

Discover  
*the*  
Possibilities  
*of*  
MDF



**STRONG  
VERY  
STRONG**





## About Rushil Décor Ltd.

Rushil Décor Ltd. is one of the leading companies in Laminate and MDF panel boards industry in India with a global footprint across 51+ countries. Founded in 1993, we have been able to find a strong and loyal customer base because of our commitment to excellence and passion to bring to life designs that are elegant, timeless and class-apart. A global leader in smarter living solutions, RDL leverages modern technology, next-generation innovations and a people-first, purposeful approach. Rushil Décor is passionate about setting new industry standards and superior experiences, ensuring high productivity. The company has five state-of-the-art manufacturing plants with an annual capacity of 3,30,000 CBM MDF and 3.49 million Laminates.

## Our Product Portfolio

Laminates | Exterior Laminates | MDF Boards | HDFWR (High Density Fiber Water Resistant) Boards | Prelaminated Decorative MDF Boards | PVC and WPC Boards | PVC and WPC Doors | WPC Frames | HDF Laminate Flooring | Plywood

## WORLD-CLASS DECOR DESERVES WORLD-CLASS MDF

The world is becoming a smaller place with international trends making their way into customer's home and offices. Plywood cannot keep up with these design requirements. This is where VIR PRO, VIR PROPLUS and VIR MAXPRO (HDFWR - High Density Fiber Water Resistant boards) MDF steps in.



INTERIOR GRADE



EXTERIOR GRADE



HDFWR





## MUCH MORE THAN PLY

VIR MDF, from the house of Rushil Décor, is a technological breakthrough offering a range of high-quality alternative to solid wood and plywood. The range includes MDF Boards & Pre-laminated Decorative MDF Panel Boards in VIR PRO (Interior Grade), VIR PROPLUS (Exterior Grade) and VIR MAXPRO (HDFWR Grade - High Density Fiber Water Resistant) Boards, catering to the evolving needs of new generation OEM's, SCP's and conventional wood furniture manufacturers across India.

## HOW IT'S MADE:

Eucalyptus & silver-oak wood fibers are bonded under high pressure using thermosetting resins, to create a strong, uniform board at our state-of-the-art manufacturing facilities with the latest German technology.

- Maximum stability, machinability and strength.
- Highly versatile, perfect for a wide range of specialized applications: office, home furniture, shop fitments and much more.
- Available in moisture and humidity resistant VIR MAXPRO (HDFWR Grade) MDF.
- Paint-friendly and conducive to decorative foils, laminate and veneer.
- Lends itself to different shapes and intricate designs.



## REASONS TO CHOOSE VIR MDF:

Excellent Quality | Highly Durable | Good for Milling | Uniformity | Stability | Can be Coated with Many Substrates | Applicable for Moulded Edges & Profiled Surface | Excellent Surface Routing & Edge Shaping | Minimum Sanding & Filing | Ideal for Intricate Design Carving | High Gloss UV Digital Print | Isotropic

### AVAILABLE SIZE:

6 ft X 4 ft (1830 mm X 1220 mm) | 8 ft X 4 ft (2440 mm X 1220 mm) | 8 ft X 6 ft (2440 mm X 1830 mm)

### AVAILABLE GRADES:



INTERIOR GRADE

### VIR PRO (INTERIOR GRADE) MDF

#### AVAILABLE THICKNESS:

2 mm | 3.3 mm | 4 mm | 4.3 mm | 4.6 mm  
5.5 mm | 7 mm | 7.3 mm | 9.75 mm | 11 mm  
14.5 mm | 16 mm | 16.5 mm | 18 mm | 25 mm



### VIR PROPLUS (EXTERIOR GRADE) MDF

#### AVAILABLE THICKNESS:

3.3 mm | 5.5 mm | 7.5 mm | 11 mm | 17 mm  
18 mm | 25 mm

\*All international sizes and thickness (2 mm to 30 mm) now available

\*All products are made as per ISI Standards

### APPLICATIONS:

Residential & Commercial Furniture | Wall Panelling | Architectural Mouldings | Industrial Products | Sports Goods | Speaker Boxes | Display Cabinets | CNC Routing | Office Equipment | Flooring | Ceilings | Doors & Partitions | Cornice | Pelmet

### FEATURES:

-  Termite-Borer-Fungus Resistant
-  Weather-Resistant
-  Homogeneous Structure
-  Double Hardened
-  Environment-Friendly
-  Latex-Free Board
-  Resistant to Bending
-  Smooth Surface



