

HARDWOOD



HARDWOOD FLOORING HISTORY

Hardwood floors date back to Renaissance Europe. Visit the palaces of Europe and you will walk on the same wood parquetry floors as the kings and queens of that day. Hardwood was readily available and the floors were constructed of solid wood to bring the natural beauty of the outdoors to the inside.

THE BASICS

To get to the basics of hardwood flooring, we must first understand one basic fact; all hardwood flooring comes from what was once a living tree. As with all living things, each living tree has characteristics similar to trees of the same type as well as characteristics that are unique to each individual tree.

As an example, oak hardwood flooring produced from trees grown all in one region is all going to have very similar hardness ratings. On the other hand, one tree may have more knots, mineral streaks or wormholes. Therefore, each tree or section of the tree will have a physical appearance as unique as a fingerprint.

To help standardize the look of an individual hardwood flooring installation, the National Hardwood Flooring Association has assemble a grading system that would essentially put boards with similar visual appearances in the same grade.

There are also many different species that a hardwood floor can be made from. The most common hardwood floor in the United State is made from Oak. As an example, here is a partial list of some of the other species of hardwood floors. There are hardwoods made of, Maple, American Cherry, Brazilian Cherry, Hickory / Pecan, Ash, Beech, Northern White Oak, Southern White Oak, Northern Red Oak, Southern Red Oak, Swedish Oak, Merbau, Jarrah, Teak, Cypress (Australian), Mahogany, Padauk, Purpleheart, Walnut (American Black), Pine, and Antique Heart Pine.

To further add variety and choice (some would say confusion), hardwood flooring can be sold as solid or as engineered, of coarse, in a variety of different thicknesses, widths and lengths.

SOLID HARDWOOD FLOORING

This type of flooring is manufactured as one complete piece of solid wood. The most common dimensions of solid hardwood is 1" thick, 2" or 3 "wide by random length (usually 9" to 84") with an average of 32" long. Solid hardwood floors react to the environment in which it is placed far more than engineered hardwood flooring. In the winter months, the moisture content of the wood reduces, causing the floor to contract or leave gaps between each board. In the summer months when humidity is higher, the moisture enters the wood causing it to expand. This expansion will tighten up the gaps between the boards. If there is too much moisture, it can cause the boards to cup. Solid hardwood flooring can be, installed by nailing, stapling or gluing it to the existing subfloor.

ENGINEERED HARDWOOD FLOORING

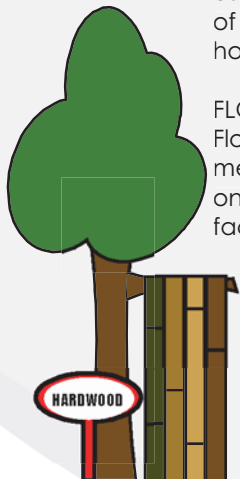
This type of flooring is made of multiple layers of wood that is glued together. There are many benefits to engineered hardwood floors vs. solid hardwood floors. As with solid hardwood floors, engineered floors come in a variety of different thicknesses, widths and lengths.

Engineered hardwood floors have layers of wood veneer that are cross-laminated for dimensional stability. These floors are less affected by moisture than solid hardwood floors.

Engineered hardwood floors can be installed on grade, below grade, or above grade in virtually any room in the home. Engineered hardwood floors can be, installed by nailing, stapling or gluing it to the existing subfloor. Engineered hardwood floors can also be installed by floating. A floating installation, as the name implies, is not adhered to the existing subfloor, it is assembled . as one unit and is held in place partially by gravity and partially by floor and wall moldings. This method of installation allows for the floor to expand and contract at its own rate vs. being attached to the house and being force to expand and contract as does the house it is attached to.

FLOOR FINISHES

Floor finishes are something to consider when shopping for a hardwood floor. There are two basic methods of finishing the surface of a hardwood floor. The oldest method is to sand and stain the floor on site. The newer method is to purchase hardwood flooring that has been stained and finished at the factory. As in every decision we need to make, there are benefits to either finishing method



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STAIN AND FINISH ON SITE

The one benefit that a stain and finish installation has over a prefinished installation, is that it allows for extra customization. As an example, custom colored stains could be mixed to achieve a more unique color.

