



From the Desk of the Executive Director

The newsletter is a great platform for me to vent out my thoughts as head of BMTPC with regard to promotion & transfer of sustainable building materials and construction systems. Promotion of any innovation specially related to housing is extremely difficult as there are preconceived notions related with housing, its performance and durability. Anything constructed with traditional RCC frames may not always guarantee safe, durable and economical house. It is all about workmanship and quality and the way our artisans are depleting, we may no longer get good masons, and other workers. So, the way out is to go for mechanization in the housing sector by producing pieces of building i.e. building components or building as a whole in factory and bring it to the site for its assemblage. Believe me, it is being done all over the world successfully and in India also, there are number of factories being set up by private players. All we need to do is to come out of our hackneyed approach of building construction and repose faith. There are enough technical and academic support available to establish credibility of these systems. BMTPC has been tirelessly working towards creating an enabling environment for their mass adoption in India. The day is not far when India will start manufacturing buildings.

It is 7th uninterrupted year of publication of this newsletter aptly titled Nirman Sarika and I would like to thank my BMTPC team for their commendable work specially S/Shri Dalip, Alok, Sharad, Pankaj & Jha.



(Dr. Shailesh Kr. Agrawal)

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National Seminar on Emerging Building Materials & Construction Technologies



In order to take stock of the recent development in the area of building materials & construction technologies, Building Materials & Technology Promotion Council (BMTPC), Ministry of Housing & Urban Affairs, as part of its endeavour to identify and promote cost effective, environment friendly and disaster resistant building materials and construction processes, organized the National Seminar on Emerging Building Materials & Construction Technologies on February 22-23, 2018 at New Delhi so as to bring all stakeholders at one platform to share their knowledge and experience.

The National Seminar was inaugurated by Shri Hardeep Singh Puri, Hon'ble Minister of State (I/C) for Housing & Urban Affairs, Government of India. Hon'ble Minister in his inaugural speech said that considering the present housing shortage in urban areas, more than 1 crore houses in urban areas with necessary infrastructure are required to be constructed. To achieve this, appropriate actions are required at all fronts. This necessarily includes, among other measures, identification and selection of appropriate building materials and technologies to bring not only economy but also quality, durability, speed with due care for safety and environment concern of the country.



Besides Academic, R&D Institutions, known experts of the country; agencies involved in bringing technologies from other countries also participated with their technical presentation and showcasing of products and systems. The representatives of Govt. agencies, faculty & students of technical institutions also participated in the event. More than 350 delegates participated in the Seminar.

On this occasion a publication titled "Building Materials and Housing Technologies for Sustainable Development" and a Mobile App on "Bamboo Housing & Construction" was released by the Hon'ble Minister. The Publication contains 38 papers covering various subjects on the theme of the National Seminar.

Emerging Technologies for Building Construction

Lost-In-Place Formwork System

Plaswall Panel System is a lost in place formwork, where two fiber cement boards (FCB) of 6mm thickness each and HIMI spacers (High Impact Molded Inserts) bonded between two sheets of FCB in situ are erected to produce straight-to-finish panels. A monolithic structure is then created by filling the entire structure with M20 or higher grade of concrete as per the design. Additional load capacity can be obtained by providing extra reinforcing bars and/or by increasing grade of the concrete.

The firm imports the fibre cement board (FCB) manufactured by Hume Cemboard Industries, Malaysia for use in the construction of structures. An Isometric View of the Plaswall is shown in Fig. 1.

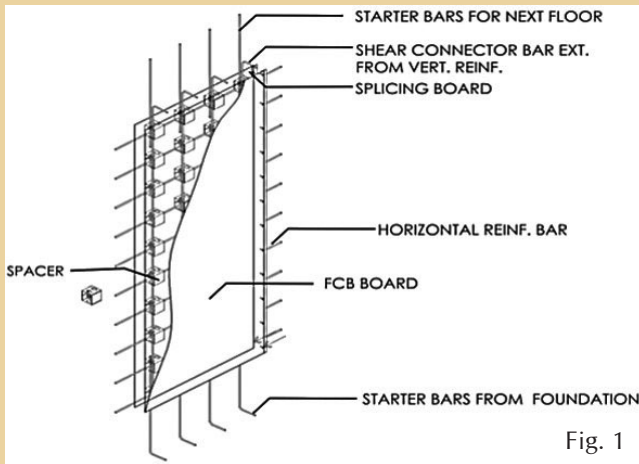


Fig. 1

Raw Materials

- OPC shall conform to relevant grade of Indian Standard.
- Sand and aggregate shall conform to IS 383:2016.
- Reinforcement shall conform to IS 1139:1966.
- Fibre cement board shall be 100% asbestos free and of Type A, Category 3 min. as stipulated in IS 14862:2000.
- Recycled plastic spacers made of High Impact Molded Inserts shall conform to the specifications
- PU Adhesive Glue shall conform to the specifications of the manufacturer.
- Putty shall conform to IS 419:1967.



Fabrication of Plaswall Panels

Fibre cement edge recessing

- After cutting fibre cement sheets to the desired dimensions, the edge of the sheets shall be recessed using recessing machine.

