverty Alleviation, Government of India

RECEIPTS AND PAYMENTS FOR THE YEAR ENDED 31 MARCH 2012

| | Amount (₹) | |
|--|--------------------|--------------------|
| | 2011-12 | 2010-2011 |
| RECEIPTS | | |
| 1 Opening Balance | | |
| Cash Balances in hand | 61,949 | 206,106 |
| Bank Balances | | |
| With Scheduled Banks: | | |
| - On Deposit Account | 114,256,576 | 111,719,834 |
| - On Savings Accounts: | | |
| - Canara Bank (Parliament Street) | 1,720,318 | 446,716 |
| - Canara Bank (Hauzkhya) | 2,781,984 | 3,319,483 |
| - Canara Bank, Bangalore | 231,979 | 269,771 |
| - Canara Bank Parliament Street (VAMBAY Project) | 0 | 198,279 |
| - State Bank of Hyderabad (Scope Complex) | 16,722,473 | 30,589,438 |
| | 135,713,330 | 148,543,522 |
| 2 Grants-in-aid from Central Government (Ministry of Housing & Urban Poverty Alleviation) | 55,000,000 | 40,000,000 |
| 3 Receipts towards Fees/Consultancy & Training/Conferences/JNNURM | 35,184,144 | 11,717,325 |
| 4 Income from Publications etc. | 509,109 | 1,258,208 |
| 5 Interest Earned | 17,382,879 | 6,514,858 |
| 6 Loan & advances(Net) | - | 100,779 |
| Total | 243,851,411 | 298,338,798 |
| PAYMENTS | | |
| 1 Purchase of Fixed Assets | 1,006,123 | 42,859 |
| 2 Establishment Expenses | 25,671,949 | 30,910,346 |
| 3 Administrative Expenses, etc. | 6,329,153 | 7,347,787 |
| 4 Loan & advances(Net) | 3,482,458 | - |
| 5 Expenditure on Training Programmes, Seminars/Workshops, etc. | 6,913,975 | 5,043,936 |
| 6 Expenditure on Financial Assistance, Sponsored Studies, etc. | 16,842,672 | 62,246,530 |
| 7 Earmarked funds | | |
| Construction of Demonstration Buildings with cost effective technologies and technology Demonstration-cum-Production Centre in Tripura | 288,586 | 165,000 |
| Construction of Demonstration Houses Under Valmiki Ambedkar Awas Yojana | - | 95,000 |
| Model amendments in Town and Country Planning Act, Zoning Regulations | - | 160,189 |
| Capacity Building Training Programme on IPOMS, Quality Assurance and TPIM | 2,035,333 | 1,383,673 |
| Establishment of Bamboo Mat Production in N.E. States | 30,993 | 2,823,269 |
| 8 Expenditure on JNNURM & other activities | 17,612,495 | 12,565,723 |
| 9 Closing Balance | | |
| Cash Balances in hand | 164,267 | 61,949 |
| Bank Balances | | |
| With Scheduled Banks: | | |
| - On Deposit Account | 120,084,236 | 114,256,576 |
| - On Savings Accounts: | | |
| - Canara Bank (Parliament Street) | 35,961,669 | 1,720,318 |
| - Canara Bank (Hauzkhya) | 335,471 | 2,781,984 |
| - Canara Bank, Bangalore | 98,400 | 231,979 |
| - State Bank of Hyderabad (Scope Complex) | 4,973,431 | 16,722,473 |
| | 161,473,207 | 135,713,330 |
| Total | 243,851,411 | 298,338,798 |

S.B. Srinivasan
(S. Belasrinivasan)
Chief - Finance

As per our report of even date attached.
for MATTA & ASSOCIATES
Chartered Accountants

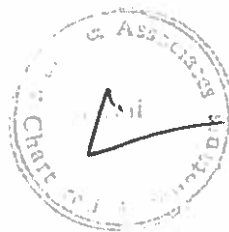
Anil Matta, FCA
Partner
M. No. 084835
Firm No. 03259N

(Dr. Shailesh Kr. Agrawal)
Executive Director

Place : Delhi
Date : 26/9/2012

SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31 MARCH 2012

| | Amount (₹) | |
|--|--------------------|--------------------|
| | 2011-12 | 2010-2011 |
| SCHEDULE 1- CORPUS/CAPITAL FUND | | |
| Balance as at the beginning of the year | 1,000,000 | 1,000,000 |
| TOTAL | 1,000,000 | 1,000,000 |
| SCHEDULE 2- RESERVES AND SURPLUS | | |
| | 2011-12 | 2010-2011 |
| 1. Capital Reserve | | |
| Opening Balance | 84,988,438 | 84,945,577 |
| Addition during the year | 1,006,123 | 85,994,559 |
| | | 42,859 |
| 2. Excess of Income over Expenditure | | |
| Opening Balance | 102,043,599 | 95,609,573 |
| Add : Amount transferred from Income & Expenditure A/c | 23,025,297 | 6,476,885 |
| | 125,068,896 | 102,086,458 |
| Less transferred to Capital Reserve | 1,006,123 | 124,062,773 |
| | | 42,859 |
| TOTAL | 210,057,332 | 187,032,035 |





SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31 MARCH 2012

Amount (₹)

| SCHEDULE 3- EARMARKED FUNDS | 2011-12 | 2010-2011 |
|---|------------------|------------------|
| 1 Construction of Demonstration Buildings with cost effective technologies and technology Demonstration-cum-Production Centre in Tripura | | |
| Opening Balance | 2,376,776 | 2,541,776 |
| Less : Utilisation/Expenditure during the year | 288,588 ✓ | 165,000 |
| | 2,088,190 | 2,376,776 |
| 2 Model amendments in Town and Country Planning Act, Zoning Regulations | | |
| Opening Balance | 536,801 | 696,990 |
| Less : Utilisation/Expenditure during the year | + | 160,189 |
| | 536,801 | 536,801 |
| 3 Establishment of Bamboo Mat Production Centres in North-Eastern States | | |
| Opening Balance | 1,872,591 | 2,881,998 |
| Less : Utilisation/Expenditure during the year | 30,993 ✓ | 1,009,407 |
| | 1,841,598 | 1,872,591 |
| 4 Construction of Demonstration Houses in Mizoram | | |
| Opening Balance | | 314,343 |
| | 314,343 | 314,343 |
| 5 Capacity Building Training Programme on IPDMS, Quality Assurance and TPIM | | |
| Opening Balance | 3,145,368 | 4,750,000 |
| Less : Utilisation/Expenditure during the year | 2,035,333 | 1,604,632 |
| | 1,110,035 | 3,145,368 |
| TOTAL | 5,890,967 | 6,245,879 |



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Building Materials & Technology Promotion Council
Ministry of Housing & Urban Poverty Alleviation, Government of India

SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31 MARCH 2012

Amount (₹)

| SCHEDULE 4- CURRENT LIABILITIES AND PROVISIONS | 2011-12 | 2010-2011 |
|---|------------------|------------------|
| <u>CURRENT LIABILITIES</u> | | |
| - Outstanding Liabilities | 2,634,080 | 1,524,284 |
| - Security Deposit | 658,277 | 660,777 |
| - Balance of funds received for developing building bye-laws | 19,972 | 19,972 |
| - Construction of Demonstration Houses Under Valmiki Ambedkar Awas Yojana | 50,000 | 50,000 |
| TOTAL | 3,382,329 | 2,255,033 |

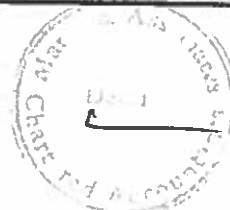


Amount (₹)



SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31 MARCH 2012

| SCHEDULE 6 - CURRENT ASSETS, LOANS, ADVANCES ETC. | | Amount (₹) | |
|--|-------------|--------------------|--------------------|
| | 2011-12 | 2010-2011 | |
| A. CURRENT ASSETS: | | | |
| 1. Cash in hand | | 164,267 | 61,949 |
| 2. Bank Balances | | | |
| - On Deposit Account | 120,084,238 | | 114,258,578 |
| - On Savings Accounts: | | | |
| - Canara Bank (Parliament Street) | 35,981,669 | | 1,720,318 |
| - Canara Bank (Hauzkhas) | 335,471 | | 2,781,984 |
| - Canara Bank, Bangalore | 98,400 | | 231,979 |
| - State Bank of Hyderabad (Scope Complex) | 4,973,431 | 161,473,207 | 16,722,473 |
| | | | 135,713,330 |
| B. LOANS, ADVANCES AND OTHER ASSETS | | | |
| 1. Loans to staff | | 4,324,409 | 3,228,622 |
| 2. Advances and other amounts recoverable in cash or in kind or value to be received | | | |
| a. TDS & other advances | 3,245,970 | | 861,799 |
| b. Security Deposit (Rent) | 420,000 | 3,665,970 | 420,000 |
| 3. Interest Accrued on FDR's | | 10,090,388 | 17,089,429 |
| TOTAL (A + B) | | 179,718,241 | 157,375,129 |



**SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED
AS ON 31 MARCH 2012**

| | Amount (₹) | |
|---|-------------------|-------------------|
| SCHEDULE 7- GRANTS/SUBSIDIES (Irrevocable Grants & Subsidies Received) | 2011-12 | 2010-2011 |
| Central Government (Ministry of Housing & Urban Poverty Alleviation, Government of India) | 55,000,000 | 40,000,000 |
| Add: Grants brought forwarded from FY 2009-10 & utilized in FY2010-11 | - | 8,344,409 |
| TOTAL | 55,000,000 | 48,344,409 |

| SCHEDULE 8 - FEES/SUBSCRIPTIONS | 2011-12 | 2010-2011 |
|--|-------------------|------------------|
| 1 Seminar/Programme Receipts | 775,245 | 1,180,325 |
| 2 a) Appraisal Fees from Ministry of Housing & Urban Poverty Alleviation | 29,303,000 | 5,787,000 |
| b) Monitoring Fees from Ministry of Housing & Urban Poverty Alleviation | 5,105,899 | - |
| TOTAL | 35,184,144 | 6,967,325 |

| SCHEDULE 9- INCOME FROM PACS FEE, PUBLICATION ETC. | 2011-12 | 2010-2011 |
|---|----------------|------------------|
| Receipts towards sale of publications, PACS etc | 509,109 | 1,256,208 |
| TOTAL | 509,109 | 1,256,208 |

| SCHEDULE 10- INTEREST EARNED | 2011-12 | 2010-2011 |
|--|-------------------|-------------------|
| 1 On Term Deposits With Scheduled Banks | 9,483,212 | 11,693,725 |
| 2 On savings Accounts With Scheduled Banks | 853,287 | 1,218,831 |
| 3 On Loans: Employees/Staff | 47,339 | 54,820 |
| TOTAL | 10,383,838 | 12,967,376 |

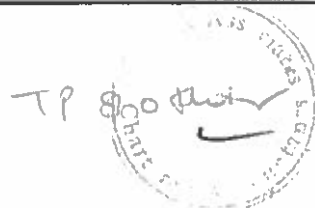
| SCHEDULE 11- ESTABLISHMENT EXPENSES | 2011-12 | 2010-2011 |
|--|-------------------|-------------------|
| 1 Pay and Allowances | 18,489,321 | 17,986,587 |
| 2 Contribution to Provident Fund | 2,257,788 | 1,987,281 |
| 3 Gratuity & Leave Encashment | 3,731,445 | 2,649,786 |
| 4 Leave Travel Concession | 307,876 | 507,862 |
| 5 Medical Expenses | 969,721 | 1,435,520 |
| 6 Consultancy/Retainership & Honorarium | 183,500 | 219,241 |
| TOTAL | 25,939,651 | 24,786,277 |



**SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT FOR THE
YEAR ENDED AS ON 31 MARCH 2012**

| | Amount (₹) | |
|---|------------------|------------------|
| SCHEDULE 12- ADMINISTRATIVE EXPENSES, ETC. | 2011-12 | 2010-2011 |
| ✓ 1. Travel and Local transport (365/373) | 2,905,506 | 3,275,160 |
| X 2. Postage, Telephone and Fax | 946,463 | 734,710 |
| X 3. Office Expenses | 340,450 | 279,663 |
| ✓ 4. Printing and stationery | 625,386 | 235,299 |
| ✓ 5. Office maintenance | 1,952,738 | 1,526,275 |
| ✓ 6. Rates & Taxes 362 | 518,641 | 402,342 |
| ✓ 7. Professional charges 350 | 266,579 | 150,532 |
| X 8. Membership Fee | 10,515 | 5,515 |
| 9. Office rent 381 | 363,272 | 307,384 |
| 10. Electricity Charges 348 | 399,315 | 288,981 |
| X 11. Bank Charges | 2,138 | 4,747 |
| TOTAL | 8,331,003 | 7,210,608 |

| SCHEDULE '13' - EXPENDITURE ON DISSEMINATION / SEMINARS/WORKSHOPS, TRAINING PROGRAMMES ETC. | 2011-12 | 2010-2011 |
|--|-------------------|-------------------|
| ✓ 1. Exhibition and publicity & Advertisement (555/563/567/569) | 2,938,068 | 1,225,411 |
| Review ✓ 2. Seminar and Conference Expenses 551/561/570 | 1,886,740 | 2,239,282 |
| ✓ 3. Printing & Publication | 1,635,587 | 1,003,812 |
| ✓ 4. Technology Transfer | - | 202,407 |
| 5. Books and Periodicals | 109,425 | 94,689 |
| 6. Training Programmes & Others (374 (637983+920892 (35559)) | 1,506,903 | 220,652 |
| ✓ 7. Monitoring and other Expenses for JNNURM Projects | 17,212,869 | 12,535,020 |
| Total | 25,289,592 | 17,521,273 |



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**Building Materials & Technology Promotion Council**

Ministry of Housing & Urban Poverty Alleviation, Government of India

**SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT FOR THE YEAR
ENDED AS ON 31 MARCH 2012**

Amount (₹)

| SCHEDULE '14' - EXPENDITURE ON FINANCIAL ASSISTANCE, SPONSORED STUDIES ETC. | | 2011-12 | 2010-2011 |
|--|-------------------|-------------------|------------------|
| 1 SPONSORED STUDIES | | | |
| Upscaling and modernisation of production technologies for wider application and commercialisation | 823,475 | 658,000 | |
| Vulnerability reduction risk assesment and disaster resistant construction technologies | 655,407 | 1,891,231 | |
| Development of technology on use of Bamboo in Housing | 585,000 | - | |
| Standardisation and product evaluation activities | 483,841 | - | |
| Strengthening the data base technology dissemination and demonstration capabilities | 2,324,980 | 881,699 | |
| Sub-Total | 4,872,703 | 3,428,930 | |
| 2 FINANCIAL ASSISTANCE FOR TECHNOLOGY DEMONSTRATION AND APPLICATION | | | |
| Dissemination and demonstration of cost effective technologies | 5,451,744 | 2,949,109 | |
| Promotion of disaster resistant technologies and seismic strenghtening of building | 241,210 | 2,467,940 | |
| Capacity Building of construction professionals and workers | 5,459,937 | - | |
| Promotion and application of bamboo based technologies in housing construction | 894,400 | 2,978,500 | |
| Sub-Total | 12,047,291 | 8,395,549 | |
| Total | 16,919,994 | 11,824,479 | |



SCHEDULE 15: SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS**1 Significant Accounting Policies**

- a) **System of Accounting** - The accounts have been prepared to comply with all material aspects with applicable principals in India and notified Accounting Standards.
- b) **Fixed Assets** - Fixed assets are stated at cost of acquisition and depreciation is provided at written down values rates and in the manner as specified in the Income Tax Act 1961.

c) **Retirement Benefits -**

1. The Council contributes to its own Provident Fund Trust which is recognized by the Income Tax authorities and the contributions paid during the year to Provident Fund Trust are charged to revenue.

2. Liability in respect of Gratuity to employees is provided for by way of annual premium paid to LIC under Group Gratuity Scheme.

3. Liability in respect of Leave Encashment payable to the employees is provided for by way of annual premium paid to LIC of master policy and the premium paid is charged to revenue.

- d) **General** - Accounting policies not specifically mentioned are otherwise in consonance with generally accepted accounting practices.

2 Contingent Liabilities - Claims against the Council not acknowledged as debts - NIL.

3. In opinion of the Management, the amount on realisation of current assets, loans and advances in the ordinary course of business would not be less than the amount at which they are stated in the Balance Sheet. Further, provision for all known liabilities has been made in the accounts.

4. As there being no taxable income under the Income Tax Act, 1961, provision for Income Tax has not been made in the accounts. The Council is regularly depositing TDS, Service Tax and other statutory liabilities. The same have been deposited timely except a few TDS cases.

