



TUFFCORE SPC INSTALLATION GUIDE

EX EXPEDITION COLLECTION

For the most up-to-date installation and maintenance requirements, please visit www.my-nfp.com. All warranties are based off installation and maintenance guides published on our website at the time of your installation.

The intended end user and the installer should have a clear understanding of expectations of the color, installation, and layout. Carefully inspect the products before installation for any milling, dimensional, or visual defects. If the flooring supplied does not satisfy the customer, do not proceed to install. The decision not to proceed must be made within the first 10% or 100 sq ft of the flooring boxes opened. Open boxes exceeding this amount will not be eligible for return.

TO AVOID COSTLY INSTALLATION MISTAKES ONLY INSTALL FLOORING IN ROOMS UNDER ADEQUATE LIGHTING CONDITIONS.

[01] GENERAL JOBSITE/HOME CONDITION

Important: The requirements listed below are considered standard practices for the flooring industry and are required by most building codes. Following these simple guidelines will greatly extend the life of any fixture in the jobsite/home. Local building codes may vary and will prevail.

- It is the jobsite/homeowner designated installer's responsibility to inspect flooring prior to installation. Inspect every plank for inconsistency with the finish, texture, milling, color, graining, tongue and groove integrity, dimensions, and the suitability of the flooring product to its environment. Flooring products installed with pre-existing defects or were incorrectly acclimated CANNOT be claimed after installation.
- Verify there are enough materials to complete the job with a minimum of 2% extra for future plank replacements.
- Allow a minimum of 5% waste for culling, shipping damage, and for on-the-job waste.
- Make sure the crawl space has at least 18" clearance from the dirt to the bottom of the beams. Remove all cardboard from the concrete walls, pillars, and footings as it will trap and hold moisture. The entire crawl space must be covered

with a minimum of 6 MIL plastic (puncture resistant) with all seams overlapped 18" and fully sealed with a moisture proof tape.

- To prevent excessive moisture buildup, all crawl spaces must have a minimum of 1.5 square feet for every 100 square feet of crawl space at the exterior of the house for cross ventilation or an air exchanger will be needed. It may be necessary to install temperature/humidity activated exhaust fans to create air movement in the crawl space.
- Drainage from roofs, rain gutters, and other sources of moisture around the jobsite/home must be directed away from the site.
- All exterior doors, windows, drywall, painting, and venting must be properly installed prior to the delivery of the flooring to the jobsite/home. Do not store in exterior sheds, garages, or rooms that are not temperature controlled.
- All heating and cooling systems are required to be installed and functioning for at least 14 days before the installation of the flooring begins.
- Use a hygrometer that reads temperature and RH (relative humidity) to check jobsite/home heating and cooling systems. They must be able to maintain a minimum of 30 to 60% RH and 60 to 80°F before and during the flooring installation. Post installation, the temperature must be maintained between 10-142°F.
- Small humidifiers are not capable of properly maintaining the humidity levels in large jobsites/homes. Your local heating and cooling air service contractors can provide information for automatic humidifiers/dehumidifiers that work with your heating and cooling systems.
- SPC flooring is not recommended to be installed any area of the jobsite/home that has extreme temperature and moisture fluctuations. For example: saunas, hot tub/pool rooms, green houses, exterior porches, or garages.
- Since flooring is not compatible with wet conditions, the manufacturer does not warrant against moisture related issues or related damage under their warranty.

[02] IN-FLOOR RADIANT HEAT REQUIREMENTS (HYDRONIC SYSTEM ONLY)

Visit www.my-nfp.com for the current list of products that are approved for in-floor radiant heat. There are unique installation requirements for flooring installed over radiant heat. Prior to installation, it is the responsibility of the jobsite/homeowner designated installer to check with the manufacturer for a current list of approved installation methods and underlayment requirements. All warranties are based off installation and maintenance guides published on our website at the time of your installation.

