

# Medium Density Fiberboard

## HOW IT'S MADE

MDF is a composite panel product consisting of cellulosic fibers combined with a synthetic resin or other suitable bonding system, joined together under heat and pressure. Additives may be introduced during manufacturing to impart additional characteristics.

## LEADING APPLICATIONS

- Office & Residential Furniture • Store Fixtures
- Kitchen Cabinets • Laminate Flooring • Moulding • Doors, Jambs & Millwork • Laminating & Finishing
- Embossing • Paneling •

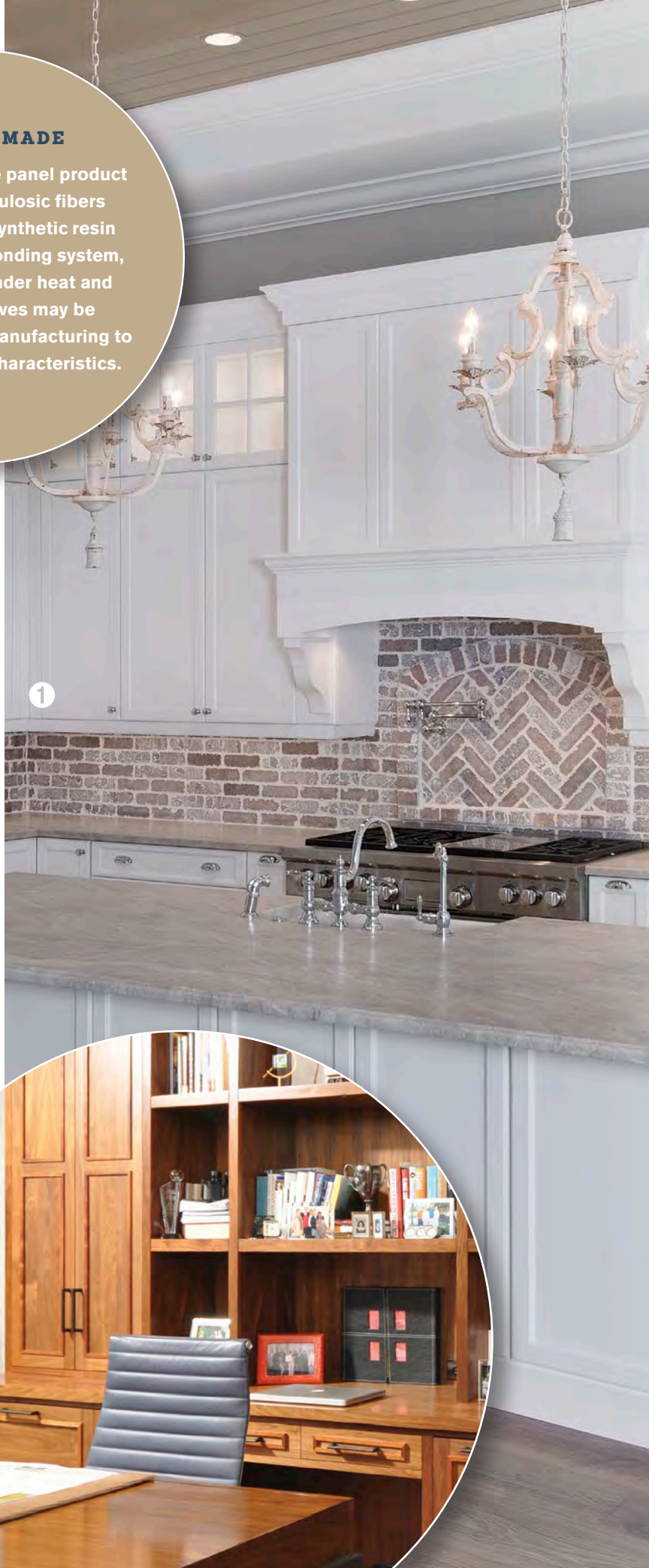
**M**edium density fiberboard (MDF) is widely used in the manufacture of furniture, kitchen cabinets, door parts, mouldings, millwork and laminate flooring. MDF panels are manufactured with a variety of physical properties and dimensions, providing the opportunity to design the end product with the specific MDF needed.

The surface of MDF is flat, smooth, uniform, dense, and free of knots and grain patterns. The homogeneous density profile of MDF allows intricate and precise machining and finishing techniques for superior finished products. Trim waste is significantly reduced when using MDF compared to other substrates. Stability and strength are important assets of MDF, which can be machined into complex patterns that require precise tolerances.

