

भारतीय मानक

IS 12406 : 2025

Indian Standard

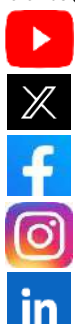
सामान्य प्रयोजनों के लिए मध्यम
घनत्व के लकड़ी और अन्य लिग्नोसेल्यूलोसिक
सामग्री के रेशा बोर्ड — विशिष्टि
(तीसरा पुनरीक्षण)

Medium Density Fibre Boards of
Wood and Other Lignocellulosic
Materials for General Purpose —
Specification
(Third Revision)

ICS 79.060.20

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MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI - 110002
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Price Group 8

Wood and Other Lignocellulosic Products Sectional Committee, CED 20

FOREWORD

This Indian Standard (Third Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Wood and Other Lignocellulosic Products Sectional Committee had been approved by the Civil Engineering Division Council.

Fibre board is a panel product manufactured from wood and other lignocellulosic fibres combined with synthetic resin or any other suitable binder. The panels are manufactured by the application of heat and pressure by a process in which the inter fibre bond is substantially created by blending with binders. Additives may be added during manufacturing to improve certain properties.

Medium density fibre (MDF) boards are recommended for use in interior locations. High moisture resistance (HMR) grade MDF boards may be used in humid tropical wet conditions, whereas moisture resistance (MR) grade MDF boards may be used in humid conditions subtropical and tropical dry, and regular grade (REG) may be used in arid/ semi-arid/temperate conditions. This standard covers classification and requirements of MDF board for general purposes including furniture applications.

This standard gives requirements of formaldehyde content and formaldehyde emission. Both formaldehyde content and emission are specified under Class E_1 and Class E_2 . Class E_1 is more stringent than Class E_2 .

This standard was first published in 1988 and subsequently revised in 2003 and 2021. In this revision, the following major modifications have been incorporated:

- a) MDF boards have been classified based on uses and service conditions;
- b) Requirements have been modified against each classification of MDF boards; and
- c) Marking clause has been modified

In formulation of this standard, assistance has been derived from ISO 16895 : 2016 'Wood-based panels — Dry-process fibreboard'.

The composition of the Committee responsible for the revision of this standard is given in [Annex B](#).

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

MEDIUM DENSITY FIBRE BOARDS OF WOOD AND OTHER LIGNOCELLULOSIC MATERIALS FOR GENERAL PURPOSE — SPECIFICATION

(Third Revision)

1 SCOPE

1.1 This standard covers the requirements of medium density fibre (MDF) boards for general purposes having density in the range of 600 kg/m³ to 900 kg/m³.

1.2 This standard does not cover veneered fibre boards, fibre boards faced with impregnated paper surfaces, moulded fibre boards, fibre insulation boards (see IS 3348), fibre hardboard (see IS 1658) and other specially treated fibre boards.

2 REFERENCES

The standards listed in [Annex A](#) contain provisions which through reference in the text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of these standards.

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 707 shall apply.

4 CLASSIFICATIONS

4.1 MDF boards shall be classified according to [Table 1](#).

4.2 Formaldehyde Classes

In terms of formaldehyde class, each grade of MDF boards shall be further classified in two classes as follows:

- a) Formaldehyde Class, E_1 ; and
- b) Formaldehyde Class, E_2 .

5 MATERIALS

5.1 Wood and Any Other Lignocellulosic Material

Any species of wood and/or any other lignocellulosic

material may be used for the manufacture of MDF boards. However, the purchaser may, at his discretion, specify a particular species of wood or any specific lignocellulosic material for the manufacture of MDF boards.

5.2 Adhesive

Any suitable type of resin adhesive may be used for bonding, provided that the MDF boards comply with the requirements given in [9](#).

5.3 Sizing Material

Paraffin wax dissolved in mineral spirit or alternatively emulsified with water, or melted shall be used as sizing material.

5.4 Preservative Treatment

A suitable preservative may be added to the mix during the adhesive mixing stage. The following preservatives are considered as suitable, and their percentage is given based on the oven-dry weight of the fibres as follows:

- a) Sodium pentachlorophenate to the extent of 2 percent; and
- b) Trichlorophenol to the extent of 5 percent.

6 MANUFACTURE

Wood or any other lignocellulosic materials are cut into small chips or particles using a suitable chipping machine. These chips are then steamed and defibrated in an appropriate defibrating machine. The resulting fibres are blended with resin and wax, and dried in flash dryers. The blended fibres are formed into mats through air felting and pressed into panels by passing them through a press under controlled heat, pressure, and time conditions, to produce flat-pressed, single-layer MDF boards.

