



**RODDIS LUMBER AND VENEER COMPANY, L.P.**

727 NORTH CHERRY STREET/BOX 1446/SAN ANTONIO/TEXAS/78295/AC 512 226-1426/(WATS) 1-800-292-5672

Product Bulletin September 2009 - "Core Selection"

"Hardwood Plywood" is a decorative panel intended for interior use as wall covering or component parts of kitchen cabinets, architectural casework, store fixtures, scientific laboratory casework, library fixtures or furniture. The appearance of the panel is specified by defining the face and back by grade, specie, cut, veneer match and color selection. The performance of the panel is determined by specifying the type of core to which the decorative veneers are laminated. The most common core types are the topic of this bulletin, which is intended to assist the designer in selecting the most appropriate core that meets the job objectives. The various core types offer different performance properties. The relative importance of these properties will determine which core type is appropriate for the job.

The following chart compares common core types available today and ranks them based on various panel characteristics.

Panel Characteristics	<u>CFC***</u>	<u>Veneer Core</u>	<u>Medium Density Fiberboard (MDF)</u>	<u>Particleboard</u>
Reduce Core Telegraphing @ Finish	BEST 5	GOOD 3	BEST 5	BETTER 4
Laminate Substrate	BEST 5	GOOD 3	BEST 5	BETTER 4
Flatness	BETTER 4	GOOD 3	BEST 5	BEST 5
Edge Machinability*	BETTER 4	GOOD 3	BEST 5	GOOD 3
Screw Holding	BEST 5	BEST 5	BETTER 4	GOOD 3
Dimension Stability** Length x Width	BETTER 4	BEST 5	GOOD 3	GOOD 3
Weight	BETTER 4	BEST 5	GOOD 3	GOOD 3
Tensile Strength	BETTER 4	BEST 5	GOOD 3	GOOD 3
Thickness Variation (Sanded Panels)	BETTER 4	GOOD 3	BEST 5	BEST 5
Cost	GOOD 3.5	BETTER 4	BETTER 4.5	BEST 5
Relative Value	BEST 42.5	GOOD 39	BEST 42.5	GOOD 38

Notes:\*Edge Machinability is a term that rates the cleanliness of the visible edge after the machining process. \*\* Dimension stability is related to exposure to swings in moisture and humidity. \*\*\*CFC (Combination Fiberboard Core) has combined veneer inner ply with a MDF laminate substrate.



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The following chart compares physical properties of the various cores.

Physical Properties	<u>CFC</u>	<u>MDF-130</u> <u>ANSI</u>	<u>MDF-155</u> <u>ANSI</u>	<u>PB-M2</u> <u>ANSI</u>	<u>PB-M3i</u> <u>ANSI</u>
MOR (psi)	6000	3130	4050	1885	2176
MOE (psi)	725000	313000	405000	290100	362600
Screw-Face (lbs)	400	222	270	202	225
Screw-Edge(lbs)	325	177	225	180	202
Thickness Variation (in)	+/- .01	+/- .005	+/- .005	+/- .004	+/- .004

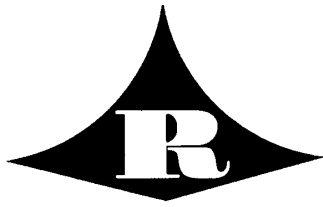
Notes: Modulus of Elasticity (MOE) – A measure of the boards resistance to deflection or sagging when loaded as a simple beam. Modulus of Rupture (MOR) – An index of the maximum breaking strength of the board when loaded as a simple beam. (PB ANSI A208.1-2009) CFC data provided by Roseburg Forest Products.

Summary: Resource pressures have resulted in production of thinner decorative face veneers that are less tolerant of core variations. An imperfect core may allow core telegraph and result in an unacceptable finish appearance. MDF offers better physical properties than PB. MDF is the best substrate choice for flatness and smoothness. Veneer core hardwood plywood is regarded as the best choice for strength, screw holding and water resistance. The combination of the two utilizes the best characteristics of both products to solve problems of core telegraph and provide strength, screw holding and water resistance. When strength and durability are a priority, recommend CFC core, combination veneer inner plies with MDF crossbands.

The most important panel characteristics required by cabinet doors are smooth and flat. Cabinet door hinges improved greatly with the advent of the 35mm hinge cup boring in the back of the door. Today's hinges were designed so composite panels may be used for cabinet doors and be assured the doors will stay fastened to the cabinet. Recommend MDF core for cabinet doors and drawer fronts to minimize warping of cabinet doors.

Roddis Lumber and Veneer Co.  
9/17/09

Sources: The Hardwood Plywood & Veneer Association  
HPVA Handbook 2004  
Timber Products [www.timberproducts.com](http://www.timberproducts.com)  
Roseburg Forest Products [www.rfpco.com](http://www.rfpco.com)  
MDF ANSI A208.2-2009  
PB ANSI A208.1-2009



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