

The
GARRISON
Collection

INSTALLATION INSTRUCTIONS FOR:
CRYSTAL VALLEY SOLID



Installation is the responsibility of the Homeowner, Installer, Turnkey Retailer, and Contractor. The Garrison Collection assumes no liability for any installation. It is the responsibility of the installer to ensure the job site conditions and method/manner of installation meets all criteria acceptable to The National Wood Flooring Association(NWFA) as well as those listed in these instructions. See our link below to the most recent NWFA Installation Guidelines. Only a qualified professional hardwood flooring installer should perform your hardwood flooring installation. These installation guidelines should be followed carefully to ensure the proper installation of your new Garrison hardwood floor.

<http://member.nwfa.org/default.asp?page=InstallGuidelines>

Product Inspection

Beautiful hardwood floors are a product of nature and therefore, are not perfect. The Garrison Collection hardwood floors are manufactured in accordance with accepted industry standards, which permit a defect tolerance not to exceed 5%. The defects may be of a manufacturing or natural manner.

It is strongly suggested that upon delivery of product to the jobsite, two or three boxes be opened and laid out before the end user. The end user/homeowner should compare the contents of each box to their floor sample to verify that it is the expected product. If there is any discrepancy between what was expected/purchased and the actual product received, **DO NOT PROCEED WITH THE INSTALLATION!** Notify the retailer, dealer, contractor, immediately.

Individual wood products may vary due to dye lot changes in the staining process. The Garrison Collection cannot honor claims due to a lack of on-site product inspection/acceptance by the homeowner/purchaser.

The homeowner/installer should perform a final inspection of the boxes to check on manufacturing and factory finish of the delivered product. **The installer must use reasonable selectivity and hold out or cut off pieces with defects, whatever the cause.** The Garrison Collection shall not accept responsibility for the installation of flooring with visible defects. The use of stain, filler, or putty stick for the correction of minor defects during installation should be accepted as normal procedure.

Before installing The Garrison Collection hardwood flooring, the installer and homeowner should verify that the jobsite and sub floor conditions meet all installation requirements as outlined here. Our Limited Warranty does not cover flooring failures resulting from poor jobsite and/or poor sub floor conditions. **Solid wood flooring can be appropriate for above-grade and on grade installations, but not for below grade installations.** If the soil surrounding a structure is 3 inches or more above the floor of any level, consider that level below grade. This includes walk-out basements. In addition, the surrounding soil should be sloped away from the structure.

Tools Needed For The Installation

Generally the tools needed for installation are: Handsaw or power saw, air compressor, pneumatic nailer, drill, rubber mallet, crowbar, or pull bar, tape measure, pencil, chalk line, wood or plastic spacers, tapping block, adhesive trowel, carpenters square.

CAUTION: WOOD DUST!

The International Agency for Research on Cancer has classified wood dust as a nasal carcinogen. The sawing, sanding, and/ or machining of wood products can produce wood dust that can cause respiratory, eye, and skin irritations. Equipment should be equipped with a dust collector to reduce airborne wood dust. Wear an appropriate NIOSH designated dust mask to reduce exposure to airborne wood dust. Avoid contact with eyes and skin. In case of irritation, flush eyes or skin with water for at least 15 minutes. In cases of severe irritation; seek immediate medical attention.

Pre-Installation and Jobsite Requirements

All issues involving water or moisture should be resolved prior to the installation of The Garrison Collection hardwood flooring. In fact, for any new construction or remodeling project, pre-finished hardwood flooring should be one of the last items installed. As a general rule, the jobsite should be monitored for consistent, normal room temperature between 60° and 80° F and relative humidity between 30% and 50% and acclimate as necessary. Failure to maintain proper temperature and humidity levels may cause damage to your Garrison Collection hardwood floor. Such damage would not be covered under The Garrison Collection limited warranty. The Garrison Collection hardwood floors must not be stored directly on concrete or near outside walls. It is not recommended to install Garrison Collection hardwood flooring in areas subject to repeated moisture, such as bathrooms or laundry rooms.

Garrison Collection hardwood floors are recommended for interior and residential on grade or above grade applications.

Garrison Collection solid hardwood flooring is not warranted over radiant heat.

Acclimation Process / Jobsite Conditions

Never have flooring material delivered to a jobsite that does not have doors and windows installed. Also, all “wet work” i.e. painting, drywall, concrete, masonry, plumbing must be complete and dry well in advance of delivery of hardwood flooring. Gutters and downspouts should be in place and the exterior grade complete to allow for proper drainage of water away from the building’s exterior perimeter. Flooring should not be exposed to extremes of humidity or moisture. Permanent HVAC should be on and operational a minimum of 5 days prior to having the hardwood flooring delivered and maintained between 60° and 80°F and a relative humidity of 30%- 50% prior to delivery, during, and after installation of the flooring.

