

BAMBOO MAT BOARD

Bamboo is the fastest growing plant harvestable in 2-4 years cycle. It is far superior in physical and mechanical properties to wood obtained from short rotation fast growing tree species and is highly versatile for application. Traditional uses of board and in panel form is having more than 1000 documented uses.

India has the second largest resource of bamboo in the world, represented by about 136 species covering a total area of about 10 million ha. Bamboo is also cultivated in home steads and farms. In many states in North Eastern region, Andaman & Nicobar Islands, Maharashtra, Madhya Pradesh, Orissa, Kerala, bamboo are available in quantities adequate to support additional small scale industry to make value added products and has been reported to be highly suitable for reforestation of degraded lands.

Initial work for making BMB was carried out at FRI, Dehra Dun in 60's. Efforts were reviewed at IPIRTI, Bangalore, in 1979-82 to make the process cost effective. Technology has been further improved through intensive R & D work at IPIRTI in early 90's under projects sponsored by International Development Research Centre (IDRC),

Canada/INBAR. The improved IPIRTI technology has already been adopted for industrial production in few units in the country. **The Bureau of Indian Standard has brought out aspecification IS : 13958 for Bamboo Mat Board for general purpose.**

Since mats are woven from bamboo, which is very fast growing grass, its promotion has direct ecological advantage. Production of BMB is based not only on **Ecologically Sound Technology**, but also **people friendly**.

MANUFACTURING PROCESS

After cross cutting and splitting, epidermal layer is removed, 0.6mm ($\pm 15\%$) thick slivers are made either mechanically or manually. Slivers are woven into mats in herringbone or rectangular pattern. Prophylactic treatment is given for enhanced durability. The mats are soaked in phenol formaldehyde resin incorporated with ecofriendly preservative and stabilized by stacking for about 2 hours. Stabilized mats are dried to about 8% moisture content and are assembled in 2-7 layers according to required thickness of board and hot pressed. The boards are trimmed and cut to required sizes.



Grain Storage Bin



Pantry near Glass House at Rajbhavan, Bangalore



Project Cost

Installed Capacity	:	430 boards/shift (2.44 x 1.22m x 3.0mm)
Land & Building		
a) Land	:	8000 sq.mt
b) Built up area	:	1000 sq.mt
Capital Investment	:	200 Lakhs
Energy Requirements		
a) Electricity	:	800 kwh/shift
b) Light diesel oil	:	600 lit/shift
c) Water	:	As per requirement
Cost production for		
2.44m x 1.22m x 3mm board	:	Rs. 420
Selling Price		
2.44m x 1.22m x 3mm board	:	Rs. 470

Plant & Machinery

Indigenous Machinery	
a) Resin Kettle	
b) Resin applicator	
c) Hot Press	
d) Drying Chamber	
e) Steam boiler	
f) Scissor lift	
g) Aluminium cauls	
h) DD Saw	
i) Measuring instruments	
j) Conveyor	
k) Blower for cooling cauls	
l) Storage tank for formalin	
m) Weighing machine	
n) Standby generator	
o) Sprayer for prophylactic treatment	
p) Air compressor	
q) Band dryer (Alternate to drying chamber)	

Typical Strength properties of BMB

Size & Thickness	:	Thickness and size depends on customer's choice
Moisture content	:	8%
Specific Gravity	:	790 kg/m ³
Internal bond strength N/mm ²		
i) Dry state	:	1.97
ii) Wet State	:	1.73
Surface strength N/mm ²		
i) Dry State	:	9.47
ii) Wet State	:	9.10
Tensile strength N/mm ²	:	29.54
Compressive strength N/mm ²	:	35.30
Modulus of Rupture N/mm ²	:	59.35
Modulus of Elasticity N/mm ²	:	3174
Modulus of rigidity N/mm ²	:	6066

Potential Application of BMB

Panelling,
Partitions,
Ceilings,
Panel doors,
Flush doors,
Furniture,
Packing
Storage,
Transportation,
Craft work, etc.



For further informations please contact :

Director, IPIRTI, P. B. No. 2273, Tumkur Road, Bangalore - 560 022.

Ph: 8394231-232-233 Fax: 91-80-8396361.

Director. 8394341.

Homepage: <http://www.ipirti.com>

<http://www.bamboocomposites.com>

e-mail: ipirti@giabg01.vsnl.net.in