PHYSICAL AND MECHANICAL PROPERTIES OF  
MEDIUM DENSITY FIBRE BOARDS AS PER (IS 12406 : 2021)



| Sr. No | Properties   | Grade 2  | Grade 1  |
|--------|--|--|--|
| 1      | Thickness (mm)<br>Length (mm)<br>Width (mm)<br>Edge straightness, Max (mm/ m)<br>Squareness, Max (mm/ m)   | ±0.3<br>±3<br>±3<br>2<br>2   | ±0.3<br>±3<br>±3<br>2<br>2   |
| 2      | Density (Kg/m <sup>3</sup> )   | 600-900  | 600-900  |
| 3      | Variation from mean density (%)  | ±10  | ±10  |
| 4      | Moisture content (%)   | 5 to 10  | 5 to 10  |
| 5      | Variation from mean moisture content (%)   | ±3   | ±3   |
| 6      | Linear expansion (thickness swelling in water), due to general absorption after 24 h soaking (%), Max<br>≤2.5 mm<br>>2.5 to 4.0<br>>4.0 to 6.0<br>>6.0 to 9.0<br>>9.0 to 12.0<br>>12.0 to 19.0<br>>19 to 30.0<br>>30 to 45.0<br>>45.0  | 45<br>35<br>30<br>17<br>15<br>12<br>10<br>8<br>6   | 35<br>30<br>18<br>12<br>10<br>8<br>7<br>7<br>6   |
| 7      | Modulus of rupture, N/mm <sup>2</sup> , Min<br>a) Average<br>≤2.5 mm<br>>2.5 to 4.0<br>>4.0 to 6.0<br>>6.0 to 9.0<br>>9.0 to 12.0<br>>12.0 to 19.0<br>>19 to 30.0<br>>30 to 45.0<br>>45.0<br>b) Minimum<br>≤2.5 mm<br>>2.5 to 4.0<br>>4.0 to 6.0<br>>6.0 to 9.0<br>>9.0 to 12.0<br>>12.0 to 19.0<br>>19 to 30.0<br>>30 to 45.0<br>>45.0    | 23<br>23<br>23<br>23<br>22<br>20<br>18<br>17<br>15<br>20.5<br>20.5<br>20.5<br>20.5<br>19.5<br>18<br>16<br>15<br>13                           | 27<br>27<br>27<br>27<br>26<br>24<br>22<br>17<br>15<br>24<br>24<br>24<br>24<br>23<br>21.5<br>19.5<br>15<br>13.5                               |
| 8      | Modulus of elasticity, N/mm <sup>2</sup> , Min<br>a) Average<br>≤2.5 mm<br>>2.5 to 4.0<br>>4.0 to 6.0<br>>6.0 to 9.0<br>>9.0 to 12.0<br>>12.0 to 19.0<br>>19 to 30.0<br>>30 to 45.0<br>>45.0<br>b) Minimum<br>≤2.5 mm<br>>2.5 to 4.0<br>>4.0 to 6.0<br>>6.0 to 9.0<br>>9.0 to 12.0<br>>12.0 to 19.0<br>>19 to 30.0<br>>30 to 45.0<br>>45.0 | 2800<br>2800<br>2700<br>2700<br>2500<br>2200<br>2100<br>1900<br>1700<br>2500<br>2500<br>2400<br>2400<br>2250<br>1950<br>1900<br>1700<br>1500 | 2800<br>2800<br>2700<br>2700<br>2500<br>2400<br>2300<br>2100<br>1900<br>2500<br>2500<br>2400<br>2400<br>2300<br>2000<br>2000<br>1900<br>1700 |

| Sr. No | Properties  | Grade 2   | Grade 1   |
|--------|---|---|---|
| 9      | Internal bond strength, N/mm <sup>2</sup> , Min<br>≤2.5 mm<br>>2.5 to 4.0<br>>4.0 to 6.0<br>>6.0 to 9.0<br>>9.0 to 12.0<br>>12.0 to 19.0<br>>19 to 30.0<br>>30 to 45.0<br>>45.0   | 0.65<br>0.65<br>0.65<br>0.65<br>0.6<br>0.55<br>0.55<br>0.5<br>0.5               | 0.7<br>0.7<br>0.7<br>0.7<br>0.65<br>0.65<br>0.6<br>0.55<br>0.5  |
| 10     | Internal bond, N/mm <sup>2</sup> , Min<br>i) After cyclic test<br>≤2.5 mm<br>>2.5 to 4.0<br>>4.0 to 6.0<br>>6.0 to 9.0<br>>9.0 to 12.0<br>>12.0 to 19.0<br>>19 to 30.0<br>>30 to 45.0<br>>45.0<br>ii) After accelerated water resistance test<br>≤2.5 mm<br>>2.5 to 4.0<br>>4.0 to 6.0<br>>6.0 to 9.0<br>>9.0 to 12.0<br>>12.0 to 19.0<br>>19 to 30.0<br>>30 to 45.0<br>>45.0 |   | 0.35<br>0.35<br>0.35<br>0.3<br>0.25<br>0.2<br>0.15<br>0.1<br>0.1<br>0.2<br>0.2<br>0.2<br>0.15<br>0.15<br>0.12<br>0.12<br>0.1<br>0.1 |
| 11     | Screw withdrawal strength (min) , N<br>a) Face (for all thickness)<br>b) Edge (>12 mm thickness)  | 1250<br>700   | 1250<br>700   |
| 12     | Formaldehyde content Fc, mg/100 gm for oven dry board   | For Formaldehyde Class,<br>E1 : Fc≤8<br>For Formaldehyde Class,<br>E2 : 8<Fc≤30 | For Formaldehyde Class,<br>E1 : Fc≤8<br>For Formaldehyde Class,<br>E2 : 8<Fc≤30   |







HDFWR

### **VIR MAXPRO (HDFWR GRADE) MDF**

VIR MAXPRO (HDFWR - High Density Fiber Water Resistant) Boards, another of Rushil's exciting product innovation, is an ideal substitute for plywood. Made from high density fiber, these heavy-duty boards are ultra-strong, moisture-resistant, anti-fungal and borer-resistant while being eco-friendly with great machinability.

