

Plank style finished floors come in many shapes, sizes and colors. Traditional hardwood products along with the newer laminate and engineered products fit into this category. The luxuriant look and feel of these floor products combined with a STEP Warmfloor™ system creates a finished floor installation that greatly enhances the comfort and value of your home.

Not all plank floor products available on the market today are suitable for use with all available radiant heat systems. It is important that you review the finished floor manufacturers radiant heat requirements and suggestions when selecting the finished floor.

The following information provides a basic overview of the design and installation needs and concepts for STEP Warmfloor™ systems installed under Hardwood, Engineered or Laminate floors.

Element Spacing

The natural and man made materials commonly found in plank style floor systems offer good thermal mass performance, allowing up to a maximum 5-inch spacing between STEP Warmfloor™ heating elements. An element spacing that is larger than 5-inches will have a cold stripe down the center of that spacing. This will result in undesirable performance for the customer. A spacing tighter than 5-inches, even down to 1-inch, is used to provide a very even floor surface temperature and to increase the floor response time to temperature changes in the room.

Thermal Insulation

For any floor warming or radiant heat system, the use of proper thermal insulation is required. Without the use of insulation, cold stripes on the finished floor surface may be evident even with a tight element spacing. As a minimum, you need to have more R-value below the elements than above.

Refer to the STEP Warmfloor™ Design Note on thermal insulation for additional information.

Plank Orientation

To ensure that the finished floor has a smooth and even surface, the heating elements strips should not be installed parallel with the direction of the planks. The optimum installation should have the elements running perpendicular to the plank direction. This provides for even support of the planks across the back of the heating elements, eliminating the potential for dips and sags at the plank joints.

Some plank system installations are installed at a decorative 30 or 45-degree angle in the room. In those situations, the elements can be installed parallel to the room walls and still provide even support of the planks. Instances will occasionally occur where the orientation of the elements has to be parallel with the plank direction. In those installations, the spacing between the elements needs to be 1-inch to minimize the potential for dips or sags in the finished floor.

Floor Layering Options

Plank style floors are installed using either a floating, nail down or glue down method. Which method is used is dependent upon the finished floor and subfloor types.

Make sure that all manufacturer's instructions and requirements are followed for all products used in the finished floor, especially any product temperature acclimation times before installation of the floor materials or adhesive curing times required before energizing the heating elements.

Floating Method

This method entails installing the STEP Warmfloor™ heating elements directly onto the subfloor. Attach the elements to the subfloor and install the extension wires per the manufacturers instructions. Install the finished floor materials following the manufacturers instructions. The foam pad supplied with the floating floor should be installed over the heating elements and directly under the planks as it is an integral part of the floating performance of the finished floor.

Nail Down Method

Due to the unique properties of the STEP Warmfloor™ system, the nails used in the plank floor can penetrate directly through the center section of the heating element. The only place that nails should not penetrate is along the edges of the element where the bus wires are located.

Install the STEP Warmfloor™ heating elements directly onto the subfloor. Attach the elements to the subfloor and install the extension wires per the manufacturers instructions. Install the finished floor materials following the manufacturers instructions.

Glue Down Method

The STEP Warmfloor™ system should not be in direct contact with any aggressive solvents or construction adhesives. With glue down installations, a protective layer must be installed over the heating elements to prevent direct contact with the adhesive. Attach the elements to the subfloor and install the extension wires per the manufacturers instructions. Determine the best protective layer option and install that over the elements. Glue down the plank floor following the manufacturers instructions.

Examples of protective layer options include self-leveling compounds and a plywood covering.

Self-leveling compounds are used primarily to level an uneven subfloor before the installation of the finished floor. In this situation, the self-leveling compound would be used to completely cover and encapsulate the heating elements and provide a new flat surface for the installation of the glue down planks. Ensure that you follow the manufacturer's directions for the self-leveling compound, especially curing times required before energizing the heating elements.

When using a complete coverage of plywood over the heating elements, the thickness of the plywood needs to be sufficient to properly and evenly support the finished floor.

Crimp Connections

The mechanical crimp connections between the heating element bus wires and the extension wires have a slightly higher profile than the heating elements. To minimize the potential for dips and sags in the finished floor, a slight recessing of the crimps into the subfloor is recommended. Use a wood chisel to remove a single ply layer from a plywood subfloor or a masonry chisel to remove a small divot from a concrete subfloor at the crimp location.

As an option to recessing the crimps into the subfloor, the crimp connections could be located along the edge of the floor at the base of the walls. Due to the expansion and contraction of plank floor systems, a gap is usually left between the edge of the finished floor and the wall with baseboard molding used to cover the gap. The crimp connectors could be located in this gap with the extension wires routed through the gap or behind a hollowed out baseboard. This method will need to be coordinated with the finished

floor installers and carpenters to ensure a sufficient gap is left for both expansion and the crimps and that space is also provided behind the baseboard for the extension wires.

Resources

Various resources are available to guide you, your architect, and your builder in selecting the correct plank products and installation method for your system. The STEP Warmfloor™ Handbook has some basic guidelines and suggestions. Your STEP Warmfloor™ or finished floor distributor/retailer may be able to offer assistance. Numerous industry associations are available to help. These associations include:

- WFCA: World Floor Covering Association (www.wfca.org)
- The Hardwood Council (www.hardwoodcouncil.com)
- NWFA: National Wood Flooring Association (www.woodfloors.org)
- NOFMA: The Wood Flooring Manufacturers Association (www.nofma.org).

Also refer to your applicable building codes as they may have requirements that specify acceptable finished floor installation methods.

WARNING:

As new products continuously enter the market, it is very important to identify the composition, chemical behavior and compatibility of all ingredients and building materials used in an installation. STEP Warmfloor™ must not be in direct contact with any conductive material or installed with aggressive solvents, acids or adhesive.



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EP5028 Rev. 2 08/19/11