



Interior Woodwork in Houses

Selecting wood to use for moldings, trim around doors and windows, cabinets, and other interior applications involves matching species properties with desired performance characteristics for the intended use. For a satisfying product, use the right wood in the right place, assemble it properly, and apply the correct finish.

Woods used for interior applications may come from two broad classes of trees: *softwoods* (needle-bearing trees) and *hardwoods* (broadleaved, deciduous trees). This botanical division does not necessarily relate to the characteristics of the wood; for example, some hardwoods are softer than some softwoods. Hardwoods are called “porous” woods; softwoods are labeled “nonporous” species. Consider hardness, workability, appearance, stability, fastening properties, and finishing ease when selecting interior woods.

Hardness and workability

Resistance to denting and abrasion often is an important property to consider. Table 1 shows the relative hardness of several hardwood and softwood species.

Table 1. Relative hardness of selected hardwoods and softwoods.

Hardwoods		
Soft	Medium	Hard
aspen	black ash	black walnut
basswood	black cherry	hickory
butternut	hackberry	pecan
cottonwood	lauans	red oak
willow	paper birch	sugar maple
yellow poplar	red elm	white ash
	silver maple	white oak
		yellow birch

Softwoods		
Soft	Medium	
eastern white pine	sugar pine	Douglas fir
incense cedar	western redcedar	eastern redcedar
ponderosa pine	western white pine	red pine
redwood	white fir	southern pines
spruces		western hemlock
		western larch

How easily different woods can be worked (sawed, planed, sanded, fastened) is an important consideration when wood is used for interior applications. Different species of wood are classified according to their workability in table 2. This classification is based on experience and general reputation of the different woods. Do not compare hardwoods and softwoods in the same classification.

Table 2. Classification of selected hardwoods and softwoods according to ease of working with hand tools.

Hardwoods		
Easy	Moderate	Difficult
basswood	black walnut	black cherry
butternut	cottonwood	elms
yellow poplar	paper birch	hackberry
	sycamore	hickories
		maples
		oaks
		white ash
		yellow birch

Softwoods		
Easy	Moderate	Difficult
incense cedar	eastern redcedar	Douglas fir
ponderosa pine	hemlocks	southern pines
sugar pine	lodgepole pine	western larch
western redcedar	redwood	
white pines	spruces	
	white fir	

Appearance

Pleasing appearance may be important when the item is highly visible and finished naturally. Various colors, grains, textures, and figures are available from the numerous species on the market. Defects such as knots, pitch streaks, splits, checks, and stains are not desirable for interior woodwork.

Dimensional stability

Any wood used on the interior of a house should be properly dried to a moisture content between 6 and 8 percent. Even properly-dried wood shrinks and swells

in response to changes in relative humidity and temperature conditions indoors. Dimensional stability is desirable in wood used inside; minimal change in dimensions when moisture conditions vary is a considerable advantage.

Heavy hardwoods tend to respond more to changes in humidity and temperature than lighter woods. Table 3 groups selected woods into three broad classes based on total potential shrinkage of unfinished wood. Finishes reduce but do not prevent water absorption and emission. Moisture is most readily absorbed through the end grain of wood; to reduce this absorption, seal the ends of wooden members with a good film-forming finish.

Table 3. Relative shrinkage of selected hardwoods and softwoods.

Hardwoods		
Moderate	High	
aspen	ashes	lauans
black cherry	basswood	oaks
black walnut	birches	pecan
butternut	cottonwood	sugar maple
silver maple	elms	sycamore
yellow poplar	hackberry	willows
	hickories	

Softwoods		
Low	Moderate	High
cedars	Douglas fir	western larch
eastern white pine	lodgepole pine	
ponderosa pine	southern pines	
redwood	spruces	
white fir	western hemlock	
	western white pine	

Fastening properties

Mechanical fasteners such as nails or screws often are used to fasten wood components together. Woods differ in ease of fastening; softer, lighter woods typically offer the fewest problems. The woods classified in table 2 as “moderate” or “difficult” should be predrilled before nailing to avoid splitting and bent nails. Finish nails are most commonly used; these nails are usually countersunk below the surface and the resulting hole filled with wood putty.

All woods should be predrilled with appropriate size lead holes when wood screws are used as fasteners. Use a lead hole with a diameter equal to 90 percent of the root diameter of the screw for hard, dense woods; a lead hole about 70 percent of the screw root diameter is recommended for softer, lighter woods. Screws are preferred where maximum resistance to withdrawal is desired and where moisture changes are anticipated. Wood adhesives or glues sometimes are used alone

or in combination with mechanical fasteners to provide a more rigid, stronger joint. Polyvinyl resin emulsion glues are easy to apply and are suitable for most dry, interior uses. Where substantial exposure to moisture is expected, resorcinol resin adhesives are the best choice. All softwoods are reasonably easy to glue; dense, strong hardwoods offer the most challenge.

Finishing ease

Interior woodworking usually is sanded before the final finish is applied. Satisfactory smoothing of surfaces depends on the wood, proper techniques, and suitable equipment and techniques. Always sand along the grain of the wood (parallel to the long dimension of the board) rather than across the grain. Gradually reduce the grit of the paper from coarse to very fine in successive steps. Harder woods tend to fuzz less during sanding than do softer woods. Coarse-textured woods such as ash, elm, hickory, or oak typically show fewer sanding scratches than do finer textured woods such as basswood, birch, cottonwood, or maple.

Select the appropriate finish to enhance appearance and protect interior woodwork. A natural or clear finish usually is the first choice for use on decorative woods. Steps involved may include staining, filling, sealing, and topcoating. A variety of stains are available; oilbase stains often are preferred. Porous woods such as ash, butternut, elm, hackberry, hickory, lauan, oak, and walnut may require filling before applying the topcoat to ensure a smooth final surface. Perhaps the most durable hand-applied film finishes available for wood are the polyurethane finishes. Several coats are usually recommended. Various oil finishes and penetrating sealers can be used where a final smooth film finish is not desired. Paints are also available for finishing interior wood; select high quality paints that have high resistance to abrasion and denting and are washable.

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