IN-FLOOR RADIANT HEAT SYSTEM REQUIREMENTS:

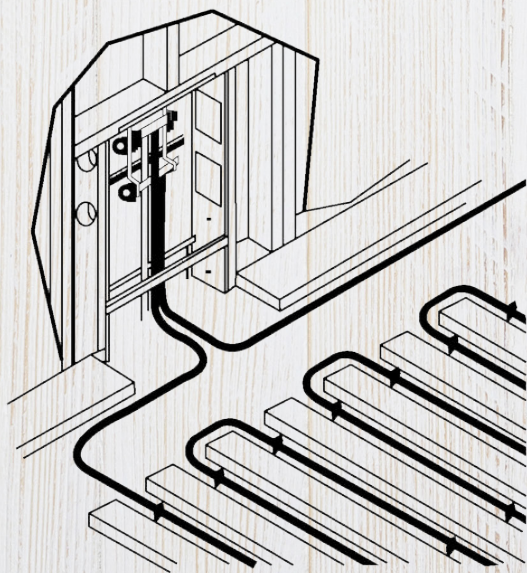
- Only flooring that is clearly marked approved can be installed over in-floor radiant heat.
- Only hydronic in-floor radiant heat systems with failsafe capabilities to ensure the boiler does not exceed 110°F and the surface temperature does not exceed 85°F are approved.
- Operate the in-floor radiant heat system for at least 14 days prior to the flooring being installed. All moisture in the substrate MUST be evaporated off. This will also ensure all systems are in good running condition.
- To prevent expansion and contraction issues related to the in-floor heat system, a humidity control humidifier must be installed and properly functioning one week before, during,

and after the installation for the life of the floor.

- The in-floor radiant heat systems CANNOT be installed directly below the flooring. The heating element must be embedded a minimum of 5/8" into the concrete, gypcrete, or installed under the wood subfloor. This will ensure the radiant heat is evenly distributed across the substrate before the heat comes into contact with the flooring.
- Important: Leave a 1/2" expansion gap around all walls, tubs/shower, plumbing fixtures, exterior doors, large Sub Zero style refrigerators or appliances.
- Transition strips/breaks are required over in-floor radiant heat substrates exceeding 50 feet lengthwise and widthwise.

IN-FLOOR RADIANT HEAT ACCLIMATION REQUIREMENTS:

- Do not deliver the flooring to the jobsite until all environmental condition have been met.
- Always acclimate the flooring in the temperature-controlled room where it will be installed.
- During acclimation, do not remove the material from the box or lean boxes on walls. Only stack the boxes squarely on top of each other, no taller than 3', and keep the stacks a minimum of 3" apart.
- It is required to reduce the subfloor surface temperature down to 64°F a minimum of 72 hours before and during the installation.
- Acclimate for a minimum of 48 hours in the temperature-controlled room it will be installed.
- After the installation, raise the temperature slowly to desired conditions. It is recommended to not raise the temperature up or down more than 5°F in a 24 hour period.
- To prevent the floor from overheating or trapping moisture, never cover the flooring before, during, or after installation with any type of non-breathable or excessively thick rugs, mats, solid surface items, plastic, or a mattress that is laid directly onto the floor. It must be allowed to breathe.



IN-FLOOR RADIANT HEAT APPROVED INSTALLATION METHODS:

- See approved substrate portion of this guide for all substrate requirements.
- Only floating installations are approved for substrates with in-floor radiant heat.

[03] IN-FLOOR RADIANT HEAT MOISTURE BARRIERS AND RETARDERS

The type of moisture barrier is usually based on the installation method and substrate. Different types of moisture barriers produce the same end result by doing it in different ways. Check with local building codes and the manufacturer of the radiant heat systems for recommendations.

SPC WITH ATTACHED CUSHION (IN-FLOOR RADIANT HEAT):

- Below, On, or Above Grade Concrete & Gypcrete Slabs: Cover the entire slab substrate with 6 mil plastic with all seams overlap 12" and taped with moisture proof tape.
- Wood Subfloors: A moisture barrier is not required over a finished basement or a crawl space that meet all of the "General Jobsite/Home Condition" requirements.

Prop 65 Warning: Drilling, sawing, sanding, or machining wood products generates dust, a substance known to the state of California to cause cancer. Use caution during the removal or sanding of existing flooring or other building materials as these may contain hazardous fumes, chemicals, or generate harmful dust. Check the substrate for any health hazards. Always wear safety equipment and approved dust mask.