PREFINISHED

Prefinished installations have many benefits over the stain and finish on site installation. A prefinished hardwood floor is sanded, stained (when applicable) and finished using state of the art finishing methods, in a controlled environment that would not be available on site. The quality and consistency of a prefinished hardwood is far better than is obtainable on site.

PRICING

Hardwood flooring is priced based on all of the above factors. The type of floor (solid or engineered), the width and thickness, the species of wood, the grade of the wood, the finish applied to the woods surface. The installation method can also be a factor in the price of a job.

WHY IS ALL THE ABOVE INFORMATION IMPORTANT IN DETERMINING WHAT HARDWOOD FLOOR IS BEST SUITED FOR YOUR NEEDS?

Depending on the amount of traffic your floor will get and the room you want to have the hardwood, all of the above is important to help you what you can expect from the floor after it is installed. Remember that hardwood flooring is considered an investment. A good hardwood floor will increase the value of your home and will bring years of warmth and comfort. The information you obtain prior to purchasing your hardwood could increase your chances of making a good investment.

HARDWOOD FLOOR PROPERTIES

The Living Tree

To begin with the basics, an oak tree grows with the roots in the soil and the leaves in the air, easy. The roots collect moisture and nutrients from the soil and ship them through vessels or fibers up the trunk and branches to the leaves. These vessels are similar to the "strings" in a stalk of celery. The leaves mix the moisture, nutrients, carbon dioxide and sunlight and bingo - photosynthesis gives oxygen back into the atmosphere and food for the tree. The food is then shipped through other vessels, throughout the tree and back to the roots. Growth occurs.

The foregoing is fact and logic to help understand that an oak tree is made up of fibers aligned vertically in a standing tree. Cut the tree down and the fiber are horizontal. Saw the boards and manufacture strip flooring, nail them down and the fibers are still horizontal and running the length of the boards.

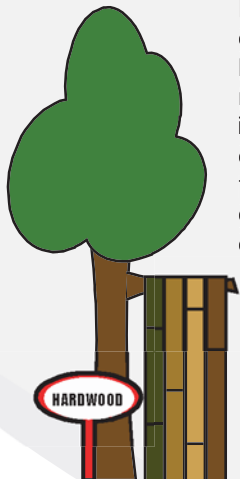
In a standing tree the fibers are loaded with moisture. The tree, after felling, begins to dry out, just like a rose wilts after being picked. As the fibers dry, they shrink in thickness or diameter, almost none lengthwise. This shrinkage, characteristic in oak (all woods) is of vital importance in the understanding of oak flooring, so lets examine it further.

REASONS FOR MOISTURE AND SHRINKAGE

While figures used in this example are not accurate, they help tell the story.

A standing tree is felled in the forest and sawed immediately into a board 1" thick, 10" wide and 8' long. Placed on a scale, the board weighs 100 pounds. This same board is placed in a stack of boards separated from its neighbor by stacking strips of uniform size to keep the boards straight. The stack is aimed at the prevailing winds to accelerate the drying, and again this location is in southern states enjoying many warm long months. The board stays in the stack for four to six months and again we put the board on a scale. It now weighs - 50 pounds. Fifty pounds of water has evaporated.

Now our 50-pound board is trucked to the flooring mill and loaded into a dry kiln. The kiln is a concrete building many times large enough to hold 4 to 5 railroad box carloads of lumber. Within the kiln there are fans to circulate the air, steam pipes to create heat, and live steam to induces moisture. A highly trained specialist gently treats our board. As he gradually lowers the humidity and increases the temperature over a 5 to 7 day period until our board reaches the optimum moisture content for flooring manufacturer of about 8%. During the process the temperature in the center of the board must reach 105 Fahrenheit to sterilize the eggs of a little fellow named Lycus who likes to eat oak floors. The board is too hot to touch, so after a couple of hours, we again place the board on a scale and it now weighs 42-pounds.