5. In respect of office space at India Habitat Centre, Lodhi Road, New Delhi, the exact cost has not been apportioned by IHC amongst the different allottees. As such a sum of Rs. 3.43 crores has been capitalized by the Council on the basis of calls/payment made to IHC.

6. Deposits with Banks include a fixed deposit of Rs. 84,236/- pledged with Canara Bank in connection with Bank Guarantee issued by it in favour of Department of Value Added Tax, Govt. of NCT of Delhi.

7. Figures have been regrouped where ever required and all the above said information has been given by the management and relied upon by the auditors.

S. Balasrinivasan
(S. Balasrinivasan)
Chief - Finance

Dr. Shailesh Kr. Agrawal
(Dr. Shailesh Kr. Agrawal)
Executive Director

As per our report of even date attached.
for MATTA & ASSOCIATES
Chartered Accountants

Anil Matta
Anil Matta, FCA
Partner

Place : Delhi
Date : 26/9/2012

M.No.-084835
Firm No. 04259N

PARTICIPATION IN NATIONAL AND INTERNATIONAL EVENTS

I. EXHIBITIONS

During the year, the Council actively participated in the following exhibitions which have helped in sharing knowledge and experience in cost effective, environment friendly and energy efficient building materials, construction technologies and simple machines for production of building components:

- 15th National Exhibition on Evolution of India as a Great Nation in the 21st Century" from 7-11 September, 2011 at Bhairab Ganguly College Maudan, Kolkata.
- Uttarakhand Science Expo - A Mega Exhibition during 21 - 23 September, 2011 at Dehradun, Uttarakhand.
- Exhibition on Emerging Housing & Building Technologies of BMTPC and HUDCO Build Tech, 2011 inaugurated by the Hon'ble Minister for Housing & Urban Poverty Alleviation, Kumari Selja during 14-27 November, 2011 at India International Trade Fair at Pragati Maidan, New Delhi.
- 17th Asia Construct International Conference & Exhibition 13 – 15 December, 2011 at India Habitat Centre, New Delhi.
- "3rd Vision Rajasthan 2012" – A Mega Exhibition from 15 – 17 January, 2012 at Rajasthan.
- Exhibition during Municipalika 2011 on "Affordable Housing for All" from 23-25 January 2012 at Chennai.

II SEMINARS/ CONFERENCES/ WORKHOPS/TRAINING PROGRAMMES/ PRESENTATIONS etc.

- Presentation on the activities of BMTPC with regard to cost effective, innovative and emerging housing technologies during visit of Delegation from Indonesia led by Hon'ble Minister for Housing to BMTPC on 25 April, 2011....*Dr. Shailesh Kr. Agrawal*
- Conference on Affordable Housing: A Blue Print for Haryana organized by PHDCCI on 8 July, 2011 at Ambala....*Dr. Shailesh Kr. Agrawal*
- Regional Programme on Sensitization and Confidence Building in Alternate Housing Technologies at Ahmedabad on 22 July, 2011...*Dr. Shailesh Kr. Agrawal, Shri J.K.Prasad, Shri Dalip Kumar*

- Conference on Emerging Technology in Construction Industry organized by PHDCCI on 5 August, 2011 at New Delhi. ...*Dr. Shailesh Kr. Agrawal*
- Organisation of 'Sensitization Programme on Confidence Building in Alternate Housing Technologies' for North Eastern Region at Guwahati on 5 August, 2011 ...*Dr. Shailesh Kr. Agrawal, Shri J.K.Prasad, Shri A.K.Tiwari*
- Organisation of 'Sensitization Programme on Confidence Building in Alternate Housing Technologies' for Eastern Region at Kolkata on 16 August, 2011....*Dr. Shailesh Kr. Agrawal, Shri J.K.Prasad*
- Training Course on Earthquake Resistant Design and Construction in collaboration with Centre of Excellence in Disaster Mitigation & Management, IIT, Roorkee from 1-3 September 2011 organised by BMTPC at New Delhi...*Dr. Shailesh Kr. Agrawal, Shri J.K.Prasad, Shri Dalip Kumar, Shri Alok Bhatnagar*
- Conference on Rental Housing : The Challenges and Opportunities organized by NAREDCO in association with M/o HUPA at New Delhi on 23 September, 2011.....*Dr. Shailesh Kr. Agrawal*
- Workshop on Disaster Management & Earthquake Engineering organized by UNDP at Modinagar, Ghaziabad on 23-24 September, 2011. ...*Dr. Shailesh Kr. Agrawal*
- Programme on Disaster Reduction Day organized by National Institute of Disaster Management (NIDM) at New Delhi on 12 October, 2011...*Dr. Shailesh Kr. Agrawal*
- Workshop on Green Housing Project organized by Lonar Municipal Corporation and talk on cost effective green technologies at Lonar, Maharashtra on 13 October, 2011...*Shri J.K.Prasad*
- Workshop on Current Scenario of Seismic Microzonation in India on 14 October, 2011 at CSIR Auditorium, Rafi Marg, New Delhi...*Dr. Shailesh Kr. Agrawal*
- IOC-ARC Regional Workshop on Cost Effective Housing Technology in Colombo, Sri Lanka from 17 – 18 October, 2011 ...*Dr. Shailesh Kr. Agrawal*
- International Seminar on Cost-Effective, Energy

Efficient & Ecologically Appropriate Building Materials & Technologies for Housing organized by BMTPC at New Delhi on 26 November, 2011...*Dr. Shailesh Kr. Agrawal, Shri J.K.Prasad, Shri A.K.Tiwari, Shri S.K.Gupta, Shri Dalip Kumar, Shri Alok Bhatnagar*

- National Conference on JNNURM on completion of 6 years of JNNURM inaugurated by the Hon'ble Prime Minister of India organized by Ministry of Housing & Urban Poverty Alleviation at New Delhi on 13 December, 2011...*Dr. Shailesh Kr. Agrawal*
- Resource facility in the NPCBAREM Training Programme for Architects on Seismic Safety of Buildings organized by Manipal University at Manipal from 13-15 December, 2011....*Dr. Shailesh Kr. Agrawal*
- Orientation Programme titled "Green Building Design: Concepts & Application" organized by Visvesvaraya National Institute of Technology at Nagpur on 16 December, 2011...*Dr. Shailesh Kr. Agrawal*
- Conference on "Disaster Mitigation & Management" (DMM) organized by IIT Roorkee at Roorkee during 16-18 December, 2011...*Dr. Shailesh Kr. Agrawal*
- National Consultation on Central Law on Street Vending: A new Deal to Street Vendors organized by the Ministry of HUPA at New Delhi on 23 December, 2011 ...*Dr. Shailesh Kr. Agrawal and other senior officers of the Council*
- Training course on "Codal Practices on Earthquake Resistant Design and Construction" organized by BMTPC at New Delhi on 28-30 December, 2011 ...*Dr. Shailesh Kr. Agrawal and other senior officers of the Council*
- Brain Storming session on Introduction of a Course on Sustainable Building Technology for Engineering & Architecture Education for undergraduates organized by BMTPC at New Delhi on 6 January, 2012 ...*Dr. Shailesh Kr. Agrawal, Shri J.K.Prasad, Shri S.K.Gupta*
- National Level Consultation on Real Estate (Regulation & Development) Bill, 2011 organized by Ministry of Housing & Urban Poverty Alleviation at New Delhi on 11 January, 2012 ...*Dr. Shailesh Kr. Agrawal*
- Valedictory Address in the National Conference on Energy Efficient Design of Buildings: Seeking Cost Effective Solutions organized by Deenbandhu Chhotu

Ram University of Science & Technology at Murthal, Sonapat on 7 February, 2012...*Dr. Shailesh Kr. Agrawal*

- Co-chaired Session on Damage Assessment Tools during the National Workshop on Sikkim Earthquake 2011 organized by National Institute of Disaster Management (NIDM) at New Delhi on 9 February, 2012...*Dr. Shailesh Kr. Agrawal*
- Lecture on Flyash and its Utilisation during executive engineers training programme organized by National Training Academy of Employees State Insurance Corporation at New Delhi on 16 February, 2012...*Shri J.K.Prasad*

III TECHNICAL COMMITTEE/ WORKING GROUPS /MEETINGS ETC.