[04] GENERAL INSTALLATION SPECS

- Avoid installing flooring planks pieces less than 8" in total length against walls or on ends.
- It will generally be necessary to saw some flooring panels during installation. To obtain a clean cut, the pattern side should face down if using a jigsaw, saber saw, or circular handsaw and face up when you use a handsaw, table saw, or a crosscut saw.
- Before installation begins, use a jamb saw to undercut all door casings (1/16" between door casing and top of flooring material) and vertical objects coming off the floor. To achieve the correct height, combine a piece of the vapor retardant and flooring together to use as a guide for the saw. Be sure to clean out all debris from under the jambs. This will allow the flooring to slide underneath the object for a clean, professional look.
- Contractors: When setting door casings post-installation of the flooring material, make sure there is adequate space for the flooring material to expand and contract without any hindrance.
- Never fasten nails/screws anything through the flooring into the substrate. The floor MUST be allowed to float freely.
- For a perfect finish around pipes, use rosettes or caulking in places where profiles or skirting cannot be placed. Fill expansion gaps with matching caulking. Silicone caulking has more elasticity than other caulking material (e.g. acrylic or blends).

[05] GENERAL SUBSTRATE CONDITIONS

- All substrates must be flat and free of dust, loose particles, paint, drywall compound, and structurally sound.
- Sand and/or flatten the substrate to within 3/16" dip or rise in 10' or 1/8" dip or rise in 6' radius for.
- If levelling of the substrate is required, use only cement-based levelling compounds. Be sure to follow the levelling compounds manufacturer installation guidelines.

- SPC flooring can be installed over wood sub-floors that are ON or ABOVE GRADE and over concrete or gypcrete substrates that are BELOW, ON, or ABOVE GRADE.
- The substrate when walked on must not exceed 1/4" deflection in a 6' radius, or more than a 1/16" between the floor joist. If it does, this condition must be corrected before any product installation begins. The subfloor will not stiffen up after the flooring is installed.
- Always check and repair any loose, delaminating, or broken substrates.
- Hand-held angle grinders with special cupped diamond grinding wheels and vacuum attachments can be rented or purchased from your local rental or home building center. This system works well with any type of substrate. Use precautions when sanding any surface. Check the substrate out for any health hazards. Always wear safety equipment and approved dust mask.

[06] APPROVED SUBSTRATES

PLYWOOD/OSB:

- Do not install over wood subfloors that test above 12% MC (moisture content).
- Note: If installing new wood subfloors from lumber yards, be sure to test the MC. Typically, they have higher levels of moisture and may need to acclimate longer. This condition is not covered by any manufacturer warranty.
- Fix all squeaks coming from the wood subfloor prior to installation. Use wood screws, minimum of 2-1/2" lengths, fastened every 6" through the wood subfloor into the joist. Squeaks in the subfloor will not go away after the floor has been installed.
 - When joists are 16" o/c or less; minimum acceptable thickness is 5/8" CDX plywood or nominal 3/4", OSB 40LB Minimum density, T&G, with a TECO or APA certification stamp.
 - When joists are 16" o/c up to 19.2" o/c; minimum acceptable thickness is 3/4" plywood or nominal 3/4", OSB 40LB Minimum density, T&G, with a TECO or APA certification stamp.
 - When joists are 19.2" o/c up to 24" o/c; minimum acceptable thickness is 7/8" plywood or nominal 1", OSB 40LB Minimum density, T&G, with a TECO or APA certification stamp.

CURED CONCRETE/GYPCRETE: (6MIL PLASTIC VAPOR BARRIER IS RECOMMENDED TO AVOID MOISTURE RELATED ISSUES)

- Cured concrete must be over 3000 PSI. Cured gypcrete must be over 2500 PSI.
- All concrete or gypcrete substrates must be cured for a minimum of 60 days before any flooring product is ever installed over them.
- Concrete moisture testing should be performed by ASTM F1869 Calcium Chloride Tests with levels NOT exceeding 5LBS per 1000 ft² for a 24 hour period, or an ASTM F2170 In-Situ relative humidity test with readings exceeding 80%.
- Gypcrete dries very fast so Maxxon recommends using the mat test or Delmhorst #B2100 moisture meter.
- Test the concrete subfloor for alkalinity. The pH of the floor should be between 5 and 9).