It is the installer/ owners’ responsibility to ensure that the jobsite conditions and jobsite subfloor are environmentally and structurally acceptable prior to the installation of any hardwood flooring. The Garrison Collection declines any responsibility for failures or deficiencies of hardwood flooring resulting from or related to sub-floor, subsurface, or job-site environmental conditions.

Prior to installation, ensure that wood flooring is within acceptable range of moisture content with the wood subfloor. For solid strip flooring (less than 3” wide), there should be no more than 4% moisture content difference between properly acclimated wood flooring and subflooring materials. For wide-width solid flooring (3” or wider), there should be no more than 2% difference in moisture content between properly acclimated wood flooring and subflooring materials. In most regions, a “dry” subfloor that is ready to work on has a moisture content of 12% or less.

It is not normally necessary to “sticker” individual planks of Crystal Valley solid hardwood flooring. Have the flooring delivered to the jobsite at least one week prior to being installed. Open one box of flooring and measure the moisture in the planks. They should normally measure somewhere between 7% - 9%. Measure the moisture in the subfloor boards. The difference in the two readings should be 2% - 4% or less, depending on the width of the flooring. If the difference is greater, you will need to at least open the ends of the boxes and remove any plastic wrapping from the ends to allow the flooring to acclimate to the environment. However, doing so will prohibit you from returning the product so first make sure you have the end user approve the delivered flooring. The jobsite should have a consistent room temperature of 60° and 80° F. The relative humidity should be maintained between 30-50%, before, during and after installation.

Subfloors

Subfloors must be clean and free of dirt, curing compounds, sealers, drywall mud, paint, wax, grease, urethane, or other materials that may affect the integrity of the flooring material or adhesives used to install the flooring. All subfloors must be flat to a maximum height variation of 1/8” in a 6’ radius or 3/16” in a 10’ radius, dry, and structurally sound.

Concrete Subfloors

Our solid Crystal Valley is not warranted being glued down directly to concrete. A minimum of 5/8” plywood and 6mil plastic must be installed over a concrete slab and then our product can be nailed to the plywood.

Concrete slabs should be of high compressive strength and constructed to prevent groundwater from permeating the concrete. All acceptable concrete slabs are those which have been cured for at least 60 days and have a minimum 6mil poly film moisture barrier between the ground and the concrete.

Acceptable moisture tests for concrete slabs include:

***Calcium Chloride test.** A moisture transfer reading that exceeds 3lbs/1000 square feet with this test requires the use of a warranted moisture barrier. Do not install The Garrison Collection over any slab that gives reading over 6lbs/1000 square feet.

***Tramex concrete moisture encounter meter.** Moisture reading should not exceed 4.5 on the upper scale.

***Relative Humidity probe test** with a maximum reading of 75%.

***Perform at least three tests in different areas of the first 1000sf and one more for each 1000sf after that.**

Remember:

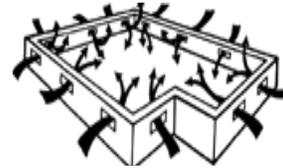
A "DRY" SLAB, AS DEFINED BY THESE TESTS CAN BE WET AT OTHER TIMES OF THE YEAR. THESE TESTS DO NOT GUARANTEE A DRY SLAB. ALL CONCRETE SLABS SHOULD HAVE A MINIMUM OF 6-MIL POLY FILM MOISTURE BARRIERS BETWEEN THE GROUND AND THE CONCRETE.

Grind high spots or use a Portland-cement based leveling material (minimum compressive strength 3000 psi) to fill all low spots to a maximum height variation of 1/8" in a 6' radius 3/16" in a 10' radius. Follow the leveling compound manufacturer's instructions. Leveling compounds must be allowed to thoroughly cure and dry prior to installation of wood flooring.

Wood Subfloors

Test wood sub floors and wood flooring for moisture content using a pin-type moisture meter. Take readings of the subfloor – minimum of 20 readings per 1000 sq. ft. and average the results. In most regions, a "dry" subfloor that is ready to work on has a moisture content of 12% or less and the wood should be within 4% of the subfloor moisture content for engineered floors, 2% - 4% for solid hardwood floors, depending on the width of the planks.