- Meeting of the Task Force under the Chairmanship of Dr. P.K. Mohanty, Addl. Secretary (Mission) regarding repositioning of BMTPC at New Delhi on 4 April, 2011.... *Dr. Shailesh Kr. Agrawal*
- Meeting with officials from National Institute of Technical Teachers Training Research, Bhopal regarding initiating a Teachers Training Programme at New Delhi on 5 April, 2011... *Dr. Shailesh Kr. Agrawal*
- Standing Committee Meeting on Demand for Grants for 2011-12 in the Committee Room, Parliament Annexe, New Delhi on 6 April, 2011....*Dr. Shailesh Kr. Agrawal*
- Visit to Kolkata to explore the structural efficacy of the in situ single storey houses constructed using 4" walls with columns on 7 April, 2011.....*Dr. Shailesh Kr. Agrawal alongwith Director, CBRI and HUDCO Team*
- Second meeting of the TAG for evaluation of Global Expression of Interest on Emerging Technologies at BMTPC on 8 April, 2011.... *Dr. Shailesh Kr. Agrawal, Shri J.K.Prasad, Shri S.K.Gupta*
- Appraisal and review of JNNURM projects at Mumbai on 14-15 April, 2011....*Dr. Shailesh Kr. Agrawal alongwith Ministry officials*
- 37th Executive Committee meeting of BMTPC at New Delhi on 27 April, 2011... *Dr. Shailesh Kr. Agrawal*
- 108th meeting of CSMC and 104th meeting of CSC of JNNURM at New Delhi on 27 April, 2011... *Dr. Shailesh*

Kr. Agrawal, Shri C.N.Jha, Shri Pankaj Gupta

- Third meeting of the Technology Advisory Group (TAG) for evaluation of Global Expression of Interest on Emerging Technologies in BMTPC Conference Room on 6th May, 2011... *Dr. Shailesh Kr. Agrawal, Shri J.K.Prasad, Shri S.K.Gupta*
- 109th meeting of CSMC and 105th meeting of CSC of JNNURM at New Delhi on 6 May, 2011... *Dr. Shailesh Kr. Agrawal, Shri C.N.Jha, Shri Pankaj Gupta*
- Review and monitoring of BSUP projects of JNNURM in Himachal Pradesh at Shimla on 11-12 May, 2011..... *Dr. Shailesh Kr. Agrawal along with OSD (JNNURM)*
- Meeting on National Mission on Sustainable Habitat at New Delhi on 16 May, 2011.....*Dr. Shailesh Kr. Agrawal*
- Review and monitoring of BSUP projects of JNNURM in Varanasi City on 18-20 May, 2011... *Dr. Shailesh Kr. Agrawal along with HUDCO Team and experts from CBRI*
- Meeting with Dr. Ranjeet Mehta, Secretary, PHD at 11.30 A.M. and with Shri H.C. Puri, Sr. Project Director, DSIIDC at New Delhi on 24 May, 2011.....*Dr. Shailesh Kr. Agrawal*
- Inter-Ministerial Meeting regarding Follow-up of India Africa Forum summit (IAFS) 2008 in the Ministry of External Affairs on 27 May, 2011 ...*Dr. Shailesh Kr. Agrawal, Shri S.K.Gupta*
- 110th meeting of CSMC and 106th meeting CSC of JNNURM at New Delhi on 30 May, 2011... *Dr. Shailesh Kr. Agrawal, Shri C.N.Jha, Shri Pankaj Gupta*
- Consultative Meeting on Fly Ash Utilization at New Delhi on 3 June, 2011 ... *Dr. Shailesh Kr. Agrawal*
- 111th meeting of CSMC and 107th meeting of CSC of JNNURM at New Delhi on 10 June, 2011... *Dr. Shailesh Kr. Agrawal, Shri C.N.Jha, Shri Pankaj Gupta*
- Preparatory meeting on RAY organized by Ministry of HUPA at New Delhi on 14-15 June, 2011...*Dr. Shailesh Kr. Agrawal*
- 38th Executive Committee meeting of BMTPC at New Delhi on 15 June, 2011... *Dr. Shailesh Kr. Agrawal*

- Meeting on Implementation of Projects/Schemes in North Eastern States organized by Ministry of HUPA at New Delhi on 16 June, 2011...*Dr. Shailesh Kr. Agrawal*
- Meeting in the Chamber of Dr.B.Bhattacharjee, Member, NDMA along with Dr. Arunachalam, Head & Scientist-G, SERC, Chennai to discuss various modalities and scope of work on preparation of Wind (Cyclone) Hazard Maps for India organized by NDMA at New Delhi on 16 June, 2011...*Dr. Shailesh Kr. Agrawal, Shri J.K.Prasad*
- 112th CSMC and 108th meeting of CSC of JNNURM at New Delhi on 17 June, 2011... *Dr. Shailesh Kr. Agrawal, Shri C.N.Jha, Shri Pankaj Gupta*
- Meeting on Retrofitting of Structures organized by NDMA at New Delhi on 22 June, 2011..... *Dr. Shailesh Kr. Agrawal*
- Visit to Agra for monitoring and examination of quality of construction of BSUP Projects under JNNURM in Agra on 23-24 June, 2011...*Dr. Shailesh Kr. Agrawal alongwith with HUDCO Team and experts from CBRI*
- Deliberations organized by AICTE on 'Construction & Infrastructure Sector' at New Delhi on 27 June, 2011 ... *Dr. Shailesh Kr. Agrawal*
- Consultation meeting on "Land and Housing for the Urban Poor" for the 12th Plan Working Group on Urban Poverty organized by HUDCO at New Delhi on 28 June, 2011..... *Dr. Shailesh Kr. Agrawal*
- Round Table on "Creating PPP in Mass Housing" organized by CII at New Delhi on 28th June, 2011..... *Dr. Shailesh Kr. Agrawal*
- Meeting with Dr. Yogesh Kajayle and Sanjiv Kumar, Director (Finance), DSIIDC regarding technical assistance to housing project at New Delhi on 28 June, 2011..... *Dr. Shailesh Kr. Agrawal*
- Visited Project Sites under JNNURM in Ghaziabad on 29 June, 2011.....*Dr. Shailesh Kr. Agrawal alongwith JS (H)*
- Visit to Ambala & Panchkula to participate in the Review Meeting of JNNURM under the chairpersonship of Hon'ble Minister for Housing & Urban Poverty Alleviation and Culture on 1 July 2011...*Dr. Shailesh Kr. Agrawal along with OSD (JNNURM) & Director NBO*

and Director (Housing)

- Presentation on the activities of BMTPC before the Secretary (HUPA) on 7 July, 2011..... *Dr. Shailesh Kr. Agrawal*
- 113th meeting of CSMC and 108th meeting of CSC of JNNURM at New Delhi on 12 July, 2011... *Dr. Shailesh Kr. Agrawal, Shri C.N.Jha, Shri Pankaj Gupta*
- Meeting with the representatives of Dr. Fixit Institute of Structural Protection & Rehabilitation' for conducting technical training programmes at New Delhi on 13 July, 2011... *Dr. Shailesh Kr. Agrawal*
- Regional Review meeting of BSUP & IHSDP projects for the States of Uttar Pradesh and Uttarakhand at Lucknow on 15 July, 2011 ...*Dr. Shailesh Kr. Agrawal*
- Meeting with Shri Sunil Kr. Gulati, Principal Secretary, Haryana Housing Board, Govt. of Haryana regarding promotion of innovative cost effective housing technologies at New Delhi on 18 July, 2011...*Dr. Shailesh Kr. Agrawal*
- Visit to Demonstration Construction Projects of BMTPC at Pinjore and Ambala on 20 July, 2011... *Dr. Shailesh Kr. Agrawal alongwith JS (H), Shri J.K.Prasad*
- Meeting was convened by DSIIDC under the chairmanship of ED, BMTPC to suggest appropriate technology for construction of temporary/semi-permanent/permanent structures at New Delhi on 27 July, 2011.....*Dr. Shailesh Kr. Agrawal*
- 4th meeting of the Working Group on Environmental Sustainability of Indian Cities constituted in the context of formulation of the Twelfth Five Year Plan (2012-17) under the Chairmanship of Dr. Prodipto Ghosh, Distinguished Fellow, TERI and ex-environment and Forest Secretary, Government of India at New Delhi on 27 July, 2011 ... *Dr. Shailesh Kr. Agrawal*
- Deliberations on Rajiv Awas Yojana (RAY) involving State Secretaries organized by Ministry of Housing & Urban Poverty Alleviation at New Delhi on 29 July, 2011 ... *Dr. Shailesh Kr. Agrawal*
- One day conference of State Ministers in-charge of Housing, Urban Development, Municipal Affairs/Local Self Government at New Delhi on 30 July, 2011 at Vigyan Bhawan, New Delhi...*Dr. Shailesh Kr. Agrawal*