PARTICLE BOARD (UNDERLAYMENT-GRADE):

- The only manufacturer recommended installation method that can be used directly over underlayment-grade particle

board is the floating method as long as there are no current or future moisture concerns from below or above. If moisture comes in contact with the particle board, it may swell. The product warranty does not cover subfloor upheavals.

OTHER APPROVED SUBSTRATES (FLOATING ONLY): (ALL MOISTURE CONTENT, FLATNESS AND DEFLECTION REQUIREMENTS WOULD APPLY.)

- Ceramic, porcelain, or natural tile with the grout joints filled flat with Portland based patching material.
- Single layer of clean, well adhered, non-cushioned, full spread glued sheet vinyl, or VCT. All embossing must be feathered filled with suitable filler patching compound.

UNACCEPTABLE SUBSTRATES:

- Solid or engineered wood floors over concrete or with any texture.
- Floors that are floating, cushioned, perimeter glued, carpet, carpet pad, lumber subfloor, or subfloors that are sticky.
- ACQ treated plywood or exterior low density OSB sheathing used for general construction.

[07] ACCLIMATION (FOR RADIANT HEAT SEE "IN-FLOOR RADIANT HEAT ACCLIMATION REQUIREMENTS" SECTION)

- Installing flooring before it has properly acclimated will greatly increase the chances of expansion and contraction issues and may make it more difficult to install.
- Do not deliver the flooring to the jobsite until all environmental condition have been met.
- Always acclimate the flooring in the temperature-controlled room where it will be installed.
- During acclimation, do not remove the material from the box or lean boxes on walls. Only stack the boxes squarely on top of each other, no taller than 3', and keep the stacks a minimum of 3" apart.
- No acclimation is required if the product was stored and/or transported in 60 to 80°F for at least 24 hours prior to installation. Otherwise, it must acclimate for a minimum of 24 hours.
- Never cover the flooring before, during, or after installation with any type of plastic or tar paper. It must be allowed to breathe. Use only breathable floor protective construction paper (FortiBoard) to protect the flooring.
- Propane heaters are not an approved source of heat and can give off extreme amounts of moisture. They also do not provide a reliable and consistent source of heat. In fact, for every gallon of propane or kerosene that is burned, they both will put approximately 1.1 gallons of moisture into the ambient space. The manufacturer warranty will be void if the jobsite/home heating and cooling system were not fully operational at the time of installation.

[08] EXPANSION REQUIREMENTS

- Leave a minimum of 1/4" expansion gap for all installations under 20' lengthwise or widthwise. For installations exceeding 20' lengthwise or widthwise, add 1/16" per additional 5' of length or width, up to 5/8". For example: 25 linear feet would require a 5/16" expansion gap.
- Transition strips/breaks are required on installation exceeding 60 feet lengthwise or widthwise. See radiant heat section for in-floor heat.
- Never install cabinetry, islands, or other permanent fixtures on top of a floated floor.
- Never use nails to secure anything to the floor. The floor must be allowed to float.
- Leave the required expansion gap around all walls, tubs/

shower, plumbing fixtures, large Sub Zero style refrigerators, exterior doors, etc.

- Once the floor installation is complete, remove all spacers that were used to maintain the expansion gap.

[09 FL] APPROVED FLOATING METHOD (ELEMENTS I4F TRIPLE LOCK SYSTEM)

The I4F Triple Lock system is a patented locking profile for installing flooring planks without using glue.

- Be sure to inspect all edges and remove debris from the click before installing.
- The panels are clicked together on the long side and tapped down using a soft rubber mallet on the short side.
- Position the long side of the panel to be installed at an angle of 20 to 30° to the panel already installed. Move the panel gently up and down while exerting forward pressure. The panels will automatically click into place.
- As you install the click flooring, ensure all seams are fully engaged before moving on to the next row. Visually, a row can appear to be engaged but is not. To avoid this, use an approved tapping block to tap the long side of the planks together. This will securely engage the locking system.

