Medium 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.

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

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.
COMMON USES
- Doors, Jambs & Millwork
- Laminating & Finishing
- Edge Shaping & Machining
- Moulding
- Embossing
- Office & Residential Furniture
- Kitchen Cabinets
- Paneling
- Laminate Flooring
- Store Fixtures

MDF is the perfect solid wood substitute. The stability, strength and homogeneity of MDF allow for an increasing number of applications. Interior MDF mouldings are easily machined and laminated or painted. It is widely used in the manufacture of kitchen cabinets and laminate flooring. Because MDF is homogeneous, it can be used as a substrate or routed and finished for a 3D aesthetic.

MDF is used as the core material in store fixtures. It has excellent machining characteristics which is important for smooth profiles in coated or laminated cabinet doors. MDF is a commonly used component in today’s office furniture.

West Fraser’s ECO-GOLD is a premium quality MDF panel, manufactured by WestPine MDF, that meets the environmental demands required for today’s market.

- No Added Formaldehyde
- Manufactured from 100% recycled wood fiber
- Using these products earns green project points
- Ultra low emissions - CARB Certified

West Fraser is committed to producing MDF panels and programs designed to meet the changing needs of today’s customers.

West Fraser MDF Sales & Marketing
9919 - 65 Avenue, Alberta Canada T6E 0L1
Ph: 1.780.413.8900 | Fax: 1.780.413.8910
e-mail: mdf@westfraser.ca
www.westfraser.com/products/panels/panels.asp
PRODUCT STANDARDS AND CERTIFICATION
The American National Standard for Medium Density Fiberboard (ANSI A208.2) is the North American industry voluntary standard. It classifies MDF by physical and mechanical properties and identifies product grades. Specifications identified in the Standard include physical and mechanical properties, dimensional tolerances and formaldehyde emission limits. The Standard was developed through the sponsorship of the Composite Panel Association (CPA), in conjunction with producers, users and general interest groups. A summary of the ANSI Property Requirements are included in this Guide, and copies of the Standard are available from CPA.

Third-party certification to ANSI A208.2 is required for many applications of composite panels. For example, HUD and the states of California and Minnesota require third-party certification of formaldehyde emissions for nearly all MDF and particleboard under their jurisdiction.

FORMALDEHYDE EMISSION LIMITS
The standard has a tiered system of emission levels allowing either a maximum of 0.21 ppm or 0.11 ppm for panels thicker than 8 mm. Panels 8 mm and thinner shall conform to either the 0.21 ppm or 0.13 ppm maximum limit. To meet the needs of the market many MDF manufacturers have voluntarily developed ultra low-emitting and no added urea-formaldehyde (NAUF) products, so there are a wide variety of products available today with reduced formaldehyde levels, as well as a growing number of non-formaldehyde alternatives. Those companies currently producing NAUF products are identified in the product listings in this Guide.

MDF CONTINUED ON PAGE 12
MDF is the material of choice in commercial spaces ➊ and home interiors ➋, where tight tolerances, smooth surfaces and intricate machining are critical. MDF is particularly well-suited in the construction of interior doors ➌. Embossed MDF panels add texture, richness and dimension to any interior ➍.

Table 1: Physical and Mechanical Property Requirements for MDF When Determined in Accordance with ASTM D 1037-06A Part A

<table>
<thead>
<tr>
<th>Grades</th>
<th>Modulus of Rupture (MOR) (N/mm² (psi))</th>
<th>Modulus of Elasticity (MOE) (N/mm² (psi))</th>
<th>Internal Bond (IB) (N/mm² (psi))</th>
<th>Screw-holding</th>
<th>Panel Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Face (N (pounds))</td>
<td>Edge (N (pounds))</td>
<td>Maximum Thickness Swell (TS) (mm (inch) percent)</td>
<td>&lt;15 mm</td>
<td>&gt;15 mm</td>
</tr>
<tr>
<td>115</td>
<td>12.4 1800</td>
<td>1241 180000</td>
<td>0.47 68</td>
<td>703 158</td>
<td>601 135</td>
</tr>
<tr>
<td>130</td>
<td>21.6 3130</td>
<td>2160 313000</td>
<td>0.54 78</td>
<td>988 222</td>
<td>787 177</td>
</tr>
<tr>
<td>155</td>
<td>27.9 4050</td>
<td>2792 405000</td>
<td>0.81 117</td>
<td>1201 270</td>
<td>1001 225</td>
</tr>
</tbody>
</table>

