Hardwood

Hardwood Flooring Installation Guide

General Recommendations

All general installation instructions stated in General Installation Guidelines regarding storage and job site conditions, including climatic and structural requirements, are applicable to Mannington Hardwood Floors. Review and consider these requirements before proceeding with the installation.

Product Inspection

Wood is a natural product, containing natural variations in color, tone, and grain. Before any Mannington engineered wood flooring leaves our plant, each plank goes through numerous inspection stations. Color variation between planks, however, is to be expected in a wood floor. Mannington cannot guarantee against natural variation in each plank, nor minor differences between samples and the color of the floor. With Mannington, you're protected by our exclusive Pre-Installation Limited Warranty. Return any planks you are not satisfied with, uncut, BEFORE installation and we'll replace them, no questions asked.

We urge you to inspect for color, finish, and graining BEFORE installation. Care should be taken during installation to remove or repair particular characteristics you do not desire. We suggest you use cut planks as starter strips to begin each new row and to "rack" the flooring to ensure a random appearance.

Furthermore, we recommend that you examine cartons to determine those that contain random length planks and those that contain full length planks. Plan the layout accordingly so that a random appearance is maintained throughout the installation.

✓ **NOTE: Mannington Hardwood Floors accepts no responsibility for costs incurred when a floor with visible defects has been installed.**

Job Site Conditions

In addition to the general instructions, Mannington Hardwood has category specific requirements.

Mannington engineered wood flooring does not need to be acclimated to the job site unless the flooring will be transported from one extreme temperature or humidity to another. If there is a severe temperature or humidity difference, make sure to condition the cartons of wood flooring and UltraSpread Mastic™ adhesive, if being used, 24 hours before the installation.

Temperature & Humidity Requirements

The job site in a wood flooring installation must be climate controlled. If you are transporting wood flooring from one extreme temperature or humidity to another, however, make sure to condition the cartons 24 hours before installation; 48 hours for bamboo. Wood flooring performs best in climate-controlled interior environments. A permanent HVAC unit (or equavilent) must be operational in order to provide consistent room temperature between 60° and 80° F (16° to 27° C) and a humidity level of 35% to 55%. Temperature and humidity must be controlled for the life of the flooring.

UltraSpread Mastic™ has a minimum working temperature of 65°F. Never use UltraSpread Mastic™ below this temperature. Open time for UltraSpread Mastic™ is affected by temperature and humidity. As a general rule, the higher the temperature and humidity, the shorter the open time.

Moisture Requirements

Wood subfloor moisture content must never exceed 14% moisture content when measured with a dependable moisture meter. The difference between the wood subfloor system moisture content and that of the hardwood flooring must not be greater than 4%.

The moisture content of the bamboo flooring and the wood subfloor must never be greater than 2% of each other.

Concrete subfloors must be visibly dry, with no history or evidence of excessive moisture vapor transmission. As a frame of reference, Calcium Chloride test results should be at 5 pounds or less moisture vapor transmission.

Subfloor Information

All subfloors should be free of dirt, oil, grease, wax, paint, or any substance that would hinder adhesion. All subfloors should also be level to ¼" per 10' span and should be visually dry and structurally sound.

Wood Subfloors

All wood subfloors must be structurally sound, dry, at least ¾" in thickness, solidly fastened to appropriately spaced floor joists, and in compliance with all local building codes. First, make sure subfloor is dry. Subfloor wood moisture content cannot exceed 14% prior to installation. For bamboo it cannot exceed 10%. To determine wood moisture content use a quality moisture meter. Next, determine if subfloor is structurally sound; both floor joist spacing and subfloor panel selection must be considered. Use the following requirements as a guide:

- Planks may be installed (stapled, nailed, glued, or floated) to a single layer of ¾" thick, tongue-and-groove plywood or ¾" structural grade oriented strand board (OSB) substrate over appropriately spaced floor joists.
- If the subfloor is plywood or OSB less than ¾" thick, add a second cross layer for strength and stability (minimum 5/16" thick to total 1" in thickness). To reduce the possibility of squeaking, install the underlayment per the manufacturer's guidelines.
- 19.2" and 24" on center joist spacing may be acceptable if the subfloor system is designed in accordance with local building codes and is free of deflection.

✓ **NOTE: Do not staple or nail down Mannington engineered wood flooring over particleboard subfloors.**

Concrete Subfloors

All concrete subfloor systems must meet or exceed local building code specifications.

For concrete slabs that are on- or below-grade, it is recommended they be constructed so that ground water vapor cannot penetrate. Suspended, above-grade concrete subfloors often require extended drying time to lose initial moisture. Curing and drying time will vary depending on the type of concrete mix and the environment in which it is placed. New concrete slabs require a minimum of six weeks drying time before they can be covered with a wood floor. You can install Mannington engineered hardwood floors over concrete subfloors when using Mannington UltraSpread Mastic™ (glue-down method) or Mannington MegaGlue™ adhesive (floating method) if the subfloor is visually dry and has no history of moisture problems.