alongwith senior officers from BMTPC

- Meeting regarding BSUP Project at Raipur executed by HPL chaired by JS(H) at New Delhi on 3 August, 2011... *Dr. Shailesh Kr. Agrawal*
- Discussions with the State and Nagaland Bamboo Development Agency officials to explore possibilities for establishment of a Bamboo Mat Production Centre (BMPC) in Nagaland at Dimapur on 6 August, 2011 ...*Dr. Shailesh Kr. Agrawal, Shri A.K.Tiwari, Dr.Amit Rai*
- Meeting for discussion on (i) Toolkit for PMC including tentative costing and (ii) Presentation on DPR Tracking Tool for Rajiv Awas Yojana (RAY) at New Delhi on 9 August, 2011.....*Dr. Shailesh Kr. Agrawal*
- 39th meeting of the Executive Committee of BMTPC in the Chamber of Secretary (HUPA) at New Delhi on 12 August, 2011.....*Dr. Shailesh Kr. Agrawal*
- 114th CSMC and 110th meeting of CSC of JNNURM at New Delhi on 18 August, 2011... *Dr. Shailesh Kr. Agrawal, Shri C.N.Jha, Shri Pankaj Gupta*
- Deliberations in Scope Complex and HUDCO Conference Room regarding Interaction with States to get feedback on Guidelines on community participation and slum free city planning and finalization of Training Calendar through the National Resource Centres under 'RAY' at New Delhi on 18-19 August, 2011.....*Dr. Shailesh Kr. Agrawal*
- Capacity Building Programme on Schemes of Ministry of HUPA for Officers and Members of Monitoring Committee for IHSDP Schemes at Ambala on 23 August, 2011..... *Dr. Shailesh Kr. Agrawal alongwith OSD (JNNURM) & Director, NBO and HUDCO & BMTPC officials*
- Meeting with Shri Sanjiv Kumar, JS, M/o Rural Development on Nimrithi Kendras in CMD, HUDCO's chamber at New Delhi on 24 August, 2011...*Dr. Shailesh Kr. Agrawal*
- Meeting with Dr. Ranjeet Mehta, Secretary, Infrastructure, Energy Housing & Urban Development, PHD Chamber of Commerce and Industry on 24 August, 2011.....*Dr. Shailesh Kr. Agrawal*
- 115th CSMC and 111th meeting of CSC of JNNURM at New Delhi on 30 August, 2011... *Dr. Shailesh Kr.*

Agrawal, Shri C.N.Jha, Shri Pankaj Gupta

- 116th CSMC and 112th meeting of CSC of JNNURM on 12th September, 2011.....*Dr. Shailesh Kr. Agrawal*
- Visit to Aizwal and Mijoram for review meeting on Urban Conclave Programme held under the Chairpersonship of Hon'ble Minister for HUPA in Mizoram for North Eastern States and inspection of JNNURM (BSUP & IHSDP) Projects in Mizoram from 15-17 September, 2011 *Dr. Shailesh Kr. Agrawal, Shri C.N.Jha*
- Organized a Capacity Building Programme on TPIM reporting and its analysis for the States of Haryana, Kerala, West Bengal and Delhi alongwith State TPIM Agencies and Central TPIM at Faridabad from 21-22 September, 2011 *Dr. Shailesh Kr. Agrawal*
- 117th CSMC and 113th meeting of CSC of JNNURM at New Delhi on 28 September, 2011... *Dr. Shailesh Kr. Agrawal, Shri C.N.Jha, Shri Pankaj Gupta*
- First meeting of Committee to examine existing appraisal procedures for JNNURM projects at New Delhi on 31 October, 2011.....*Dr. Shailesh Kr. Agrawal*
- 119th CSMC and 115th meeting of CSC of JNNURM at New Delhi on 9 November, 2011..... *Dr. Shailesh Kr. Agrawal, Shri C.N.Jha, Shri Pankaj Gupta*
- Meeting of the CED 58 : Sustainability Sectional Committee organized by BIS at New Delhi on 17 November, 2011...*Shri J.K.Prasad*
- First meeting of Core group to look into various aspects relating to Retrofitting of buildings and open Ground Storey building to make them earthquake resilient organized by NDMA at New Delhi on 18 November, 2011*Dr. Shailesh Kr. Agrawal*
- First meeting of CSMC of RAY at New Delhi on 21 November, 2011.....*Dr. Shailesh Kr. Agrawal*
- 120th CSMC and 116th meeting of CSC of JNNURM at New Delhi on 24 November, 2011..... *Dr. Shailesh Kr. Agrawal, Shri C.N.Jha, Shri Pankaj Gupta*
- Review meeting on Unbalanced and Pending Utilization Certificates with State/UTs under various schemes of Ministry of Housing & Urban Poverty Alleviation at New Delhi on 28 November, 2011...*Dr. Shailesh Kr. Agrawal*

- Standing Committee on Urban Development on Progress of JNNURM (2011-12) – BSUP & IHSDP including implementation of Urban Infrastructure Development Scheme in Small & Medium Towns (UIDSSMT) at New Delhi on 30 November, 2011..... *Dr. Shailesh Kr. Agrawal*
- Excellence in Implementation of JnNURM (BSUP & IHSDP) organized by Ministry of Housing & Urban Poverty Alleviation and distribution of Trophies/Mementoes to best performer UTs/ULBs/States on 13 December, 2011... *Dr. Shailesh Kr. Agrawal*
- Capacity Building Programme on 'Quality Assurance' through TPIM at Indore from 7-9 December 2011 ... *Dr. Shailesh Kr. Agrawal, Shri Pankaj Gupta*
- 121st CSMC and 117th meeting of CSC of JNNURM at New Delhi on 29 December, 2011... *Dr. Shailesh Kr. Agrawal, Shri C.N.Jha, Shri Pankaj Gupta*
- Second CSMC meeting of RAY at New Delhi on 19 January, 2012..... *Dr. Shailesh Kr. Agrawal*
- 122nd CSMC and 118th CSC meeting of JNNURM at New Delhi on 20 January, 2012...*Dr. Shailesh Kr. Agrawal*
- Visit of the Technology Advisory Group (TAG) to construction site at Kolkata to see the actual construction being carried out there under Panel Building System using Steel-mesh, Polystyrene Core and Chipping Concrete (EMMEDUE System) of Malaysia on 27th January, 2012 *Dr. Shailesh Kr. Agrawal, Shri J.K.Prasad*
- Visit of the Technology Advisory Group (TAG) to DDA EWS site projects regarding new technologies i.e. EMMEDUE System – polystyrene, steel-mesh etc. being used in construction of houses by M/s B.G. Shirke Construction Pvt. Ltd. at Rohini and Dwarka on 4 February, 2012.....*Dr. Shailesh Kr. Agrawal, Shri J.K.Prasad*
- 123rd CSMC and 119th CSC meeting of JNNURM at New Delhi on 9 February, 2012... *Dr. Shailesh Kr. Agrawal, Shri C.N.Jha, Shri Pankaj Gupta*
- Fourth Meeting of CED46:P19 – Panel for Sustainability organized by BIS at New Delhi on 9 February, 2012...*Shri J.K.Prasad*

- 40th EC meeting of BMTPC at New Delhi on 15 February, 2012..... Dr. Shailesh Kr. Agrawal
- Visit to Chandigarh to organize regional level capacity building programme for 'Quality Assurance & TPIMA' under JNNURM at Chandigarh from 15-17th February, 2012Dr. Shailesh Kr. Agrawal, Shri Pankaj Gupta
- 124th CSMC and 120th CSC meeting of JNNURM at New Delhi on 17 February, 2012..... Dr. Shailesh Kr. Agrawal, Shri C.N.Jha, Shri Pankaj Gupta
- 125th CSMC and 121st CSC meeting of JNNURM at New Delhi on 28 February, 2012...Dr. Shailesh Kr. Agrawal, Shri C.N.Jha, Shri Pankaj Gupta
- 126th CSMC and 122nd CSC meeting of JNNURM at New Delhi on 2 March, 2012...Dr. Shailesh Kr. Agrawal, Shri C.N.Jha, Shri Pankaj Gupta
- Meeting with official delegation from Madagascar to BMTPC led by their Head of the Disaster Prevention and Emergency Management Unit at the Prime Minister's Office (CPGU), Madagascar who were on a study tour to India to learn about steps taken to manage situation arising out of natural calamities at New Delhi on 2 March, 2012Dr. Shailesh Kr. Agrawal
- Visit of the Technology Advisory Group (TAG) to factory site of M/s Synergy Telecommunications at Mohali Punjab to see G+3 Load Bearing Construction using Polystyrene Insulated Panels and Steel Mesh for detailed discussions on the system for adaptation on 3 March, 2012...Dr. Shailesh Kr. Agrawal, Shri J.K.Prasad
- 127th CSMC and 123rd CSC meeting of JNNURM at New Delhi on 6 March, 2012...Dr. Shailesh Kr. Agrawal, Shri C.N.Jha, Shri Pankaj Gupta
- Meeting of Expert Committee on Rejuvenation and Strengthening of National Network of Building Centres at New Delhi on 7 March, 2012 at HUDCO office..... Dr. Shailesh Kr. Agrawal
- Meetings on Utilisation of Flyash in construction of highway/roads organized by Central Electricity Authority at New Delhi on 11-12 March, 2012... Shri J.K.Prasad
- 128th CSMC and 124th CSC meeting of JNNURM at New Delhi on 13 March, 2012.....Dr. Shailesh Kr.