Basements and crawl spaces must be dry. Use of a 6 mil black polyethylene is required to cover 100% of the crawl space earth. Crawl space clearance from ground to underside of joist to be no less than 18" and perimeter vent spacing should be equal to 1.5% of the total square footage of the crawl space area to provide cross ventilation.



The subfloor must be flat, meeting a maximum height variation of 1/8" in a 6' radius or 3/16" in a 10' radius. All subfloors and subfloor systems must be structurally sound and must be installed following local building codes. Keep in mind that local building codes may only establish minimum structural requirements of the subflooring system and may not provide adequate rigidity and support for proper installation and performance of a hardwood floor. Check the subfloor for any loose areas and secure them down to minimize the chance for squeaking. Whenever possible install the planks perpendicular to the floor joists for maximum stability. **The Garrison Collection warranties DO NOT cover any problems caused by inadequate substructures or improper installation over said substructures.**

Subfloor panels should conform to U.S. Voluntary Product Standard PS1-07, Construction and Industrial Plywood and/or US Voluntary PS 2-04 and/or Canadian performance standard CAN/CSA 0325.0-92 Construction Sheathing. Other CSA standards also apply.

Acceptable Panel Subfloors

Truss/joist spacing will determine the minimum acceptable thickness of the panel subflooring. On truss/joist spacing of 16" o/c or less the industry standard for single panel subflooring is minimum 5/8" (19/32", 15.1 mm) CD Exposure 1 subfloor panels, 4x8 sheets. On truss/joist spacing of more than 16", up to 19.2" (488mm) o/c, the standard is nominal 3/4" (23/32", 18.3 mm) T&G CD Exposure 1 Plywood subfloor panels, (Exposure 1) or nominal 3/4" (23/32", 18.3mm) OSB Exposure 1 subfloor panels, 4'x8' sheets, glued and mechanically fastened. Truss/joist systems spaced over more than 19.2" (488mm) o/c up to a maximum of 24" (610mm) require minimum 7/8" T&G CD Exposure 1 Plywood subfloor panels, (Exposure 1), or minimum 7/8" OSB Exposure 1 subfloor panels, 4'x8' sheets glued and mechanically fastened – or two layers of subflooring or brace between the truss/joist in accordance with the truss/joist manufacturer's recommendations and with local building codes. Some truss/joist systems cannot be cross-braced and still maintain stability. For existing wood floors, install new flooring at right angles to the existing flooring.

Do not staple or nail down solid hardwood flooring over particle board or over existing glued down hardwood floors.

NOTE: Our products are not warranted against squeaking, popping or crackling when using staple-down or nail-down installation methods. Some squeaking, popping or crackling is normal and possible when using staple-down or nail-down installation methods. These symptoms may be aggravated in arid areas or during dry conditions

Preparing for Installation

Undercut all door casings 1/16" higher than the thickness of the flooring being installed. To do this, use a scrap piece of flooring as a guide. Lay it on the substrate and cut the casing with a handsaw or use a power jamb saw set at the correct height. Remove door thresholds and base moldings and replace after flooring installation.

Starting Installation

For aesthetic purposes, hardwood flooring is often laid to the longest wall. However, the home owner upon the advice of the professional installer should make the final decision which direction the planks will run. Most professional installers will begin installation next to an outside wall, which is usually the straightest wall and used as a reference point in establishing a straight working line. A good way to establish a working line is to measure an equal distance from the wall at both ends and snapping a chalk line. Measure distance from the wall at the width of the plank plus another ½" or more for expansion space for establishing your working line. It is advisable to dry lay a few rows before actually using glue to confirm your directional layout decision and work. Adjustment of the working line may be necessary if the outside wall or other working line reference is out of square. This can be done by scribe cutting the first row of planks to match the wall and creating a straight working line.

Blending of Cartons

To achieve a uniform appearance across the entire floor, we highly recommend that you open and work from several cartons of The Garrison Collection hardwood flooring at a time and dry-lay the flooring, mixing the planks from several cartons. This will allow you to blend the planks for maximum aesthetic appearance. **It is imperative that you make certain the room is well lit to ensure color is consistent and that any visual defects can be seen and removed.**

Match Transition Moldings

For best appearance, blend all transitions and moldings to planks that have similar color and graining. Set the moldings and matching planks aside for use as needed.

Layout of Flooring

“Racking the Floor” is essential to achieve a random appearance. Start by either using random-length planks found in the carton or by cutting four or five planks in random lengths, differing by at least six inches. As you continue working across the floor try to maintain a six-inch minimum between end joints. Randomly install different lengths to avoid a patterned appearance. Never waste materials; the end cuts from starter rows should be used at the opposite side of the room to complete rows or used to start the next row.