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CONTROLLING MOISTURE CONTENT IS MOST IMPORTANT

If we had an autoclave, or an oven, into which we could place the whole board and dry every bit of moisture out of the wood, the board would weigh 40-pounds, but the 2-pounds of moisture remaining in the wood keeps the wood "alive" and flexible.

Precision kiln drying and the resulting moisture content (M.C.) is one of several primary responsibilities of the oak-flooring manufacturer. The correct M.C. makes oak flooring predictable. Violate the M.C. and all kinds of things happen. Dry oak flooring (made from these dry boards) is like a blotter; the boards really want to regain some of their lost moisture. All of us - manufacturer, distributor, retailer, truck driver, builder, installer, maid and home owner - have the responsibility to keep the flooring dry. Here's why...

When we began this story, the board weighed 100-pounds and measured 1" thick, 10" wide and 8' long. The vessels and fibers were full of moisture. Now, after drying, the board only weighs 42-pounds and measures 31/32nd thick, 9 1/8th wide and 8' long. The board has withered just like the rose. Each vessels and fiber is smaller in diameter and width and has shriveled up. This is why the board is a little thinner, but not shorter.

A WOOD'S WEIGHT AND MOISTURE CONTENT

Wood is hygroscopic - meaning, when exposed to air, wood will lose or gain moisture until it is in equilibrium with the humidity and temperature of the air. Moisture content (MC) from 5 to 25 percent may be determined using various moisture meters developed for this purpose. The most accurate method in all cases, and for any moisture content, is to follow the laboratory procedure of weighing the piece with moisture, removing the moisture by fully drying it in an oven (105 degrees C) and reweighing.

ALL HARD WOODFLOORS

While specific finish types may require different maintenance, some guidelines apply to the care of all hardwood floors.

First, before furniture is placed onto the hardwood floor, floor protector pads should be installed on the bottom of all furniture legs. Also, rugs should be placed at all entrances to the area (check with the finish manufacturer for when these can be placed. Most should not go down on the floor for at least seven days, and sometimes more than 21 days after the finish is applied). These rugs help trap grit and also absorb moisture before either one has a chance to damage the finish. Rugs should be shaken out, cleaned and thoroughly dried when they get wet. Take special precautions with non-skid pads that are frequently placed under area rugs. These pads may imprint their pattern onto the finish and/or wood floor. (Natural fibers may not transfer as much as synthetic pads.) Also, be aware that area rugs may cause color differences in the floor due to differences in light exposure.

Consumers should expect that their floors will shrink and expand with changes in humidity, sometimes leaving small cracks between boards. To minimize the changes, it is recommended that consumers use some kind of humidity control in their homes.

Routine basic maintenance includes sweeping, vacuuming and/or dust-mopping to remove dirt and grit. (Use only vacuums that have a special hard-surface setting.) The more that dirt and grit are allowed to accumulate, the more they will be tracked over the floor, leaving scratches. Some manufacturers recommend lightly damp-mopping a floor, while others do not. Regardless, household dust treatments should never be used. All shoes, especially high heels, should be kept in good repair - if they lose their protective cap, they will dent the surface of any floor. Pet nails need to be trimmed regularly to prevent finish and wood damage. Be especially attentive to potential spill areas, such as dishwashers, sinks, icemakers and stovetops.

Other potential problem spots include household plants and Christmas tree stands. Consumers see the best results if they develop a cleaning schedule and stick to it. In addition to their regular schedule, they should be aware that not only should they clean the floor immediately after a major event, they should clean immediately before it. (The increased traffic on the floor will result in more damage from any dirt or grit present on the floor.) Those are some of the basics. For information specific to finish types, read the following sections.

WHAT TO USE?

It is important to impress upon consumers exactly which directions to follow and which products to use in caring for their wood floors. Although Mr. Smith may use cleaning product X, his floor may have a finish totally different from Mrs. Brown's finish next door. For pre-finished wood floors, consumers should follow the directions of the flooring manufacturer as to which cleaning products to use. This is extremely important, because not following those directions may void the manufacturer's warranty of the wood floor.



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