Agrawal, Shri C.N.Jha, Shri Pankaj Gupta

- Meeting with Chief Engineer, Orissa State Housing Board regarding Confidence Building in Alternate Housing Technologies at Bhubaneshwar on 15 March, 2012... *Shri J.K.Prasad*
- 11th Meeting of CED 2 and CED 2-1 on Cement and Concrete Sectional Committee organized by BIS at New Delhi on 19 March, 2012... *Shri J.K.Prasad*
- 129th CSMC and 125th CSC meeting of JNNURM at New Delhi on 20 March, 2012.....*Dr. Shailesh Kr. Agrawal, Shri C.N.Jha, Shri Pankaj Gupta*
- Meeting on 'Categorization of Houses' chaired by Addl. Secretary (JNNURM) at New Delhi on 22 March, 2012.....*Dr. Shailesh Kr. Agrawal*
- 130th CSMC and 126th CSC meeting of JNNURM at New Delhi on 23 March, 2012.....*Dr. Shailesh Kr. Agrawal, Shri C.N.Jha, Shri Pankaj Gupta*
- 10th Meeting of Earthquake Engineering Sectional Committee organized by BIS at New Delhi on 16 March, 2012... *Shri J.K.Prasad*
- 131 CSMC and 127 CSC meeting of JNNURM at New Delhi on 28 March, 2012.....*Dr. Shailesh Kr. Agrawal, Shri C.N.Jha, Shri Pankaj Gupta*
- A series of Meetings on National Bamboo Mission... *Dr. Shailesh Kr. Agrawal, S.K.Gupta.*

IV OTHER ACTIVITIES

- A number of visits were undertaken by officers of BMTPC to Bitna Road, Khojkipur and Pinjore in Haryana to assess the progress of the Demonstration Housing Projects being implemented there. The Officers also met the concerned authorities as also Surpanch Bitna for extending all necessary help in successful completion of the projects.
- Executive Director, BMTPC visited Singapore as a part of Indian Delegation to understand the use of alternate technologies in construction of residential houses sponsored by DSIIDC from 29 May, 2011 to 3 June, 2011.

- Executive Director, BMTPC made a presentation on BMTPC's role in Habitat Sector during an Interactive Session coordinated by HUDCO with the visiting Dignitary Dr. Joan Clos, Under Secretary General and Executive Director, UN Habitat on 29 September, 2011.
- Executive Director, BMTPC visited IIT, Roorkee as external examiner for Ph D viva voce examination of Civil Engineering student Mr. S.R. Bhagat on the topic : Strengthening of RC Columns using FRP Wraps from 3-5 October, 2011.
- Executive Director, BMTPC participated in the IOR-ARC Regional Workshop on Cost-Effective Housing Technologies and made presentation on Innovative Housing Technologies for Affordable Housing in India at Colombo, Sri Lanka from October 17-18, 2011.
- BMTPC Departmental Promotion Committee comprising of technical experts under the Chairmanship of Executive Director, BMTPC met on 4 May, 2011 for adjudging suitability of employees of BMTPC working in the scale of pay of Rs.5200-20200 (PB-1) and Rs.9300-34800 (PB-2) for promotion to the next higher grade of pay and scale of pay against different vacant posts

PAPERS PRESENTED/PUBLISHED

- Presentation on BMTPC Activities to Hon'ble Minister for Housing Republic of Indonesia, April 20, 2011, New Delhi
- Presentation on BMTPC Activities to Delegation from Mozambique, April 26, 2011
- Paper titled "Seismic Retrofitting of MCD Schools in Delhi - An Initiative of BMTPC to Spread Retrofitting Awareness" by Dr. Shailesh Kr. Agrawal, J.K. Prasad, Pankaj Gupta and Dalip Kumar presented at National Conference on Repair and Rehabilitation of Concrete Structures organized by Indian Concrete Institute, Noida, UP, May 6-7, 2011
- Presentation during Regional Sensitization Programme on Confidence Building in Appropriate Housing Technologies (Western/Central Region), 23 July 2011, Ahmedabad
- Paper titled "Cities and Climate Change: CO² Emission Reduction through Cost-Effective Building Materials & Construction Technologies" by Dr. Shailesh Kr. Agrawal, Shri S. K. Gupta and Shri Dalip Kumar published in NCHF News Letter, October, 2011.
- Paper titled "Introducing Emerging Housing Technologies – BMTPC's Initiative" by Dr. Shailesh Kr. Agrawal, Shri J. K. Prasad, Shri S. K. Gupta, and Shri Dalip Kumar published in Special Issue of Nirman Sarika on the occasion of World Habitat Day - 2011, October 2011.
- Paper titled "Shahar Avam Jalvayu Parivartan" by Dr. Shailesh Kr. Agrawal, Shri A. K. Tiwari, Shri S. K. Gupta, and Shri Dalip Kumar published in Special Issue of Nirman Sarika on the occasion of World Habitat Day - 2011, October 2011.
- Presentation on Innovative Housing Technologies for Affordable Housing in India during IOR-ARC Regional Workshop on Cost-Effective Housing Technologies, October 17-18, 2011; Colombo, Sri Lanka
- Presentation on BMTPC's efforts in Promotion of Alternate Housing Technologies during International Seminar on Energy Efficient & Ecologically

Appropriate Building Materials & Technologies for Housing, November 26, 2011, New Delhi

- Paper titled "Two Decades of BMTPC in Countering Disasters" by Dr. Shailesh Kr. Agrawal, S.K. Gupta and Dalip Kumar published by IIT Roorkee
- Presentation on Quality Measures/Control, December 08-09 2011, Indore, MP
- Presentation on Earthquake Resistant Design and Guidelines for Earthquake resistant construction during NPCBAREM Training Programme on Seismic Safety of Buildings, December 14, 2011, Manipal University
- Presentation on Distress Diagnosis & Appraisal of Concrete Structures during Course on Testing of Concrete in Structures, December 23, 2011, IIT Roorkee
- Presentation on Lessons Learnt from Earthquakes during Training Programme on Codal Practices on Earthquake Resistant Design & Construction, December 28, 2011, New Delhi
- Presentation on Appropriate Housing Technologies for Affordable Housing during Municipalika Conference : Inclusive Cities, Affordable Housing for All, Slum-less Cities, January 25, 2012, Chennai
- Presentation on Quality Measures/Control, February 16-17, 2012, Chandigarh
- Paper on "Green Buildings: Trends, Opportunities and Challenges" by Dr. Shailesh Kr. Agrawal and Shri S. K. Gupta in the National Conference on 'Energy Efficient Design of Buildings: Seeking Cost Effective Solutions' organized by Deenbandhu Chhotu Ram University of Science & Technology at Murthal, Sonapat, February 7, 2012.
- Presentation on BMTPC Activities to Visiting Delegation from Madagaskar, March, 2012, New Delhi.
- Presentation on Urban Housing Scenario: Future Challenges and Role of BMTPC during First Pilot Programme of ICI-BMTPC Certification Scheme for Field and Lab Technicians, March 19, 2012, Bangalore.

