

Nail-Down Installation Instructions

(Including Various Widths Such As 3 1/4", 3 5/8", 4 3/4", 5")

Thank you for choosing Choice Hardwood Flooring. Choice Hardwoods feature natural wood species that bring beauty and charm to your home. In order to meet warranty requirements and to ensure a successful installation, review these guidelines carefully. Installation of hardwood floors requires special tools and conformance to specific methods that are dependent upon many criteria including site-specific attributes such as the type of sub-floor. For these reasons Choice Hardwood recommends that installation be performed by certified trained installers proficient in the installation of hardwood flooring. It is the responsibility of the purchaser to select a suitable installation company. The National Wood Flooring Association is one resource that may help in identification of installers in your area. The guidelines that follow are not intended to be step-by-step instructions but rather as important guidelines for both end-user and installer.

READ CAREFULLY

LIMITED WARRANTY COVERAGE APPLIES ONLY TO PROPERLY INSTALLED AND MAINTAINED CHOICE HARDWOOD FLOORING. The owner and/or installer assume all risks with respect to examination of flooring, job-site and environmental conditions as well as the installation.

CAUTION!

- SOLID WOOD FLOORING IS NOT COMPATIBLE WITH BELOW GRADE INSTALLATIONS.
- TEST MOISTURE CONTENT OF THE SOLID HARDWOOD FLOORING TO VERIFY PROPER
- ACCLIMATION. DO NOT INSTALL THIS FLOORING OVER RADIANT HEAT FLOORING.
- WOOD FLOORS ARE NOT RECOMMENDED IN FULL BATHROOMS.

If you require additional or more detailed information on the installation of hardwood flooring, please contact the National Wood Flooring Association (NWFA) at 1-800-422-4556 or visit www.nwfa.org

NOTE TO OWNER

Installing hardwood flooring is considered a highly skilled operation and it is critical that the owner choose an installer carefully. Choice Hardwood recommends choosing a certified trained installer with references that can be contacted. Also, the installer should demonstrate previous job experience and have the proper business licenses for your particular area. The contract for installation is exclusively between the owner and the installer. Choice Hardwood is in no way responsible for the owner's choice of installer or any failure by the installer to satisfy the owner.

NOTE TO INSTALLER

The owner should be made aware of how wood will change color over time. Issues with gloss-level and appearance of the finish should be reviewed and the owner should be informed that the finish will scratch and wear over time and proper installation and maintenance are important to maintain its beauty.

RECOMMENDED MATERIALS & TOOLS

NOTE: 3/4" is meant for nail-down or staple-down (with 2" fasteners) installation only.

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|-------------------------|----------------------------------|---|
| 1. Measuring tape | 8. Putty knife | 15. Powernail manual 45 T&G Powernailer, pneumatic |
| 2. Chalk line reel | 9. Floor protectors | 16. 445 Powernailer or other machines designed or adapted specifically to 3/4" solid wood flooring. |
| 3. Rubber mallet | 10. Pencil | 17. Quality moisture meter with manufacturer's relevant |
| 4. 4d-6d Flooring nails | 11. Jamb saw or hand saw | 18. Exotic species calibration figures. |
| 5. 15 lbs. asphalt felt | 12. Table saw or band saw | |
| 6. 3M Blue Tape | 13. Crowbar or last plank puller | |
| 7. Broom | 14. Hammer | |

PRE-INSTALLATION

PRODUCT INSPECTION

Hardwood flooring is a natural product and variations in color, grain, pattern and texture occur normally and are not considered defects. Prior to installation, inspect all the hardwood flooring for visible defects. Do not install defective flooring. Choice Hardwood will replace defective flooring that exceeds the allowable 5% tolerance, above, provided that it has not been installed. Once installed, visibly defective flooring is not covered by warranty. You may discard or trim and use such defective flooring in hidden areas. Choice Hardwood is not liable for any defective flooring that results, in whole or in part, from any job-site or sub-surface condition that is not in compliance with standard industry standards, these instructions, or environmental conditions.

There are inspections that must be performed before installation including careful examination of the flooring for style, grade, color, finish, dimension and quality, job-site and environmental conditions. In order to understand how the floor will look after installation, it is important that the installer and owner review the control samples to ensure the owner's expectations are met as to:

Grade: Since grade may vary slightly from batch to batch, the flooring to be installed should be reviewed for the proper grade.