State-of-the-art manufacturing facilities that produce high quality HDFWR Boards.

High water-resistant property makes it ideal for kitchens and bathrooms.

Also a great option for wardrobes, furniture, partitions, wall panelling and more.

VIR MAXPRO (HDFWR - High Density Fiber Water Resistant) Boards offer a wide range that blends style and substance to inspire unique new-age interior designs that match stunning aesthetics with super powers of endurance.







**HDFWR**

**AVAILABLE SIZE:**

6 ft X 4 ft (1830 mm X 1220 mm) | 8 ft X 4 ft  
(2440 mm X 1220 mm) | 8 ft X 6 ft  
(2440 mm X 1830 mm)

**AVAILABLE THICKNESS:**

3 mm | 5.5 mm | 8 mm | 12 mm | 16 mm | 17 mm  
18 mm | 25 mm

\*All international sizes and thickness (2 mm to 30 mm) now available

**APPLICATIONS:**

Residential & Commercial Furniture | Wall  
Panelling | Architectural Mouldings | Industrial  
Products | Sports Goods | Speaker Boxes |  
Display Cabinets | CNC Routing | Office  
Equipments | Flooring | Ceilings | Doors &  
Partitions Cornice | Pelmet

**FEATURES:**

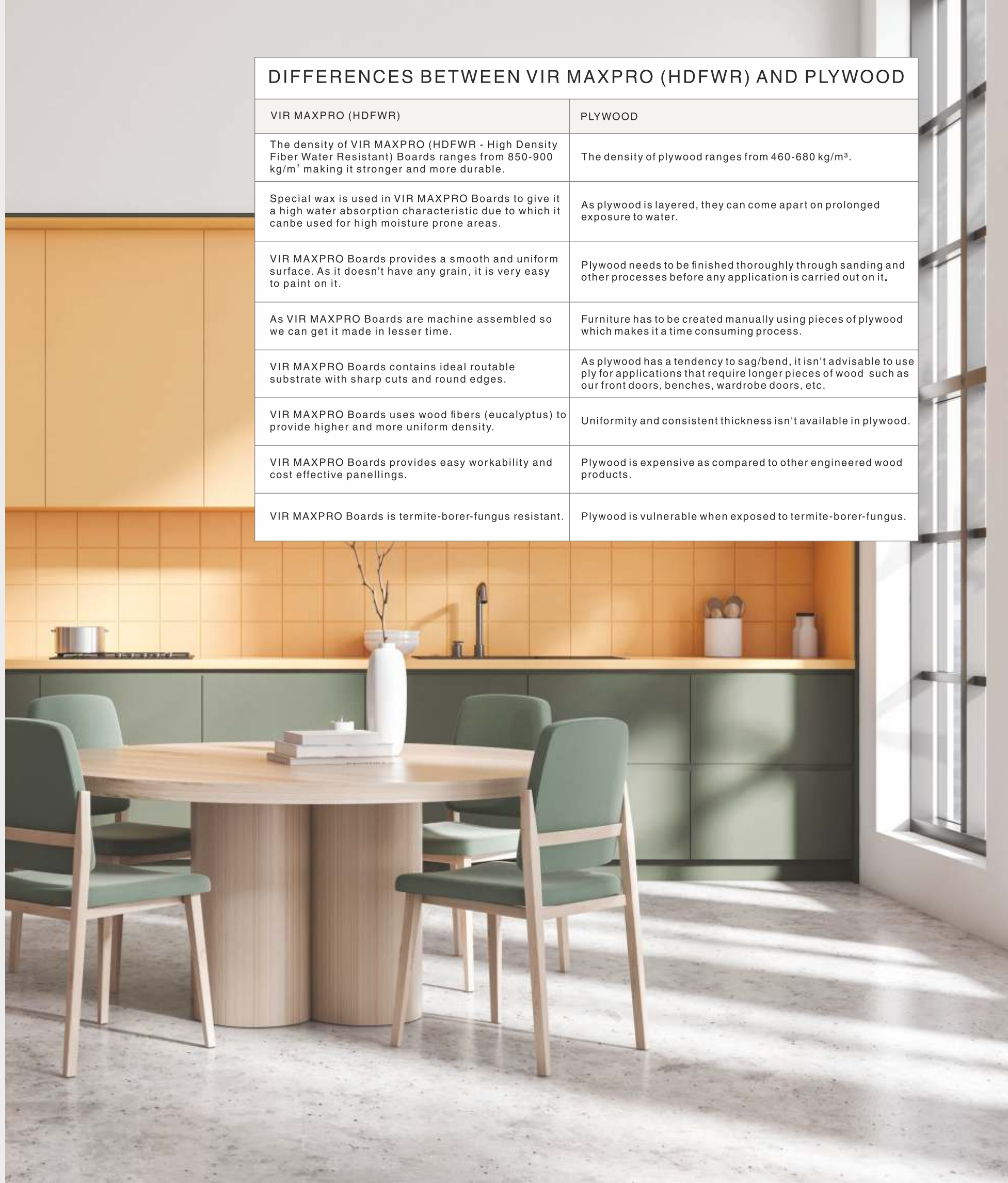
-  Weather-Resistant
-  Double Hardened
-  Uniformity
-  Stability & Durability
-  Elegant Finish

