

Rezill Base RP-111 INSTALLATION GUIDE

1. INSPECTION AND PREPARATION OF THE SUBSTRATE

The product may be installed on the following substrates:

- New or old substrates such as:
 - Concrete slabs
 - Intermediate and upper concrete slabs and floors
 - Cement-based floor leveling compound
- The following are of concern:
 - No pea gravel except when installing using SGT.
 - No river gravel except when installing using SGT.
 - No slag aggregate except when installing using SGT.
 - Any subfloor material not referenced above
 - Contact Connor Sports Technical Department for direction

Local standards must be applied, and the following requirements must be satisfied:

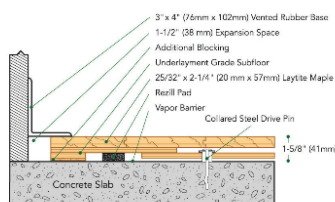
- Surface evenness shall not vary more than 1/8" when measured with a 10' straightedge. Identify areas requiring correction. All high spots should be ground level. Fill low areas with appropriate leveling compound. The fill must not become brittle, crack or lose bond to the concrete slab. Fill must not be affected by loads applied to resilient pads if present. In anchored system applications, the fill must provide the required P.S.I. strength and allow anchoring without breaking or spawling when pins are installed. This is the responsibility of the general contractor or concrete subcontractor.
- Subfloor humidity shall meet industry standard testing procedures. Area shall be free of foreign materials and turned over to the installer (Flooring Contractor) broom clean.
- Permanent heat, light and ventilation shall be installed and operating during and after installation, maintaining a range of temperature and humidity compatible with the expected low and high moisture content of the flooring. The wood moisture content range is determined by the Flooring Installer based on the facility's mechanical controls and/or geographical location.
- The concrete must offer an average compressive strength of > 3500 psi (24.13 Mpa) after 28 days.
 - For SGT installations, concrete must offer an average compressive strength of > 3000 psi (21 Mpa) after 28 days.
- Installer (Flooring Contractor) shall document all working conditions provided in General Specifications prior to commencement of installation.

Report any discrepancies to general contractor and architect in writing.

2. PRODUCTS

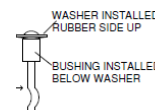
NOTE: Before you start work, check with our technical services department to see if this data sheet has been amended with a more recent version.

Examine the materials prior to installation to ensure that there are no visual defects. If the flooring has already been installed, the cost of any remedial work will not be covered.



DESCRIPTION

1. Concrete slab
2. Polyethylene, 6 mil (0.2 mm)
3. Resilient pad, 1" x 4.5" x 14mm
4. Preassembled subfloor construction
5. Flooring
6. Vented cove base 4' x 3" x 4"
7. Expansion space (1-1/2")
8. Anchor pin



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3. SUBFLOOR CONSTRUCTION: FLOORING AND TOOLS

MATERIALS SUPPLIED WITH THE ORDER BY CONNOR	MATERIALS AVAILABLE BY ORDER FROM CONNOR	MATERIALS AND TOOLS SUPPLIED BY THE INSTALLER
FOR THE SUBFLOOR CONSTRUCTION		
		Subfloor Staples 3/4" / 5,000 units / 1 box about 9500 sf
Preassembled subfloor panel 1 panel = 28 sf		Drill bit (1/4" / 6mm)
	Vented cove base (4 linear feet) / 10 units	Preferred cove base adhesive
Anchor pins (spike, washer, bushing) minimum 2" length / 6 per panel	Polyethylene, 6mil (0.2 mm) / 1 box (2000 sf)	1/4" Blocking materials
Drill Guide		
Alternate Anchor – SGT anchors		
SGT Driver		
FOR THE FLOORING		
Flooring bundles = 19 sf Width: 2-1/4"	Flooring Staples 1-1/2" 5,000 units / 1 box (645 sf)	Staple gun, such as Bostitch MIIIFS, for securing Connor flooring
		Shims
	Spline	Adhesive

4. CONDITIONS AND PREPARATION OF THE GYMNASIUM

4.1- STORAGE

The materials required to install the Rezill Base RP-111 subfloor system must be stored in a dry space in the area where it will be installed. The building conditions shall be at moisture content compatible with the normally expected environmental range of temperature and relative humidity achieved while the facility is occupied.