Property Requirements Common to All MDF

- Panel Length or Width  ≥ 0.61 m (2 feet)
- Panel Average from Specified Thickness
- Variance from Panel Average Thickness
- Linear Expansion (LE)
- Formaldehyde Emissions ≤ 0.21 ppm or ≤ 0.11 ppm for MDF with a minimum thickness greater than 8mm.
- Formaldehyde Emissions ≤ 0.21 ppm or ≤ 0.13 ppm for MDF with a maximum thickness ≤ 8mm.

Formaldehyde Emissions ≤ 0.21 ppm or ≤ 0.11 ppm for MDF with a minimum thickness greater than 8mm.
Formaldehyde Emissions ≤ 0.21 ppm or ≤ 0.13 ppm for MDF with a maximum thickness ≤ 8mm.
In addition, CPA’s Eco-Certified Composite (ECC) Program (to which a majority of the North American producers subscribe) requires emission limits no higher than the California Air Resources Board (CARB) Airborne Toxic Control Measure (“CARB Rule”).

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.

<table>
<thead>
<tr>
<th>Grades</th>
<th>Physical and Mechanical Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Modulus of Rupture (MOR)</td>
</tr>
<tr>
<td></td>
<td>N/mm² (psi)</td>
</tr>
<tr>
<td>210</td>
<td>18.9</td>
</tr>
<tr>
<td>220</td>
<td>28.9</td>
</tr>
<tr>
<td>230</td>
<td>28.9</td>
</tr>
</tbody>
</table>