**ADVANTAGES:**

Applicable for Moulded Edges & Profiled  
Surface | Excellent Surface Routing & Edge  
Shaping | Minimum Sanding & Filing | Ideal  
for Intricate Design Carving | High Gloss  
UV Digital Print | Isotropic

**DIFFERENCES BETWEEN VIR MAXPRO (HDFWR) AND PLYWOOD**

| VIR MAXPRO (HDFWR)   | PLYWOOD   |
|--|---|
| The density of VIR MAXPRO (HDFWR - High Density Fiber Water Resistant) Boards ranges from 850-900 kg/m <sup>3</sup> making it stronger and more durable. | The density of plywood ranges from 460-680 kg/m <sup>3</sup> .  |
| Special wax is used in VIR MAXPRO Boards to give it a high water absorption characteristic due to which it can be used for high moisture prone areas.    | As plywood is layered, they can come apart on prolonged exposure to water.  |
| VIR MAXPRO Boards provides a smooth and uniform surface. As it doesn't have any grain, it is very easy to paint on it.                                   | Plywood needs to be finished thoroughly through sanding and other processes before any application is carried out on it.  |
| As VIR MAXPRO Boards are machine assembled so we can get it made in lesser time.   | Furniture has to be created manually using pieces of plywood which makes it a time consuming process.   |
| VIR MAXPRO Boards contains ideal routable substrate with sharp cuts and round edges.   | As plywood has a tendency to sag/bend, it isn't advisable to use ply for applications that require longer pieces of wood such as our front doors, benches, wardrobe doors, etc. |
| VIR MAXPRO Boards uses wood fibers (eucalyptus) to provide higher and more uniform density.  | Uniformity and consistent thickness isn't available in plywood.   |
| VIR MAXPRO Boards provides easy workability and cost effective panellings.   | Plywood is expensive as compared to other engineered wood products.   |
| VIR MAXPRO Boards is termite-borer-fungus resistant.   | Plywood is vulnerable when exposed to termite-borer-fungus.   |







## DESIGNS THAT GO WITH YOUR DESIGNS

VIR Prelaminated MDF Boards combine the ease and convenience of MDF with the superior finish and look of VIR laminates.

They are made by compressing decorative melamine-impregnated paper onto MDF Boards under controlled heat and pressure. They are available in a wide range of shades, in both solid and wood grain textures, rendered by specialized imported décor paper from Europe, Japan and other countries with uniform glue absorption properties. This breath-taking range is sure to raise the style quotient of contemporary homes, offices or commercial spaces.







#### AVAILABLE SIZE:

8 ft X 4 ft (2440 mm X 1220 mm)

#### AVAILABLE GRADES:

##### - VIR PRO (INTERIOR GRADE) PRELAM

#### AVAILABLE THICKNESS:

4.3 mm | 5.5 mm | 7.3 mm | 11 mm | 14.5 mm

16 mm | 16.5 mm | 18 mm | 25 mm

##### - VIR PROPLUS (EXTERIOR GRADE) PRELAM

#### AVAILABLE THICKNESS:

5.5 mm | 7.5 mm | 11 mm | 17 mm | 18 mm | 25 mm

##### - VIR MAXPRO (HDFWR GRADE) PRELAM

#### AVAILABLE THICKNESS:

5.5 mm | 8 mm | 12 mm | 16 mm | 17 mm

18 mm | 25 mm

\*All products are made as per ISI Standards

#### APPLICATIONS:

Partitioning | Panelling | False Ceiling |

Cupboard Shutters | Furniture | Panel Door

Inserts | Modular Furniture Kitchens | Wall

Panels | Exhibitions & Product Display | Speaker

Boxes | Pre-laminated Stationery Articles



#### FEATURES:

-  Environment-Friendly
-  Strong & Tough
-  Dimensionally Stable
-  Termite-Borer-Fungus Resistant
-  High Moisture Resistant
-  Excellent Machinability

#### ADVANTAGES:

- No risk of de-lamination.
- Resistant to abrasion, household chemicals, steam, cigarette burns and cracking.
- Smooth & compact edges.
- Easily moulded & routed.
- Available in a wide range of shades in pastel & wood grain.
- Smooth surface with uniform density and high internal bond.
- Ideal for turning, milling, carving, grooving, painting and lacquering.
- Provides superior strength combined with workability in all directions.
- High dimensional stability in variable atmospheric conditions.