[10] HOW TO PROTECT THE FLOOR DURING & AFTER INSTALLATION (DURING CONSTRUCTION)

- After each section of flooring has been installed and thoroughly cleaned, cover the floor with a breathable construction paper (FortiBoard). Do not apply the tape directly to the surface of the flooring. It may damage the finish.
- During construction, vacuum the floor as often as it takes to keep the floor free of dirt and construction debris. **Never use a beater brush.**
- If drywall repairs or any type of sanding is needed, thoroughly cover the floor. These types of dust and grit can damage the floor's finish and is very difficult to remove if it gets into the joints. Do not wet mop these types of dust. Always use a vacuum without a beater brush to remove any construction dust if needed.
- Before furniture goes onto the new floor, apply approved 3/16" thick heavy-duty felt pads under all furniture feet.
- Furniture with metal or hard plastic rollers or casters are **NOT APPROVED** for use on spc flooring.
- Never roll or drag anything heavy over the new floor. It will make indentations or scratches in the surface. Always use a soft-tire dolly when moving objects or a carpet piece turned upside-down or an air-sled.



PATENTS & TECHNOLOGIES

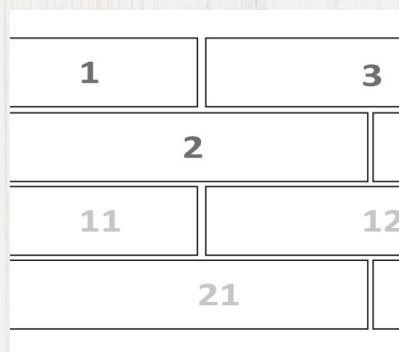


FIG. 1

Products should be staggered in bricklaid pattern, stagger equal to half of a plank for the first four rows. Tools needed: planks, underlayment, spacers, soft-faced hammer.

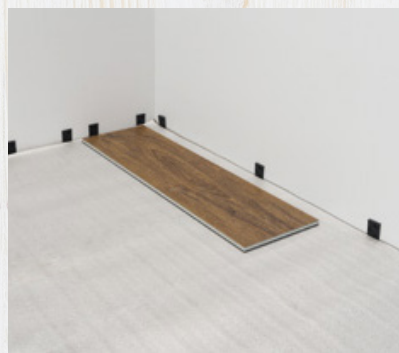


FIG. 2

It is very important that the first row is installed straight and square to the room. To realize this, installation alternates back and forth between rows one and two, for the first two rows only. Start with a small plank (1) and position this plank close to the wall.



FIG. 3

Now select a long plank (2). Using the Click4U angle system, angle the long side of plank (2) on to the long side of plank (1). Drop plank (2) to lock. Make sure there are no gaps.



FIG. 4
Take another long plank (3). Repeating the previous step, insert the long side of plank (3) into the long side of plank (2). Then slide plank (3) to your left until the short side is in contact with the short side of plank (1).

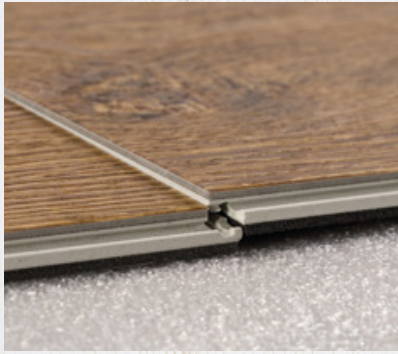


FIG. 5
Using the 3L TripleLock one piece drop-lock system, drop the short side of plank (3) onto the short side of plank (1). Be sure to align the short side of the row so it is not too tight or too short.



FIG. 6
Using a soft rubber mallet, slightly tap the joints on the short side to secure. This ensures 3x locking.



FIG. 7
Continue alternating planks on rows (1) and (2) to avoid misalignment. From row (3) onwards, installation does not require alternating rows. Install one row after the other by starting with angling on the long side, sliding until the short sides are in contact and then locking the short side.



FIG. 8
As you go, don't forget to use a soft rubber mallet on the short sides to secure the locking.



FIG. 9
Finished? Remove spacers and cover gaps with a trim.

HOW TO DISASSEMBLE THE PLANKS



FIG. 10
Lift up the entire row in the same angle as you did during installation, then slide the rows apart.



FIG. 11
Disassemble the row by sliding apart the planks on the short side. Do not pull straight up as the short side will be damaged.



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For the most accurate and updated information, please check our online version at www.my-nfp.com.