

## 4.0 PHYSICAL PROPERTIES

### 4.1 Dimensions & Packing Schedule

#### E-Board

STANDARD SIZES	
Metre (m)	Feet (')
3.05 x 1.22	10' x 4'
2.75 x 1.22	9' x 4'
2.44 x 1.22	8' x 4'
2.135 x 1.22	7' x 4'
1.83 x 1.22	6' x 4'
1.22 x 1.22	4' x 4'
1.22 x 0.61	4' x 2'
0.61 x 0.61	2' x 2'

SPECIAL SIZES	
Metre (m)	Feet (')
1.83 x 0.61	6' x 2'
1.83 x 0.76	6' x 2.½'
1.83 x 0.91	6' x 3'
2.135 x 0.61	7' x 2'
2.135 x 0.76	7' x 2.½'
2.135 x 0.91	7' x 3'
1.195 x 0.595	-
0.595 x 0.595	-

THICKNESS (mm)	4	5	6	8	9	10	12	14	16	18	20
WEIGHT (Kg/m <sup>2</sup> )	5.96	7.45	8.94	11.92	13.41	14.90	17.88	20.86	23.84	26.82	29.80

*Note: Customised sizes & thickness are also available on request*

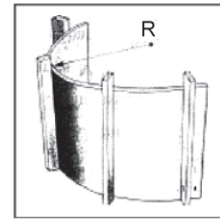
#### E-Board Classic

STANDARD SIZES				
DIMENSIONS IN mm	THICKNESS - 4 mm		THICKNESS - 6 mm	
	Wt of Board (approx. kgs)	Board per pack	Wt of Board (approx. kgs)	Board per pack
2440 x 1220	17.76	3	26.64	3
1830 x 1220	13.32	3	19.98	3
1220 x 1220	8.88	5	13.32	5
1220 x 610	4.44	5	6.66	5
610 x 610	2.22	10	3.33	10

SPECIAL SIZES				
DIMENSIONS IN mm	THICKNESS - 4 mm		THICKNESS - 6 mm	
	Wt of Board (approx. kgs)	Board per pack	Wt of Board (approx. kgs)	Board per pack
1195 X 595	4.28	5	6.35	5
595 X 595	2.11	10	3.16	10

### 4.3 Bending Radius

THICKNESS (mm)	MINIMUM RADIUS (mm)
4	750
5	1000
6	1500



**Note :** E-Board and E-Board Classic boards are highly flexible and can be given curvature as shown in the above diagram. However, the board should be bent only along longitudinal direction, with closer stud spacing.

### 4.4 Fire Resistance Properties

E-Board is a non - combustible material and qualifies for :

**a. Early Fire Hazard Indices as per AS-1530 part III\*\***

PROPERTY	RESULT
Ignition Index	0*
Ignitability	0*
Heat Evolved Index	0*
Flame Spread Index	0*
Smoke Developed Index	0*

\* Zero is the best result

**b. Resistance to Fire as per BS-476\*\***

PROPERTY	RESULT
Combustibility	Class '0'-non combustible as per BS 476 Part IV
Ignitability	Class "P"-not easily ignited, as per BS 476 Part V
Fire Propagation Index	<3, as per BS 476 Part VI (Limit<12)
Surface Spread of flame	Class - 1, as per BS 476 Part VII (Class 1-4; 1=excellent)
Specific Optical Density of Smoke	<5, ASTM E 662
UK Building Regulations	Class "0"

\*\* AS-Australian Standard, BS-British Standard, ASTM-American Standard

## 4.5 Moisture Resistance Properties

E-Board is a moisture resistant material and is tested as per IS 14862 & IS 2380

PROPERTY	RESULT
Moisture Content (at EMC*)	6-8%
<b>Swelling in Water</b> Change in thickness Change in length	0.8% 0.03%
<b>Dimensional Changes - IS 1659</b> At 40% Rh Difference in thickness At 40% Rh Difference in length	Nil Nil
<b>Dimensional Changes - IS 1659</b> At 90% Rh Difference in thickness At 90% Rh Difference in length	0.03mm (Negligible) 0.05mm (Negligible)

\* EMC - Equilibrium Moisture Condition. At EMC, conditions of environment are  $23 \pm 5^{\circ}\text{C}$  and  $50 \pm 10\%$  Relative Humidity (Rh)

## 4.6 Durability

E-Board is a highly durable material and excels in all durability tests as per IS-14862\* and ISO : 8336 Part (E)\*\*

TEST	RESULT
Water Impermeability	No droplets formation after 24 hrs.
Frost Resistance (Freeze/Thaw tests)	Passes in 25 cycles
Warm Water	Passes in 25 cycles
Soak dry	Passes in 25 cycles
Heat Rain	Passes in 25 cycles

\* IS - Indian Standard,

\*\* ISO - International Standard Organisation

## 5.0 TECHNICAL PROPERTIES

Standard E- Board range of products conform to Type 'B' category III as per IS 14862 : 2000 and ISO : 8336 : 1993 (E)

