Permanent Display Centre at IIT Kharagpur

BMTPC established a Permanent Display Centre on Emerging Building Materials & Construction Technologies at Department of Architecture and Regional Planning, IIT Kharagpur. The Permanent Display Centre consists of display panels and models depicting Demonstration Housing Projects using Green/Emerging Technologies, Agro-industrial waste based building materials, Emerging technologies for mass housing, Performance Appraisal Certification, Bamboo based building materials and components, disaster mitigation & preparedness, Pradhan Mantri Awas Yojana (Urban), etc.

The Permanent Display Centre was inaugurated by Dr. Nandita Chatterjee, Secretary, Ministry of Housing & Urban Poverty Alleviation, Government of India at IIT Kharagpur Kolkata Centre through video-conferencing in the august presence of Prof. Partha Pratim Chakrabarti, Director, IIT Kharagpur on June 2, 2017 at Deptt of Architecture & Regional Planning, IIT Khagarpur.

Performance Appraisal Certification Scheme (PACS)

The details of activities carried out under Performance Appraisal Certification Scheme (PACS) for the quarter April 2016 to June 2016 are highlighted here:

I. Approval of PACs

Technical Assessment Committee (TAC) in its 12th meeting held on 16th June, 2017 has approved PAC for the new system "Rising EPS (Beads) Cement Panels".

II. Approval of Renewal of PACs

Technical Assessment Committee (TAC) also approved renewal of PACs for the following products/systems:

- PVC Profile Doors
- Under Ground Water Storage Tank (SUMP)
- Plasto-Crete Panel
- Insulated Roof Panel
- Formwork for Monolithic Concrete Construction
- Walltec Hollowcore Concrete Wall Panel
- Soundproof Drainage Piping System
- Speedfloor System
- Plastic Honeycomb Toilet Structures

III. Inspection of Works

Inspection of works of the Rising EPS (Beads) Cement Panels has been carried out by the officers of BMTPC and TAC members on 11th May, 2017.

IV. Surveillance Inspection of Works

Surveillance Inspection of works of the product "Plastic Honeycomb Toilet Structures" for renewal of the PAC has been carried out on 3rd May, 2017 at Greater Noida (UP).

V. Applications in the pipe line

Applications received under PACS are given below:

- Structural Stay- in-Place Formwork System
- Aluminium Formwork for Monolithic Construction
- Monolithic Insulated Concrete System
- Concrete Optimizer, Chennai
- Cellular Lightweight Sugarcane Bagasse Ash Bricks (CAS-SBA)
- Resin Bonded Tiles (Plastic waste)
- Precast Hollowcore Wall Panels
- Plastic Honeycomb Panel Building System
- RCCPrefab - Universal Building System

These applications are processed on the basis of data furnished by the firms, information available on their web sites, inspection of manufacturing plants at site of works and testing of samples of the products/systems etc. before preparation of Performance Appraisal Certificates (PACs).

For further details, please contact:

Executive Director
BUILDING MATERIALS & TECHNOLOGY PROMOTION COUNCIL
Ministry of Housing & Urban Affairs, Government of India
(Erstwhile Ministry of Housing & Urban Poverty Alleviation)
Core 5 A, 1st Floor, India Habitat Centre, Lodhi Road, New Delhi – 110003
Phone: +91-11- 24638096, 24636705; Fax: +91-11-24642849
E-mail: bmtpc@del2.vsnl.net.in, Website: www.bmtpc.org

www.bmtpc.org

निर्माण सारिका

A Newsletter of BMTPC

निर्माण सामग्री एवं प्रोद्यौगिकी संवर्द्धन परिषद्
vkoklu vkj 'kgjh dk;l e=ky;] Hkkjr ljdkj
BUILDING MATERIALS & TECHNOLOGY PROMOTION COUNCIL
Ministry of Housing & Urban Affairs, Government of India

भाग 6, अंक 2, अप्रैल – जून 2017, नई दिल्ली Vol. 6, Issue 2, April - June 2017, New Delhi

