



Water, Water Everywhere

Consumers don't think twice about setting a sweaty glass down on a desk or tracking wet shoes onto a kitchen floor. Thanks to moisture-resistant composite wood, they don't have to.

Compared to standard industrial grade board, moisture-resistant particleboard and medium-density fiberboard (MDF) provide increased stability and bond integrity for furniture, cabinetry, flooring, fixtures and millwork.

Increased dimensional stability results in less expansion and contraction – particularly important in kitchen countertops and bathroom vanities. It also reduces a product's tendency to swell at the edges, which is vital for laminate flooring. Enhanced melamine-based resins increase the stability of composite wood products by boosting the bonds between wood fibers.

When reviewing technical data on particleboard and MDF, products with increased stability are sometimes characterized by a "lower lineal expansion coefficient". The natural tendency of wood fibers to respond to changes in humidity and temperature explains why relatively thicker panels have less pronounced stability enhancements. The ratio of wood to resin is also generally higher as thickness increases. Consequently, most products that are engineered for this type of moisture resistance will be less than 3/8-inch thick.

Moisture-resistant particleboard and MDF are also available with increased bond integrity compared to standard grade boards. This enhanced resistance to

degradation when exposed to moisture makes them ideal choices for certain non-structural outdoor applications such as signage. The linear expansion characteristics make them inappropriate for exterior trim or siding. Exterior hardboard products and specialty composite wood products are better suited for such applications.

Improved resin technology is again behind the enhanced moisture-resistance. Phenolic and methylene diphenyl diisocyanate (MDI)-based resins create bonds between wood fibers that resist chemical and mechanical degradation in spite of moist conditions.

With the availability of increased stability and enhanced bond integrity, moisture-resistant particleboard and MDF provide measurable advantages for a variety of uses. Through technological innovation, composite panel products continue to be developed for a growing list of applications to perform in even the most challenging environments. **2W**

This article refers to non-structural composite panel products such as particleboard and medium-density fiberboard. Other composite panel products such as oriented strand board (OSB), laminated veneer lumber (LVL), exterior grade plywood and exterior siding are engineered for different applications and therefore have different moisture-resistant properties. Contact individual manufacturers to evaluate particular products for specific moisture-prone applications.