G.S. Floor Designs, Inc.

Frequently Asked Questions About Hardwood Flooring

Installation

Q. Is there a reason to choose Red Oak over White Oak, or White Oak over Red Oak?

A. The answer is yes!
There are two main reasons one would choose Red or White in preference to the other. The first reason is visual appeal. Some people prefer the pinkish cast of Red Oak, while others feel the golden hue of White Oak is the best background color. Opinions vary due to personal taste, the rooms' color scheme and the species of other prominent woodwork in the room.
Unfortunately the White or Red issue is often solved by a contractor long before the homeowner (who might have a preference) gets involved with the home.
The second reason that should affect the White/Red decision is the amount of traffic the floor will receive. Red Oak works well in many residential areas, but White Oak wins hands down when it comes to the dreaded "heel pecks". For high traffic areas like foyers and rooms used for entertaining, taking a good look at White Oak might save a few headaches.

Q. Can strip flooring be installed over linoleum?

A. You can install solid strip flooring over linoleum if it is securely glued and there is recommended sub-floor material underneath.
NOFMA recommends two types of installations for solid strip or plank flooring, the over concrete slab 2X4 sleeper method or the Plywood on-slab method.
An unidirectional strip floor is a nail-down application only.
As stated in the "Installing Hardwood Flooring" manual, with strip flooring installed over wood joists with Plywood as the substrate, a minimum 5/8 inch Plywood or ¾ inch performance rated Plywood is preferred.
An additional layer of ¼ inch Plywood, either Douglas Fir or Southern Yellow Pine (not Luan), which is nailed to the existing Plywood would add to the stability of the structure and should be applied at a 45 degree angle to the existing flooring material. You then proceed with installation of the flooring.

Q. Can strip flooring be installed over vinyl?

A. First the homeowner or the contractor must decide whether to leave or remove the vinyl. If the vinyl is thin or an older vinyl (more than 7 years old) made with asbestos, it is less of an environmental risk to leave it in place. You can pull up non-asbestos vinyl and dispose of it. Contact the manufacturer or an abatement company to find out if your floor contains asbestos.
Second, find out what is under the vinyl. If you have a recommended underlayment, at least 5/8 inch Plywood or ¾ inch OSB with a thin vinyl on top, you can nail solid flooring right on the old vinyl.
May times vinyl of put on particle-board or a composition underlayment that will not hold nails. If you do not have a recommended sub-floor, you must either remove both vinyl and underlayment or install sub-floor on top of the vinyl. At minimum, this should be either 5/8 inch Plywood or ¾ inch OSB.

Cushioned vinyl, even if it is on a solid sub-floor, can allow movement between flooring strips. You may end up with squeaks and nails may not hold tightly to the sub-floor. Again, if it is an older floor, you may want to leave it in place and begin with a new sub-floor on top.
If you put a new sub-floor down, 5/8 inch Plywood sub-floor and ¾ inch strip flooring, you are adding 1 3/8 inch height to your floor. You can mitigate this with transition strips. Anything over 1 1/2 inch may be too big a step. You can opt for a thinner floor by using ½ inch strip flooring. This is considered a lifetime floor.

Q. Can strip flooring be installed over concrete?

A. Strip flooring and related products should be protected from moisture migration through a slab. Proper on grade or above grade construction requires that a vapor retarder be in place beneath the slab. ALWAYS perform appropriate moisture tests to determine suitability of the slab before delivering wood products.
Also, a vapor retarder equivalent to 4- or 6-mil polyethylene should ALWAYS be installed on top of the slab to further protect the wood products.

Finishing

Q. What are the dark specks or streaks that sometimes appear in Red Oak flooring after finishing?

A. According to a report from Gene Wengert and Fred M. Lamb of the Department of Wood Science and Forest Products, Virginia Polytechnic Institute, Blacksburg, VA, “the spots are actually dark deposits located within the large conducting cells of oak called vessels”. The deposits are considered water soluble so the newer water based finishes may allow the originally insignificant small black speck to expand and become quite noticeable. Small specks less than 1/64 inch x ¼ inch may show discoloration 1/16 inch x 1 inch after application of a water based finished. As described, the black specks in unfinished wood are small. This small size is generally enough to be considered a grade character for any grade. The number of specks would be the limiting factor for CLEAR and/or SELECT grade flooring.

Q. How should I inspect my new hardwood floor?

A. Inspection should be done from a standing position with normal lighting. Glare, particularly from large windows, magnifies any irregularity in the floors and should not determine acceptance.
A finish similar to that found on fine furniture should not be accepted. Trash in the finish, a wavy look along strips, deep swirls or sander marks and splotchy areas can be indications of inadequate finishing or cleaning. The quality of the finish can be acceptable and still include some of these problems, but they should not appear over the entire floor.