### PRODUCT STANDARDS, CERTIFICATION AND ENVIRONMENTAL SPECIFICATIONS

The ANSI A208.2 Medium Density Fiberboard (MDF) for Interior Applications is the North American industry voluntary standard. It classifies MDF by physical and mechanical properties and identifies product grades for MDF and thin MDF. Specifications identified in the Standard include physical properties, dimensional tolerances, mechanical properties and formaldehyde emission limits. ANSI A208.2 was developed through the sponsorship of the Composite Panel Association (CPA), in conjunction with producers, users and general interest groups. A summary of the MDF Property Requirements are included in this Guide, and copies of ANSI A208.2 are available from CPA.

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**Table 1: PHYSICAL AND MECHANICAL PROPERTY REQUIREMENTS FOR MDF WHEN DETERMINED IN ACCORDANCE WITH ASTM D1037-12 PART A**

ANSI A208.2-2016 MDF for Interior Applications

Grades	Physical and Mechanical Properties											
	Modulus of Rupture (MOR)		Modulus of Elasticity (MOE)		Internal Bond (IB)		Screw-holding				Maximum Thickness Swell (TS)	
							Face		Edge		Panel Thickness	
	N/mm <sup>2</sup>	(psi)	N/mm <sup>2</sup>	(psi)	N/mm <sup>2</sup>	(psi)	N	(pounds)	N	(pounds)	≤15 mm	>15 mm
										mm (inch)	percent	
115	12.4	1800	1241	180000	0.47	68	703	158	601	135	1.65 (0.065)	11%
130	21.6	3130	2160	313000	0.54	78	988	222	787	177	1.65 (0.065)	11%
155	27.9	4050	2792	405000	0.81	117	1201	270	1001	225	1.65 (0.065)	11%

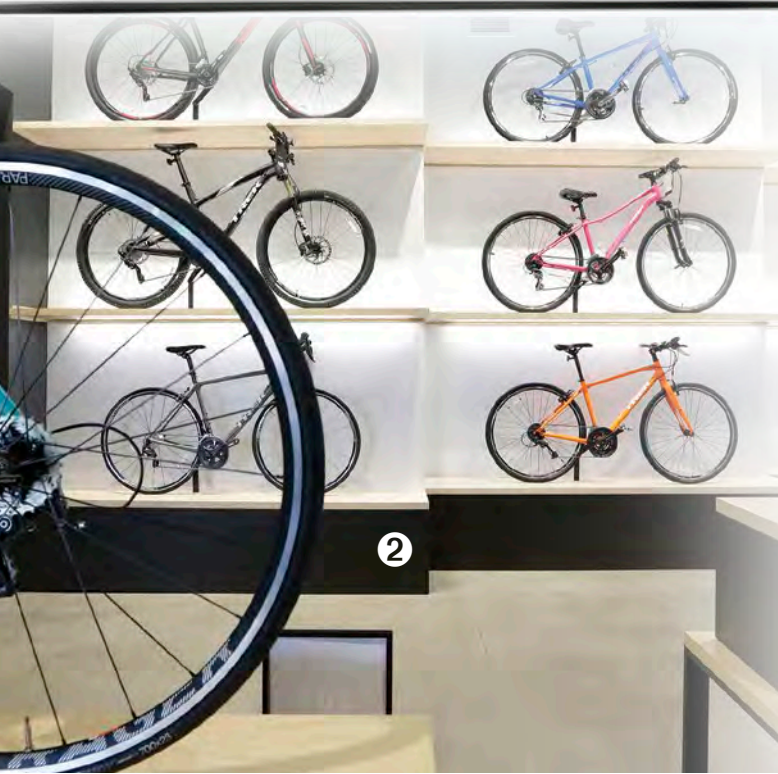
**TOLERANCE LIMITS FOR DIMENSIONS AND FORMALDEHYDE EMISSIONS**

Properties	115,130,155 and 170
Panel Length or Width > 0.61 m (2 feet)	+ 2.0 mm (+ 0.080 inch)
Panel Average from Specified Thickness	+ 0.125 mm (+ 0.005 inch)
Variance from Panel Average Thickness	+ 0.125 mm (+ 0.005 inch)
Linear Expansion (LE)	< .33 percent
Formaldehyde Emissions	< 0.11 ppm (> 8mm thick) < 0.13 ppm (< 8mm thick)

**Table 2: PHYSICAL AND MECHANICAL PROPERTY REQUIREMENTS FOR MDF WHEN DETERMINED IN ACCORDANCE WITH ASTM D1037-12 PART B (≤ 9.5 mm Thick)**