4.2- ACCLIMATION PERIOD

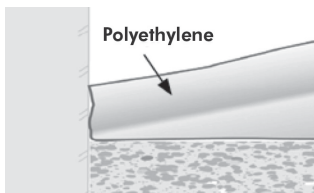
IMPORTANT: prior to installation, the ambient temperature in the room should be between 55 and 75°F. Relative humidity should be between 35 and 50%, or at a level that will prevail once the space is occupied and maintain a fluctuation of less than 15%. Once these conditions are met, materials can be delivered.

While installing the subfloor, maintain the same conditions (i.e., ambient temperature and relative humidity) as required for flooring. Permanent mechanicals must be operating prior, during, and after installation, to create environmental conditions which will exist when the facility is occupied. Flooring should never be installed if wood moisture levels are outside of the yearly range anticipated for the facility.

The benefit of acclimation depends on the relationship between wood moisture content and equalized value related to anticipated peak humidity. There can be little or no benefit to acclimate wood flooring during dry winter months when humid conditions do not typically exist for wood flooring to increase in moisture content.

The flooring contractor determines when conditions and wood moisture content indicate that acclimation is required and beneficial, and if/when further acclimation is required.

5. LAYING THE POLYETHYLENE VAPOR RETARDER



A polyethylene vapor retarder with a thickness of at least 6 mil should be laid across the entire subfloor.

Coving: the vapor retarder should be turned up at the edges of the room by at least an amount to exceed the thickness of the materials to be installed to reach the finished floor level. After wood floor installation, the vapor retarder should not be viewable. It may be cut if necessary.

If using more than one sheet of vapor retarder, seams should overlap by 6" minimum.

If slab moisture conditions exceed 85% for standard installation, and 95% for SGT installations, contact Connor Sports Technical team for assistance.

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6. INSTALLING THE SUBFLOOR CONSTRUCTION

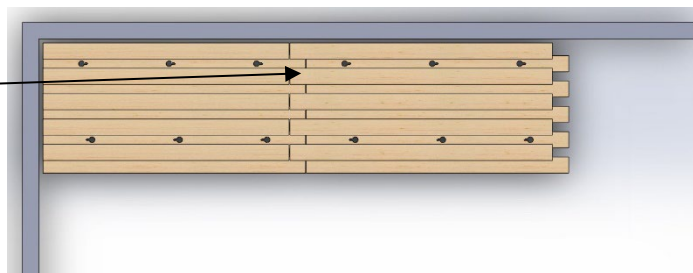
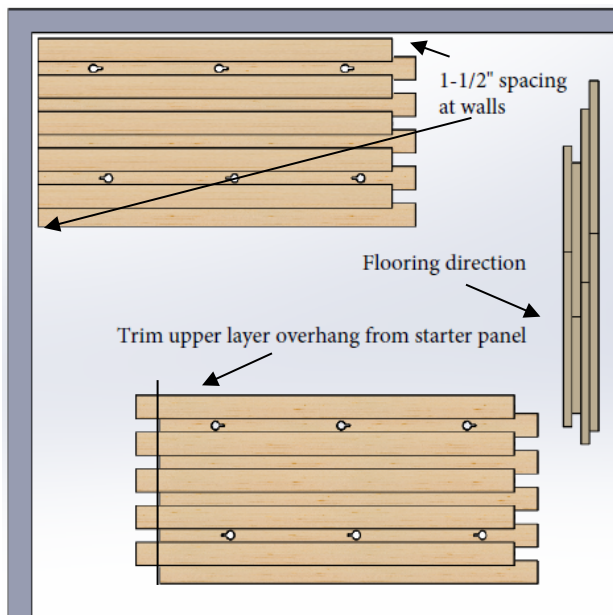
- 6.1 Prepare first panel of first row, and all odd rows, by trimming overhang from upper layers. Position panel at wall perpendicular to intended flooring direction. Maintain 1-1/2" spacing from walls and obstructions.
- 6.2 Maintain 1/4" spacing between panel ends.
- 6.3 Support sleeper ends with solid blocking material as needed for obstructions, doorway openings, under closed bleachers, and other high load areas throughout subfloor installation.

IMPORTANT: To avoid restricting air flow, do NOT install continuous blocking parallel to walls.

