

Solid Wood

There are two primary categories of solid, natural hardwood used in the furniture industry; hardwood and softwood. Hardwoods come from deciduous trees (lose their leaves at the end of the season) and include maple, walnut and oak. Softwoods come from coniferous, or evergreen, trees and include cedar, pine and redwood.

In solid wood construction, boards are cut into narrow lengths with the grain pattern reversed. The pieces are then glued together to form the various widths and lengths and then finished.

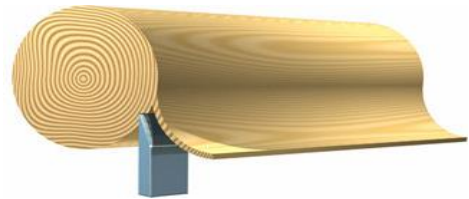
To finish, stains are often used to alter the natural wood tones. Stains consist of thin pigments that are absorbed into the wood grain. Although a constructed piece is derived from a particular species of wood, it can then be finished to resemble another type of wood. For example, a table may be constructed using pine or another species of wood, and then finished with a mahogany finish to resemble mahogany.

Advantages of Solid Wood	Disadvantages of Solid Wood
<ul style="list-style-type: none">• Valuable in the mind of the consumer• Known to withstand the "test of time"• Can be finished to resemble other species of wood• Scratches, dings and stains can all be easily repaired or refinished	<ul style="list-style-type: none">• As weather conditions change, solid wood expands and contracts and is more likely to warp, split or crack• Sunlight may discolor wood stains• Even within the same tree, color variances exist

Veneers

Veneer construction consists of a variety of woods that are sliced and then permanently bonded to an all wood frame, often engineered wood (MDF).

Veneering is the process of applying a thin sheet of material, usually wood, to the surface of another material, usually a less expensive piece of wood. This provides a more luxurious look and feel without the cost. Veneers have become a popular choice in comparison to solid wood as they can withstand temperature changes better and with the advancement in adhesives, are also much stronger and more durable than solid wood.



Veneer Slicing

With a rotary cut, as shown on the right, the log is centered on a lathe and turned while slicing the log at a slight angle. The sheets are then processed into wood veneers.

Advantages of Veneer	Disadvantages of Veneer
<ul style="list-style-type: none"> • Endless design possibilities • Durable - surfaces not prone to splitting or seasonal movement • Environmentally friendly with less wood necessary for construction so nothing is wasted • Veneering comprises about 80% of wood furniture in all price ranges because of its strength and versatility 	<ul style="list-style-type: none"> • Difficult to repair since the substrate is so thin • Edges may peel back or chip off • Consumers they may still identify with old veneering techniques which lacked quality

Decorative Laminate Surfaces

Laminate construction consists of Medium Density Fiberboard (MDF) or Particle Board (PB) that is compressed and then bonded with a decorative surface constructed with cellulose based, plastic based or melamine based materials with photographic reproductions of real hardwood surfaces, faux finishes or solid colors. The image quality is so high that it can be difficult to distinguish laminated surfaces from an authentic medium.

Advantages of Laminate	Disadvantages of Laminate
<ul style="list-style-type: none"> • Attractive, photographic reproductions • Long lasting and low maintenance • Inexpensive with a variety of price points • Compared to natural wood known to fade and have defects, laminate surfaces maintain color fastness and clarity for years and are free from pits, cracking or checking. 	<ul style="list-style-type: none"> • Perception of being lower-quality than real wood, fake. • Difficult to repair or resurface



Particle Board



Used primarily as core material for doors, furniture, and cabinets, PB is often covered on one or both sides with veneer or another surface finish. Particleboard (PB) is a panel product made of sawdust and wood shavings bonded together by synthetic resin and pressed into sheets.

Particleboard has had an enormous influence on furniture design. In the early 1950s, particleboard kitchens started to come into use in furniture construction but, in many cases, it remained more expensive than solid wood. Once the technology was more developed, particleboard has become one of the nation's leading building materials.

Medium Density Fiberboard (MDF)



MDF is widely used in furniture construction. To make MDF, softwood chippings from birch and larch are steamed until they become fine wood fibers. These fibers are then bonded together through the use of resins and pressed into boards with the application of heat. Both birch and larch trees are deciduous and have hard, close grain structures making them ideal for production of MDF. It is made up of separated fibers, (not wood veneers) but can be used as a building material similar in application to plywood. It is much more dense than normal particle board.

The name derives from the distinction in densities of fiberboard. Large-scale production of MDF began in the 1980s. MDF provides a very smooth, hard surface with extremely little variance. Compared to a soft wood species, MDF is much more stable, attractive, and resistant to humidity issues. This product can also be cut, drilled, filled, or machined without damage to its surface.

Advantages of MDF

- An excellent substrate for veneers
- An environmentally friendly product
- Less expensive than many natural woods
- Isotropic (no grain), so no tendency to split
- Consistent in strength and size
- Flexible. Can be used for curved walls or surfaces

Engineered Wood Comparison



Engineered wood selling points compared to solid timber are its price, its availability in large flat sheets and its ability to be decorated with melamine based overlays. However, it has several other advantages, one of which is its stability. Solid wood is prone to warping and splitting with changes in humidity, whereas engineered wood is not. This stability enables new design possibilities, without having to take into account seasonal variations. Untreated engineered wood will disintegrate, however, when exposed to high levels of moisture. This problem is somewhat mitigated by laminating the engineered board on both sides with melamine resin to reduce moisture ingress.

The strength of engineered wood, in the context of the application and cost, has a distinct advantage over solid wood in furniture construction. Particularly in the sidewalls of cabinets, where stress owing to support of loaded shelves or appliances is compressive, engineered wood can be an excellent construction material.

Solid wood is more durable than engineered wood. Damage to solid wood can be repaired by removing and replacing damaged material then refinishing using known wood treatments that can be matched. Since engineered wood is typically covered with laminate or veneers to simulate the look of solid wood, it may be impossible to match the original finish. Damage to engineered wood can be difficult to repair, usually requiring replacement of the damaged MDF or particle board elements.