Preparing Concrete Underfloors

Remove all curing agents, parting agents, or surface hardeners by grinding before installing wood flooring products. Also remove all paint, varnish, or other surface contaminants. You may remove these either chemically or mechanically, but do not use solvent-based strippers under any circumstances. Residual solvents can prohibit satisfactory bond of flooring adhesives. Be careful to maintain any physical expansion joints in the concrete underfloor. These joints were placed to permit expansion and movement of the slab. Use transition moldings manufactured specifically for this purpose to maintain the functionality of the expansion joint. **Fill and level all other cold joints, cracks, or depressions with Mannington MVP 2023 or a quality cementitious patching compound.**

✓ **NOTE: Mannington Hardwood Floors' moisture release warranty is in effect only when Mannington UltraSpread Mastic is used and the flooring is installed according to Mannington installation instructions.**

✓ **NOTE: Moisture tests can only indicate conditions at the time of the test. Neither Mannington nor the flooring contractor can be responsible if moisture levels change in the future.**

Radiant-Heated Subfloors

Selected styles of Mannington engineered wood flooring may be installed over radiant-heated subfloors provided the surface temperature of the system does not exceed 85° F. Mannington does not recommend installing, Hickory, Brazilian Cherry, Tigerwood or Imperial Tigerwood over radiant heat systems. Before installing Mannington engineered wood flooring over newly constructed radiant heating systems, operate the system at maximum capacity to force any residual moisture from the cementitious topping of the radiant heating system. Then set the thermostat to a comfortable room temperature for the installation.

Structural Requirements

The structural integrity of the job site is critical for a satisfactory wood installation. The type and method of construction, grade level, and flooring system components all impact the installation of wood flooring products. Many times local building codes establish only minimum requirements for flooring systems. These minimum requirements may not provide sufficient rigidity for successful installation and continued performance of wood flooring products.

Subfloor must be clean. Remove all oil, dirt, grease, wax, sealers, paint, adhesives, and any other substance that would hinder installation.

Subfloor must be flat to 1/4" per 10' span. To check, just stretch a 10' string or lay a 10' straightedge over subfloor. If the subfloor dips or crowns 1/4" or more in the span, it must be leveled. Use a latex underlayment material such as Mannington MVP 2023 to level low areas in the subfloor. If the floor has a crown or rise, level it by sanding or grinding to meet 1/4" specifications.

There are additional concerns an installer must take into consideration for each different type of subfloor (wood, concrete, lightweight concrete, etc.) other than the requirements stated above. You may find existing subfloors that do not meet industry standards. In that case, do not precede until repair or replacement of the subfloor is completed, so your hardwood floor installation will be successful.

Blend Cartons

To provide for a uniform appearance throughout the entire installation, open sufficient cartons to blend planks for both shade and length variations. Plank length can vary from 12" to 84" depending on the style. (Most styles 12" to 43".) Make sure your work area is well lit. Good visibility ensures that color is consistent and that visually defective planks are detected and removed. Keep in mind, it is always a good idea to retain a few planks in case a repair is ever required.

Staple-Down Installation

Requirements and Procedures

This fast and easy method uses our own Mannington Spotnails Floor Monster Pneumatic Stapler and exclusive Mannington Spotnails nylon-coated precision staples. The staple-down technique is compatible for all Mannington Hardwood products (except Bamboo, Caspian LOCnGO™, and Tradewinds Collections) for use over plywood and structural OSB. The steps outlined in this section are also suitable for the nail-down method, provided that a specifically designed tongue-and-groove engineered flooring nailer is used. The Mannington Spotnails Floor Monster pneumatic stapler comes complete with two adapters, Allen wrenches, and oil. For a successful installation you will need the tools listed below.

Special Tools

- Mannington Spotnails Floor Monster pneumatic stapler (sku# FS4825W2)
- 1/2", 9/16", and 3/8" stapler attachment (included with stapler)
- Mannington Spotnails nylon-coated staples (sku# 4811PN-30M, 5,000/box)
- Safety glasses
- Compressor (with regulator)
- Tapping block (sku# TPBK009X)
- Power drill

Setup and Use of Mannington Spotnails Floor Monster Pneumatic Stapler

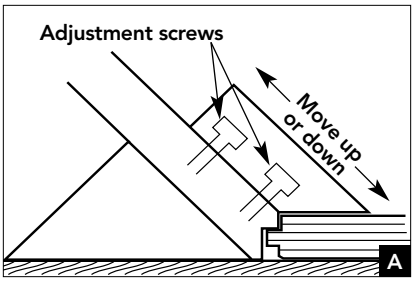
Inspect Equipment Prior to Use

- Become familiar with the tools and their operation, especially the pneumatic stapler. When used improperly, staples can damage wood flooring. Test the tools on scrap material first.
- Parts that engage the planks (especially pre-finished surfaces) must have no sharp burrs that can scratch or damage the flooring.
- Make sure the tool's adapter seats properly in the tongue and groove of the flooring.
- Use the retaining feet of the adapter to make adjustments so that the plank is held securely against the subfloor.

! CAUTION: Make certain the adapter size for the Mannington Spotnails Floor Monster pneumatic stapler correlates directly with the size of the product being installed. For instance, if you are installing 1/2" thick wood flooring, use the 1/2"-9/16" adapter.

! CAUTION: Only use Mannington Spotnails 4811PN nylon-coated staples during staple-down installation with the Mannington Spotnails Floor Monster stapler.

Floor Monster Setup



- Loosen screws on retaining feet.
- Using a scrap piece of flooring, test tool on subfloor and engage the adapter into tongue and groove.
- Slide retaining feet down until they make contact with plank.
- Tighten screws. (See illustration A.)
- Calibrate the compressor so staples are properly set in the nail pocket to avoid damaging the floor or squeaking.

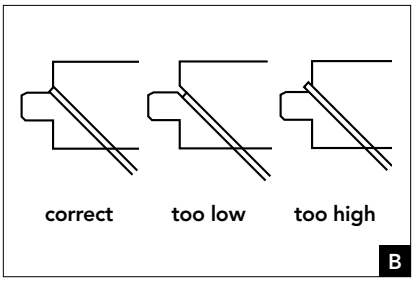
✓ NOTE: If stapler is improperly set up, staples will not position correctly and may cause squeaking, crackling, and dimpling of the floor.

