

Wood and Wood Products

Andrea Cardozo

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Meirav Goldhour



Solid Wood

- Wood is a living organism, it has been used for construction due to its strength, uniqueness and workability.
- Over 100,00 types of wood.
- The tree determines its physical characteristics; such as figure and pattern.

- Woods can be many color families.
- The grain(direction of wood fibers) of wood can affect structural use of wood and the pattern can change depending on how wood is cut.
- UV rays and oxygen levels affect color.
- Hardness is based on species and is rated by the Janka Hardness rating. The bigger the rating the harder the wood.

Wood Sawing

Table 7.1: Wood Sawing



Type of Cut

Description

Plain Sawing

Evenly spaced parallel cuts result in varied grain patterns; tend to twist and cup, may wear unevenly



Quarter Sawing

Cut at right angles to growth rings; results in more even edge grain; more costly, more waste than plain sawing



Rift Sawing

Cut with growth rings 30 to 60 degree to face of board; produced flecks on board surface in oak



End Grain

Cut perpendicular to grain direction. Used for heavily trafficked floors, but may be uneven underfoot

<https://www.youtube.com/watch?v=vbaXWmEiS98>

00 – 1:45 MINUTES

Advantages

- Appearance and hardness.
- Solid hardwood is used for wood flooring; durable, warm, last long, Windows, doors, staircases, and moldings also use solid wood.
- Reducing, reusing, and recycling wood products can help prevent deforestation.

<https://www.youtube.com/watch?v=VuqOOlwoEco&t=271s>

00- 2:00 minutes



Solid Wood
Single piece of wood



Engineered Wood
Several thin plies of
wood laminated together

Disadvantages

- Not good in wet areas.
- Environmental Impacts. Need to cut a lot of wood for one product.
- Finishes can be scratched or damaged by sharp objects. ...
- Repairing damage requires patience and skill.

Types of Wood

- Softwoods- are from conifers, which are **trees** that produce seeds in cones but do not grow flowers, have needles, and are evergreens.
- Solid Softwoods- are mainly used for framing, building construction, or finishes.

Eastern White Pine (Pinus Strobus):

- construction
- furniture
- flooring
- veneer
- millwork -paneling



Southern Yellow Pine:

- construction
- flooring
- cabinetry
- furniture
- veneer
- millwork
- fiberboard
- hardboard
- plywood



Maple

Hard maple



Fire resistance, finish well,
and resist abrasion

Soft maple



Used for furniture,
flooring, cabinetry,
interior construction,
plywood, veneer, paneling

Oak

Red oak



Used for furniture, cabinets,
building construction, flooring,
plywood, veneer, millwork

White oak



Wear resistant, bends well,
abrasion resistant
Used for cabinets, veneer,
construction, flooring, millwork,
stairs, paneling



Ash American is flexible, finishes well. Used for furniture, cabinetry, veneer, plywood, flooring, paneling



Beech Resists abrasion well and finishes well
Used for furniture, cabinetry, flooring, paneling, veneer



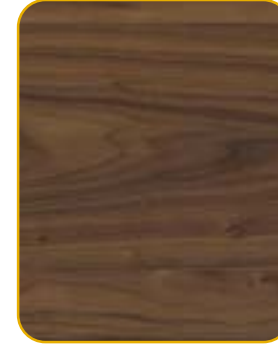
Cherry is rare has a Satiny luster and can be used for finishes, furniture, cabinetry, flooring interior construction, paneling



Birch is used for construction, butcher blocks, furniture, marquetry, flooring, plywood, veneer etc.



Pecan Hickory resists crushing and has high bending strength.
Used for veneer, flooring, interior construction, cabinets



Walnut is less abundant, durable and dense. Used for furniture, doors, flooring, paneling, cabinetry, millwork

Wood Veneer

Wood veneer is thinly sliced wood usually applied for decoration, surfaces of furniture, and wall paneling. Egyptian Furniture was often finished with a thin layer of wood veneer

Decoration



Wall paneling



Furniture surface



Properties

- They are prized for having unique patterns.
- The species of wood determines the appearance.
- Hardwood veneer can be used for doors, furniture parts, and cabinets, but is mainly for flat surfaces.

Types of Wood Veneer

<https://www.youtube.com/watch?v=nyoqcG1CX9A>



Wood panel

- Wood panel products are made from layers (plies) of particles of wood and adhesives.
- Developed as an efficient way to use limited resources of wood and are widely used for flat surfaces.



Properties

- Less susceptible to shrinking and swelling
- More efficient
- Strength is more uniform than wood from one piece to the next
- Require less labor to install
- Some products are moisture resistant and can be used externally

Types of Wood Panel Products

Building interiors include:

- Plywood
- Fiberboards and overlays
- Particle-boards
- Hardboards
- OSB (oriented strand board)

<https://www.youtube.com/watch?v=aQKhhNSvx0g>

00 – 5:00 minutes