#### CERTIFICATIONS:

IS: 14587 : 1998



CM/L: 6200030374



PHYSICAL AND MECHANICAL PROPERTIES OF PRELAMINATED MEDIUM DENSITY FIBER BOARDS AS PER (IS : 14587 : 1998)

| Sr No   | Properties  | Grade II(SBGII)   | Grade I(SBGI)   |
|---|---|---|---|
| 1   | Thickness (mm)  | + 0.3   | + 0.3   |
|   | Length (mm)   | ± 0.3   | ± 0.3   |
|   | Width (mm)  | ± 0.3   | ± 0.3   |
|   | Edge straightness (mm/mtr)                            | 2   | 2   |
|   | Squareness (mm/mtr)                                   | 2   | 2   |
| 2   | Density (Kg/m <sup>3</sup> )                          | 500-900   | 500-900   |
| 3   | Variation from mean density, (%)                      | ± 10  | ± 10  |
| 4   | Moisture content, (%)                                 | 5-10  | 5-10  |
| 5   | Variation from mean moisture content, (%)             | ± 3   | ± 3   |
| 6   | Water absorption, (%), Max.                           |   |   |
|   | a) After 2h soaking<br>b) After 24h soaking           | 9<br>18   | 6<br>12   |
| 7   | Thickness of swelling (%), 2hrs                       | 7   | 14  |
| 8   | Modulus of rupture, N/mm <sup>2</sup>                 |   |   |
|   | a) Up to 20 mm thickness                              |   |   |
|   | · Average   | 28  | 28  |
|   | · Minimum individual                                  | 25  | 25  |
| b) Above 20 mm thickness                      |   |   |   |
| · Average                                     | 25  | 25  |   |
| · Minimum individual                          | 22  | 22  |   |
| 9   | Modulus of elasticity, N/mm <sup>2</sup>              |   |   |
|   | a) Up to 20 mm thickness                              |   |   |
|   | · Average   | 2800  | 2800  |
|   | · Minimum individual                                  | 2500  | 2500  |
| b) Above 20 mm thickness                      |   |   |   |
| · Average                                     | 2500  | 2500  |   |
| · Minimum individual                          | 2300  | 2300  |   |
| 10  | Internal bond, N/mm <sup>2</sup>                      |   |   |
|   | a) Up to 20 mm thickness                              |   |   |
|   | · Average   | 0.8   | 0.9   |
|   | · Minimum individual                                  | 0.7   | 0.8   |
| b) Above 20 mm thickness                      |   |   |   |
| · Average                                     | 0.7   | 0.8   |   |
| · Minimum individual                          | 0.6   | 0.7   |   |
| 11  | Internal bond, N/mm <sup>2</sup>                      |   |   |
|   | a) After cyclic test                                  |   |   |
|   | · Average   | -   | 0.45  |
|   | · Minimum individual                                  | -   | 0.40  |
| b) After an accelerated water resistance test |   |   |   |
| · Average                                     | -   | 0.30  |   |
| · Minimum individual                          | -   | 0.25  |   |
| 12  | Screw withdrawal strength (Min), N                    |   |   |
|   | a) Face<br>b) Edge                                    | 1500<br>1250  | 1500<br>1250  |
| 13  | Abrasion resistance (Min), in the no. of revolutions: |   |   |
|   | · Type I  | 1000  | 1000  |
|   | · Type II   | 450   | 450   |
|   | · Type III  | 250   | 250   |
|   | · Type IV   | 75  | 75  |
| 14  | Resistance to Stain                                   | No stain on the specimen after cleaning with water, solvent or detergent.   | No stain on the specimen after cleaning with water, solvent or detergent.   |
| 15  | Resistance to Steam                                   | No Blister, Delamination or change in surface finish. There may be a slight colour change in dark colours/patterns. | No Blister, Delamination or change in surface finish. There may be a slight colour change in dark colours/patterns. |
| 16  | Crack Resistance                                      | No Sign of cracks or Delamination.  | No Sign of cracks or Delamination.  |
| 17  | Resistance to Cigarette Burn                          | No mark or Stain on the specimen after cleaning with water or solvent.  | No mark or Stain on the specimen after cleaning with water or solvent.  |