Grades	Physical and Mechanical Properties					
	Modulus of Rupture (MOR)		Internal Bond (IB)		Maximum Thickness Swell (TS)	
	N/mm <sup>2</sup>	(psi)	N/mm <sup>2</sup>	(psi)	mm	(inch)
210	18.9	2741	0.32	46	2.2	(0.087)
220	28.9	4192	0.54	78	2.2	(0.087)
230	28.9	4192	0.90	131	2.2	(0.087)

“  
**MDF may be the perfect substrate. It machines like butter, doesn't warp or split like solid wood and can be laminated or coated with ease.**  
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Environmental Product Declarations (EPDs) are the widely accepted standardized specification format for communicating the environmental footprint and performance of a product. EPDs are the definitive source of environmental technical data that is scientifically based on life cycle analysis and can be used to directly compare alternative product materials. The existing industry-wide EPD for North American MDF will be updated and available in late 2018. See page 8 of this Guide for additional information

1 IN THIS ARTISTIC INSTALLATION, LARGE SCALE DESIGNS ARE ROUTED INTO MDF PANELS AND THEN MEMBRANE-PRESSED WITH 3D LAMINATE FILMS. 2 MDF IS OFTEN SPECIFIED IN RETAIL SHELVING. 3 THE LOW SURFACE VARIANCE OF MDF MAKES IT EXTREMELY SMOOTH AND THE PERFECT SUBSTRATE FOR HIGH-GLOSS FINISHES POPULAR IN MODERN HOMES.



### FORMALDEHYDE EMISSION LIMITS

All manufacturers of MDF sold in the U.S. must meet the third-party certification and formaldehyde emissions testing requirements under EPA TSCA Title VI. In compliance with TSCA Title VI, ANSI A208.2 has a tiered system of emission levels allowing a maximum of 0.11 ppm for MDF panels thicker than 8 mm, and 0.13 ppm maximum limit for thin MDF (< 8 mm). To meet the needs of the market, many MDF manufacturers offer ultra-low emitting formaldehyde (ULEF) and no added formaldehyde (NAF) products. Those companies currently producing ULEF and NAF products are identified in the product listings in this Guide.

In addition, CPA's Eco-Certified Composite (ECC) Grademark Program requires that certified participants meet the stringent emission limits in the EPA TSCA Title VI and California Air Resources Board Airborne Toxic Control Measure (CARB ATCM 93120) regulations

Finally, various overlays and surface treatments have been shown to significantly reduce product emissions. For additional information about emissions, see the CPA Technical Bulletin VOC Emission Barrier Effects.

MDF is the perfect solid wood substitute. The stability, strength and homogeneity of MDF allow for an increasing number of applications. Its low surface variance makes it extremely smooth and the perfect substrate for high-gloss finishes popular in modern homes. ■

*Please see pages 96-97 for information about the companies that produce medium density fiberboard.*



## IMAGINE FIBER IMAGINE TEX-STYLE™

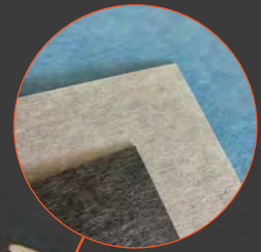
A new composite backing for wide and segmented sanding belts.

Discover formaldehyde free fiber-based materials and solutions for high performance sanding and polishing. Get the most of your abrasive belt with our new composite **TEX-STYLE™** inside. Combining the advantages of both paper and cloth to:

- get a **stiff and long-lasting abrasive belt** for high performance under extreme conditions
- make the handling and **installation of the belts easier** with a reduced product weight
- **reduce sanding shoe wearing**
- achieve a **good price-quality ratio** thanks to an optimized value chain.

Credits: Yvon Meyer/Design: www.zs3.com

**TEX-STYLE™**  
**AGILE OUTSIDE**  
**POWERFUL INSIDE**  
A new composite backing



➤ Use **finer grits** and achieve unequalled **surface**

➤ Have the **best joint tapes** hence perfect sanding result

### IMAGINE FIBER

We have only seen the beginning of what fiber-based materials and solutions can be used for

✉ For more information, contact [wayne.franklin@ahlstrom-munksjo.com](mailto:wayne.franklin@ahlstrom-munksjo.com) or ask your coated abrasive supplier for **TEX-STYLE™**  
[www.abrasives.ahlstrom-munksjo.com](http://www.abrasives.ahlstrom-munksjo.com)