7 FINISH

The MDF boards shall be of uniform thickness, flat, and of uniform density throughout the length and width of the boards. Both surfaces of the MDF board shall be sanded to a smooth finish.

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8 DIMENSIONS AND TOLERANCES

8.1 Any dimensions (length and width) as agreed to between the manufacturer and the purchaser may be used and shall be declared by the manufacturer. The dimensions shall be measured as per IS 2380 (Part 2). Prevailing dimensions (length × width) of MDF boards are as given below:

Length, mm : 5 490, 4 880, 3 660, 3 050, 2 745,
2 440, 2 135, 1 830, 1 525, 1 220,
1 000 and 915

Width, mm : 1 830, 1525, 1220, 1000, 915, 610
and 305

8.2 Thickness

The thickness of the MDF boards shall be 2.5 mm, 4 mm, 6 mm, 9 mm, 12 mm, 15 mm, 18 mm, 22 mm, 25 mm, 30 mm, 35 mm, 40 mm and 45 mm.

NOTE — Any other thickness as agreed to between the manufacturer and the purchaser may also be used.

8.3 Squareness and Edge Straightness

Edge straightness and squareness shall be measured as per IS 2380 (Part 2).

8.4 Tolerances

The tolerances on the dimensions of finished MDF boards shall be as given in [Table 2](#).

9 REQUIREMENTS

9.1 The MDF boards shall conform to the requirements given in [Table 3](#) to [Table 8](#), as per the respective grades.

9.2 The method of preparation and conditioning of specimens for tests shall be as specified in IS 2380 (Part 1). The test specimens shall be cut out from portions 150 mm away from the edges for the tests as mentioned in [9](#). Three number of test specimens shall be taken for each of the tests for density, moisture content, thickness swelling, internal bond, internal bond (after cyclic test or boil test), modulus of elasticity, modulus of rupture and screw withdrawal test. However, for formaldehyde content and steady-state formaldehyde emission test, specimens shall be taken as per IS 13745 and IS/ISO 12460 (Part 1) respectively.

10 SAMPLING AND CRITERIA FOR CONFORMITY

10.1 Sampling

10.1.1 Lot

In any consignment, all the MDF boards of same classification and formaldehyde class, dimensions,

and manufactured under similar conditions of production shall be grouped together to constitute a lot.

10.1.2 The conformity of a lot, to the requirements of this standard, shall be ascertained on the basis of tests on MDF boards selected from it.

10.1.3 These MDF boards shall be selected at random (see IS 4905 for reference). For method of sampling, refer IS 7638.

10.2 Criteria for Conformity

10.2.1 All the MDF boards selected in accordance with [10.1.3](#) shall be measured for length, width, thickness, edge straightness, and squareness tests. These dimensions shall comply with the requirements specified in [8](#), before proceeding with further testing.

10.2.2 If all the boards in [10.2.1](#) are found to be conforming, then from each of the MDF boards, the test specimens shall be cut out from 150 mm away from the edges for the tests mentioned in [9](#).

10.2.3 A lot shall be considered as conforming to the requirements of this standard, if all the samples and test specimens pass the requirements as prescribed in [8](#) and [9](#).

10.2.4 If any sample fails to conform the requirements, further samples shall be taken from the lot, double in number, and the lot shall be considered to have passed, if these samples conform to the requirements prescribed.

11 MARKING

11.1 Each MDF board shall be legibly and indelibly marked with the following particulars:

- Manufacturer's name and initials or recognized trade mark, if any;
- Grade and formaldehyde class of MDF board;
- Nominal dimensions (length, width and thickness);
- Batch number; and
- Date of manufacture.

11.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

Table 1 Classification of Medium Density Fibre (MDF) Board

(Clause [4.1](#))

SI No.	Grade	Service Conditions	Typical Examples of Applications (See Note)
(1)	(2)	(3)	(4)
i)	Regular (REG) grade	Dry conditions arid/semi-arid/ temperate	DIY uses, general uses, carcass, furniture, cabinets, substrate for any decorative finish
ii)	Moisture resistance (MR) grade	Humid conditions subtropical and tropical dry	DIY uses, general uses, overlay floors, carcass, furniture, cabinets for kitchen and bathroom, substrate for any decorative finish.
iii)	High moisture resistance (HMR) grade General purpose (GP) grade Furniture purpose (FN) grade	High humid conditions tropical wet	General uses, overlay floors, carcass, furniture, cabinets for kitchen and bathroom, window joinery, substrate for any decorative finish.

