

CATEGORY BUILDING SYSTEMS



PRODUCT / TECHNOLOGY



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Technology Detail

BAMBOO MAT CORRUGATED ROOFING SHEET & RIDGE CAP FOR ROOFING AND BAMBOO MAT WALL PANELS

*Alternate to conventional ACC/CGI roofing sheets and bamboo mat wall panel
as a replacement of masonry wall construction*



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CONTACT DETAILS

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BRIEF

It is a patented bamboo based technology developed by Indian Plywood Industries Research & Training Institute (IPIRTI), Ministry of Environment, Forest and Climate Change, Govt. of India & Building Materials & Technology Promotion Council (BMTPC), Ministry of Housing & Urban Affairs, Govt. of India. Bamboo mat corrugated sheets, Ridge cap and Bamboo mat board are made out of multi-layer Bamboo mats soaked in PU resin and pressed in hot press.

The manufacturing process involves application of specially formulated Phenol Formaldehyde (PF) resin to the mats, assembling the resin coated mats and hot pressing in hydraulic press at specified temperature and pressure. Bamboo Mat Corrugated Roofing Sheets (BMCS) as IS:15476-2004 Corrugated bamboo roofing sheets (CBRS) are an excellent alternative to corrugated metal, plastic or asbestos roofing sheets.

Bamboo roofing sheets are environmentally friendly and a safe alternative to plastic, zinc or corrugated asbestos roofing panels. They have the same standard measurements as conventional corrugated roofing sheets. Bamboo sheets are durable and strong with excellent internal bond strengths and a high resistance to weathering, fire or insect attacks. They have an attractive and natural appearance and are easy to work with (cutting, drilling, etc.). The main raw material for the product is bamboo, which is the fastest growing plant and occurs naturally in the forests and is also suitable for plantation even over degraded lands. For manufacturing BMCS, bamboo is to be converted into mats that are hand woven by rural/tribal people, particularly women. Thus the product is both environment and people friendly.

Bamboo Mat Board is also manufactured in similar fashion as per IS:13958-1994 and can be used as infill wall panel with structural frame of RCC or steel, false ceiling, partitions, walling, wall paneling, etc. These products are certified as per IS relevant codes.





SALIENT FEATURES

- Green, Eco-Friendly, Sustainable, Renewable,
- Energy Efficient, Low thermal conductivity,
- Combined total energy consumption for the manufacturing Bamboo Corrugated Sheet is much less than Aluminum, Galvanized iron and fiber reinforced plastic sheets.
- Based on weather-o-meter and accelerator test conducted at IPIRTI, it is expected that products service life will be around 25 years
- High Load Bearing capacity, Good sound insulation,
- Surface rust proof, Fungus proof,
- 100% Boiling water proof, Termite resistance & fire retardant
- Provides employment in the rural/tribal areas
- Light-weight construction materials, quick to install, versatile, very sturdy & resilient.
- Non-sharp materials, and thus no harm caused to human lives.
- Products are detachable and can be dismantled and re-installed at different locations of the same design, size and dimensions.
- Technical specifications of BMCS: water absorption – 8.25%; density 0.92 gm/cc; load bearing capacity 5.65 N/mm for dry state and 4.55 N/mm for wet state; available in 8' x 3.5' / 7' x 3.5' / 6' x 3.5' sizes and 3.5 – 4.0 mm thickness.



ECONOMIC ASPECTS

- The cost of the BMCS is on the higher side as compared to CGI/ACC sheets.
- Being green, eco-friendly, sustainable, renewable, energy efficient, the life cycle cost of BMCS is lower.
- BMB is an excellent green mat board and cost-effective. Can be used as replacement of conventional boards at a comparable cost.





SUSTAINABILITY ASPECTS

- Low Thermal Conductivity (15% temperature reduction)
- Good Sound Insulation
- Produced from plantation timber bamboo and therefore, eco-friendly, sustainable and renewable.
- Energy consumption per ton is 22784 MJ. Four times less than the pre-coated GI sheets.
- BMCS has social impact as it creates huge indirect employment in the rural / tribal villages for the woven bamboo mat weavers / bamboo strip makers

SUITABILITY AND AVAILABILITY

- Suitable for all type of climatic conditions.
- Ideal for rehabilitation works.
- Can be made available in any part of the country.
- Has already been used by Govt. departments such as Railways, Tourism, Academic Institutions, Metros, etc.

LIMITATIONS, IF ANY

- Being produced in North Eastern Region, the cost economics needs to be worked out while using it in far flung areas.





MARKET LINKAGES

- There are very few agencies who are manufacturing these sheets and therefore, supply chain need to be ensured in a large scale project.

MAJOR PROJECTS

- Railways / Metro Railways / Airports / Tourism / Universities
- Pre-fabricated Structures & Housing in various parts of Country
- Being included in CPWD Schedule of Rates and Railways. The product is accepted Pan India and being used.



CERTIFICATION/INDIAN STANDARD/ ENDORSEMENT

- Specifications for bamboo mat corrugated sheets
 - IS:15476-2004
- Specifications for bamboo mat board for general purpose
 - IS: 13958-1994
 - CPWD - DSR 2021
- Jointly promoted by BMTPC and IPIRTI

