



Installation Guide

This installation guide is intended to aid in the installation of Chelsea Plank Flooring® and Restoration Series Plank® flooring. In addition to this guide, installation should be performed in accordance with NAWFA and NOFMA installation standards for 3/4" hardwood plank flooring.

CONSIDERATIONS

General: First, it is important to determine the intended installation space is suitable for a quality plank flooring installation. The primary rule of hardwood flooring is that wood and water don't mix with water defined as any type of moisture from standing puddles, to the moisture content of the subfloor, to the current and future humidity levels of the space. As such, the intended installation space must be fully enclosed and environmentally controlled to maintain humidity levels between 35-60%. In addition, unless extraordinary precautions are taken with regard to moisture and humidity, solid hardwood flooring should never be installed below grade.

Location and Life Style: Hardwood plank flooring is extremely versatile and depending on the specie, lumber cutting technique and plank width may be used in applications ranging from summer lake cottages in the mid-west to environmentally controlled living spaces for allergy sufferers. That said, some floor styles may work well for the intended installation space while others may not. Disregarding the natural tendencies of the different types of plank flooring strictly for design consideration may cause disastrous results. Thoroughly discuss your living space requirements with the sales person prior to selecting your plank floor style. Marriage of design and practicality is key to a long lasting floor and happy owner. If you are concerned with your application, please contact Frame Industries at 734-433-1023 for assistance.

New Construction: When installing hardwood flooring in a new structure, moisture emissions from concrete, drywall and paint cause elevated humidity levels for an extended period of time. Acclimation and installation of the plank flooring should not occur until the relative humidity of the installation space is controlled between 35-60%. Installation of high-capacity dehumidifiers is strongly recommended.

INSTALLATION SPACE REQUIREMENTS

Subfloor: The subfloor must be properly secured to the floor joists and flat with no deflection greater than 3/16" over any 10' span. If the subfloor isn't properly fastened to the joists or uneven areas are not corrected the plank floor will squeak and/or become damaged over time. The moisture content of the subfloor at the time of installation must be between 8 - 10%. Higher moisture content



may cause dimensional changes to the planks resulting in cupping and/or buckling of the floor.

Suitable subfloor construction

Plywood or OSB

- I) Truss/joist Spacing less than 16" on-center
 - a) 5/8" CD Exposure 1 plywood (4x8 sheet)
 - b) 23/32" OSB Exposure 1 (4x8 sheet)

- II) Truss/joist spacing of 16" to 19.2" on-center
 - a) 3/4" CD Exposure 1 plywood
 - b) 3/4" OSB Exposure 1

- III) Truss/joist spacing of 19.2" to 24" on-center
 - a) 7/8" CD Exposure 1 plywood
 - b) 1" OSB Exposure 1

Solid Board

- I) Truss/joist Spacing of 16" on-center
 - a) 1" x 4 to 6" width, Square edge, kiln dried coniferous lumber
 - b) The boards must be laid diagonally over the joists
 - c) The board ends must be cut parallel to the center of the joists
 - d) The boards must be face-nailed with 7d threaded or 8d common nails
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Concrete: Slab - level and cured

- a) Requires special adhesive and adhesive application
- II) Lightweight (radiant heat) - level and cured
- a) Requires special adhesive and adhesive application

Humidity Level and Control: The relative humidity of the installation space must be maintained between 35 - 60%. The relative Humidity should be measured using a hygrometer under the same temperature and humidity conditions in which the installation space will be maintained after the flooring has been installed. Installation of high-capacity dehumidifiers is strongly recommended.

Basement / Crawl Space: The basement / crawl space must have effective vapor barriers, ventilation and dehumidification. The relative humidity must be maintained between 35 - 60% at all times. If the relative humidity is not controlled, elevated humidity levels will cause the floor to cup and / or buckle.



Acclimation:

Acclimation is a critical aspect of a quality plank flooring installation. Please read the Acclimation Instructions located above. If there are any questions regarding acclimation, please contact Frame Industries at 734-433-1023.

Glue Assist Installation Method:

Frame Industries does not suggest utilization of the Glue Assist installation method for any Chelsea Plank Flooring products, no matter the width. Glue Assist can prevent cupping. However, it does not prevent hardwood from expanding when it absorbs moisture.

We feel cupping is the floor naturally telling the homeowner there is a moisture problem that needs to be addressed. If the source of the moisture is identified and mitigated, mild to moderate cupping will correct itself naturally.