Sl. No.	Technical Properties	Unit	Standard/Value	Actual Value
<b>1.0</b>	<b>Dimensional and Geometrical Properties</b>			
1.1	Tolerances on Dimensions		IS 14862/ISO 8336 Part (E)	
1.1.a.	On Length and Width (indicated by 'd') 'd' < 1000 mm 1000 mm < 'd' < 1600 mm 'd' > 1600 mm	mm % mm	IS 14862/ISO 8336 Part (E)	+/- 5.0 +/- 0.5 +/- 8.0
1.1.b	On Thickness (indicated by 'e') 'e' ≤ 6 mm 'e' > 6 mm	mm %	IS 14862/ISO 8336 Part (E)	+/- 0.6 +/- 10
1.2	Tolerances on Shape		IS 14862/ISO 8336 Part (E)	
1.2.a	Straightness of Edges	mm/m	IS 14862/ISO 8336 Part (E)	3.0
1.2.b	Squareness of Edges	mm/m	IS 14862/ISO 8336 Part (E)	4.0
1.2.c	Dimensional Changes		IS 1659	
	At 40% Rh Difference in thickness	mm	IS 1659	Nil
	At 40% Rh Difference in length	mm	IS 1659	Nil
	At 90% Rh Difference in thickness	mm	IS 1659	0.03
	At 90% Rh Difference in length	mm	IS 1659	0.05
<b>2.0</b>	<b>Mechanical and Physical Properties</b>			
2.1	Standard Weight	Kg/m <sup>3</sup>	IS 14862/ISO 8336 Part (E)	8.95 for 6mm
2.2	Apparent Density (Dry)	Kg/m <sup>3</sup>	IS 14862/ISO 8336 Part (E)	>1200
2.3	Bending Strength (avg. Value of with & across the grain)		IS 14862/ISO 8336 Part (E)	
2.3.1	Minimum Modulus of Rupture (MOR) : (at EMC)	Mpa, N/mm <sup>2</sup>	IS 14862/ISO 8336 Part (E)	10
2.3.2	Minimum Modulus of Rupture (MOR) : Wet	Mpa, N/mm <sup>2</sup>	IS 14862/ISO 8336 Part (E)	7
2.4	Compressive Strength	Mpa, N/mm <sup>2</sup>	ASTM D1037	>30
2.5	Tensile Strength - Parallel to the surface of the board - Perpendicular to the surface of the board - Air Dry - Accelerated Aging	Mpa, N/mm <sup>2</sup>	ASTM D1037	> 6.0 > 0.5 > 0.3
2.6	Block Shear Strength	Mpa, N/mm <sup>2</sup>	ASTM D1037	11.5
2.7	Modulus of Elasticity	Mpa, N/mm <sup>2</sup>	ASTM D143	>7000 Dry, 5000 Wet
2.8	Impact Strength (Charpy Method)	KJ/m <sup>2</sup>	ASTM D256	6.9 for 8mm 7.7 for 10mm
2.10	IMOR (Work of Fracture) (Energy absorbed during bending)	KJ/m <sup>2</sup>	Internal Standard	Wet > 1000, Air-Dry > 800
2.11	Adhesion/Lamina Bond Strength	Mpa, N/mm <sup>2</sup>	ASTM D1037	0.9 - 1.0
2.12	Screw Withdrawal Strength (FACE)	N	IS 2380, Part XIV	2000
<b>3.0</b>	<b>Additional Properties</b>			
3.1	pH value	-	-	8-9
3.2	Insulation Resistance	Ohm	ASTM D257	1.582 x 10 <sup>12</sup>
3.3	Acoustic Insulation	dB	BS 2750	26 dB for 6mm

Sl. No.	Technical Properties	Unit	Standard/Value	Actual Value
3.4	Surface Lime-Free	%		<0.2
3.5	Surface Resistivity	in ohms	ASTM D 257/IS 1998	1.183 x 10 <sup>10</sup>
3.6	Insulation Resistance	in ohms	ASTM D 257 /IS 1998	1.582 x 10 <sup>12</sup>
3.7	Thermal Conductivity at 50°C (mean temperature)	W/m/°K	ASTM C518	0.21
3.8	Thermal expansion coefficient	mm/mm/°C	ASTM D696	7.43 x 10 <sup>-6</sup>
<b>4.0</b>	<b>Moisture Resistance Properties</b>			
4.1	Moisture Content	(at EMC) %	ASTM C1185	6-8
4.2	Moisture Movement (Rh 30%-90%)	mm/m	ASTM C1185	3-6
4.3	Swelling in Water - Change in thickness - Change in length	%	IS 2380	0.80 0.03
4.4	Water absorption	%	ASTM C1185	32-35
<b>5.0</b>	<b>Fire Resistance Properties</b>			
5.1	Early Fire Hazard Indices - Ignition Index - Ignitability - Heat Evolved Index - Flame Spread Index - Smoke Developed Index	(Class O – Best Result)	AS 1530 Part III	O O O O O
5.2	Resistance to Fire			
5.3	Combustibility	Class '0'	Non combustible as per BS 476 Part IV	0
5.4	Ignitability		BS 476 Part V	Class 'P' Not Easily Ignitable
5.5	Fire Propagation Index	(Limit<12)	BS 476 Part VI	<3
5.6	<b>Surface Spread of Flame</b>	<b>(Class 1-4; 1=Excellent)</b>	BS 476 Part VII	Class 1
5.7	Specific Optical Density of Smoke		ASTM E 662	<5
5.8	U.K. Building Regulations			Class - O
<b>6.0</b>	<b>Durability</b>			
6.1	Water Impermeability		IS 14862/ISO : 8336 Part (E)	No Drop after 24 Hrs
<b>6.2</b>	<b>Frost Resistance( Freeze Thaw Test)</b>		IS 14862/ISO : 8336 Part (E)	Passes in 25 Cycles
6.3	Warm Water		IS 14862/ISO : 8336 Part (E)	Passes in 25 Cycles
6.4	Soak Dry		IS 14862/ISO : 8336 Part (E)	Passes in 25 Cycles
6.5	Heat Rain		IS 14862/ISO : 8336 Part (E)	Passes in 25 Cycles

\* 0 is the best result.

The technical properties of E-Board Classic are same as of E-Board.