- 6.4 Using drill guide provided, bore 1/4" (6mm) diameter anchor holes in concrete slab at each anchor location in panels. Drive anchors in each anchor location. Take care not to overdrive. Pin penetration is sufficient when washer and bushing are firmly secured between spike head and concrete slab.
- 6.5 Using 3/4" staples, secure overlapped ends. Apply pressure to ensure tight bond.
- 6.6 Anchor the panels with anchor pins as you go along. Assemble anchors with washers and bushings as shown in Product Section 2 above. Refer to Section 8, entitled «Anchoring the subfloor panels».

TIPS

Anchors can be used to space ends of panels. Remove during install of next row.



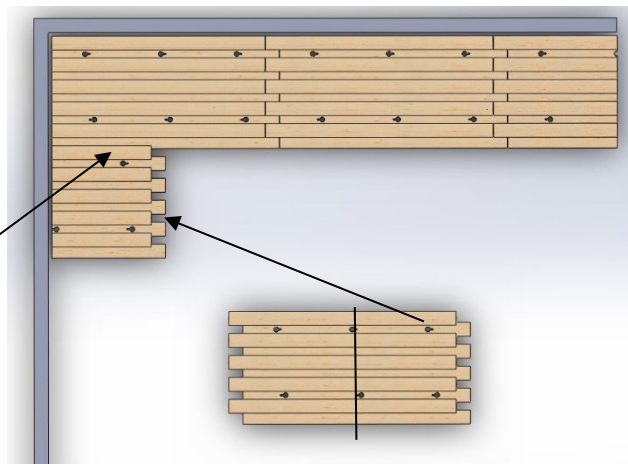
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- 6.7 Prepare panel for starting second row, and all even numbered rows, by cross cutting a panel in half. Be sure to cut to both upper and lower layers as well as the resilient pad.

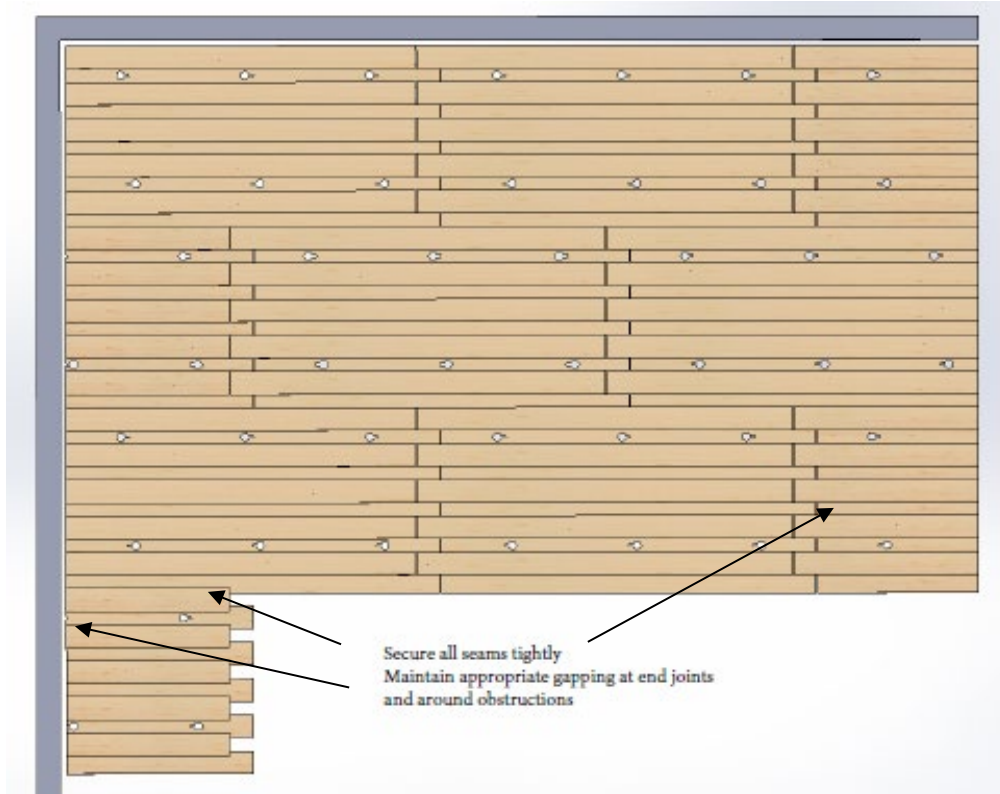
IMPORTANT:

When using a cut piece from a previous row, be sure end joints of current row and end joints from adjacent rows are offset by at least 16".