Compressor Setup

- With the correct adapter fastened, attach tool to compressor.
- Set the regulator at 80 psi and start the compressor.

NOTE: Pressure must never exceed 100 psi, since it can damage the stapler or cause harm to you or others.

- On a scrap piece of flooring, set stapler flush on the substrate and fully engage the stapler into the tongue-and-groove joint. Pull the trigger and examine staple placement
- When the top of the staple's crown is flush with the nail pocket, the tool is properly positioned. (See illustration B.)
- Should the staple penetrate too deeply or not deeply enough, reduce or increase the pressure until the staple is flush.



Job Preparation and Installation

Before installation, do a calculation to determine the width of the last row of planks. If it is less than 1-1/2" wide, split the difference between the starter row and the last row. In any case, you will most likely be required to cut the last row of planks to width with a table saw equipped with a plywood cutting blade.

For the staple-down and nail-down methods, cover the subfloor with red rosin paper or any other suitable lining material. This will help keep dust away from the wood floor, retard moisture from below, and may help prevent squeaks from occurring. There is no complete moisture barrier system, however, for nail-down and staple-down applications. Maximum wood subfloor moisture should never exceed 14%.

Snap a chalk line from these points, parallel to the wall and perpendicular to the adjacent walls. Since most walls are not straight, the edge of some planks may have to be trimmed along the wall or cut to fit. It is not necessary to leave an expansion space for Mannington 9/16," 1/2", and 3/8" thick planks. ***Bamboo requires a 5/16" expansion space for a nail down installation.***

Select a starter wall. An outside wall is best because it's most likely to be straight and square with the room. Measure out from this wall, at each end, the width of the plank plus 1/4".

"Racking" the Floor

This process is essential to achieve a random appearance. Start by either using random length planks found in the carton or by cutting four to five planks in random lengths, differing by at least 6". When starting these first few rows or courses, make certain to always measure from the tongue end of the plank for cutting. As you continue working across the floor be sure to maintain the 6" minimum between end joints on all adjacent rows. Randomly install different lengths to avoid a patterned appearance. Never waste materials; the ends cut from starter rows should be used at the opposite side of the room to complete rows or may also be used to start the next row.

✓ **NOTE: Remember, it is extremely important to blend planks from several cartons to ensure a good balance of color, graining and plank length.**

Installation Procedure

Install the first row of planks by laying the tongue edges on the chalk line. Proper alignment is critical. Misaligned starter rows can ruin the entire installation. Secure each plank to the subfloor using a pneumatic brad tacker or with finishing nails. Drill pilot holes through the face of each plank (in dark grain) if using finishing nails.

✓ **NOTE: Proper alignment of planks is critical. Misaligned starter rows can ruin the entire installation.**

After the first row is complete, adjacent rows should also be predrilled in the nail pocket and secured with finishing nails set at 45°. Rows of flooring will need to be installed in this manner until flooring planks are a sufficient distance away from the wall to accommodate the stapler. Stapling schedule is every 6" to 8" on center.

✓ **NOTE: Avoid clustering end joints and stagger random lengths so that the end joints are no closer than 6".**

The precise engineering of our UltraFit™ tongue-and-groove system delivers a very stable floor. But you MUST make a good connection. Use a tapping block to tap the planks until the tongue and groove "snap" into place.

! **CAUTION: Never use a rubber mallet to tap planks, since this can mar or damage the flooring.**

Using the Mannington Spotnails Floor Monster stapler, with the proper adapter attached (see stapler instructions for proper setup), continue to staple new planks every 6" to 8" on center, fastening the ends of the planks approximately 2" from each end.

Using a pry bar, position the final filler planks.

Face nail or tack each final plank into place with the pneumatic stapler. Install the molding and retain a few leftover planks in case a repair is ever required. ***Do not use manual nailers on any Mannington Hardwood Floors maple flooring or on any Tradewinds Collection or Caspian LOCKnGO. Bamboo flooring should not be stapled.*** *Sweep floor to remove all dust and dirt. Take care not to scratch the finish.*

Alternative Fastening Method For Mannington Wood Floors

With the sales growth of Engineered Hardwood, in new home construction, we have become aware of some changes in the construction process in building these homes. For many years, the standard in the industry, for joist spacing for sub floor construction, was 16" on center. This was a time tested, consistent procedure that builders used when, building new homes. This joist spacing, along with a ¾" plywood sub floor, gave a solid foundation for flooring to be installed over.

The new materials that are being used today, Engineered Joists and OSB, allow the builder to make some changes in how these houses are being built. The new Engineered Joists system, allows the joist spacing to be increased from 16" on center , to 19.2", or even to a distance of 24" on center. This extra spacing on the joist system, without any increased thickness in the sub floor, can potentially contribute to some increased deflection in the sub floor. This deflection in the sub floor, can cause movement between the tongue and the groove of the Hardwood panel, causing a squeak or crackle noise when the floor is walked on. Some Hardwood Manufacturers recommend that any sub floor over joist spacing of 19.2" or greater, should be at least 1 1/8" thick. Where this is possible, this may reduce the potential for squeak and crackle, as the sub floor will have less deflection, or movement.