NOTE — The examples given for different applications of MDF boards are typical. MDF boards may be used for other similar applications, depending on the grade and service conditions as agreed between the manufacturer and purchaser.

Table 2 Requirements for Dimensions

(Clause [8.4](#))

SI No.	Properties	Tolerance
(1)	(2)	(3)
i)	Length	± 5 mm/m
ii)	Width	± 5 mm/m
iii)	Thickness	± 0.3 mm
iv)	Squareness, <i>Max</i>	2 mm/m or 0.2 percent
v)	Edge straightness, <i>Max</i>	2 mm/m or 0.2 percent

Table 3 Requirements for Density and Moisture Content

(Clause [9.1](#))

SI No.	Properties	Requirements	Method of Test, Ref to
(1)	(2)	(3)	(4)
i)	Density, kg/m ³	600 – 900	} IS 2380 (Part 3)
ii)	Variation from mean density, percent	± 10	
iii)	Moisture content, percent	5 – 15	

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Table 4 Requirements for Regular (REG) Grade MDF Board

(Clause [9.1](#))

SI No.	Properties	Requirements (Average)									Method of Test, Ref to
		Nominal Thickness (mm)									
		≤ 2.5	> 2.5 to ≤ 4.0	> 4.0 to ≤ 6.0	> 6.0 to ≤ 9.0	> 9.0 to ≤ 12.0	> 12.0 to ≤ 19.0	> 19.0 to ≤ 30.0	> 30.0 to ≤ 45.0	> 45.0	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
i)	Modulus of rupture (MoR), N/mm ² , <i>Min</i>	23	23	23	23	22	20	18	17	15	IS 2380 (Part 4)
ii)	Modulus of elasticity (MoE), N/mm ² , <i>Min</i>	2 700	2 700	2 700	2 700	2 500	2 200	2 100	1 900	1 700	
iii)	Internal bond strength, N/mm ² , <i>Min</i>	0.65	0.65	0.65	0.65	0.60	0.55	0.55	0.50	0.50	IS 2380 (Part 5)
iv)	24 h thickness swelling (due to general absorption), percent, <i>Max</i>	45	35	30	17	15	12	10	8	6	IS 2380 (Part 17)
v)	Screw withdrawal strength (face), N, <i>Min</i>	1 250									IS 2380 (Part 14)
vi)	Screw withdrawal strength (edge), N, <i>Min</i>	—					700				

Table 5 Requirements for Moisture Resistance (MR) Grade MDF Board

(Clause [9.1](#))

SI No.	Properties	Requirements (Average)									Method of Test, Ref to
		Nominal Thickness (mm)									
		≤ 2.5	> 2.5 to ≤ 4.0	> 4.0 to ≤ 6.0	> 6.0 to ≤ 9.0	> 9.0 to ≤ 12.0	> 12.0 to ≤ 19.0	> 19.0 to ≤ 30.0	> 30.0 to ≤ 45.0	> 45.0	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
i)	Modulus of rupture (MoR), N/mm ² , <i>Min</i>	27	27	27	27	26	24	22	17	15	IS 2380 (Part 4)
ii)	Modulus of elasticity (MoE) , N/mm ² , <i>Min</i>	2 700	2 700	2 700	2 700	2 500	2 400	2 300	2 200	2 000	
iii)	Internal bond strength, N/mm ² , <i>Min</i>	0.70	0.70	0.70	0.70	0.65	0.65	0.60	0.55	0.50	IS 2380 (Part 5)
iv)	24 h thickness swelling (due to general absorption), percent, <i>Max</i>	35	30	18	12	10	8	7	7	6	IS 2380 (Part 17)
v)	Screw withdrawal strength (face), N, <i>Min</i>	1 250									IS 2380 (Part 14)
vi)	Screw withdrawal strength (edge), N, <i>Min</i>	—					850				
vii)	Moisture resistance:										
	a) Option 1: Cyclic test 1) Internal bond strength, N/mm ² , <i>Min</i> OR	0.35	0.35	0.35	0.30	0.25	0.20	0.15	0.10	0.10	IS 2380 (Part 5) See Note 1
	b) Option 2: Boil test 1) Internal bond strength, N/mm ² , <i>Min</i>	0.20	0.20	0.18	0.15	0.15	0.12	0.12	0.10	0.10	IS 2380 (Part 5)