Color & Graining: Determine whether light or exotic grained pieces need to be culled to meet owner's expectations?

Color Change: Choice Hardwood proudly manufactures all 3/4" hardwood floors within strict tolerances accepted by the industry, which allows for up to 5% defective product (natural or manufacturing related) based on the original hardwood flooring purchase. Be sure to order at least 5% additional flooring material beyond actual square footage requirements to allow for cutting and grading of material. If your installation will be on a diagonal, order 10% - 15% extra material.

JOBSITE INSPECTION

Ensure that the job-site environment and sub-floor surfaces meet all applicable local codes and standards as well as construction and material industry standards [laying the floor should be the last step of your installation]. The building must be structurally complete and properly enclosed with all doors and windows installed. Installer must cull or cut off defective flooring material prior to installation. Concrete, plaster, masonry, drywall, paint, wall coverings, and the sub-floor must be completely dry so as to not raise moisture (humidity) content within the building. Ensure that exterior grading is complete, with drainage directed away from the structure and all gutters and down-spouts should be installed and functional. Wood floors are not recommended in full bathrooms. If flooring is to be installed on a sub-floor under which is a crawl space, the floor of the crawl space must be at least 18" - 24" from the ground to underside of joists, a ground cover of 6 mil black polyethylene must be utilized as a vapor barrier and joints must be overlapped 6" and sealed with moisture-proof tape. The crawl space must also have perimeter air venting equal to 1.5% of the crawl space square footage.

SUB-FLOOR REQUIREMENTS

Recommended Sub-Flooring: 3/4" (19mm) CDX Grade Plywood or 3/4" (23/32") OSB PS2 Rated Underlayment with a minimum 40 lbs. density Minimum: 5/8" CDX Grade Plywood with a minimum 40 lbs. density. CAUTION: Do not use particleboard or similar products, including gypcrete.

DOORWAY AND WALL PREPARATION

Undercut or notch-out door casings 1/16" higher than the thickness of the flooring being installed to avoid difficult scribe cuts during installation. Also remove existing base and shoe molding as well as doorway thresholds; each can be replaced after installation is complete.

EQUALIZING AND ACCLIMATION OF YOUR WOOD FLOORING

During the final pre-installation inspection, sub-floors must be checked for moisture content using the appropriate metering device for wood. All solid wood flooring must be properly equalized before installation. Wood is porous material which expands as it picks up moisture in most environments relative to the humidity present in the surrounding atmosphere. It is this movement which can cause cracks, separation, and warping of your wood floor if not properly equalized before installation. Solid wood flooring should be stored in the environment in which it is expected to perform. Near the time of installation, the flooring should only be delivered to an environmentally controlled site and handled with care. All wood will eventually acclimate itself to its environment, reaching the "equilibrium point" or equilibrium moisture content. If the wood is neither gaining nor losing moisture, an equilibrium condition has been reached.

RECOMMENDATIONS FOR EQUALIZING SOLID WOOD:

- Flooring stored upon “on-grade” concrete floors should be elevated at least four inches to allow air circulation under cartons.
- Flooring must acclimate for as long as necessary to meet minimum installation requirements for moisture content. Using the equilibrium moisture content chart below, determine the proper moisture content for the installation.
- Always use a moisture meter to determine where the flooring and present job-site conditions are in relation to the projected final equilibrium point taking into account seasonal changes.
- Monitor the flooring and job-site conditions as they acclimate. If the wood is neither gaining nor losing moisture, an equilibrium condition has been reached.