Where it is not possible to add another 3/8" thickness to the sub floor, Mannington Installation has come up with an alternative fastening method for our Engineered Hardwood. Our recommended installation procedure, over a wood substrate, is glue, using Mannington's' Ultra Spread adhesive, staple, using the Floor Monster/Striker stapler, or nail, using an approved nailer for engineered hardwood. When the glue down method is used, it is recommended that a ¼" underlayment is added, to eliminate any problems with the sub floor, when a repair has to be made. When the staple down method is used, the Floor Monster/ Striker Stapler will shoot an 1 3/8" staple, with the regulator on the compressor set at 80 psi., making sure the staple is properly seated in the nailer pocket of the tongue. When a nailer is used, be sure to check the alignment of the cleat, to determine if the cleat is properly seated in the nailer pocket, and is not causing any bumps in the veneer, or damaging the side edge of the hardwood.

When the joist spacing is 19'2" or greater, it is recommended that you apply a thin bead of Mannington Mega Glue to the bottom of the groove, to lock the tongue and groove profile together, to eliminate any potential movement, which could contribute to squeak and crackle. When using this new method, you may choose to staple or nail down the hardwood, as either method is acceptable. The use of the Mega Glue, along with a staple or cleat, reduces the movement of the material as the sub floor deflects. This creates a much more uniform bond on the floor, and gives increased stability to the hardwood. By applying the Mega Glue to the bottom of the groove, there is little to no clean up that will have to be done.

As with all of our installation procedures, this method has been tested outside, in the field, in over 25 houses, with no complaints. This procedure has eliminated all squeak and crackle complaints, and minimized any gapping concerns at the time of installation. The use of Mega Glue has been tested against different brands of wood glue, with the opinion that the Mega Glue holds better, cleans up easier, and is easy to apply. In doing repairs, such as board replacement, the Mega Glue was able to be removed easily, and the area prepared for re-installation with minimum concern.

It is the belief of Mannington's' Installation Dept., that this alternative fastening method for Hardwood, will greatly minimize, or even eliminate any squeak and crackle issues in the field. We believe that if we can come up with solutions to problems in the field, we will be a better company to do business with.

Final Inspection

After the floor is cleaned, inspect the floor for nicks, scratches, or any other imperfections that need attention. Touch up nicks and scratches with Mannington Hardwood Floors touch-up products. The newly installed floor can accept foot traffic immediately.

Floor Protection During Construction

Always protect the surface of installed flooring during construction by laying a quality felt paper over the floor and taping it to the baseboards. Never use plastic or polyethylene sheeting to cover the floor because they will trap moisture. The covering material must allow the floor to breathe.

Glue-Down Installation

Requirements and Procedures

The Mannington glue-down system makes installation smooth and easy. Wood planks are glued to the subfloor using Mannington UltraSpread Mastic™ adhesive and a minimum 3/16" x 5/32" V-notched trowel. This moisture-cured polyurethane adhesive forms a tenacious bond. The adhesive is VOC compliant, nonflammable, contains 0% water, and has a very mild odor. You can install Mannington engineered hardwood floors over concrete subfloors when you are using Mannington UltraSpread Mastic™ if the subfloor is visually dry and has no history of moisture problems.

✓ **NOTE: Do not fully adhere Mannington Hardwood Floors over perimeter-installed resilient flooring.**

Special Tools

- Mannington UltraSpread Mastic™
- Mannington PROTVNX trowel 3/16" x 5/32" V-notched (minimum)
- Non-marring blue painters tape
- Tapping block (sku# TPBK009X)
- 100-lb roller

Job Preparation and Installation

Before installation, do a calculation to determine the width of the last row of planks. If it is less than one half of plank width, split the difference between the starter row and the last row. In any case, you will most likely be required to cut the last row of planks to width with a table saw equipped with a plywood cutting blade.

"Racking" the Floor

This process is essential to achieve a random appearance. Start by either using random length planks found in the carton or by cutting four to five planks in random lengths, differing by at least 6". When starting these first few rows or courses, make certain to always measure from the tongue end of the plank when cutting. As you continue working across the floor be sure to maintain the 6" minimum between end joints on all adjacent rows. Randomly install different lengths to avoid a patterned appearance. Never waste materials; the ends cut from starter rows should be used at the opposite side of the room to complete rows or used to start the next row.

✓ **NOTE: It is extremely important to blend planks from several cartons to ensure a good balance of color, graining, and plank length.**

Installation Procedure

Select a starter wall. An outside wall is best because it's more likely to be straight and square with the room. Measure out from this wall, at each end, the width of two planks.

Snap a chalk line from these points, parallel to that wall and perpendicular to the adjacent walls. Since most walls are not straight, the edge of some planks may have to be trimmed along the wall or cut to fit.

Spread Mannington UltraSpread Mastic from the chalk line out to the width of two planks with a minimum 3/16" x 5/32" V-notched trowel. You can start laying planks immediately into wet adhesive; however, for optimum performance Mannington recommends allowing the adhesive to set for 30 minutes.

Install the first row of starter planks and secure into position with the tongue facing the starter wall. Proper alignment is critical, misaligned starter rows can ruin the entire installation. It may be helpful to firmly secure a straight edge along the chalk line as a guide; this also helps to prevent planks from shifting in the wet adhesive. Or else, top nail the first row with finishing nails (wood subfloor) or sprig/pin nails (concrete subfloor).

The precise engineering of our UltraFit™ tongue-and-groove system creates a very stable floor. But you MUST make a good connection. Use a tapping block to tap the planks together until the tongue and groove "snap" into place.

When the first two starter rows are secure, spread 2-1/2' to 3' of adhesive across the length of the room. (Never spread more adhesive than can be covered in approximately three hours). If the adhesive has set and will not transfer to the back of the plank, scrape up the adhesive and apply fresh UltraSpread Mastic™ adhesive.

