



Comparing Panel Types

The evolution of panel products has delivered a number of different types of product choices to the market. Many products use wood particles, wafers, strands, or veneers that are pressed together with glue to form very strong panels for use in a variety of structural and non-structural applications.

The major panel groups are described by their commonly used names. Particleboard, for instance, is made of small wood particles and is used as underlayment, mobile home decking, and in industrial applications like furniture and countertops. Waferboard is a panel made up of thinly sliced rectangular "wafers" that are oriented randomly throughout the panel cross section. More recent developments have led to "oriented strand board" (OSB). OSB strands are thinly sliced and measure approximately 1- to 2-inch wide by 3- to 6-inches long. These strands are "oriented" into layers. Typically three or four layers of strands comprise an OSB panel, with the majority of the strands in the outside layers oriented with their long dimension parallel to the length of the finished panel and the strands in the interior layer(s) oriented with their long dimension at 90 degrees to the outside faces. This orientation is very similar to that of the veneer used in plywood. Plywood is a panel made of three or more layers of wood veneer bonded together, and usually laid with the grain of adjoining plies at right angles. Because wood is stronger along the grain than across the grain the outer layers, with strand lengths oriented along the panel length, help create panels that are stronger along their length (typically the 8-foot dimension).

Both plywood and OSB used in floor, wall and roof applications are manufactured, tested and certified to one of two U.S. Department of Commerce Voluntary Product Standards. PS 1, *Structural Plywood*, and PS 2, *Performance Standard for Wood-Based Structural-Use Panels*, which applies to OSB and structural-use plywood.

The minimum strength and stiffness requirements of all products are detailed in these standards and have performance requirements independent of product type. Therefore, either OSB or plywood can be used for structural applications when proper attention is given to thickness and span rating.

Each of these products has unique performance and service attributes that may lead to one or the other being more suitable in certain situations. It is advisable to contact a design professional or one of the manufacturers for specific information on your particular project and needs.