- 6.8 Attach each row to previous row using 3/4" (51mm) staples applied 12" on center. Be sure to apply pressure during application to ensure tight bond. Maintain space between upper sections when installing new rows.



- 6.9 Continue with installation maintaining appropriate gapping at end joints and at walls and obstructions. Be sure to alternate odd and even rows to create a staggered brick pattern.



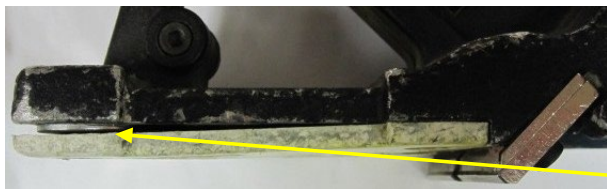
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1-1/2" flooring cleats **MUST** be used. If the proper cleat is unavailable, the following modification must be performed on all guns to be used in the installation of flooring to allow the use of 2" flooring cleats.

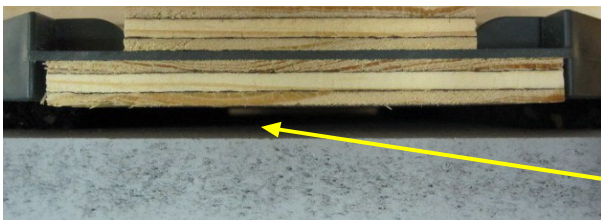
SCREW LOCATION



1. Remove two rear screws attaching spacer to gun body.
2. Insert washers between spacer and gun body. (Exact number of washers required to be determined in Step 3.) Secure with screws previously removed.
3. Test gun to ensure that cleats protrude no more than 1/8" from bottom layer of plywood sleeper.
4. Add or remove washers to adjust protrusion.
5. Perform all of these steps on each gun to be used during installation.



INSTALL WASHERS HERE



VERIFY MAXIMUM CLEAT PROTRUSION OF 1/8"

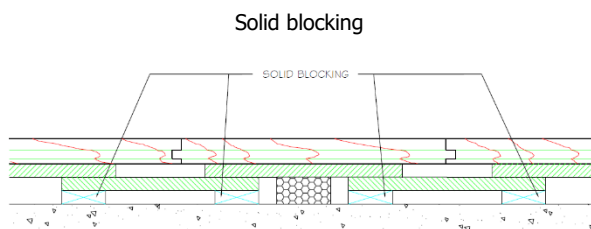
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7. REINFORCEMENT BLOCKS TO BE INSTALLED BENEATH RETRACTABLE SEATING SYSTEMS IN THE STACKED POSITION, IN FRONT OF ACCESS DOORS, STORAGE AREAS, PORTABLE BASKETBALL GOALS, ETC.

Reinforcement blocks must be installed in place of, or adjacent to, pads in areas subject to high static loads and at sleeper ends (refer to Section 6).
Fasten the blocks to the subfloor panel.

Do not use continuous blocking along walls to avoid issue with air flow.



1. 1/4" (6mm) solid wood strips with a width of at least 2" (51mm) beneath double plywood layers in areas where solid blocking is required.
2. Blocking recommended in the following areas.
 - under bleachers in the closed stacked position
 - at doorway, threshold, and under-floor access covers
 - under portable goal locations

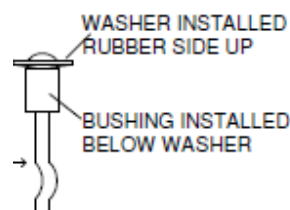
8. ANCHORING THE SUBFLOOR PANELS

8.1- DRILLING FOR THE ANCHOR PINS

Use a hammer drill, a 1/4" (6mm) masonry drill bit and drill guide. Drill through the pilot holes in the subfloor panel and the polyethylene sheeting.

TIPS

Ensure depth of hole will properly accommodate the pin, taking into account that there may be debris in the hole as well.



NOTE: If using SGT anchors, skip to 8.3 below

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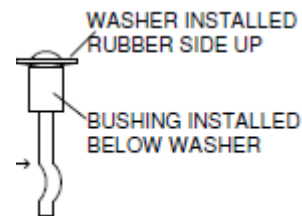
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8.2- INSTALLING THE ANCHOR PINS.

