

Technical Tip

OSB Wood Flooring and Sheathing Characteristics

The following are different characteristics of wood that include:

- **Permeability** is the rate at which water vapor will pass through the panel in the presence of a pressure gradient. Vapor barriers are considered to be 1 perm (60 ng/Pa.s.m²) or less.

Thickness (inches)	Permeability (perms)	Permeability (ng/Pa.s.m ²)
7/16	2-3	120
1/2	1-2	95
5/8	1-2	60

- **R-value** is a measure of thermal resistance or insulating value.

Thickness (inches)	R-value (in ft ² - hr - °F / BTU)
7/16	0.51
1/2	0.62
5/8	0.74
23/32 (3/4)	0.91

- **Thermal Conductivity** is a measure of the rate of heat flow through one unit thickness of a material subjected to a temperature gradient.
 - Aspen – 0.12 W/m*K (0.82 Btu*in/h*ft²*°F) at 12% moisture content. (Easton, ME species)
 - Pine – 0.17 W/m*K (1.2 Btu*in/h*ft²*°F) at 12% moisture content. (all other manufacturing sites)
- **Sound Transmission Class** is a rating of how well a building partition attenuates airborne sound. It is used to rate interior partitions, ceilings/floors, doors, windows and exterior wall configurations.
 - The rating is dependent on the components of the assembly, i.e. flooring or sheathing thickness, drywall thickness, insulation type/thickness, floor/wall/roof covering, etc.
- **Flame Spread** is the rate of flame traveling along the wood surface as well as the amount of smoke generated.
 - Structural flooring and sheathing panels typically are listed as Class C (III) unless otherwise tested and stamped accordingly.
- **Coefficient of Friction (CoF)** is the measure of resistance to dynamic movement over the wood substrate that is impacted by surface roughness and moisture content.
 - Structural flooring and sheathing products typically have a CoF in the range of 0.5 to 0.7 radians at a moisture content of 12% or less.

- **Bond Classification** is related to the moisture resistance of the glue bond under intended end-use conditions and does not relate to the physical or biological resistance of the panel.
 - **Exterior** is defined as a bond classification for panels suitable for repeated wetting and redrying or long-term exposure to weather or other conditions of similar severity¹.
 - Examples: marine grade plywood, pressure treated plywood, exterior deck lumber
 - **Exposure 1** is defined as a bond classification for panels that are suitable for uses not permanently exposed to the weather. Panels classified as Exposure 1 are intended to resist the effects of moisture on structural performance due to construction delays or other conditions of similar severity¹.
 - Examples: OSB subflooring, roof sheathing, wall sheathing
 - **Interior** is defined as a bond classification for panels that contain an interior glue system and are designed for interior applications only.
 - Examples: wood products used in kitchen cabinets and wood furniture

¹*U.S. Department of Commerce, National Institute of Standards and Technology, Voluntary Product Standard PS-2— Performance Standard for Wood-Based Structural-Use Panels.*

*For more information on the characteristics of wood based products, please visit these sources:

APA – The Engineered Wood Association, www.apawood.org

TECO – Third party Certification and Testing Services, www.tecotested.com

AWC – The American Wood Council, www.awc.org

STC Ratings – www.stcratings.com

UL Ratings – Underwriters Laboratories Inc., www.ul.com