PUBLICATIONS BROUGHT OUT DURING THE YEAR

1. Training Manual for Ductile Detailing (Hindi)
2. Training Manual for Supervisor (English & Hindi)
3. Guidelines on "Aapda Pratirodhi Bhawan Nirman : Sampurn Bharat ke liye Margdarshika" (Hindi)
4. "Nirman Sarika" – Special Issue of Newsletter highlighting issues related to the theme, "Cities and Climate Change" of World Habitat Day 2011.
5. Guidelines on Multi-Hazard Resistant Construction of EWS Houses

VISITORS FROM FOREIGN COUNTRIES

1. Delegation led by Hon'ble Minister for Housing, H.E. Suharso Manoaarfa Republic of Indonesia alongwith H.E. Lt. Gen. (Retd.) Andi M. Ghalib, Ambassador to India and Mr. Ottoriadi, Counsellor (Economic) from Indonesian Embassy, New Delhi visited BMTPC on 20 April, 2011 wherein presentation on the activities of BMTPC with regard to cost effective and innovative housing technologies was made. The visiting delegation shown keen interest in the various technologies and applauded the efforts of the Council.
2. Delegation from Mozambique visited BMTPC on April 26, 2011 and a presentation on BMTPC efforts in the area of alternate, cost-effective and emerging housing technologies were made.
3. A seven-member official delegation led by Mr. Razakanaivo Mamy Nirina, Head of the Disaster Prevention and Emergency Management Unit at the Prime Minister's Office (CPGU), Madagascar on a study tour to India to learn about steps taken to manage situation arising out of natural calamities from Madagascar visited BMTPC. A brief interaction on the areas of mutual interest with regard to disaster mitigation and management were made as well as the work done by BMTPC duly supported by relevant literature and publications also discussed with them in detail on 2 March, 2012.

ACTION PLAN FOR THE YEAR 2011-12

**BUILDING MATERIALS & TECHNOLOGY PROMOTION COUNCIL
(BMTPC)**

**ANNUAL ACTION PLAN
2011-2012**

VISION, MISSION, OBJECTIVES AND FUNCTIONS

Vision:

BMTPC to be world class knowledge and demonstration hub for providing solutions to all with special focus on common man in the area of sustainable building materials, appropriate construction technologies & systems including disaster resistant construction.

Mission:

To work towards a comprehensive and integrated approach for promotion and transfer of potential, cost-effective, environment-friendly, disaster resistant building materials and technologies including locally available materials from lab to land for sustainable development of housing.

Objectives:

1. Building Materials & Construction Technologies : To promote development, standardisation, mechanisation and large scale field application of proven innovative and emerging building materials and technologies in the construction sector.
2. Capacity Building and Skill Development: To work as a Training Resource Centre for capacity building and promotion of good construction practices to professionals, construction agencies, artisans and marketing of building technologies from lab to land.
3. Disaster Mitigation & Management : To promote methodologies and technologies for natural disaster mitigation, vulnerability & risk reduction and retrofitting/ reconstruction of buildings and disaster resistant planning for human settlements.
4. Project Management & Consultancy: To undertake project management and consultancy services including appraisal, monitoring and third party inspection of housing projects under the various Central/State Schemes.

Functions:

1. Identification, evaluation of proven and emerging technologies available globally and encouraging joint venture in building materials and construction sector.
 2. Promoting economy, efficiency and quality in construction.
 3. Upscaling of technologies, know-how acquisition, absorption and dissemination.
 4. Field level application of environment-friendly, energy-efficient and disaster resistant technologies for proven, locally available and emerging technologies.
 5. Formulation of Standards on proven building materials/technologies including emerging technologies/systems and incorporation in the schedule of specifications/rates.
 6. Documentation of benefits, durability and acceptability of cost effective and innovative building materials and technologies.
 7. Skill upgradation of professionals and construction workers through capacity building programmes, training programmes, seminars, conferences, workshops, exhibitions nationally as well as internationally.
 8. Promoting disaster resistant construction technologies.
 9. Appraisal, monitoring and third party inspection of housing projects including undertaking project management and consultancy services.
 10. Publication of user manuals, guidelines, compendiums, directories, brochures, techno-feasibility reports, video films, demonstration CDs, interactive website, blogs including documentation of success stories.
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ANNUAL ACTION OF BMTPC FOR FY 2011-12 (IN RFD FORMAT)

| Objective | Weight | Action | Success Indicator | Unit | Weight | Targets/ criteria Value | | | | | Achievement till 31 st March 2012 |
|---|--------|--|--|------|--------|-------------------------|----------|----------|----------|----------|---|
| | | | | | | Excellent 100% | V.G. 90% | Good 80% | Fair 70% | Poor 60% | |
| 1. To promote development, standardisation, mechanisation and large scale field application of proven innovative and emerging building materials and technologies in the construction sector. | 28.50 | <u>Action 1</u> • Evaluation of emerging technologies for suitable Indian geo-climatic conditions (continuing process) | • Four number of emerging technologies for mass housing | Nos. | 6.00 | 4 | 3 | 2 | 1 | . | Seven technologies have been short listed and showcased during IITF through prototype construction in November 2012. An advisory regarding few new technologies have been issued to States. Visits have been made by the Technology Advisory Group to the respective project sites. BMTPC has published a brochure on emerging technologies and providing the platform to showcase and discuss the possible use of emerging technologies in social mass housing. A few technology providers are also approaching BMTPC for Performance Appraisal Certification (PACS) for their technologies. |
| | | <u>Action 2</u> • Sensitization of Local Administration for undertaking the demonstration housing project using Design Packages developed by BMTPC. | • Signing of MOA to take proven technologies to the field through major agencies by States | Nos. | | 8 | 7 | 6 | 5 | 4 | Sensitization programmes were planned in Ahmedabad (Western region), Kolakata (Eastern Region), Guwahati (North East Region), Delhi (Northern Region), Bangalore (Southern Region). Programmes were organized in Ahmedabad, Guwahati, Kolkata, other programme were cancelled as advised by EC, BMTPC and the project was dropped. |

| Objective | Weight | Action | Success Indicator | Unit | Weight | Targets/ criteria Value | | | | | Achievement till 31 st March 2012 |
|-----------|--------|--|---|------|--------|-------------------------|------|------|------|------|--|
| | | | | | | Excellent | V.G. | Good | Fair | Poor | |
| | | | | | | 100% | 90% | 80% | 70% | 60% | |
| | | | | | | | | | | | The States of Haryana, Orissa, Maharashtra, Tripura, Gujarat and Mizoram have agreed to undertake such types of projects in their respective states. |
| | | | | | | | | | | | Under this, a project for Lonar City has been sanctioned under IHSDP and MOA is in the process. MOA with Tripura is also under process. |
| | | Action 3 • Construction of demonstration cluster comprising of 60 houses, community centre, school and kiosks in each cluster incl. infrastructure development including strengthening the production base at the site of construction at 5 locations, if required | • Starting work on the ground | Nos. | 8.50 | 5 | 4 | 3 | 2 | 1 | The work in Lonar, Maharashtra is soon going to start. However, as decided by EC, the project has been dropped. |
| | | Action 4 • Monitoring, Quality Control and Documentation through Technical Expert Institutions | • Selection of Technical Expert Institution for reputed monitoring, quality control and documentation of cost | Nos. | 4.00 | 5 | 4 | 3 | 2 | 1 | As decided by EC, the project has been dropped as the activities is linked to Action-3. |

| Objective | Weight | Action | Success Indicator | Unit | Weight | Targets/ criteria Value | | | | | Achievement till 31 st March 2012 |
|--|--------|--|---|------|--------|-------------------------|------------|------------|------------|------------|---|
| | | | | | | Excellent | V.G. | Good | Fair | Poor | |
| | | | | | | 100% | 90% | 80% | 70% | 60% | |
| | | | effectiveness of demonstration | | | | | | | | |
| | | Action 5 • Framing up with BIS for complete specifications, designs, code of practices and schedule of rates | <ul style="list-style-type: none"> Preparation of 2 nos. Specifications, 2 nos. of Code of Practices and their inclusion in Schedule of Rates of 2 States | Nos. | 6.00 | 6 | 5 | 4 | 3 | 2 | Preliminary Drafts of 2 Codes of Practice have been formulated for Filler Slab and Rat Trap Bond. 2 specifications have also been prepared for UPVC window and Plastic Septic Tank. These have been submitted to BIS. |
| | | Action 6 • Introduction of cost-effective and innovative building materials and construction technologies in the curriculum of undergraduate/post-graduate engineering/architectural courses | <ul style="list-style-type: none"> Inclusion of the course in atleast 1 college (private or govt.) in 5 States | Nos. | 4.00 | 5 | 4 | 3 | 2 | 1 | A meeting with Head of Civil Engineering Department of Academic Institutions for working out detail methodology for preparation of course content were held in November 2011. A Committee have been constituted for framing up the course contents. The draft course content has been prepared. |
| 2. Skill Upgradation: To work as a Training Resource Centre for capacity building and promotion of good construction practices to professionals, construction agencies, artisans and marketing of building technologies from | 23.50 | Establishing BMTPC becoming as a Training Resource and Certification Centre for construction workers under SJSRY | Tying up with States and training SJSRY onsite programmes and course modules and materials in the area of housing construction Organization of 1 workshop to finalize the module and evolving the certification system | Nos. | 7.00 | 4 | 3 | 2 | 1 | 0 | Course module for (i) Masons, (ii) Supervisors, (iii) Lab Technicians, and (iv) Barbenders have been prepared. The modalities as regards tying up with states is being worked out. |
| | | | | Date | 2.00 | 30.11.2011 | 31.12.2011 | 31.01.2012 | 29.02.2012 | 31.03.2012 | The workshop has been held, benchmarking of different artisans has been done, core group has been constituted and the certification system has been |