Industrial Wood Products presents a solid hardwood core panel with MDF crossbands ... stronger than traditional particleboard and MDF yet 30% lighter.
<table>
<thead>
<tr>
<th>COMPANY AND MILL LOCATION</th>
<th>BRAND NAME</th>
<th>WOOD SPECIES</th>
<th>CERTIFIED WOOD</th>
<th>PRESS SIZE (FT.)</th>
<th>THICKNESS RANGE (IN.)</th>
<th>DENSITY RANGE (LBS/FT³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEL-TIN FIBER, LLC</td>
<td>El Dorado, Arkansas</td>
<td>Solidium, Solidium Free</td>
<td></td>
<td>CS LF LD MO MR S</td>
<td>9 x Continuous</td>
<td>3/16 – 1</td>
</tr>
<tr>
<td></td>
<td>Malvern, Arkansas</td>
<td>Premier®, Premier® Plus, Premier® MR, Vesta</td>
<td>Pine</td>
<td>CS HD MR S</td>
<td>5 x 18, 5 x 24</td>
<td>3/8 – 1-1/2</td>
</tr>
<tr>
<td>GEORGIA-PACIFIC WOOD PRODUCTS LLC</td>
<td>Monticello, Georgia</td>
<td>InfiniCor</td>
<td></td>
<td></td>
<td>B CS F FD FO MN P PA PE PF PR T</td>
<td>4 x Continuous</td>
</tr>
<tr>
<td>LANGBOARD, INC.</td>
<td>Willacoochee, Georgia</td>
<td>Langboard MDF, Elite®</td>
<td>Southern Yellow Pine</td>
<td>BE CS DC MO S ST TM</td>
<td>5 x 18</td>
<td>3/8 – 1-1/4</td>
</tr>
<tr>
<td>MADERAS CONGLOMERADAS S.A. DE C.V.</td>
<td>Tlalnepantla, Mexico</td>
<td>MACOCCELL</td>
<td>Pine</td>
<td>CS LP P W</td>
<td>4 x Continuous</td>
<td>1/12 - 7/32</td>
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<tr>
<td>PAN PACIFIC PRODUCTS, INC.</td>
<td>Broken Bow, Oklahoma</td>
<td>Megaboard</td>
<td>100% Pine</td>
<td>DC SR HD LD</td>
<td>8 x 20</td>
<td>3/4 – 4</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Location</td>
<td>Product Line or Grade</td>
<td>Species/Forest Type</td>
<td>Certification</td>
<td>Dimension</td>
<td>MR Range</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>-------------------------</td>
<td>-----------------------</td>
<td>---------------------</td>
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<td>------------</td>
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<tr>
<td>PLUM CREEK MDF, INC.</td>
<td>Columbia Falls, Montana</td>
<td>Super Refined MDF2®,</td>
<td>Western Softwoods</td>
<td>SFI / SCS</td>
<td>5 x 18,</td>
<td>1/16 – 1-1/2</td>
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<tr>
<td></td>
<td></td>
<td>Glacier Green™ and Glacier Clear™</td>
<td></td>
<td></td>
<td>10 x Continuous</td>
<td></td>
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<tr>
<td>SIERRAPINE</td>
<td>Medford, Oregon</td>
<td>ARREIS, MEDEX, MEDITE, MEDITE II</td>
<td>Western Softwoods</td>
<td>FSC</td>
<td>5 x 18</td>
<td>1/4 – 1-1/2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MEDITE FR, MEDITE 3D, PERMACORE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TEMPLE-INLAND</td>
<td>Mt. Jewett, Pennsylvania</td>
<td>ULTRASTOCK</td>
<td>Mixed Hardwoods</td>
<td>FSC</td>
<td>9 x 25</td>
<td>1/4 – 1-1/2</td>
</tr>
<tr>
<td>UNIBOARD</td>
<td>Mont-Laurier, Quebec</td>
<td>Uniboard MDF</td>
<td>Softwood, Hardwood</td>
<td>FSC</td>
<td>9 x Continuous</td>
<td>1/4 – 1-1/4</td>
</tr>
<tr>
<td>UNILIN US MDF</td>
<td>Mt. Gilead, North Carolina</td>
<td>Southern Yellow Pine</td>
<td>FSC</td>
<td></td>
<td>9 x Continuous</td>
<td>1/6 – 3/8</td>
</tr>
<tr>
<td>WEST FRASER MILLS LTD.</td>
<td>Quesnel, British Columbia</td>
<td>WestPine MDF, EcoGold™</td>
<td>Spruce, Pine, Fir</td>
<td></td>
<td>10 x Continuous</td>
<td>3mm – 3/4</td>
</tr>
<tr>
<td></td>
<td>White Court, Alberta</td>
<td>Ranger Board</td>
<td>Spruce, Pine, Fir</td>
<td></td>
<td>6 x 24</td>
<td>3/8 – 1-1/2</td>
</tr>
</tbody>
</table>

Special Items and Treatments: Base Coat (B), Bullnose Edge (BE), Countertop (C), Concrete Form (CF), Colored MDF (C-MDF), Cut to Size (CS), Door Core (DC), Door Stiles and Rails (SR), Edge Fill (EF), Edge Tape (ET), Fill (F), Fire Retardant (FR), Flush Door Skins (FD), Foil (FO), High Density (HD), Hot Melt Wax (H), Laminate Flooring Substrate (LF), Laminated Products (LP), Lockblocks (LB), Low Density (LD), Melamine (M), Mende (MN), Moisture Resistant (MR), Moulding (MO), Moulded Door Skins (MDS), Paint (P), Paper (PA), Perforated (PE), Prefinished (PF), Print (PR), Shelving (S), Smooth Siding (SS), Stair Tread (ST), Textured Siding (TS), Topcoat (T), Tongue and Groove (TG), Turning and Moulding (TM), Vinyl (V), Wood Veneer (W)

All particleboard and MDF facilities in this Guide offer third party certified products to meet the California Air Resources Board (CARB) Airborne Toxic Control Measure (ATCM 93120) regulation. Some facilities may also have been issued a NAF or ULEF Exemption Executive Order from the State of California. CPA maintains a current list of CARB certified and exempt facilities at www.CompositePanel.org.