General

Q. Can radiant heating systems be compatible with wood flooring, both solid and engineered?

A. YES, with certain cautions and restraints.
First of all, check with the manufacturer for the recommendation.
The most common recommendation for all systems is to have the heating system installed and “on-line” and running before wood flooring products are delivered. Most contractors report minimum of 72 hours heating is required to dry to the system; however, a week or more is suggested. Light weight concrete,

gypcrete, gypsum slurrys, etc. tend to dry slowly so that extra time is necessary.

For engineered flooring: adhesive applications – the adhesive manufacturer should be consulted for the compatibility with the heating system. Engineered flooring mechanically fastened – use fasteners that do not extend below the sub-floor material.

For solid wood flooring, the following three installation systems are the most common:

1. **Plywood sub-flooring over the heated slab**. If the slab is on grade, above grade, in contact with the ground or over an uncontrolled environment, a vapor retarder of 6 mil polyethylene should be placed over the slab. Do not glue the polyethylene. A proper sub-floor can be composed of 2 layers of ½ inch Plywood, Southern Pine or Douglas Fir. The first layer is placed on the normal square of the room; the second layer is placed on a 45 degree angle to the first layer; space ¼ inch to ½ inch around the perimeter of panels of both layers; pin plywood together with 7/8 inch ring shank nails or screws; nail from center out on 6 inch grid pattern, avoid trapping a hump between layers; nail flooring to Plywood with fasteners that do not extend below Plywood. You may have to cut the nails for face nailing starter and finish runs. An alternate method is to use 16 inch wide x 8 inch long, ¾ inch think plywood planks, scored across the back 3/8 inch deep every 12 inches or so. Score more often if curling of the Plywood is a problem. Lay these planks over the slab perpendicular to the direction of the flooring and stagger plank ends at least 2 feet with up to 1 inch space along the edges and 1/8 inch to ¼ inch space between the ends. Always use at least a 2 foot length of Plywood plank at flooring starting wall and ending wall. Fill in the short pieces in the center of the room. Again, use appropriate length fasteners (11/2 inch) for blind nailing and cut the nails to less than 1 ½ inch lengths for face nailing.
2. **Conventional wood joist construction with heating tubes fastened to sub-floor.** With this installation, fastener length is important also. No fastener should penetrate through the sub-floor and risk puncturing a tube.
3. **Conventional wood joist construction with ¾ inch or thicker firring strips fastened to sub-**flooring. The heating tubes run between strips with light weight concretes, gypsum, etc., poured over and around the tubes filling the space between the firring strips. The flooring is nailed to the firring strips. Firring strips should be group #1 dense softwoods (Southern Yellow Pine, Douglas Fir, Larch, etc.) spaced 12 inches on center or less and well attached to the sub-floor. Flooring is oriented perpendicular to the firring and nailed to firring strips.

When deciding on radiant heat under hardwood flooring, keep in mind the following:

I. Strips of plank less than 4 inches wide is recommended, the more narrow the better. Edge grain or quartered is also more stable.
II. Use a moisture meter to check average moisture content of the flooring. Make 20 or so reading and average them.
III. Acclimate to the average condition of the area. Heating does not occur year round, so the contractor must allow for the expected flooring expansion of the non-heating season, in most areas. In other words, try to avoid installing a very dry flooring product over a very dry system in the winter with the heat running. If flooring has to be installed under these conditions, provide adequate field expansion or “spacer rows” to accommodate expected expansion.
IV. With radiant floor heating, some extra cracks between strips may be expected in the finished floor during the heating season. But they should not be significantly greater than a non-heated floor where proper guidelines are followed and occupied jobsite conditions are met.

V. Provide an outside thermostat to call for heat during rapid outside temperature drops. These heating systems are slow to react and pre-heating helps even the demand load. Do not use "set back" thermostats. Continually changing the temperature shocks the flooring and finish with excessive heat and can cause performance problems.
VI. It is not necessary to use asphalt felt (or rosin paper) under flooring as some odors may develop when heated.

In summary, wood flooring and radiant heating can perform very well together for the lifetime of the structure. Be sure the job site is ready for wood flooring installation and check the moisture content of the flooring to establish the present condition and provide necessary spacing for the expected movement.