## COMPARISON OF PHYSICAL & MECHANICAL REQUIREMENTS OF MDF BOARDS WITH VARIOUS STANDARDS



| Sr. No | Properties   | European Standards   | American Standard  | BIS 12406:2021  |   | VIR MDF Board                        |                                    |
|--------|--|--|--|---|---|--------------------------------------|------------------------------------|
|        |  | EN 622-1, EN 622-5<br>(standards for general purpose boards for use in humid condition)        | ANSI 208.2-2009<br>MDF for Interior Application  | Grade-II  | Grade-I   | Grade-II                             | Grade-I                            |
| 1      | Dimension Tolerance  |  |  |   |   |                                      |                                    |
| a)     | Length   | ±2 mm/ m,<br>max ±5 mm   | ±2.0 mm  | ±3 mm/ m  | ±3 mm/ m  | ±1 mm/ m                             | ±1 mm/ m                           |
| b)     | Width  | ±2 mm/ m,<br>max ±5 mm   | ±2.0 mm  | ±3 mm/ m  | ±3 mm/ m  | ±1 mm/ m                             | ±1 mm/ m                           |
| c)     | Thickness  | ≤ 6 mm = ±0.2<br>>6 bis 19 = ±0.2<br>>19 = ±0.3  | ±0.125 mm  | ±0.3 mm   | ±0.3 mm   | ±0.2 mm                              | ±0.2 mm                            |
| d)     | Squareness Tolerance   | 2 mm/ m  | 1mm/ m   | 2 mm/ m   | 2 mm/ m   | 0.5 mm/ m                            | 0.5 mm/ m                          |
| e)     | Edge straightness tolerance                                  | 1.5 mm/ m  | 1mm/ 1.5 m   | 2 mm/ m   | 2 mm/ m   | 0.5 mm/ m                            | 0.5 mm/ m                          |
| 2      | Density (Kg/m <sup>3</sup> )                                 | 650-800  | 500-1000   | 600-900   | 600-900   | 650-900                              | 650-900                            |
| 3      | Variation from Mean Density, (%)                             | ±7   |  | ±10   | ±10   | ±2.5                                 | ±2.5                               |
| 4      | Moisture Content, (%)  | 4-11 %   | not more than 9 %  | 5 to 10   | 5 to 10   | 5.5 to 7.5                           | 5.5 to 7.5                         |
|        | Variation from Mean Moisture Content percent (absolute)      |  |  | ±3  | ±3  | ±1.5                                 | ±1.5                               |
| 5      | Linear Expansion (swelling in water) (%)                     |  |  |   |   |                                      |                                    |
| a)     | Due to general absorption after 24 hours soaking             |  |  |   |   |                                      |                                    |
|        | Thickness  | Up to 6 mm = 18<br>>6 to 9 mm = 12<br>>9 to 12 mm = 10<br>>12 to 19 mm = 8<br>>19 to 30 mm = 7 | 1.65 mm for<br>≤ 9.5 mm<br>thick = 2.2 mm  | ≤2.5 mm = 45<br>>2.5 to 4.0 = 35<br>>4.0 to 6.0 = 30<br>>6.0 to 9.0 = 17<br>>9.0 to 12.0 = 15<br>>12.0 to 19.0 = 12<br>>19 to 30.0 = 10<br>>30 to 45.0 = 8<br>>45.0 = 6 | ≤2.5 mm = 35<br>>2.5 to 4.0 = 30<br>>4.0 to 6.0 = 18<br>>6.0 to 9.0 = 12<br>>9.0 to 12.0 = 10<br>>12.0 to 19.0 = 8<br>>19 to 30.0 = 7<br>>30 to 45.0 = 7<br>>45.0 = 6 | 30<br>25<br>22<br>13<br>10<br>8<br>6 | 25<br>22<br>15<br>9<br>7<br>5<br>4 |
|        | Length   |  |  |   |   |                                      |                                    |
|        | Width  |  |  |   |   |                                      |                                    |
| b)     | Due to surface absorption (in thickness) after 2 hrs soaking |  |  |   |   |                                      |                                    |
| 6      | Modulus of Rupture, N/mm <sup>2</sup>                        |  |  |   |   |                                      |                                    |
| a)     | Up to 20 mm thickness  | Up to 6 mm = 27<br>>6 to 9 mm = 27<br>>9 to 12 mm = 26<br>>12 to 19 mm = 24                    | grade 115 = 12.4<br>grade 130 = 21.6<br>grade 155 = 27.9<br>grade 210 = 18.9<br>grade 220 = 28.9<br>grade 230 = 28.9 |   |   |                                      |                                    |