8.2.1 Preparing the anchor pins

Anchor pins are supplied in three parts. Place the washer with the rubber side up against the underside of the anchor pin head.

This prevents the two metal parts from coming into contact and causing squeaking over time.



TIPS

Oil the end of the anchor pin, so that it will slide into the washer more easily.



8.2.2 Installing the anchor pins

The anchor pin has been driven in far enough when the washer no longer moves but can still be rotated around the anchor pin if turned with two fingers. The bushing must not be crushed against the sleeper.

TIPS

If necessary, check that the anchor pin has been driven in far enough by measuring the space between the anchor pin head and the upper sleeper.

8.3 Alternate Anchor Option: SGT

If installing using SGT anchors, apply a small amount of SGT adhesive to base of anchor. Slide anchor into pre-drilled slot in subfloor panel and press through poly to bond to concrete substrate. Screw head of anchor down to secure panel in place using driver provided. Be careful not to over-tighten.



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DETERMINING RECOMMENDED EXPANSION ROW SPACING

Use Table 1 or Table 2 provided to determine the expected peak moisture content level, then record the actual current wood moisture content (MC) reading value below. Subtract the two values to determine the potential moisture content increase, then lookup the recommended expansion spacing using Table 3:

_____ **VALUE OF EXPECTED PEAK MOISTURE CONTENT** (SELECT OPTION BELOW)

- A) USDA Map of Historical MC Averages Lookup (Table 1)
- B) -or- Temperature and Humidity Range Lookup (Table 2),
- C) -or- Controlled Environment of 35%-50% = 9% MC

_____ **VALUE OF ACTUAL CURRENT WOOD MOISTURE CONTENT READING**

_____ **DETERMINE THE EXPECTED WOOD MOISTURE CONTENT INCREASE**
(SUBTRACT THE TWO VALUES ABOVE)

_____ **LOOKUP THE RECOMMENDED EXPANSION SPACING** (Table 3)

IMPORTANT NOTE: Use the Checklist Below to Assure Proper Spacing:

- ☐ Expected Peak Moisture Content Must be Precise Based on Anticipated Average Peak Humidity Conditions.
- ☐ Moisture Meter Must be Properly Calibrated and Accurate.
- ☐ Actual Moisture Content Readings Must be Recorded Daily and Expansion Provisions Adjusted Accordingly.

Table 1

MAP FROM FOREST PRODUCTS LABORATORY U.S. DEPARTMENT OF AGRICULTURE

Map of standard variation of average moisture content for wood used indoors. For each set of figures: the first numeral represents the average moisture content measured during January, and the second figure represents the average moisture content during July.

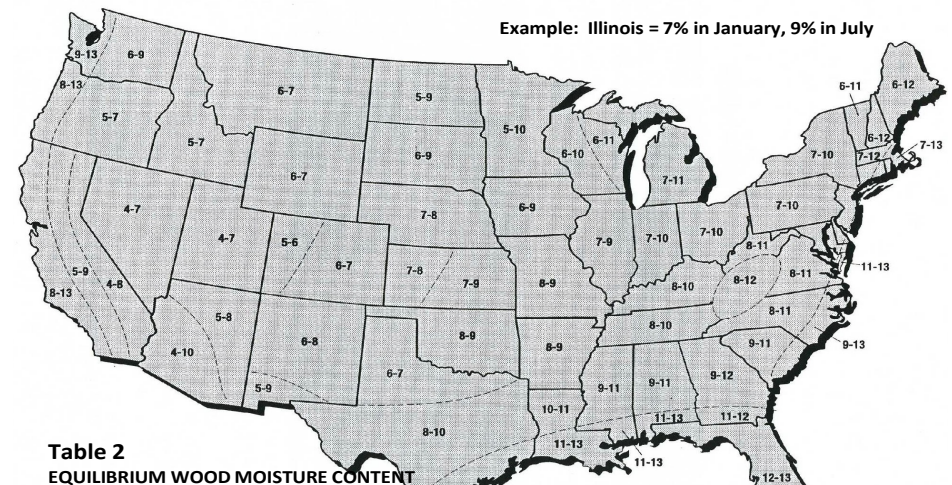


Table 2

EQUILIBRIUM WOOD MOISTURE CONTENT

TEMP	RELATIVE HUMIDITY						
	35%	40%	45%	50%	55%	60%	70%
60° F	7.0	7.8	8.6	9.4	10.2	11.1	12.1
70° F	6.9	7.7	8.5	9.2	10.1	11.0	12.0
80° F	6.8	7.6	8.3	9.1	9.9	10.8	11.7
90° F	6.7	7.4	8.1	8.9	9.7	10.5	11.5