Place planks into position on top of adhesive and tap into place with a tapping block. Avoid clustering the end joints. Stagger random lengths so that end joints are no closer than 6."

After several rows of planks are down, secure the rows using non-marring, releasable blue painters tape. Do not allow the tape to remain on the planks longer than required. Repeat this process as the installation progresses.

✓ **NOTE: Releasable blue painters tape should never be left on flooring planks for more than a few hours. This type of tape is affected by heat and sunlight and will loose its "releasable" property. Always use fresh tape when securing wood planks. Never get mineral spirits or paint thinner on the blue tape as this may leave a blemish.**

When you have finished installing planks across the work area, if you used a starter straightedge go back to the beginning of the installation and remove straightedges. Spread adhesive onto exposed subfloor and use a pry bar to position the final two rows into place. Remove the tongue from the last row to complete the installation.

Thoroughly roll the flooring in both directions using a clean, three-section 100-lb floor roller. Clean with any urethane adhesive cleaner.

Final Inspection

After the floor is rolled and cleaned, inspect the floor for nicks and scratches, and planks that may have moved during installation, as well as any other imperfections that need attention. Touch up nicks and scratches with Mannington Hardwood Floors touch-up products. In typical climates, the new floor can accept foot traffic within 12 hours. Arid (dry) climates may require more curing time. Keep a few leftover planks in case a repair is ever required.

Floor Protection During Construction

Always protect the surface of installed flooring during construction by laying a quality felt paper over the floor and taping it to the baseboards. Never use plastic or polyethylene sheeting to cover the floor since they trap moisture. The covering material must allow the floor to breathe.

Floating Installation – Mannington Hardwood Floors

Floating Installation Requirements and Procedures

Mannington 9/16", 1/2", and 3/8" thick engineered wood plank flooring 3" and wider can be installed using the floating method over numerous subfloors, including concrete, gypsum, plywood, composition board, ceramic tile, vinyl tile, sheet vinyl, and radiant-heated floors. The floating method is one of the easiest methods of installing engineered wood floors and is the only technique that is appropriate for many substrates that are not suitable for other installation methods. Do not use the floating installation system with bamboo floors.

✓ **NOTE: While the floating method offers some advantages, there are some things of which you should be aware:**
(1) The floor may have a hollow sound when walked on.
(2) The wood rests on the subfloor with its own weight, which may cause the floor to have slight vertical movement.

✓ **NOTE: All Mannington hardwoods may be installed using the floating installation method. The only exceptions to this rule are Mannington Bamboo and ¾" thick hardwood.**

✓ **NOTE: Mannington does not recommend floating the following species over radiant heated subfloors: • Hickory • Brazilian Cherry • Tigerwood • Imperial Tigerwood**

Special Tools

- Appropriate Mannington underlayment (see below for details)
- Mannington MegaGlue™ Adhesive (sku #600021)
- Glue scraper
- Spacing wedges
- Safety glasses
- Tapping block (sku #TPBK009X)
- Pry bar
- Non-marring blue painters tape

Mannington Underlayments

AquaBarrier II™

AquaBarrier II™ is an underlayment sheeting that combines a foam cushion layer and a moisture barrier film all in one sheet. The underlayment also has a built-in edge sealing system for attaching the sheets together. AquaBarrier II™ is used for below-grade or on-grade subfloors where moisture is a concern.

AquaBarrier II - Jumbo Roll (Item #600001)
1 roll of underlayment (300 sq ft)

ComfortBarrier™

ComfortBarrier is an underlayment foam cushion to be used for above grade subfloors ONLY where subfloor moisture is not a concern.

ComfortBarrier (Item #600002)
1 roll of underlayment (300 sq ft)

Whisper 3N1

Whisper 3N1 is a multi-use underlayment. It serves as a comfort, sound and moisture barrier. This new underlayment is thin, light and dense making it easier for installers to work with it on the job site.

Product specifications are as follows:

Thickness: 1 mm	Roll weight: 6.5 lbs.
Roll size: 300 s.f.	Pallet dimensions: 78" x 44" x 47"
Length: 50'	Rolls per pallet: 60
Width: 72"	Pallet weight: 471 lbs.
Roll diameter: 6"	

Whisper 3N1 will be available with or without connecting flaps. These flaps are designed to connect seams when a room requires more than one width of underlayment. In order for the underlayment to act as a moisture barrier, the flaps must be used at any seam.

Installation of Whisper 3N1 and AquaBarrier™ II Underlayment

Whister 3N1 and AquaBarrier II™ underlayment eliminates the need for a separate moisture barrier film and underlayment cushion.

You will need one (1) roll of AquaBarrier II for every four (4) cartons of wood flooring installed. The amount of MegaGlue™ Adhesive required depends on the plank width being installed. Refer to MegaGlue™ Adhesive Requirements chart on page 87 for further details. Install AquaBarrier™ II by laying it out, poly side facing up. Seal all seams using the built-in edge sealing tape system. Tape any relief cuts or butt seams with duct tape.

Install one sheet of AquaBarrier™ II underlayment net along the starting wall. Unroll only one sheet at a time during plank installation to prevent damaging the underlayment. If any part of the AquaBarrier II underlayment is punctured or damaged during installation, seal the area with duct tape.

Installation of ComfortBarrier™

If the installation area is above ground and protection against moisture is not a concern, you may install ComfortBarrier. Please note, the directions outlined below explain the installation and use of AquaBarrier™ II underlayment. Please follow these general guidelines. However, when the installation requires more than one sheet of ComfortBarrier, simply butt each end together and seal with duct tape.