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Table 6 Requirements for High Moisture Resistance General Purpose (HMR-GP) Grade MDF Board

(Clause [9.1](#))

SI No.	Properties	Requirements (Average)									Method of Test, Ref to
		Nominal Thickness (mm)									
		≤ 2.5	> 2.5 to ≤ 4.0	> 4.0 to ≤ 6.0	> 6.0 to ≤ 9.0	> 9.0 to ≤ 12.0	> 12.0 to ≤ 19.0	> 19.0 to ≤ 30.0	> 30.0 to ≤ 45.0	> 45.0	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
i)	Modulus of rupture (MoR), N/mm ² , <i>Min</i>	28	28	27	27	26	24	23	21	19	IS 2380 (Part 4)
ii)	Modulus of elasticity (MoE), N/mm ² , <i>Min</i>	2 800	2 800	2 700	2 700	2 500	2 400	2 300	2 000	1 900	
iii)	Internal bond strength, N/mm ² , <i>Min</i>	0.70	0.70	0.70	0.70	0.65	0.65	0.60	0.55	0.50	IS 2380 (Part 5)
iv)	24 h thickness swelling, (due to general absorption) percent, <i>Max</i>	20	16	14	11	9	7	6	5	5	IS 2380 (Part 17)
v)	Screw withdrawal strength (face), N, <i>Min</i>	1 250									IS 2380 (Part 14)
vi)	Screw withdrawal strength (edge), N, <i>Min</i>	—					850				
vii)	Moisture resistance:										
	a) Option 1: Cyclic test 1) Internal bond strength, N/mm ² <i>Min</i> OR	0.45	0.42	0.40	0.35	0.30	0.25	0.20	0.18	0.15	IS 2380 (Part 5) <i>See Note 1</i>
	b) Option 2: Boil test 1) Internal bond strength, N/mm ² <i>Min</i>	0.25	0.22	0.20	0.20	0.18	0.15	0.12	0.12	0.10	IS 2380 (Part 5) <i>See Note 2</i>

Table 7 Requirements for High Moisture Resistance Furniture (HMR-FN) Grade MDF Board

(Clause [9.1](#))

Sl No.	Properties	Requirements (Average)									Method of Test, Ref to
		Nominal Thickness (mm)									
		≤ 2.5	> 2.5 to ≤ 4.0	> 4.0 to ≤ 6.0	> 6.0 to ≤ 9.0	> 9.0 to ≤ 12.0	> 12.0 to ≤ 19.0	> 19.0 to ≤ 30.0	> 30.0 to ≤ 45.0	> 45.0	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
i)	Modulus of rupture (MoR), N/mm², <i>Min</i>	34	32	30	30	28	26	23	21	20	IS 2380 (Part 4)
ii)	Modulus of elasticity (MoE) , N/mm², <i>Min</i>	2 800	2 700	2 600	2 500	2 400	2 400	1 800	1 800	1 700	
iii)	Internal bond strength, N/mm², <i>Min</i>	0.70	0.70	0.70	0.70	0.65	0.60	0.55	0.50	0.45	IS 2380 (Part 5)
iv)	24 h thickness swelling (due to general absorption), percent, <i>Max</i>	15	14	12	10	7	5	4	4	4	IS 2380 (Part 17)
v)	Screw withdrawal strength (face), N, <i>Min</i>	1 250									IS 2380 (Part 14)
vi)	Screw withdrawal strength (edge), N, <i>Min</i>	—					850				
vii)	Moisture resistance:										
	a) Option 1: Cyclic test	0.50	0.45	0.40	0.35	0.35	0.30	0.25	0.22	0.20	IS 2380 (Part 5) See Note 1
	1) Internal bond strength, N/mm², <i>Min</i>										
	OR										

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Table 7 (*Concluded*)

SI No.	Properties	Requirements (Average)									Method of Test, Ref to
		Nominal Thickness (mm)									
		≤ 2.5	> 2.5 to ≤ 4.0	> 4.0 to ≤ 6.0	> 6.0 to ≤ 9.0	> 9.0 to ≤ 12.0	> 12.0 to ≤ 19.0	> 19.0 to ≤ 30.0	> 30.0 to ≤ 45.0	> 45.0	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	b) Option 2: Boil test	0.30	0.28	0.25	0.22	0.22	0.20	0.20	0.18	0.15	IS 2380 Part 5) See Note 2
	1) Internal bond strength, N/mm², Min										

NOTE — For [Table 5](#) to [Table 7](#), procedure for cyclic test and boil test shall be as follows:

1 Cyclic test — Specimens are immersed in water at 27 °C ± 2 °C for a period of 72 h, followed by drying in air at 27 °C ± 2 °C for 24 h and then heating in dry air at 70 °C ± 2 °C for 72 h. Three such cycles shall be followed and then the specimens are tested for internal bond strength.