Set Up and Use of Pneumatic Staplers and Nailers

Minor occasional noises within the flooring are inherent to all staple/nail-down installations and can change as environmental changes occur. This is not a manufacturing defect and is therefore not covered under our warranties. You can help reduce squeaking, popping, and crackling by being sure that the subfloor is structurally sound, does not have any loose decking or joists, and is swept clean prior to installation. You should also be sure that your stapler or nailer is setting the fastener properly, not damaging the planks, and that you are using the correct nailing schedule. When used improperly, staples or cleats can damage wood flooring. If the tool is not adjusted properly the staples/cleats may not be positioned at the proper angle and cause blistering, peaking, squeaking, or crackling of the floor. Some models may require the use of an adapter to adjust for proper thickness. Test the tool on a piece of scrap material first - set the stapler/ nailer flush on the tongue side of the plank and install a staple/cleat.

Should the staple/cleat penetrate too deeply reduce the air pressure; if the staple/ cleat is not deep enough then increase the air pressure using an in-line regulator. The crown of the staple/ cleat should sit flush within the nail pocket to prevent damage to the flooring and to reduce squeaking.



The Garrison Collection is not responsible for damage caused by the mechanical fasteners.

Recommended Staples/Cleats for The Garrison Collection:

- Engineered 3/8".....20 gauge, 1" – 1-1/2" length
- Engineered 1/2" – 5/8".....20-18 gauge, 1" – 1-1/2" length
- Engineered 3/4".....18 gauge, 1-1/2" length
- Solid 3/4".....16 – 15.5 gauge, 1.5" – 2" length

Getting Started

After the subfloor has been properly cleaned and prepped cover the subfloor with 15lb. asphalt felt paper or an industry approved moisture vapor retarder such as Aquabar. This material will help to keep the floor clean and help to retard moisture from below (there is no complete moisture barrier system for staple or nail-down applications).

Select a starter wall. An outside wall is best: it's most likely to be straight and square with the room. Measure out from this wall, at each end, the overall width of the plank (board width + tongue + the space needed (3/4") for expansion).

Snap a chalk line from these points, parallel to that wall. Install the first row of starter planks along the chalk line/straightedge and secure into position with the tongue facing away from the starter wall (toward you). Drill pilot holes through the face of the plank every 6" (in the dark grain); approximately 1" from the back edge of the board and secure planks with 1" finishing nails. Remove excess filler from surface.

Blind nail at a 45° angle through the tongue 1"-2" from the end joints and every 6" in between along the length of the starter boards (Pre-drill holes to make this easier). Depending on the width of the flooring it may be necessary to do this for the first few rows prior to using a pneumatic stapler/nailer. **NOTE:** Proper alignment is critical. Misaligned starter rows can cause side and end gaps to appear in proceeding rows of flooring.

Expansion space

Expansion space around the perimeter is required and should be equal to the thickness of the flooring material. To minimize expansion on floors wider than 20 feet, more or less spacing between rows may be needed, depending on the geographical area, interior climate control and time of the year. When additional spacing is needed this can be accomplished by inserting thin spacers above the tongue every 10 to 20 rows and then removed after several adjacent rows have been installed and/or start in the center of the room working in two directions. Do not use spacers that may cause damage on factory-finished products. Remove the spacers as additional rows are added.

Installing the Floor

Continue to install the flooring making sure to nail/staple 1"-2" from the ends and every 4"- 6" thereafter. Make certain the tool is adjusted properly to ensure that the fastener is at the proper angle and is flush within the nail pocket. As you continue working across the floor try to maintain a six-inch minimum space between end joints. Randomly install different lengths to avoid a patterned appearance. If needed use a tapping block to help engage the boards together until the tongue-and-groove is flush and tight and no gaps are present between adjacent planks. **NOTE:** Never use a rubber mallet or hammer **directly** on the flooring to engage the tongue-and-groove. This can damage the flooring and/or finish.

As you approach the end wall it may be necessary to cut the width of the last row – be sure to allow for the expansion along the end wall. Once the final cuts are made set planks into place.

The last few rows will need to be fastened by hand. To fasten the final planks into place, you must either manually blind nail and/or face-nail through the surface on the final planks. Drill pilot holes at a 45-degree angle to the floor and blind nail using 1" finishing nails. Alternatively, drill pilot holes in the face every 6" (try to drill holes in darker portion of the wood) and install with 1" finishing nails. Countersink nails and fill with appropriate colored wood filler – remove excess filler from surface with a clean rag and proper cleaner.