| Sr. No | Properties                               | European Standards  | American Standard  | BIS 12406:2021  |   | VIR MDF Board  |  |
|--------|--|---|--|---|---|--|--|
|        |  | EN 622-1, EN 622-5<br>(standards for general purpose boards for use in humid condition) | ANSI 208.2-2009<br>MDF for Interior Application          | Grade-II  | Grade-I   | Grade-II   | Grade-I  |
|        | Average                                  |   |  | ≤2.5 mm = 23<br>>2.5 to 4.0 = 23<br>>4.0 to 6.0 = 23<br>>6.0 to 9.0 = 23<br>>9.0 to 12.0 = 22<br>>12.0 to 19.0 = 20<br>>19 to 30.0 = 18<br>>30 to 45.0 = 17<br>>45.0 = 15                   | ≤2.5 mm = 27<br>>2.5 to 4.0 = 27<br>>4.0 to 6.0 = 27<br>>6.0 to 9.0 = 27<br>>9.0 to 12.0 = 26<br>>12.0 to 19.0 = 24<br>>19 to 30.0 = 22<br>>30 to 45.0 = 17<br>>45.0 = 15                   | 35<br>35<br>34<br>32<br>30<br>29<br>27               | 38<br>38<br>36<br>34<br>32<br>30<br>29               |
|        | Minimum individual                       |   |  | ≤2.5 mm = 20.5<br>>2.5 to 4.0 = 20.5<br>>4.0 to 6.0 = 20.5<br>>6.0 to 9.0 = 20.5<br>>9.0 to 12.0 = 19.5<br>>12.0 to 19.0 = 18<br>>19 to 30.0 = 16<br>>30 to 45.0 = 15<br>>45.0 = 13         | ≤2.5 mm = 24<br>>2.5 to 4.0 = 24<br>>4.0 to 6.0 = 24<br>>6.0 to 9.0 = 24<br>>9.0 to 12.0 = 23<br>>12.0 to 19.0 = 21.5<br>>19 to 30.0 = 19.5<br>>30 to 45.0 = 15<br>>45.0 = 13.5             | 32<br>32<br>30<br>30<br>28<br>27<br>25               | 35<br>35<br>33<br>32<br>30<br>28<br>27               |
| b)     | Above 20 mm thickness                    | >19 to 30 mm = 22   |  |   |   |  |  |
|        | Average                                  |   |  |   |   |  |  |
|        | Minimum individual                       |   |  |   |   |  |  |
| 7      | Modulus of Elasticity, N/mm <sup>2</sup> |   |  |   |   |  |  |
| a)     | Up to 20 mm thickness                    | Up to 6 mm = 2700<br>>6 to 9 mm = 2500<br>>9 to 12 mm = 2400<br>>12 to 19 mm = 2300     | grade 115 = 1241<br>grade 130 = 2160<br>grade 155 = 2792 |   |   |  |  |
|        | Average                                  |   |  | ≤2.5 mm = 2800<br>>2.5 to 4.0 = 2800<br>>4.0 to 6.0 = 2700<br>>6.0 to 9.0 = 2700<br>>9.0 to 12.0 = 2500<br>>12.0 to 19.0 = 2200<br>>19 to 30.0 = 2100<br>>30 to 45.0 = 1900<br>>45.0 = 1700 | ≤2.5 mm = 2800<br>>2.5 to 4.0 = 2800<br>>4.0 to 6.0 = 2700<br>>6.0 to 9.0 = 2700<br>>9.0 to 12.0 = 2500<br>>12.0 to 19.0 = 2400<br>>19 to 30.0 = 2300<br>>30 to 45.0 = 2100<br>>45.0 = 1900 | 3500<br>3500<br>3400<br>3200<br>3000<br>2900<br>2700 | 3800<br>3800<br>3600<br>3400<br>3200<br>3000<br>2900 |
|        | Minimum individual                       |   |  | ≤2.5 mm = 2500<br>>2.5 to 4.0 = 2500<br>>4.0 to 6.0 = 2400<br>>6.0 to 9.0 = 2400<br>>9.0 to 12.0 = 2250<br>>12.0 to 19.0 = 1950<br>>19 to 30.0 = 1900<br>>30 to 45.0 = 1700<br>>45.0 = 1500 | ≤2.5 mm = 2500<br>>2.5 to 4.0 = 2500<br>>4.0 to 6.0 = 2400<br>>6.0 to 9.0 = 2400<br>>9.0 to 12.0 = 2300<br>>12.0 to 19.0 = 2100<br>>19 to 30.0 = 2000<br>>30 to 45.0 = 1900<br>>45.0 = 1700 | 3200<br>3200<br>3000<br>3000<br>2800<br>2700<br>2500 | 3500<br>3500<br>3300<br>3200<br>3000<br>2800<br>2700 |
| b)     | Above 20 mm thickness                    | >19 to 30 mm = 2300   | grade 115 = 1241<br>grade 130 = 2160<br>grade 155 = 2792 |   |   |  |  |
|        | Average                                  |   |  |   |   |  |  |
|        | Minimum individual                       |   |  |   |   |  |  |



| Sr. No | Properties                             | European Standards   | American Standard  | BIS 12406:2021  |   | VIR MDF Board                                    |  |
|--------|--|--|--|---|---|--|--|
|        |  | EN 622-1, EN 622-5 (standards for general purpose boards for use in humid condition)                       | ANSI 208.2-2009 MDF for Interior Application   | Grade-II  | Grade-I   | Grade-II   | Grade-I  |
| 8      | Internal Bond, N/mm <sup>2</sup>       |  |  |   |   |  |  |
| a)     | Up to 20 mm thickness                  | Up to 6 mm = 0.70<br>>6 to 9 mm = 0.80<br>>9 to 12 mm = 0.75<br>>12 to 19 mm = 0.75                        | grade 115 = 0.47<br>grade 130 = 0.54<br>grade 155 = 0.81<br>grade 210 = 0.32<br>grade 220 = 0.54<br>grade 230 = 0.90 |   |   |  |  |
|        | Average                                |  |  |   |   |  |  |
|        | Minimum individual                     |  |  | ≤2.5 mm = 0.65<br>>2.5 to 4.0 = 0.65<br>>4.0 to 6.0 = 0.65<br>>6.0 to 9.0 = 0.65<br>>9.0 to 12.0 = 0.60<br>>12.0 to 19.0 = 0.55<br>>19 to 30.0 = 0.55<br>>30 to 45.0 = 0.5<br>>45.0 = 0.5   | ≤2.5 mm = 0.7<br>>2.5 to 4.0 = 0.7<br>>4.0 to 6.0 = 0.7<br>>6.0 to 9.0 = 0.7<br>>9.0 to 12.0 = 0.65<br>>12.0 to 19.0 = 0.65<br>>19 to 30.0 = 0.60<br>>30 to 45.0 = 0.55<br>>45.0 = 0.50 | 1.3<br>1.3<br>1.2<br>1.0<br>0.90<br>0.85<br>0.75 | 1.4<br>1.4<br>1.2<br>1.1<br>1.0<br>0.90<br>0.80      |
| b)     | Above 20 mm thickness                  | >19 to 30 mm = 0.75  |  |   |   |  |  |
|        | Average                                |  |  |   |   |  |  |
|        | Minimum individual                     |  |  |   |   |  |  |
| 9      | Internal Bond, N/mm <sup>2</sup>       |  |  |   |   |  |  |
| a)     | After Cyclic Test                      | Up to 6 mm = 0.35<br>>6 to 9 mm = 0.30<br>>9 to 12 mm = 0.20<br>>12 to 19 mm = 0.15<br>>19 to 30 mm = 0.15 |  |   |   |  |  |
|        | Average                                | NA   |  |   |   |  |  |
|        | Minimum individual                     |  |  | ≤2.5 mm = 0.35<br>>2.5 to 4.0 = 0.35<br>>4.0 to 6.0 = 0.35<br>>6.0 to 9.0 = 0.30<br>>9.0 to 12.0 = 0.25<br>>12.0 to 19.0 = 0.20<br>>19 to 30.0 = 0.15<br>>30 to 45.0 = 0.10<br>>45.0 = 0.10 |   |  | 0.40<br>0.40<br>0.40<br>0.35<br>0.28<br>0.23<br>0.18 |
| b)     | After accelerated water-resistant test | Up to 6 mm = 0.20<br>>6 to 9 mm = 0.15<br>>9 to 12 mm = 0.15<br>>12 to 19 mm = 0.12<br>>19 to 30 mm = 0.12 |  |   |   |  |  |
|        | Average                                |  |  |   |   |  |  |
|        | Minimum individual                     |  |  | ≤2.5 mm = 0.2<br>>2.5 to 4.0 = 0.2<br>>4.0 to 6.0 = 0.2<br>>6.0 to 9.0 = 0.15<br>>9.0 to 12.0 = 0.15<br>>12.0 to 19.0 = 0.12<br>>19 to 30.0 = 0.12<br>>30 to 45.0 = 0.10<br>>45.0 = 0.10    |   |  | 0.25<br>0.25<br>0.23<br>0.17<br>0.17<br>0.14<br>0.13 |