2 Boil test (Accelerated water resistance test) — Specimens are immersed in water at 27 °C ± 2 °C and water is brought to boiling and kept at boiling temperature for 2 h. After 120 min ± 5 min remove the test pieces and immerse them in water at 27 °C ± 2 °C for 60 min ± 5 min. The test pieces shall have their faces vertical and be separated from each other and from the sides and the bottom of the water bath by at least 15 mm. Remove the test pieces from the water, dry them with a paper towel and place them, with their faces horizontal, in the drying oven at 70 °C ± 2 °C for 960 min ± 15 min. Remove the test pieces from the oven, allow them to cool to approximately room temperature and bond the loading blocks to the faces (If the surfaces of the test pieces are rough or uneven, they may be smoothed before bonding to the blocks by rubbing on a piece of abrasive paper which is held on a flat surface) and then tested for internal bond strength.

Table 8 Requirements for Formaldehyde Content and Steady-State Formaldehyde Emission

(*Clause 9.1*)

SI No.	Properties	Requirements	Method of Test, Ref to
(1)	(2)	(3)	(4)
i)	Formaldehyde content F_c , mg/ 100 g for oven dry board	For Formaldehyde Class, E_1 : $F_c \leq 8$ For Formaldehyde Class, E_2 : $8 < F_c \leq 30$	IS 13745
ii)	Steady-state formaldehyde emission, F_c , mg/m ³ (optional test)	For Formaldehyde Class, E_1 : $F_c \leq 0.124$ For Formaldehyde Class, E_2 : $F_c > 0.124$	

ANNEX A

(Clause 2)

LIST OF REFERRED STANDARDS

IS No.	Title	IS No.	Title
IS 707 : 2011	Timber technology and utilization of wood, bamboo and cane — Glossary of terms (<i>third revision</i>)	(Part 14) : 1977	Screw and nail withdrawal test (<i>first revision</i>)
IS 1658 : 2006	Fibre hardboards — Specification (<i>third revision</i>)	(Part 17) : 1977	Determination of swelling in water (<i>first revision</i>)
IS 2380	Methods of test for wood particleboards and boards from other lignocellulosic materials:	IS 3348 : 1965	Specification for fibre insulation boards
(Part 1) : 1977	Preparation and conditioning of test specimens (<i>first revision</i>)	IS 4905 : 2015/ ISO 24153 : 2009	Random sampling and randomization procedures (<i>first revision</i>)
(Part 2) : 1977	Accuracy of dimensions of boards (<i>first revision</i>)	IS 7638 : 1999	Wood/Lignocellulosic based panel products — Methods of sampling (<i>second revision</i>)
(Part 3) : 1977	Determination of moisture content and density (<i>first revision</i>)	IS/ISO 12460 (Part 1) : 2007	Wood-based panels — Determination of formaldehyde release: Part 1 Formaldehyde emission by the 1-cubic meter chamber method
(Part 4) : 1977	Determination of static bending strength (modulus of rupture and modulus of elasticity in bending) (<i>first revision</i>)	IS 13745 : 2020	Method for determination of formaldehyde content in wood based panels by extraction method called perforator method (<i>first revision</i>)
(Part 5) : 1977	Determination of tensile strength perpendicular to surface (<i>first revision</i>)		

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ANNEX B

(Foreword)

