

Wood Floor Installation | Installing Hardwood Flooring | Installation Tips

Solid Floor Nail-Down Installation

Please follow these installation procedures to ensure the successful installation of your hardwood floor. These procedures are written with an experienced installer audience in mind, so if you require more information on the basic procedures of installation, we encourage you to contact us.

Pre-Installation Considerations

Inspecting Wood

Inspect all materials products prior to installation. Do not install defective materials. Wood is a natural product with natural color variations, grain variations, and tone variations. Though products do undergo a rigorous inspection process before leaving the plant, it is still necessary to inspect the materials in order to ensure their quality. Installation of defective materials could result in voiding your warranty.

Order of Installation

In order to ensure that no damage is done to the wood over the course of construction, particularly in the case of homes under construction and renovation, wood flooring should always be installed after all other installations are finished. Additionally, foot traffic should be kept to a minimum after the installation of the floor is complete. If a protective cover is placed over the floor at this time, make sure that the entire floor is covered as many woods are sensitive to light and will undergo color change.

Crawl Space and Subfloor Specifications

Before installation, ensure that all basements and crawl spaces are dry. The crawl space also needs to allow for at least 18 inches between the joists and the ground. A vapor barrier/retarder has to cover 100% of the crawl space, with the joints of the vapor barrier overlapping at least 6 inches. The vapor barrier itself should extend six inches up the stem wall, where it must be attached and sealed. Finally, there must be a constantly operating mechanical exhaust and perimeter wall insulation or conditioned air supply with insulation.

Wood Sub-Floors

Wood sub-floors must be secured with screws or nailed. Nails need to be ring shank and screws must be counter sunk. In the event that the wood sub-floor is less than 3/4" thick, add a single cross layer with a minimum thickness of 5/16" for a total of 1" inch of thickness in order to combat possible squeaking after installation. There must be no oil, existing adhesives, wax, grease, urethane, dirt, varnish, paint, etc. on the wood subfloor. Particleboard is not a possible sub-flooring option for staple or nail down installation, but it can be sufficient for a glue down installation. Subfloors must not measure over 12% moisture content. Additionally, the hardwood flooring's moisture content and that of the subfloor can not have a difference of more than 4%.

Protecting Hardwood Prior to Installation

It is paramount that the wood is not delivered or stored at the site until the building is enclosed, as storing wood in these conditions will cause adverse effects as a result of fluctuating outdoor humidity and temperature values. Once the building is enclosed, don't bring or install the wood into the house until it has been brought to the temperature and relative humidity that it will be kept at with the future occupants present. Additionally, don't deliver or install the hardwood until painting of primer coats, drywall, texturing, masonry, and concrete is finished.

Grade Consideration

For the different grades of a house, there are different restrictions for which types of hardwood can be installed. For above-grade and on-grade installation, engineered hardwood, solid hardwood, and a floating floor are all acceptable. However, at below-grade, only floating floors and engineered hardwood are options. Should the ground around a building be 3 or more inches above the floor of that level, that level is considered below-grade, and thus ineligible for solid hardwood.

Acclimating Hardwood Flooring

Preparing the Wood

Acclimating Hardwood is often an essential task for ensuring the wood doesn't undergo any unforeseen dimensional shifts after or even during the installation. While acclimating, make sure not to store hardwood in a location where the temperature and humidity is not that of the living space within the house, such as a garage or exterior patio. Preferably, the house should have all of the heating, ventilation, and air conditioning systems running for at least five days before the hardwood arrives for acclimation.

Checking Boards' Moisture Content

The relationship between the moisture content of the hardwood boards and that of the subflooring determines whether or not the wood is acceptable for installation. In order to ascertain these moisture values, check various boards' moisture content, approximately 4 boards for every 100 square feet. If the wood is solid and wider than 3", then there should be no more than a 2% difference between moisture content of the wood after it has acclimated and the subflooring. With hardwood that is narrower than 3", the difference between the moisture content of the hardwood and the subfloor should be no more than 4%. As a general rule, wood floor maintains dimensional stability best within a temperature range of 60-80° Fahrenheit and a humidity range of 35-65%. The two exceptions to this rule apply to imported and exotic wood species, as they may react differently to these circumstances, and extreme geographical circumstances.

Processes of Moisture Testing

Subfloor Moisture Testing

In order to get an accurate reading of the sub-floor's moisture level, test approximately 2 locations per every 100 square feet and take the mean average of these values. If there is an unusually high value in one particular region, this probably indicates a problem which should be attended to prior to installation. There are various moisture tests that can be performed to determine whether moisture levels are acceptable for installation. The acceptable moisture conditions for installation are: □ Moisture readings of less than 14% when using an equivalent moisture meter on wood

substrates.