| Sr. No | Properties                          | European Standards   | American Standard  | BIS 12406:2021  |   | VIR MDF Board  |  |
|--------|-------------------------------------|--|--|---|---|--|--|
|        |                                     | EN 622-1, EN 622-5 (standards for general purpose boards for use in humid condition)   | ANSI 208.2-2009 MDF for Interior Application   | Grade-II  | Grade-I   | Grade-II   | Grade-I  |
| 10     | Screw Withdrawal Strength (Min.), N |  |  |   |   |  |  |
| a)     | Face                                |  | grade 115 = 703<br>grade 130 = 988<br>grade 155 = 1201   | ≤2.5 mm = 1250<br>>2.5 to 4.0 = 1250<br>>4.0 to 6.0 = 1250<br>>6.0 to 9.0 = 1250<br>>9.0 to 12.0 = 1250<br>>12.0 to 19.0 = 1250<br>>19 to 30.0 = 1250<br>>30 to 45.0 = 1250<br>>45.0 = 1250 | ≤2.5 mm = 1250<br>>2.5 to 4.0 = 1250<br>>4.0 to 6.0 = 1250<br>>6.0 to 9.0 = 1250<br>>9.0 to 12.0 = 1250<br>>12.0 to 19.0 = 1250<br>>19 to 30.0 = 1250<br>>30 to 45.0 = 1250<br>>45.0 = 1250 | 2500<br>2500<br>2300<br>2000<br>2000<br>1800<br>1700 | 2500<br>2500<br>2300<br>2000<br>2000<br>1800<br>1700 |
| b)     | Edge (for thickness > 12 mm)        |  | grade 115 = 601<br>grade 130 = 787<br>grade 155 = 1001   | ≤2.5 mm = N.A<br>>2.5 to 4.0 = N.A<br>>4.0 to 6.0 = N.A<br>>6.0 to 9.0 = N.A<br>>9.0 to 12.0 = N.A<br>>12.0 to 19.0 = 700<br>>19 to 30.0 = 700<br>>30 to 45.0 = 700<br>>45.0 = 700          | ≤2.5 mm = N.A<br>>2.5 to 4.0 = N.A<br>>4.0 to 6.0 = N.A<br>>6.0 to 9.0 = N.A<br>>9.0 to 12.0 = N.A<br>>12.0 to 19.0 = 850<br>>19 to 30.0 = 850<br>>30 to 45.0 = 850<br>>45.0 = 850          | N.A<br>N.A<br>N.A<br>N.A<br>N.A<br>1450<br>1400      | N.A<br>N.A<br>N.A<br>N.A<br>N.A<br>1600<br>1500      |
| 11     | Free Formal-dehye Emmission         | <b>Class E1</b> (perforator value) ≤8 mg/ 100 g of oven dry weight.<br><b>Class E2</b> (perforator value) ≤30 mg/ 100 g of oven dry weight | For thickness >8.0 mm (Chamber value) ≤0.21 ppm or ≤0.11 ppm<br>For thickness ≤8.0 mm (Chamber value) ≤0.21 ppm or ≤0.13 ppm | <b>For formaldehyde class, E1</b> : Fc≤8<br><b>For formaldehyde class, E2</b> : 8<Fc≤30   | <b>For formaldehyde class, E1</b> : Fc≤8 mg/100g of oven dry weight.<br><b>For formaldehyde class, E2</b> : 8<Fc≤30 mg/100g of oven dry weight.   | 15   | 13   |







INTERIOR GRADE



EXTERIOR GRADE



HDFWR



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