COMMITTEE COMPOSITION

Wood and Other Lignocellulosic Products Sectional Committee, CED 20

<i>Organization</i>	<i>Representative(s)</i>
Institute of Wood Science & Technology, Bengaluru	SHRI RAJESH S. KALLAJE (Chairperson)
Association of Furniture Manufacturers and Traders India, Mumbai	SHRI RAJESH CHHABRIA SHRI DHANESH BHATIA (<i>Alternate I</i>) SHRI AMIT VAZE (<i>Alternate II</i>)
Balaji Action Buildwell, New Delhi	SHRI RAJESHWAR NAIR SHRI VIVEK JAIN (<i>Alternate I</i>) SHRI RISHABH JAIN (<i>Alternate II</i>)
Bamboo Society of India, Bengaluru	SHRI PUNATI SRIDHAR DR S. R. SHUKLA (<i>Alternate I</i>) DR JAGADISH VENGALA (<i>Alternate II</i>)
Central Public Works Department, New Delhi	SHRI PREM MOHAN SHRI DINESH KUMAR UJJANIA (<i>Alternate</i>)
Central Institute of Coir Technology, Bengaluru	DR O. L. SHANMUGASUNDARAM SHRIMATI SUMY SEBASTIAN (<i>Alternate</i>)
Century Plyboard India Ltd, Kolkata	SHRI AJAY BALDAWA SHRI JAGANNATH DAS (<i>Alternate</i>)
CSIR - Advance Materials and Processes Research Institute(AMPRI), Bhopal	DR ASOKAN PAPPU
CSIR - Central Building Research Institute, Roorkee	SHRIMATI HEMALATA DR JEESHAN KHAN (<i>Alternate I</i>) SHRI PRASANTA KAR (<i>Alternate II</i>)
Federation of Indian Plywood & Panel Industry, New Delhi	DR C. N. PANDEY SHRI JAYDEEP CHITLANGIA (<i>Alternate</i>)
Greenpanel Industries Ltd, Tirupati	SHRI SUBHASH KUMAR AGARWAL DR PURSHOTTAM (<i>Alternate</i>)
Greenply Industries Ltd, Kolkata	SHRI SHIV PRAKASH SHRI PARTHA NATH (<i>Alternate</i>)
IKEA India Pvt Ltd, Bengaluru	SHRI NISHANT VERMA SHRI GAURAV MITTAL (<i>Alternate I</i>) SHRIMATI OKSANA KOZYRYATSKAYA (<i>Alternate II</i>)
Institute of Wood Science & Technology, Bengaluru	SHRI ANAND NANDANWAR SHRIMATI SUJATHA D. (<i>Alternate</i>)
Mutha Industries, Agartala	SHRI NEERAJ MUTHA SHRI ANIL MUTHA (<i>Alternate</i>)

<i>Organization</i>	<i>Representative(s)</i>
National Test House, Kolkata	DR SOMIT NEOGI SHRI S. PANERIA (<i>Alternate</i>)
North East Centre for Technology Application and Research, Shillong	DR KRISHNA KUMAR SHRI LYNKSIAR N. KHONGWIR (<i>Alternate I</i>) SHRI PANJUMA KAKOTY (<i>Alternate II</i>)
The South Indian Plywood Manufacturers Association, Chennai	SHRI MOIZ VAGH
The Western India Plywood Ltd, Kannur	SHRI P. K. MAYAN MOHAMED DR E. SREENIVASAN (<i>Alternate</i>)
Timpack Pvt Ltd, Byrnihat	SHRI INDER PAL SINGH BHUSRI SHRI ANGAD SINGH BHUSRI (<i>Alternate</i>)
Wood Technologist Association, Yamuna Nagar	SHRI GAJENDRA SINGH RAJPUT SHRI MANOJ GWARI (<i>Alternate</i>)
In Personal Capacity (<i>F 106 Anjan Apartment Coconut Garden, PO Nagarbhavi, Bengaluru</i>)	DR S. K. NATH
BIS Directorate General	SHRI DWAIPAYAN BHADRA, SCIENTIST 'E'/DIRECTOR AND HEAD (CIVIL ENGINEERING) [REPRESENTING DIRECTOR GENERAL (<i>Ex-officio</i>)]

Member Secretary
SHRI PRADEEP SINGH SHEKHAWAT
SCIENTIST 'D'/JOINT DIRECTOR
(CIVIL ENGINEERING), BIS

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BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002

Telephones: 2323 0131, 2323 3375, 2323 9402

Website: www.bis.gov.in

Regional Offices:

	Telephones
Central : 601/A, Konnectus Tower -1, 6 th Floor, DMRC Building, Bhavbhuti Marg, New Delhi 110002	{ 2323 7617
Eastern : 8 th Floor, Plot No 7/7 & 7/8, CP Block, Sector V, Salt Lake, Kolkata, West Bengal 700091	{ 2367 0012 2320 9474
Northern : Plot No. 4-A, Sector 27-B, Madhya Marg, Chandigarh 160019	{ 265 9930
Southern : C.I.T. Campus, IV Cross Road, Taramani, Chennai 600113	{ 2254 1442 2254 1216
Western : 5 th Floor/MTNL CETTM, Technology Street, Hiranandani Gardens, Powai Mumbai 400076	{ 25700030 25702715

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