Q. Is "Sticker Stain" allowed in NOFMA's Number 1 COMMON Grade for oak?

A. "Sticker Stain" in any amount of acceptable in Number 1 COMMON oak or Number 2 COMMON oak grade. "Sticker stain" is identified as a discoloration across the width of strips about one inch to two inches wide and repeated along the length of the strips where stacking strips where placed. It is normally associated with the sapwood. "Sticker stain" usually extends through most of the thickness and cannot be sanded out.
In the Official Flooring Grading Rules, the Number 1 COMMON oak rule reads: "A flooring product which contains prominent variations in coloration and varying characteristics…Shall admit sticker stain, varying wood characteristics, such as flag worm holes, heavy stacks, checks and worm holes; and an occasional dark machine burn across the face….."
There is no limitation for the amount "sticker stain" in Number 1 COMMON and Number 2 COMMON grading rules.
Each piece/strip is graded on it's own merits. A grader is not required to reject a strip because the last strip graded contained a similar character (i.e. "sticker stain") to the one they are presently grading or may grade in the next strip.

Problems

Q. What causes loose, squeaky, creaking or cracking sounds in hardwood flooring?

A. Noises and/or movement may result from:

- **Sub-floor to support (joist) connections**: i.e., nail movement in Plywood; glue set before Plywood installation; laterally moving Plywood across glue bead, etc.
- **Flooring to sub-floor connections**: i.e., lack of nailing; lack of adequate nailing near ends; improper fasteners such as small wire nails; where staples are used (over driven staples and broken tongues, etc.)
- **Flooring match to tongue and groove fit**: i.e., tongue too small for groove or tongue too big for groove, etc.
- **Moisture changes**: i.e., too much moisture which loosens fasteners; excessive drying which disengages flooring, system stress as moisture tightens floor, etc.
- **System specification**: i.e., inadequate sub-floor materials; excessive spans or spacing, etc.

Again, any one or all of the above may contribute to a performance problem.

Remedies for floors that show movement and/or are noisy:

- First, if an area of multiple strips move together in unison, a system problem may be the indicated cause. This may require brackets to pull sub-floor to joist from below and/or face nailing or screwing into joists from above.
- Second, if singular strips move, a nailing/fastening or match problem may be the indicated cause. When this condition occurs over an entire floor, if accessible, screwing from below with drywall

screws with washers to back the head may correct the problem. As a last resort, replacement may be required. For single strip movement in smaller specific areas (not over the entire floor), screwing from below and/or face nailing the indicated areas almost always remedies the movement and noise.

- Third, if an excess of high moisture has occurred or is present, the cause(s) must be identified and remedied. The flooring should then be allowed to re-acclimatize to the new conditions before other remedial repair is initiated.

Q. I have a new house. We have 2 ¼ inch strip hardwood floors throughout and this winter we had numerous cracks. Some of them are so large you can stand a quarter up in them. What do I do with my unsightly floors? I know some cracks may form in the winter, but these seem excessive. What is the standard to determine if the crack is too wide?

A. First, there is no standard for determining if a crack of a particular size is not acceptable or excessive. Cracks are considered “normal cracks” if they close during the humid season of the year. If the cracks close, the natural wood product is simply absorbing the environmental moisture available, expanding and now filling the gap.
To prevent unsightly cracks, the environment must be modified to minimize the difference between the “Humid” and “Dry” seasons. De-humidification above and below the flooring in the summer months may be necessary; conversely, humidification during winter months may also be required.
Permanent cracks may be filled with an appropriate filler and/or by recoating the flooring. This should generally be done during the Spring or Fall, when conditions are not extreme and more average. For much of the United States, October and April are the preferred months for remedial action.

Q. I have a relatively new home, about a year old, with strip flooring on the first (ground) floor. The home is over a crawl space, which is reported to be mostly dry. My floors cupped this summer and are very unsightly. I want to know who is responsible for the cupping and what can be done about it?

A. In virtually every case, flooring cupping is the result of excess moisture beneath the floor. The source(s) of such moisture must be identified and eliminated. Evidence of such moisture may be water or mud in the crawlspace or mildew in the framing. Some typical sources of excess crawlspace moisture Are:

- Improper drainage of run-off water
- Faulty gutters or downspouts
- Soaker or sprinkler systems that direct water near or against the foundation
- Improper grading or backfill
- Seepage due to terrain features
- Improper drainage from HVAC or other household equipment

Recommendation: NOFMA recommends that crawlspace be kept dry. Water, mud or excessively damp earth should not be present. A good ground cover (6-mil poly or equivalent) over 100% of the crawlspace earth should be installed as an effective moisture barrier and good cross ventilation should be present.