From the Desk of the Executive Director

Emerging construction systems for mass housing have gained importance in light of Pradhan Mantri Awas Yojna wherein approximately 20 million houses need to be constructed in urban areas by 2022. BMTPC along with Ministry of Housing & Urban Affairs (erstwhile Ministry of Housing & Urban Poverty Alleviation) have made perceptible contributions in terms of identifying 16 such new systems which will help the construction industry & state govts. in realizing the goals of affordable housing for all. Identification & certification of such systems is one aspect, there are whole lot of other issues which need to be readdressed, if a suitable eco-system is to be created for mainstreaming these new systems in the construction Industry. One important issue is introducing our prospective Architects & Engineers of colleges regarding these so that they can make use of the new technologies after becoming professionals. Ministry is collaborating with IITs/ NITs to popularize these new technologies & one such effort has been to establish Permanent Display Centre (PDC) where models along with display charts & exhibits are set up in the premises of Architectural Department of IIT, Kharagpur. The Centre is also given publications of BMTPC on regular basis and the exhibits are updated as & when new information percolates. It is planned to have such displays at other places also.

Igniting young minds for sustainable future

(Dr. Shailesh Kr. Agrawal)

Published by:

Building Materials & Technology Promotion Council, New Delhi

Release of Second Edition of Compendium of Prospective Emerging Technologies for Mass Housing

The Ministry of Housing and Urban Poverty Alleviation organized a National Review/ Consultation on Pradhan Mantri Awas Yojana(U) from April 12-13, 2017 at New Delhi. The Central and State level officials participated in the discussions on various issues related to Housing for All. The National Review also provided opportunities for learning through experience sharing.

Shri M. Venkaiah Naidu, Hon'ble Minister of Urban Development, Housing & Urban Poverty Alleviation and Information & Broadcasting inaugurated the National Review. BMTPC on this occasion brought out the Second Edition of Compendium of Prospective Emerging Technologies for Mass Housing under the guidance of Technology Sub Mission and Mission Directorate of Pradhan Mantri Awas Yojana. This Compendium containing following sixteen emerging technologies is expected to be a useful resource for State Governments and related Housing Agencies for construction of and faster delivery of affordable urban housing:

Formwork Systems

1 Monolithic Concrete Construction System:
– using Plastic - Aluminium Formwork
– using Aluminium Formwork
2 Modular Tunnel form
3 Sismo Building Technology

Precast Sandwich Panel Systems

4 Advanced Building System – EMMEDUE
5 Rapid Panels
6 Reinforced EPS Core Panel System
7 QuickBuild 3D Panels
8 Concrewall Panel System
9 Glass Fibre Reinforced Gypsum (GFRG) Panel System

Light Gauge Steel Structural Systems

10 Light Gauge Steel Framed Structure (LGSFS)
11 Light Gauge Steel Framed Structure with Infill Concrete Panels (LGSFS-ICP)

Steel Structural Systems

12 Factory Made Fast Track Building System
13 Speed Floor System

Precast Concrete Construction Systems

14 Waffle-Crete Building System
15 Precast Large Concrete Panel System
16 Industrialized 3-S system using cellular light weight concrete slabs & precast columns

Emerging Technologies for Building Construction

RISING EPS (BEADS) CEMENT PANELS

Rising EPS (Beads) Cement Panels are lightweight composite wall, floor and roof sandwich panels made of thin fiber cement/calcium silicate board as face covered boards and the core material as EPS granule balls, adhesive, cement, sand, fly ash and other bonding materials in mortar form.

The core material in slurry state is pushed under pressure into preset molds. Once set, it shall be moved for curing and ready for use with RCC or steel support structure of beams and columns. These panels are primarily used as walling material but can also be used as floor and roof panels. These are non-load bearing panels to be used with structural support frame.

Materials Used

- *Ordinary Portland Cement:* 43/53 grade as per IS 269:2015
- *Fly ash:* As per IS 3812 (Part 2):2003.
- *EPS beads:* As per IS 4671:1984 and having density not less than 15 kg/m^3.
- *Fibre Cement Board:* As per IS 14862:2000.
- *Calcium Silicate Board:* As per EN 14306:2009
- *Fine (sand) & Coarse Aggregate:* As per IS 383:2016.
- *Water:* As per IS 456:2000.
- *Addage RD Powder, AKULPOL-9192, Akulcel 48000 (Additives & Bonding agents):* As per the manufacturer's specifications.