Table 3

RECOMMENDED SPACING FOR 2-1/4" HARD MAPLE

MOISTURE CONTENT INCREASE %	EXPANSION SPACING		
	1/16"	3/32"	1/8"
1%	22 rows	-	-
2%	11 rows	17 rows	-
3%	8 rows	11 rows	15 rows
4%	6 rows	8 rows	11 rows

Note: Narrower spacing applied closer together function best for predictable, uniform expansion.

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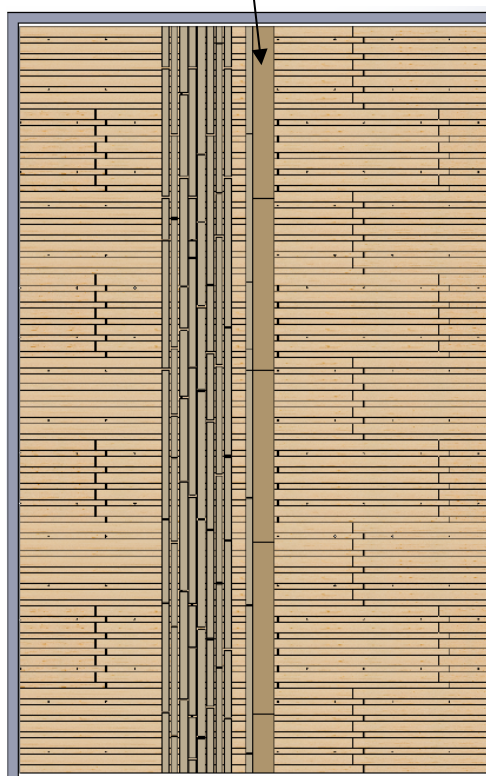
9. INSTALLING THE FLOORING

9.1 – SEE PREVIOUS PAGE FOR DETERMINING THE EXPANSION GAP NEEDED

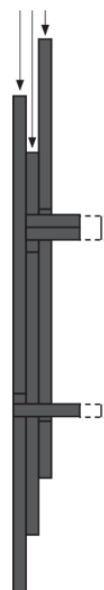
9.1.1 - INSTALLATION STARTING FROM CENTER

Install the flooring strips by starting in the middle of the gymnasium.

Plywood starter strip



- 1 Mark out the center. Perpendicular to the subfloor panels.
- 2 Tack plywood sheets (starter strip) along the center mark.
- 3 Rack out and sort the strips for color and length so they are ready to be stapled according to the following rule:



4-1/2"

- The offset in joints between consecutive rows must be greater than 4-1/2" (width of two strips).

2-1/4"

- The offset in joints between every other row must be greater than 2-1/4" (width of one strip).

TIPS

To ensure shims easy removal:

- Be sure to respect the pressure recommendation of your staple gun.
- Remove your expansion gap blocks prior to sanding.