| Objective | Weight | Action | Success Indicator | Unit | Weight | Targets/ criteria Value | | | | | Achievement till 31 st March 2012 |
|-------------|--------|---|--|----------------|--------|-------------------------|----------|----------|----------|----------|--|
| | | | | | | Excellent 100% | V.G. 90% | Good 80% | Fair 70% | Poor 60% | |
| | | | | | | | | | | | |
| lab to land | | | | | | 60 | 40 | 20 | 0 | 0 | evolved. |
| | | | Training of Trainers to provide training to construction workers at State level | No. of persons | 5.00 | | | | | | 2 programmes for training of trainers were organised at Vidisha and Kanyakumari wherein 80 engineers were trained in low cost technologies. Around 35 prospective students from engineering colleges were trained at Pinjore demonstration site of BMTPC. Also sensitization of masses alongwith artisans were done during the inauguration of demonstration site at Ambala. |
| | | | Training of construction workers during construction of demonstration housing projects | No. of persons | 3.50 | 360 | 300 | 240 | 180 | 120 | Training programmes 6 in nos. for training of construction workers/supervisors have been held at Kanyakumari, Vidisha, Ahmedabad and Pauri Garhwal. In the Training Programmes 100 workers in each location were trained totaling to 300 workers on best construction practices. |
| | | Training programme on bamboo based technologies in North Eastern Region including establishment of Bamboo Mat Production Centre | Establishment of additional Bamboo Production Centre alongwith training (fully functional with production of bamboo mat) | Nos. | 2.00 | 1 | 1 | 0 | 0 | 0 | After selection of suitable site in Nagaland, an MoU has been signed with Nagaland Bamboo Development Agency. The shed for the Centre has been in place. The machines have been installed and training were provided to the local workers on working of machines. |

| Objective | Weight | Action | Success Indicator | Unit | Weight | Targets/ criteria Value | | | | | Achievement till 31 st March 2012 |
|--|--------|---|--|------|--------|-------------------------|------------|------------|------------|------------|--|
| | | | | | | Excellent | V.G. | Good | Fair | Poor | |
| | | | | | | 100% | 90% | 80% | 70% | 60% | |
| 3. Disaster Mitigation & Management: To promote methodologies and technologies for natural disaster mitigation, vulnerability & risk reduction and retrofitting /reconstruction of buildings and disaster resistant planning for human settlements | 18.50 | Pilot training Programme (3 months duration) for BMTPC-Indian Concrete Institute (ICI) Certification scheme for Field and Lab technicians | Publication of 1 Model Training Manual | Date | 2.00 | 31.07.2011 | 31.08.2011 | 30.09.2011 | 31.10.2011 | 30.11.2011 | The Council has brought out the training manual in consultation with ICI. |
| | | Organisation of 2 Training Programmes on pilot basis | Organisation of 2 Training Programmes | Date | 2.00 | 30.11.2011 | 31.12.2011 | 31.01.2012 | 29.02.2012 | 31.03.2012 | The Council alongwith ICI has already organized one programme which was culminated on 19 th March, 2012 by distribution of certification to 20 lab technicians. The three month long training was conducted by ICI-BMTPC at Civil-Aids Laboratory, Bangalore. |
| | | Organisation of Training Programmes for professionals | Organisation of 2 Training Programmes | Nos. | 6.00 | 2 | 1 | 0 | 0 | 0 | Two Training Programmes were organized successfully with IIT Roorkee. |
| | | Documentation of projects retrofitting | Documentation of 2 projects | Nos. | 5.50 | 2 | 1 | 0 | 0 | 0 | Documentation is already completed |
| | | Retrofitting of a Ward of Bara Hindu Rao Hospital | Starting work at ground level | Nos. | 3.00 | 1 | 0 | 0 | 0 | 0 | The Study completed. Report is placed and presented to MCD for implementation and possible part funding. As regard initiation of work, MCD and Hospital Authority are not in consonance for starting the work at ground. BMTPC has already sent a proposal to MCD for partially fund the project. Response is awaited. |
| | | Publication of Manuals and Guidelines through Peer Group | Publication of 3 Manuals/Guidelines | Nos. | 4.00 | 3 | 2 | 1 | 0 | 0 | Following Four guidelines/ manuals were brought out: 1. Aapda Pratirodhi Bhawan Nirman jointly with UNDP 2. Ductile detailing (English) 3. Ductile detailing (Hindi) 4. Guidelines on Multi- |

| Objective | Weight | Action | Success Indicator | Unit | Weight | Targets/ criteria Value | | | | | Achievement till 31 st March 2012 |
|--|--------|---|--|------|--------|-------------------------|------|------|------|------|---|
| | | | | | | Excellent | V.G. | Good | Fair | Poor | |
| | | | | | | 100% | 90% | 80% | 70% | 60% | |
| 4. Consulting unit: To undertake project management and consultancy services including appraisal, monitoring and third party inspection of housing projects under the various Central/Share schemes. | 18.50 | | | | | | | | | | hazard Resistant Construction of EWS Housing Projects. |
| | | Monitoring of BSUP project sites under JNNURM | Submission of Monitoring Reports | Nos. | 4.50 | 75 | 65 | 55 | 45 | 35 | 37, however, the visits were restricted and carried out as per direction of Mission Directorate. |
| | | Monitoring of IHSDP project sites | Submission of Monitoring Reports | Nos. | 4.50 | 150 | 120 | 90 | 60 | 30 | 7, however, the visits were restricted and carried out as per direction of Mission Directorate. |
| | | TPIM Review | Submission of TPIM Review Reports | Nos. | 4.50 | 1000 | 800 | 600 | 400 | 200 | 229, however, the TPIMA review were restricted based on UC's received from States as per direction of Mission Directorate |
| | | Capacity Building programme on quality assurance & TPIM | Organization of capacity building programmes in different States | Nos. | 5.00 | 10 | 9 | 8 | 7 | 6 | 4 Capacity Building Programmes were organized as per direction of Mission Directorate. |

Apart from the above, the Council has undertaken following activities:

1. Construction of Community Building using alternate construction technologies at Village Khojipur-Naggal, Ambala –Completed
2. Demonstration Housing Project at Pinjore, Distt. Panchkula, Haryana – Advanced stage of completion
3. Construction of Demonstration House during IITF 2011 using cost effective technologies – Completed.
4. Publication of Structural Design Manual for Use of Glass Fibre Reinforced Gypsum (GFRG) Panels in Buildings – Completed.
5. Initiated preparation of Updated Earthquake Hazard Zoning Maps and Atlases under funding from NDMA
6. Setting up of a Bamboo Mat Production Centre at Nongchram, East Garo Hills, Meghalaya - Advanced stage of completion.
7. Organized a two weeks Residential Training Programme on Bamboo Housing Technologies jointly with CBTC at Majuli, Jorhat District, Assam. During the Training Programme a small Post Office was constructed using bamboo based technologies – Completed.
8. Issued Performance Appraisal Certificates for 9 technologies/systems under PACS.
9. Organised International Seminar on Cost-Effective, Energy Efficient & Ecologically Appropriate Building Materials & Technologies for Housing on 26th November, 2011 jointly by BMTPC and HUDCO at New Delhi.
10. Prepared "Design Packages on Alternate House Building Technologies" for six regions of the country.
11. Project on Energy Auditing & Carbon in manufacture of Bamboo Mat Corrugated Sheets and Bamboo Mat Ridge Cap – Completed.
12. Project on Utilization of Industrial Waste Materials as Inexpensive Absorbents having Applications in Building Materials – Completed.
13. Organized and participated in the number Seminars/Workshops/Training Programmes / Exhibitions for propagation of alternate and cost effective building materials and disaster resistant construction technologies.