- Calcium chloride test producing results of less than 3 pounds/1000 square feet/24 hours.
- A reading of less than 5.0 on a Concrete Moisture Counter.

Vapor Barriers

Vapor barriers for hardwood and wood sub-floors are sometimes referred to as vapor retarders. They can be a membrane, vapor resistant material, or covering with a vapor resistance rating at or above .7 perms, or at or below 50 perms. They are effective at alleviating moisture problems by protecting the hardwood from ground moisture and condensation. They also provide a number of other benefits, including noise reduction, dust reduction, and the elimination of wood-on-wood contact.

However, different vapor barriers work more effectively than others in given circumstances. In the case of a wood subfloor, an impermeable vapor barrier with a rating of .7 or less shouldn't be used. With this level of impermeability, the vapor barrier could possibly trap moisture in or on the wood subfloor.

In the case of a concrete subfloor, there are a variety of methods to test its moisture, including calcium carbide testing, calcium chloride testing, or relative-humidity testing. Before testing, the concrete is required to be at least 30 days old. Various retailers provide concrete moisture meters and relative humidity kits. You can contact the NWFA to find a retailer near you at 1-800-422-4556. Unfortunately, these tests cannot guarantee a concrete slab that is completely free of moisture all year-round.

The vapor barrier specifications for a concrete subfloor diverge from the wood subfloor specifications by requiring a very high level of impermeability at .15 perms or lower, allowing for little or no moisture movement.

Installing Solid Hardwood Flooring

When preparing to install solid hardwood flooring, be sure that you do not install over an area with radiant heat. 15 lbs. asphalt felt must be laid to install, and a moisture barrier of 6 mil polyethylene film may also be necessary. This protects against moisture rising up from below and also helps prevent squeaking. Install the vapor barrier parallel to the direction of the flooring. Make sure that the vapor barrier has a 3" overhang around the perimeter, and that it overlaps each previous run by at least 6".

Door frames in the flooring area can be cut approximately 1/16 of an inch higher than the hardwood being installed to increase the ease of installation and avoid complex cuts. Take boards out of several boxes in order to ensure good tonal variety and mixture in the floor. Lay your flooring at a 90° angle to the floor joists whenever possible. Using an external wall as a reference, snap a working line parallel to the reference wall, allowing for the requisite expansion space indicated by the wood's manufacturer.

Put down a row of planks that runs the along the length of the working line. Make sure the tongues are always facing out as using the tapping block on the plank's groove could damage the board. Blind nail and top nail the first row, while being sure to use only the appropriate fasteners.

Research the specie of wood you're installing to determine whether or not it will require pre-drilling in order to nail it down. The later rows of boards should be blind nailed whenever possible. Also, attempt to nail the boards into joists whenever possible. Nails should be 1-2" from the ends of the boards and every 4-6" along the edge of the boards, going in at a 45° angle. Make sure to stagger your boards such that no two end joints are within three rows or 6" of each other.

Once installation is complete, use appropriate trim moldings and wall moldings along walls and doorways to cover edges and conceal gaps resulting from any irregularities in perimeter dimensions. Use a flooring filler to fill in any wide seams along joints that blends with the tone of the wood. Clean the floor with a recommended hardwood flooring cleaner.

Maintenance

Sweep the floor often to remove any abrasive materials that could potentially damage your floor. Felt protectors should be placed under the legs or bottoms of heavy furniture, chairs, etc. Apply leading hardwood cleaner to towels to clean the floor. Do not apply the cleaner directly to the

flooring. Use a white washcloth and hard surface cleaner to remove spills on the flooring quickly. Avoid wearing spike-heeled shoes or damaged shoes on the floor as they can cause damage. Do not use a wet or damp mop to clean the hardwood floor. Any water can damage the flooring. UV rays produced by the sun can alter the tone and color of your flooring. Place mats at all points in the home with exterior entrances to avoid debris being tracked onto the

flooring.

Do not use products containing wax, oil, or polish on hardwood, as doing so will create a residue on the wood surface that will cause the finish to dull. Keep your housepets' nails clipped short in order to avoid scratches. The larger the pet, the greater the danger of scratches. Put a rug in front of all water sources, such as kitchen sinks, dishwashers, and any other place where water could spill onto the hardwood.