		<i>Ambient Air Temperature</i>											
		<i>C:</i>	<i>-1</i>	<i>4</i>	<i>10</i>	<i>16</i>	<i>21</i>	<i>27</i>	<i>32</i>	<i>38</i>	<i>43</i>	<i>49</i>	<i>54</i>
		<i>F:</i>	<i>30</i>	<i>40</i>	<i>50</i>	<i>60</i>	<i>70</i>	<i>80</i>	<i>90</i>	<i>100</i>	<i>110</i>	<i>120</i>	<i>130</i>
<i>Relative Humidity %</i>	<i>5</i>	1.4	1.4	1.4	1.3	1.3	1.3	1.2	1.2	1.1	1.1	1.0	1.0
	<i>10</i>	2.6	2.6	2.6	2.5	2.5	2.4	2.3	2.3	2.2	2.1	2.0	2.0
	<i>15</i>	3.7	3.7	3.6	3.6	3.5	3.5	3.4	3.3	3.2	3.0	2.9	2.9
	<i>20</i>	4.6	4.6	4.6	4.6	4.5	4.4	4.3	4.2	3.0	3.9	3.7	3.7
	<i>25</i>	5.5	5.5	5.5	5.4	5.4	5.3	5.1	5.0	4.9	4.7	4.5	4.5
	<i>30</i>	6.3	6.3	6.3	6.2	6.2	6.1	5.9	5.8	5.6	5.4	5.2	5.2
	<i>35</i>	7.1	7.1	7.1	7.0	6.9	6.8	6.7	6.5	6.3	6.1	5.9	5.9
	<i>40</i>	7.9	7.9	7.9	7.8	7.7	7.6	7.4	7.2	7.0	6.8	6.6	6.6
	<i>45</i>	8.7	8.7	8.7	8.6	8.5	8.3	8.1	7.9	7.7	7.5	7.2	7.2
	<i>50</i>	9.5	9.5	9.5	9.4	9.2	9.1	8.9	8.7	8.4	8.2	7.9	7.9
	<i>55</i>	10.4	10.4	10.3	10.2	10.1	9.9	9.7	9.5	9.2	8.9	8.7	8.7
	<i>60</i>	11.3	11.3	11.2	11.1	11.0	10.8	10.5	10.3	10.0	9.7	9.4	9.4
	<i>65</i>	12.4	12.3	12.3	12.1	12.0	11.7	11.5	11.2	11.0	10.6	10.3	10.3
	<i>70</i>	13.5	13.5	13.4	13.3	13.1	12.9	12.6	12.3	12.0	11.7	11.3	11.3
	<i>75</i>	14.9	14.9	14.8	14.6	14.4	14.2	13.9	13.6	13.2	12.9	12.5	12.5
	<i>80</i>	16.5	16.5	16.4	16.2	16.0	15.7	15.4	15.1	14.7	14.4	14.0	14.0
<i>85</i>	18.5	18.5	18.4	18.2	17.9	17.7	17.3	17.0	16.6	16.2	15.8	15.8	
<i>90</i>	21.0	21.0	20.9	20.7	20.5	20.2	19.8	19.5	19.1	18.6	18.2	18.2	
<i>95</i>	24.3	24.3	24.3	24.1	23.9	23.6	23.3	22.9	22.4	22.0	21.5	21.5	
<i>98</i>	26.9	26.9	26.9	26.8	26.6	26.3	26.0	25.6	25.2	24.7	24.2	24.2	

Equilibrium Moisture Content Chart

NOTE: No single fixed moisture content is right for all sites as equilibrium points can vary dramatically in different environments. It is the responsibility of the owner and installer to monitor all variables that can impact the target equilibrium point.

TESTING FOR MOISTURE CONTENT

The determination of moisture content is an essential part of quality control within the flooring installation process. Flooring installers must know the dryness of not only the wood flooring, but its sub-floor and the concrete slab beneath it, if one exists. A moisture meter is a critical tool to determine if floor boards are dry enough for an installation to proceed. Moisture is one of the most critical areas of concern. Monitor the flooring and the job-site conditions throughout the preparatory period and the installation process. The sub-floor must not exceed 12% moisture content and the difference between sub-floor and hardwood flooring cannot exceed 4% for 3-5/8” planks and 2% for wider planks. If a sub-floor exceeds this amount, an effort should be made to locate and eliminate the source of moisture before further installation. A moisture barrier (6 mil polyethylene film minimum) may be required in addition to the 15 lbs. asphalt felt. Asphalt felt is not considered a moisture barrier.