"Racking" the Floor

This process is essential to achieve a random appearance. Start by either using random length planks found in the carton or by cutting four to five planks in random lengths, differing by at least 6". When starting these first few rows or courses, make certain to always measure from the tongue end of the plank when cutting. As you continue working across the floor be sure to maintain the 6" minimum between end joints on all adjacent rows. Randomly install different lengths to avoid a patterned appearance. Never waste materials; the ends cut from starter rows should be used at the opposite side of the room to complete rows or used to start the next row.

✓ **NOTE: It is extremely important to blend planks from several cartons to ensure a good balance of color, graining, and plank length.**

Floating Installation

In a floating floor installation, the flooring is NOT nailed or glued to the underlayment, but is glued in the plank's groove only. Apply Mannington MegaGlue adhesive to the bottom of groove along the entire length and on the end of each plank. ***Do not completely fill the groove with adhesive.***

Job Preparation

Undercut all doorcasings 1/16" higher than the thickness of the flooring and underlayment to be installed. Place a scrap piece of plank and a sheet of underlayment against the doorcasing to act as a guide, and cut the doorcasing with a hand saw or power jamb saw set to the correct height.

After deciding the direction in which the planks will run, measure the width of the room (the dimension perpendicular to the direction of the flooring). The last row of flooring should be no less than 1-1/2" wide. If it is less, we recommend cutting the starter row narrower. This will require extra cutting but it will make the rest of the installation easier and faster.

Installation Method

Cut the Mannington MegaGlue adhesive applicator nozzle at a 45° angle with a utility knife. Do not cut off any part of the cap locking ring around the nozzle. The installation sequence is critical and provides stability to the first two rows. Proper alignment is critical. Misaligned starter rows can ruin the entire installation.

Before starting to glue planks, dry-lay the entire first two rows on top of the selected underlayment. Begin in the upper right corner of the work area with the groove side of the planks facing the wall. Place spacing wedges along the walls on both the ends and sides of all planks.

The installation sequence is critical and provides stability to the first two rows. Closely follow the next several instructions to obtain the proper gluing sequence for the first few rows of planks. To start, glue the first plank in the second row to the first plank in the starter row, and so on.

Use a tapping block and a hammer to push glued planks together until no gaps are seen. Immediately wipe away any excess adhesive with a clean damp cloth.

! **CAUTION: Never use a hammer or mallet directly on the flooring.**

Glue the next plank to the plank in the previous row. Apply adhesive only to the width end of the plank. Tap the planks together carefully with a tapping block and hammer. Remember to continually remove adhesive squeezed up between the joints with a glue scraper or a clean damp cloth.

Glue the next plank in the same row to the previously glued plank from the previous row. Apply adhesive to both the length and width edges of the plank.

At the end wall use a pry bar, if needed, to pull the ends of the planks tight. Continue laying the floor on top of the selected underlayment, working right to left, laying plank after plank, row after row, tapping the planks together as you go. Be sure to continue using 5/16" spacing wedges at all walls and obstructions throughout the installation.

Once the first sheet of underlayment is covered with wood flooring, install the second sheet.

After several runs of planks are down, use strips of non-marring, releasable blue painters tape to hold the planks securely. Repeat this process as the installation progresses.

Remove the tape as you go. Do not allow the tape to remain on flooring planks longer than two hours.

✓ **NOTE: Releasable blue painters tape must never be left on the flooring planks for more than a few hours. This type of tape is affected by heat and sunlight and will lose its "releasable" property. Always use fresh tape when securing wood planks. Never get mineral spirits or paint thinner on the blue tape as this may leave a blemish.**

The last row will most likely require cutting to width but it should be no less than 1-1/2" wide. To do this, lay the plank on top of, and edge-to-edge with, the plank in the next-to-the-last row. Trace the wall contour on the last plank using a scrap piece of plank and cut as required.

Install cut planks and pull into place with a pry bar. Install spacing wedges between planks and wall. Allow floor to dry for a minimum of 12 hours before removing all spacing wedges and allowing foot traffic. Sweep the floor to remove all dust and dirt, taking care not to scratch the finish.

Final Inspection

After the floor is cleaned, inspect it for nicks and scratches, and for planks that may have moved during installation, as well as any other imperfections that need attention. Touch up nicks and scratches with Mannington Hardwood Floors touch-up products. In most climates, the floor can accept foot traffic within 12 hours.

Floor Protection During Construction

Always protect the surface of installed flooring during construction by laying a quality felt paper over the floor and taping it to the baseboards. Never use plastic or polyethylene sheeting to cover the floor because they trap moisture. The covering material must allow the floor to breathe.

Repairs – Mannington Hardwood Floors

Although Mannington engineered wood flooring is inherently tough, it can be accidentally chipped by something falling on top of it. Always inspect each plank closely before installation. If damage occurs after installation, however, the following repair procedure may be used.

✓ **NOTE: Warranty does not cover labor for repair and replacement when a floor with visual defects has been permanently installed.**

Plank Replacement

To replace an entire damaged plank, begin by drilling four 1/2" holes in the damaged plank approximately 1/4" away from all four plank corners. Use extreme caution when drilling to prevent damage to adjoining planks. It's a good idea to mark your cutting path before drilling or sawing into the damaged plank.

To remove the plank you must cut it with a circular saw. Set saw to precise depth of plank. Cut diagonally from one corner hole to the opposite corner hole to create an "X" in the damaged plank. Follow directions below to remove cut planks.