* "No added urea-formaldehyde” (NAUF) and NAF panel products may be eligible for low-emitting materials credit under LEED for Commercial Interiors and LEED for New Construction and Major Renovations.

** CARB exempt (NAF/ULEF) manufacturers offer composite wood product categories that have no added formaldehyde (NAF) and/or ultra-low emitting formaldehyde (ULEF), and have been exempted from third party certification requirements of the California Air Resources Board (CARB) ATCM 93120.
### MDF

**MDF**

**CLARION BOARDS, INC.**  
143 Fiberboard Road  
Shippenville, Pennsylvania 16254  
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board.sales@clarionindustries.com  
www.clarionindustries.com

**DEL-TIN FIBER, LLC**  
303 S. Temple Drive  
Diboll, Texas 75941  
(800) 424-2311 Fax (936) 829-7846  
bryanwilson@templeinland.com  
www.temple.com

**FLAKEBOARD**  
St. Stephen and Sault Ste. Marie Sales  
80 Tiverton Court, Suite 701  
Markham, Ontario L3R 0G4  
(800) 268-9830 Fax (905) 475-3988  
customer.service@flakeboard.com  
www.flakeboard.com

**GEORGIA-PACIFIC WOOD PRODUCTS LLC**  
PO Box 105605  
Atlanta, Georgia 30348  
(800) 727-9452 Fax (404) 924-3170  
www.gp.com

**KRONOSPAN LLC**  
9320 AL Hwy. 202  
Eastaboga, Alabama 36260  
(256) 741-8755 Fax (256) 741-8757  
mdfsales@kronoflooring.com  
www.kronospanusa.com

**LANGBOARD, INC.**  
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dbeaty@eufaula.rr.com  
www.langboard.com

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+52 (55) 5715-5870 Fax +52 (55) 57155960  
ranzjorge@yahoo.com  
www.macosa.com.mx

### PAN PACIFIC PRODUCTS, INC.

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wayne@panpacificproducts.com  
www.panpacificproducts.com

**PLUM CREEK MDF, INC.**  
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Columbia Falls, Montana 59912  
(800) 548-3099 Fax (406) 892-6870  
wil.lwarberg@plumcreek.com  
www.plumcreek.com

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1050 Melody Lane, Suite 160  
Roseville, California 95678  
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www.sierrapine.com

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Diboll, Texas 75941  
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www.temple.com

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Laval, Quebec H7T 2S3  
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www.uniboard.com

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bryan.traylor@unilin-us.com  
www.unilin.com

**WEST FRASER MILLS LTD.**  
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Edmonton, Alberta T6E 0L1  
(780) 413-8900 Fax (780) 413-8910  
mdf@westfraser.com  
www.westfraser.com

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6410 Highway 66  
Klamath Falls, Oregon 97601  
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lburns@collinsco.com  
www.collinsco.com

**CMI/CRAFTMASTER MANUFACTURING INC.**  
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info@cmicompany.com  
www.cmicompany.com

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www.lpcorp.com  
Roaring River Plant  
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Nashville, Tennessee 37219  
(888) 822-8899  
www.lpcorp.com

**STIMSON LUMBER COMPANY**  
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gconnolly@stimsonlumber.com  
www.stimsonlumber.com

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www.gp.com/build

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gconnolly@stimsonlumber.com  
www.stimsonlumber.com