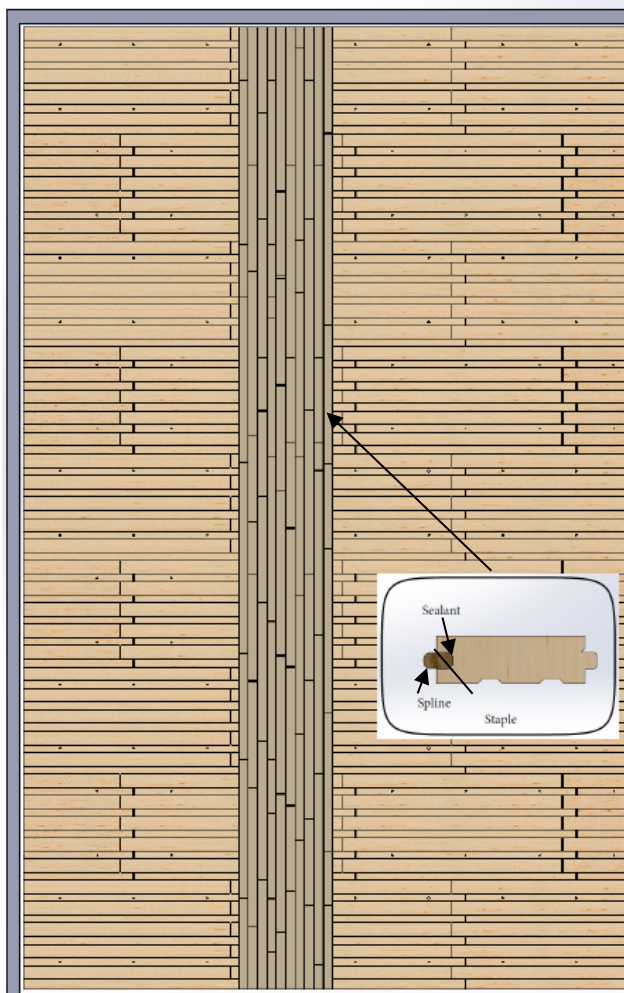


- 4 Staple a row of strips along the center using the plywood sheets as a guide.
Add shims according to the value you defined for expansion gap using §9.1.
Don't remove a line of shims before the installation of a new line of shims.

Based on MFMA recommendation, color variations are not considered grading defects within MFMA Grading Rules. Bundles of maple flooring are generally mixed on site to enhance color blending of maple flooring strips to avoid groups of darker boards from being placed in the same area. Even with proper blending, it is impossible to identify those maple flooring strips that will have a darker appearance once floor sealer is applied. Color variations of this type are expected and considered normal. A complete list of grading characteristics and restrictions appear in the MFMA Grading Rules publication.

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9.1.2 - INSTALLING THE SECOND HALF OF THE GYMNASIUM



Attaching the spline



Inserting the spline in the groove of the strips along the center mark:

- Remove the plywood sheets (starter strip).
- Apply adhesive to the bottom of the groove.
- Gently tap the spline into place using a hammer.
- Mechanically fasten the spline to the flooring.

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9.2 - ATTACHING THE STRIPS

Flooring strip joints will not always fall on a sleeper

9.3.1- Installation

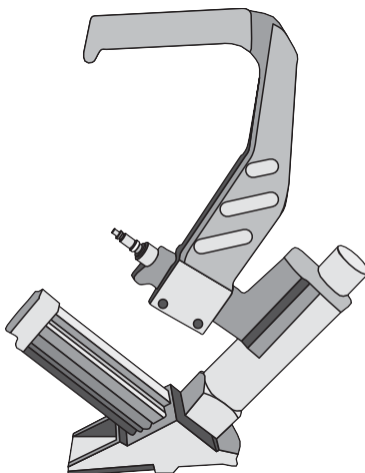
Strips must be mechanically fastened to the subfloor. Space fasteners approximately 12" on center, take care not to fasten where there is no upper plywood layer.

Take care to avoid positioning faster too close to the end of flooring strips as this could cause the tongue to split.

TIPS

To ensure the proper functioning of the fastening tool:

- Be careful to respect the pressure recommendation
- Use and add lubricant as recommended by the tool manufacturer each day of use.

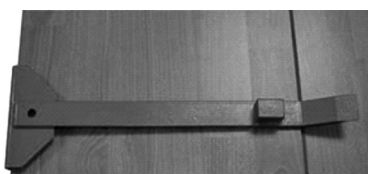


9.3.2 - Finishes

9.3.2.1 Installing edging strips

The last rows of strips that cannot be stapled can be secured using an alternate method such as adhesive in the tongues and grooves, face nailer, or other specialty tool designed to work in tight spaces.

Use a pull bar to insert the last row, which will need to have been previously cut (using a marking gauge).



10. SANDING, SEALING AND PAINTING CONNOR FLOORING

Refer to the MFMA technical bulletin "Sanding and Sealing / _New Maple Floor" for the proper procedure to sand, seal, and finish your floor.

<https://www.maplefloor.org/TechnicalInfo/Sanding-and-Sealing/New-Maple-Floor.aspx>

Depending on the products used, refer to the corresponding Installation guideline.