Manufacturing Process

Raw materials preparation

- EPS granules are expanded into foam EPS by expanding Machine /system with suitable size and shall store the foam EPS in storage silos ready for next production stage.
- Cement, fly ash and sand are transported from the storage silos by the screw conveyors to the mixer according to the programmed ratio and water are fed into the mixer in designated proportion.
- The foamed EPS are transported through the blower in a programmed quantity at the same time into the mixer and mixed with the slurry.
- Additives are added to the mixer at the same time.
- After about 8 minutes of mixing, the finished mixed materials are ready and discharged into the filling hopper.

Materials filling system

- During the materials mixing process, the molds are set and two covers of Calcium silicate board or Cement fiber board inserted one by one in each mold. Thereafter, the ready-set mold are moved under the filling platform by winch machine.

Material Filling

- Once the mold cars are under the filling hopper, the top platform open up and the material are filled into the molds under pressure.

Curing

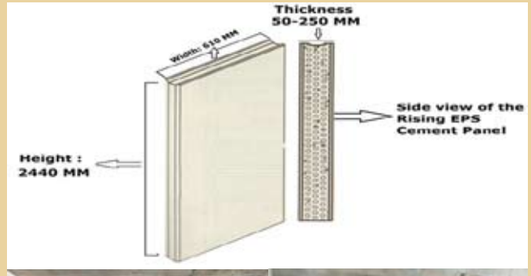
- After the filling is over, the filled mold cars are transported by the ferry car to the curing area for about 5 to 6 hours curing. Curing time depends on the site temperature conditions.

De-molding process

- After required period of curing, the panels in the mold gain enough strength and suitable for de-molding. The de-molding process can be automatic or manual depending on the mold car chosen.
- If the mold car is automatic type, de-molding machine are used to pull the panels out of the mold car automatically. In one step, one panel are pulled out from the car and stacked.
- If the mold car is manual type, the panels are move out of the mold cars one by one and stacked.
- Once the stack is sufficient, the fork lift move them to the packing area for dispatch.
- After this process is completed, the mold cars are re-set for the next production cycle.

Special Features

- High bending and hanging strength
- Fire resistant, sound insulation & absorption capacity
- Water proof and Damp proof
- Low dry shrinkage value
- Smooth and flat surface
- Environment-friendly and non-toxic
- Energy saving environment friendly
- Total quality control & anti-manipulation construction
- Permeability resistance
- Green product to control water & air pollution



Skill Development and Capacity Building

Sensitization Programme at Demonstration Housing Project site at Chandrasekharpur, Bhubaneswar, Odisha

BMTPC is constructing Demonstrataion Houses using emerging technologies at Chandrasekharpur, Bhubaneswar, Odisha. During the construction, it is planned to organise Sensitisation/ Training programmes for masons/artisans and professionals at the site. Accordingly, the Council organised one day Sensitization Programme at Demonstration Housing Project site at Bhubaneswar on May 15, 2017.

A total of 55 engineers and officials of Bhubaneswar Development Authority (BDA), Bhubaneswar Municipal Corporation, State Level Nodal Agency & Jharkhand State participated in the programme. The participants were first taken to the site and all technical details including various connections, shortcreting through automatic machine, quality control measures etc. were explained to the participants. As the building (G + 3) using "Expanded Polystyrene core based panel (EPS) system" were almost complete structurally (without finishes) and one sample DU was complete with all finishing & fixtures, the participants had the exposure to all aspects of technology/ system.

After site visit, participants were given detailed presentation on structural & functional aspects of the technology in the conference hall of BDA.

Subsequently, in order to sensitise the officials of Odisha State Police Housing Corporation, the Executive Director, BMTPC made detailed presentation on "Emerging technologies for Mass Housing" before their employees wherein their CMD was also present.

Visit of DFID Officials to Demonstration Housing Project (DHP) at Bhubaneswar, Odisha

Department for International Development, Govt. of UK (DFID) and National Housing Bank (NHB) are financial partners of BMTPC in three Demonstration Housing Projects (DHPs) being implemented by BMTPC. The DHP at Bhubaneswar, Odisha is also being supported by them financially.

Mr. Garvin McGillivray, the Country Head of DFID, UK along with four DFID Officials and General Manager, National Housing Bank (NHB) visited Demonstration Housing Project at Bhubaneswar on June 28, 2017 for assessment of the technology adopted & actual implementation status. The same were explained in details by technical representative of BMTPC to the visiting Officials.