SUB-FLOOR PREPARATION

The sub-floor must be structurally sound. The sub-floor must be dry and free of wax, paint, oil and debris. Replace any water-damaged or delaminated sub-flooring or underlayment. Scrape smooth and sweep prior to installation. The sub-floor must be level, that is, within 3/16” over 10’ and/or 1/8” over 6’. If the sub-floor is concrete, a minimum of 30 days drying time for a reliable moisture reading is necessary. DO NOT use gypsum-based (white) patching compounds. Follow the manufacturer’s recommendations for applying the leveling compound. Areas containing new leveling compound must be completely dry (meeting moisture vapor emission tolerances) before proceeding with the installation of the wood floor. If the sub-floor is plywood or equivalent, high areas or joints must be sanded flat. If plywood or equivalent, the sub-floor must be properly secured with nails or screws every 6 inches along joists to reduce the possibility of squeaking after final installation. Appropriate moisture tests must be performed as outlined in the “Testing for Moisture Content” section listed below. Minimum thickness sub-floor material recommendations are satisfactory for 16” on center joist spacing. Thicker sub-floor recommendations will allow up to 19.2” joist spacing. Sub-floor panels should be spaced 1/8” apart to allow for expansion. It is highly recommended that Choice Hardwood solid floors not be installed over existing glue-down wood floors or over wood floors that exceed 3 1/4” face size. Cover sub-floor area with 15 lbs. asphalt felt. If installing over subfloor, use vapor retarders such as asphalt, saturated craft paper or 15lbs. felt.

NOTE: Over a wood subfloor do not use an impermeable vapor retarder material with a perm rating of ,7 or less, such as 6 mil polyurethane film or other polymer materials, as it may trap moisture on or in the subfloor.

INSTALLATION OF HEALTHIER CHOICE PREMIUM ACOUSTICAL UNDERLAYMENT

For added acoustic benefit including reduction of sound transferred to the room below, install Healthier Choice premium acoustical underlayment on the sub-floor before installing the Choice Hardwood Flooring. This underlayment is supplied in rolls.

Prior to installation of the underlayment, be sure sub-floor is clean and dry. Roll out one section of Healthier Choice underlayment parallel to a wall and perpendicular to the direction of the flooring. The perimeter edges of Healthier Choice underlayment need to be flush with the wall. Install additional sections of underlayment, butting the seams together until installation is complete. Tape may be used to hold the Healthier Choice underlayment in place.

NOTE: When installing Choice Hardwood Flooring over underlayment using a pneumatic nailer, adjust the air pressure such that the underlayment is not compressed or puckered at the location of the nail.

NAIL-DOWN INSTALLATION

1. Work from several open boxes of flooring and “dry-lay” the floor before permanently laying the floor (but never open more than a few boxes in advance). This will allow you to arrange the varying grains & colors in a harmonious pattern. It also allows you the opportunity to select out very light pieces for use in hidden areas in order to create a more uniform floor.

NOTE: It is the installer’s responsibility to set the expectations of what the finished floor will look like with the owner.

2. Stagger the ends of boards at least 6” in adjacent rows. Installation parallel to the longest wall often provides the best visual effect.

3. Establish a starting line by leaving a minimum 3/4” expansion gap around all vertical obstructions.

4. An exterior wall is usually the straightest and best reference line to start the installation, establish a starting point and leaving an expansion gap 3/4” , to set up the baseline of installation. Do the same for the opposite of the starting wall, carefully measure and calculate to ensure there is a minimum of 2 inches in width remaining for the final board against the wall at the finish of the installation.

5. On the first row of flooring used 6d or 8d flooring nail to top nail surface of flooring and countersink. Nails should hit joists whenever possible. To ensure proper alignment of flooring, make sure the flooring along the working chalk line is straight.

6. After nailing down the first 22 square feet, test to make sure that this section of flooring is firmly affixed.

7. Ensure proper spacing of nails every 8”- 10” along the length of the board with minimum of 2 fasteners per piece 1-1/2” from each end. Continue across the room until finished: remember to provide adequate spacing for expansion gap. Choice Hardwood recommends Powernail® manual Model 45 T&G Powernailer and relevant powercleats nails. Powernail® pneumatic Model 445 Powernailer or equivalent may also be used (www.powernail.com).

NOTE: Some exotic hardwoods are denser than others. Should you experience splitting of the tongue during installation, stop and check the gun. If that does not rectify the situation then consider using a thinner gage. For that a Power Nail Model 50P, with an 18 gage cleat. Visit www.powernail.com for more information.

8. Install or re-install any transition pieces such as moldings, trip thresholds or reducer strips.

9. Thoroughly clean, sweep, and vacuum installed floor before further use.

10. If floors are to be covered, do not use plastic; instead, use a breathable material such as kraft paper. All hardwood floors will fade or change shades over time. Exposure to sunlight will greatly increase this process. Window treatments are recommended as well as regular rotation of area rugs and furniture. These steps will contribute to your floor aging evenly.

For full product warranty visit www.choicehardwoods.com