Panel Fabrication

- Plastic pallets and jigs shall be arranged perpendicular to each other
- Fibre sheet shall be laid in alignment with respect to pallet and jig setup
- Marking of spacer with use of specific stencil positions shall be done on the sheet
- Glue @ 250gm min. is the standard consumption. Reusable bottom angles shall be laid as per alignment of walls where panels are to be installed.
- Spacers shall be placed where glue is applied and kept in linear manner for 4 to 5 hours.
- Glue shall be applied on upper faces of spacers and upper sheet is laid perfectly in line with lower sheet.
- Ten number of panels shall be fabricated on each side of jig and stacked on pallets.
- These panels then shall be cut as per the specified dimensions and sizes such as rectangular, square, curves etc.

Joint Splicing

- Joints between two panels shall be fixed by using FCB strips 50 mm wide inside the panel with help of glue, screws and tacking pins.

Special Features

The special features of the system encompasses:

- Up to three times faster than conventional technology
- Fire resistant.
- No curing required.
- Inlaid plumbing & electrical lines, superior quality finish.
- Better acoustic Insulation
- Termite & algae resistant.
- Applicable in humid conditions.





Status of Demonstration Housing Projects (DHPs)

BMTPC is constructing model demonstration houses in different parts of India using emerging technologies with the objective of spreading awareness and build confidence about new technologies and disseminate technical know-how in the states under PMAY(U). The status of the ongoing projects as approved by the Central Sanctioning & Monitoring Committee (CSMC) at three locations are as follows:



Gachibowli, Hyderabad, Telangana [32 DUs (G + 3)] using Structural Stay in Place Formwork System (coffor) - 16 DUs and Light Gauge Steel Frame structure (LGSF) -16 DUs – Structural work completed, finishing work in progress.



Bihar Shariff, Bihar [36 DUs (G + 2)] using Structural Stay in Place Formwork System (Coffor) – Structural work completed, finishing work in progress.



Aurangabad Jagir, Lucknow, Uttar Pradesh [40 DUs (G + 1)] using Stay in Place EPS based double walled panel System (Sismo) – Structural work completed, finishing work in progress.

Performance Appraisal Certification Scheme - PACS

BMTPC is operating Performance Appraisal Certification Scheme to evaluate performance of innovative building products and technologies. Detailed activities carried out under Performance Appraisal Certification Scheme (PACS) for the period January 2018 to March 2018 are highlighted below:

I. Approval of PACs

Technical Assessment Committee (TAC) constituted for the purpose of approval of Performance Appraisal Certificate (PAC) in its 13th meeting held on 16th February, 2018 has approved issuance of PACs for the following new systems:

1. Structural Stay-in-place Formwork System
2. Monolithic Insulated Concrete System
3. Resin Bonded (Plastic Waste) Tiles
4. Lost-in-place Formwork System – Plasmolite Wall Panels
5. Lost-in-place Formwork System – Plaswall Panel System

II. Inspection of Works

Inspection of Works of the following new systems has been carried out by the officers of BMTPC and TAC members:

- a) Lost-in-Place Formwork system – Plasmolite Panels
- b) Lost-in-Place Formwork system – Plaswall Panels

III. Applications in the pipe line for issue of PACs

Applications received for issue of PACs are in the pipe line as per the details given below:

- i. Flyash, EPs (beads), Cement Sandwich Panels
- ii. Dry Wall Pre-fab Panel System
- iii. Continuous Sandwich (PUF) Panels
- iv. Nano Living System
- v. Infill Wall
- vi. Hollowcore Wall Panel
- vii. Bau Panel System

The above applications are being 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).

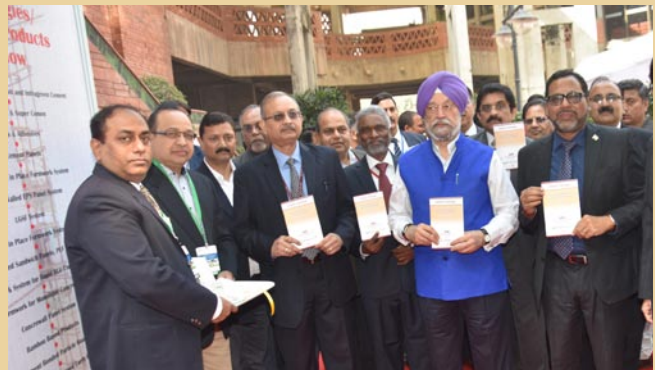
Exhibition on Emerging Building Materials & Construction Technologies



To coincide with the National Seminar on Emerging Building Materials & Construction Technologies, an Exhibition on Emerging Building Materials and Construction Technologies showcasing various building products and construction technologies was also organized on February 22-23, 2018 at New Delhi.

Twenty firms/companies displayed following products, technologies and systems for two days:

- EPS Cement Panels
- Structural Stay in Place Formwork System
- Double Walled EPS Panel System
- LGSF System
- Lost in Place Formwork System
- Insulated Sandwich Panels, PUF Panels
- Formwork System for Rapid RCC Construction
- Aluminum Formwork for Monolithic Concrete Construction
- Concrewall Panel System
- Bamboo Based Products
- Cement Bonded Particle Board
- Interlocking Compressed Earth Blocks
- Moducast System
- Insulated Concrete Formwork System
- EPS, Flyash Cement Sandwich Wall panels
- Skim Coat for surface finish and Infragreen Cement
- White Cement & Super Cemen
- Coatings & Adhesives
- Bio-digester Toilet
- Cement Fibre Boards
- Pre Engineered Buildings
- Polyurethane based coating
- Precast Composite Technologies



For further details, please contact:



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