To remove cut planks, loosen by prying up at saw cut with a chisel or small pry bar.

Position weights on an existing plank along the seam edge of the damaged plank. This will weight the existing floor as you break the glue bond. With your hands, pry and lift the piece out of place. Wear gloves as an extra precaution to avoid injury. Use extreme caution when removing the damaged plank pieces to also prevent harm to adjoining planks.

Use a chisel and a hammer to remove any remaining damaged plank pieces.

Once the plank is thoroughly removed, clean the tongue-and-groove joints of the surrounding planks with a sharp chisel.

Vacuum all sawdust and debris away from repair area before proceeding.

Prepare the replacement plank by cutting off the plank's bottom groove along both the length and width using a power saw. Cutting this bottom flange away will help ease placement of the repair plank into the repair area. Also cut off 3" of the tongue from the repair plank. Check planks for fit.

Always use Mannington adhesive and sundry products. When employing the floating method, apply adhesive to the bottom of the groove on the repair plank. For the glue-down method, spread the appropriate amount of UltraSpread Mastic™ with the correct V-notched trowel.

Slide the repair plank into place using a tapping block, first inserting the side with 3" cut off the tongue. Wipe away any excess glue with a clean dampened cloth or with a Mannington glue scraper. Weight the repair plank and avoid active foot traffic for approximately 12 hours after the repair has been completed.

LOCnGO™ Wood Installation Instructions

Interlocking Floating Installation Requirements & Procedures

Mannington LOCnGO must be installed over an approved underlayment pad, such as Mannington Whisper 3-in-1 or AquaBarrier™ II. Install only one sheet of underlayment at a time, cover with the wood flooring and then install the next sheet of underlayment.

"Racking" the Floor

This process is essential to achieve a random appearance. Start by either using random length planks found in the carton or by cutting four to five planks in random lengths, differing by at least 6." When starting these first few rows or courses, be certain to measure from the tongue end of the plank when cutting. As you continue working across the floor, be sure to maintain the 6" minimum between end joints on all adjacent rows. Randomly install different lengths to avoid a patterned appearance. Never waste materials; the ends cut from starter rows should be used at the opposite side of the room to complete rows or used to start the next row.

✓ **NOTE: As stated earlier, it is extremely important to blend planks from several cartons to ensure a good balance of color, graining, and plank length.**

As with all plank wood flooring, the long dimension of the plank should be installed in the long dimension of the work area. Measure the width of the work area to ensure a "balanced" layout of plank width on opposite long walls of the work area. If the planks have been cut down in width and the locking mechanism has been damaged, apply a thin bead of MegaGlue™ in the end joints. This should only be necessary on the first and perhaps last rows of planks.

Once the starting wall has been determined, lay the first plank using 1/2" spacers to maintain the expansion gap. Align and lock the end joints of the second and consecutive planks in the first row. Cut a starter plank or use a random plank of at least 9" to begin the second row. Maintain a random stagger of the end joints across the entire installation. Place the tongue of the plank into the groove of the plank in the first row. Align the second plank of the second row over the end joints of the adjoining plank; then insert the tongue into the groove of the plank in the first row and lock into place. Drop the end joints into place ensuring that the seam is tight. The "locking system"

will secure the end joints; these end joints will be held down by the following rows so no adhesive is necessary in the field end joints. Be certain to maintain the 1/2" expansion gap at all fixed, vertical objects throughout the entire installation. Continue installing planks, clicking the side seam and locking the end joints into place, until reaching the last row.

More than likely, this last row will need to be cut to fit. Scribe the last row of planks to fit the opening, being certain to provide the 1/2" expansion gap, and cut along the scribed line with a scroll or jigsaw. Position the first plank in the last row to click into the next to last row and, if the locking mechanism has been cut, place a bead of MegaGlue™ adhesive in the end joint. Align and fasten the remainder of the planks, being certain to apply adhesive at the end joints.

If at any time during the installation you need to remove a "locked" plank, insert the supplied plastic tool into the gap at the side of the end joints. The tool should slide in easily. As you are inserting the tool, pull up on the board to remove.

Remove all spacers and cover expansion joint with wall base or quarter round. Be certain to fasten into the wall and not into the flooring product. Use the appropriate transition moldings at doorways, etc. Again, be certain not to nail or staple through the finished flooring product when fastening transition moldings.

Glue-Down Installation Requirements & Procedures

The Mannington glue-down system makes installation smooth and easy. LOCnGO planks are glued to the subfloor using urethane-based Mannington UltraSpread Mastic™ adhesive and a minimum 3/16" x 5/32" V-notched trowel. This moisture-cured polyurethane adhesive forms a tenacious bond. The adhesive is VOC compliant, nonflammable, contains 0% water, and has a very mild odor.

Before installation, do a calculation to determine the width of the last row of planks. If it is less than one half of plank width, split the difference between the starter row and the last row. In any case, you will most likely be required to cut the last row of planks to width with a table saw equipped with a plywood cutting blade.

Select a starter wall. An outside wall is best because it's more likely to be straight and square with the room. Measure out from this wall, at each end, the width of two or three planks.

Snap a chalk line from these points, parallel to that wall and perpendicular to the adjacent end walls. Since most walls are not straight, the edge of some planks may have to be trimmed along the wall or cut to fit.

It is not necessary to leave an expansion space for Mannington LOCnGO planks when fully adhered.