Conversely, if cupping is prevented and the floor is forced to expand laterally, it may cause structural damage. As example, the width of a 20' wide Hickory installation will expand by 1" for every percentage point of moisture the floor absorbs after installation.

INSTALLATION

- 1) Set up the "cutting area" in the garage or a job trailer to avoid damaging the installed floor or introducing excessive sawdust to the installation space.
- 2) You should wear clean, soft soled shoes while installing plank flooring.
- 3) Use traffic mats and pads to avoid dents and scratches.
- 4) Clean up dust, nails, cut offs, etc. every day to prevent damage to the installed portions of the plank floor.
- 5) Plank flooring should be installed perpendicular to the floor joists. This is necessary to prevent squeaks caused by deflection of the subfloor between the joists.
- 6) The subfloor must be fastened to the joists every 9" using screws. Per many building codes, the subfloor must also be glued to the joists in new construction.
- 7) Use a vapor retardant material between the floor and subfloor such as 15# roofing felt or papers specifically designed for solid hardwood flooring installations like All Globe SVS or Aquabar. Do not use red rosin paper, vapor barrier materials or products designed for laminate floor noise mitigation.
- 8) The planks should be fastened to the subfloor with 16 Gauge Powercleats of the correct length for the specific floor construction.



- 9) The fasteners are driven through the tongue of the plank at a 45° angle with the groove of the next plank covering the fastener.
- 10) Each plank should be inspected for defects prior to installation.
- 11) The planks are fastened to the subfloor. Through nailing to the joist is not necessary.
- 12) The first and last fastener of each plank should be located 3" to 5" from the planks ends.
- 13) The fasteners should be installed approximately 10" apart.
- 14) Leave a 3/8" expansion gap between the flooring and wall and any other fixed objects like cabinets and support posts to allow for seasonal expansion.
- 15) The starter course must be perfectly straight and, for best results, anchored with 2", 15ga finish nails to ensure it does not move.
- 16) Long planks should be used in the starter course which is typically is positioned next to the longest and straightest wall of the installation space.
- 17) Start and finish each row with a square ended "cut-off" plank to best utilize the planks and prevent their use in the center of the floor.
- 18) Prior to fastening, experiment with plank sizes and positions to minimize scrap, blend colors, and ensure the end joint stagger is pleasing to the eye.
- 19) To complete the plank floor, conceal the expansion gap with base board, shoe mold or trim.
- 20) Use caution when moving heavy objects over the newly installed plank floor. Small, hard appliance casters and dolly wheels can permanently "track" the floor.

Important Note:

Standard hardwood flooring nail and staple guns should have the "Factory Finished" shoe installed to the tool. The "Factory Finished" shoe shifts the impact of the hammer blow from the beveled edge of the plank to the front of the tongue to prevent plank damage during installation. If a "factory Finished" shoe is unavailable, add a thin felt pad to the plate of the gun and avoid using the plate to drive planks together.

Special Applications

Concrete / Light Weight Concrete:

The flat and true milling of Chelsea Plank Flooring® and Restoration Series Plank® is ideal for glue down applications. Installation of plank flooring to concrete must follow NWFA specifications relating to concrete and site conditions as well as the adhesive manufacturer's specifications and instructions. For additional information regarding NWFA specifications and adhesive manufacturers please follow the links provided below.

Radiant Heat: Chelsea Plank Flooring® and Restoration Series Plank® may be installed over radiant heating systems provided the surface temperature of the subfloor does not exceed 85° F (30° C). Installation should be performed in



accordance with the heating system manufacturer's requirements. In addition to the manufacturer's requirements, we require the use of a whole house humidification system to maintain relative humidity between 35-60%. This will minimize gapping between the planks and possible grain separation during the heating season.

In most cases, to avoid damaging the tubing of the radiant heating system, plank flooring is secured to the subfloor with adhesive. Check with the manufacturer of the radiant heating system as well as the manufacturer of the adhesive to ensure the two systems will work in conjunction for your application. For additional information regarding adhesive manufacturers, please follow the links provided below.

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Equipment Sources

Moisture meters:

[Delmhorst Instrument](#)

[Lignomat USA Ltd.](#)

[Wagner Meters](#)

Fasteners: [Powernail Company](#)

Flooring Adhesives Sources (concrete applications):

[Bostik Inc](#) - Ultra-Set® SingleStep2™ or GreenForce™

[Taylor Adhesives](#) - Ridgeline® Signature Line Adhesive

[Stauf-USA](#) - Stauf SMP 960 / 940

The manufacturers / products listed above are suggestions only and should not be construed as endorsements. Please consult the manufacturer for proper application prior to installation