"Racking" the Floor

This process is essential to achieve a random appearance. Start by either using random length planks found in the carton or by cutting planks in random lengths, differing by at least 6". When starting these first few rows or courses, make certain to always measure from the tongue end of the plank when cutting. As you continue working across the floor be sure to maintain the 6" minimum between end joints on all adjacent rows. Randomly install different lengths to avoid a patterned appearance. Never waste materials; the ends cut from starter rows should be used at the opposite side of the room to complete rows or used to start the next row.

✓ **NOTE: As stated earlier, it is extremely important to blend planks from several cartons to ensure a good balance of color, graining, and plank length.**

Spread Mannington UltraSpread Mastic™ from the chalk line out to the width of two planks with a minimum 3/16" x 5/32" V-notched trowel. You can start laying planks immediately into wet adhesive; however, for optimum performance, Mannington recommends allowing the adhesive to set for 30 minutes.

Install the first row of starter planks and secure into position with the tongue facing the starter wall. Proper alignment is critical. Misaligned starter rows can ruin the entire installation. The locking feature of these LOCnGO planks eliminates the need to tape or otherwise secure the planks to keep them aligned and in position.

When the first two starter rows are secure, spread 2' to 3' of adhesive across the length of the room. (Never spread more adhesive than can be covered in approximately 3 hours. If the adhesive has set and will not transfer to the back of the plank, scrape up the adhesive and apply fresh UltraSpread Mastic™ adhesive.) Always work off of the product. Keep foot traffic to a minimum until the adhesive has had an opportunity to set.

Place planks into position on top of adhesive and lock into place. Avoid clustering the end joints. Stagger random lengths so that end joints are no closer than 6." Roll the completed wood floor installation in both directions with a three-section 100-lb floor roller.

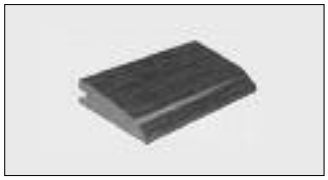
Retain a few leftover planks in case a repair is ever required.

Cleanup

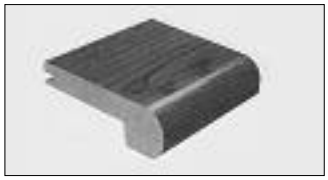
Clean UltraSpread Mastic™ adhesive from floor and tools with urethane adhesive cleaner. Do not allow adhesive to dry on the surface of the flooring.

Moldings and Trim

Finish your installation with Mannington Wood Floors™ matching moldings and trim. Our prefinished moldings and trim are manufactured to match our line of finishes to enhance the final appearance of your wood floor installation.



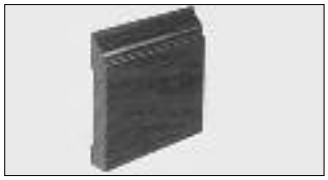
Reducer Strip
This molding creates a perfect transition between floors of different heights; for example, engineered wood to resilient flooring.



Step Nosing
Stairs often take a lot of traffic and they also serve as a decorative focal point. This protective strip along the edges will catch the brunt of foot traffic, while enhancing the overall beauty of the staircase.

Baby Threshold
Baby Thresholds are used in the doorways of adjoining rooms with floors of two different heights.

T-Molding
T-Molding should be used to join two different floor surfaces that are approximately the same height; for example, engineered wood to ceramic tile.



Wall Base
This molding accents the wood floor at the base of the walls. It gives any room a formal finished look, while maintaining a crisp, sharp juncture between the floor and wall. This molding can be used with or without Quarter Round.

Quarter Round
The rounded profile of this molding creates a subtle blend between the floor and the wall. It can be used with or without Wall Base molding.

Molding Installation

Install Mannington wood moldings using traditional methods. Simply nail moldings into place with clean finishing nails. Follow the instructions below for specific installation techniques on each molding.

Quarter Round & Wall Base

Nail Quarter Round and Wall Base molding into the wall with finishing nails. Wall Base and Quarter Round can either be used separately or together, each achieving a different look and style. Do not fasten these moldings directly into the flooring. They should be kept slightly off the floor so as not to bind or jam the flooring.

Step Nosing requires a unique installation method. Glue the wood flooring and Step Nosing directly to the stair tread using Mannington UltraSpread Mastic.™

When installing T-Molding, Baby Threshold, or Reducer Strip, first drill small holes in the molding to avoid wood splits. Using the drilled holes as your guide, hammer finishing nails directly into the subfloor every 18".

Finish Moldings

Use appropriate finish moldings or terminating profiles as transitions to door thresholds, steps, or other floor coverings. T-Molding, Baby Threshold, and Reducer Strip moldings can be glued or nailed to the subfloor using finishing nails. When installing Quarter Round and Wall Base it is important to miter all corners as well as junctures. Drill small holes for nailing in the molding to avoid wood splits and nail into the wall every 18".

Installation Accessories

Floor Adhesives

Style Number	Package Size	Coverage	Lbs/Pkg	Gal/Pallet	Lbs/Pallet
New Mannington VOC-Compliant UltraSpread 50 Mastic™ Adhesive					
US601	4 1-gal cans	50 sq ft/gal	56	180 (45 ctns)	2,570
US605	5 gal pail	250 sq ft	70	135 (27 pails)	1,766
MegaGlue™ Adhesive					
ADH 600021XSA	12-16 oz bottles	Varies according to plank width*	N/A	N/A	N/A

*See MegaGlue™ Adhesive Requirements Chart below.

MegaGlue™ Adhesive Requirements

Requirements per 100 sq ft	
Plank Width	Approximate Number of MegaGlue™ Bottles /100 sq ft
3"	2.5
5"	1.5