

WarmStep® Quick Installation Guide



WarmStep®
FLOOREVER WARM®

WarmStep® Quick Start Installation Guide

Congratulations on your purchase of WarmStep® by ThermoSoft® electric radiant heat mats for wood floors. This Quick Start Installation Guide will walk you through the basics of a standard installation of WarmStep® heating mats under a wood floor.

At all times during an installation it is important to follow the guidelines provided in the full WarmStep® Specifications as well as follow any applicable processes described by the flooring manufacturer or trade organizations such as the National Wood Flooring Association (NWFA).

IMPORTANT: Read “Getting Started,” “General Preparations,” “Datalogger Installation,” and the full instructions for your chosen wood floor installation method before beginning installation.

WarmStep® is the easiest electric radiant heat system to install for wood floors, but it is still important to familiarize all persons involved in the installation with the full installation process.

The materials you should have for a typical WarmStep® installation should include:

Basic Components of the WarmStep® System:

- WarmStep® heating mats to fit your desired heating area
- In-floor temperature sensor(s) (2 per zone, one active, one backup)
- Floor heating thermostat(s) (up to 400sqft per zone using 240 volt mats)
- Datalogger (such as fidbox®) for moisture and temperature recording

Accessories available from ThermoSoft®:

- InstAlarm™ Monitor for detecting damage during installation
- Electrical Conduit installation kits (May be provided by an electrician)
- Digital Multimeter
- Moisture barrier when applicable
- Wago™ connectors for wiring simplification when applicable
- Floor Muffler® padding if using a floating floor installation method

Other tools or materials you should have:

- Router
- Wire Strippers
- Other general floor installation tools

Materials needed for your desired wood floor application method:

- Glue down installation should not require anything beyond the typical materials and tools utilized for a glue down installation. Be sure to contact us for listings of tested and approved adhesives.
 - To estimate the amount of adhesive necessary for a glue down WarmStep® installation, increase the typical adhesive need by 30%

- Nail down installation will require the use of an adhesive during the installation of flooring over the beginning and ending sections of the WarmStep® mat. Otherwise, typical nail down materials are sufficient.
 - To estimate the amount of adhesive needed for the glued down portions of a primarily nailed down wood installation, total the following square footage:
 - $(3.5 \text{ sqft} \times \# \text{ of } 3 \text{ ft width mats}) + (1.3 \text{ sqft} \times \# \text{ of } 1.5 \text{ ft width mats}) = \text{Adhesive coverage needed}$
 - These values consider both the beginning section and ending section of glue down area
 - This coverage number should allow for some overage, but it is always recommendable to have spare materials on hand
- Floating floor installations should allow installation of WarmStep® with the typical tools and materials used on a general floating floor installation.

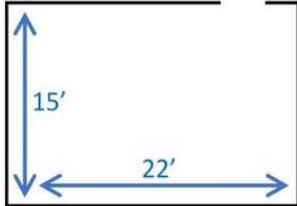
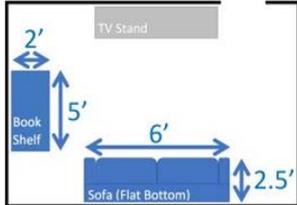
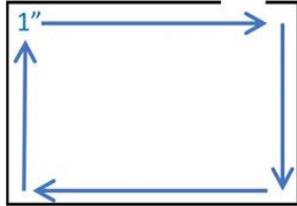
Important Notes:

- For any “non-standard” installations please contact ThermoSoft® at (800)308-8057, or reach the WarmStep® specific line at 866-569-4172.
- Do not tape over WarmStep® heating wires.
- Do not overlap heating mats or heat while rolled up.
- Do not cut WarmStep®. Doing so will damage heating wires and result in voided warranty.
- Mat sizes are designed to be mixed to fit almost every area configuration.
- **IMPORTANT: Keep all mats the same voltage when mixing sizes. Mixed voltages on a single power relay or thermostat can cause significant damage to the mats.**

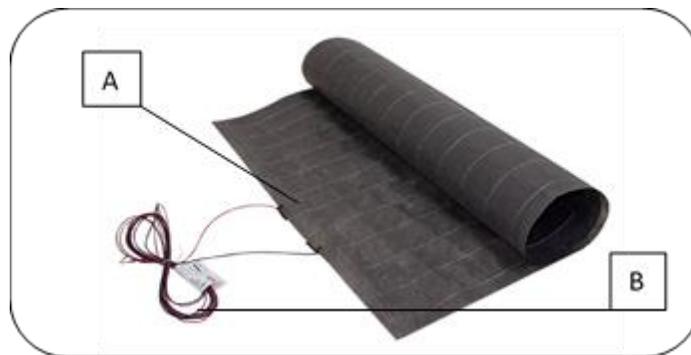
Getting Started

Much of the following should have already been addressed during your order process, but please review this section before beginning you installation:

1. Calculate your heated area, determine mat sizes appropriate for the heated area

	<p>A. Measure the area in square feet (Example: 330 sq foot living room)</p>
	<p>B. Subtract the area of any permanent fixtures or flat bottomed furniture (Example: 15 sq. ft. flat-bottomed sofa, 10 sq. ft. book shelf is $330 - 15 - 10 = 305$ sq. ft.)</p>
	<p>C. Determine any additional space to be left as a set off of a wall intended for your project specifications (Example: 1" perimeter spacing = 6 sq. ft. spacing, 25 sq. ft. unused space, $305 - 5 = 299$ sq. ft. total heating area)</p>
	<p>D. Select voltage and sizes of mats that will fit within the area calculated. DO NOT MIX VOLTAGES. In many cases, this step may have been done with consultation from your supplier. Be sure to follow their recommended layout when *Your layout should result in the length of the mat running perpendicular to the direction of the flooring. This allows the easiest glue down install, and enables proper nail down technique</p>

2. Ensure your mats are of proper and matching voltages: Mats are available in 120 volt or 240 volt varieties.
 - a. **DO NOT MIX VOLTAGES**- voltages in a connected system of mats must be homogenous
 - b. 120 volt mats allow a maximum of 200 square feet of *heated area* per single thermostat/power relay, 240 volt mats allow a maximum of 400 square feet of heated area per thermostat/power relay
 - c. Thermostats available from ThermoSoft® are compatible with 120 or 240 volt mats.
 - d. For more electrical, wiring, circuit, and circuit protection information, please refer to the full user manual and always consult an electrician.
3. Identify your desired floor installation method and ensure that your project adheres to all processes and preparations typical to that installation method. This includes **but is not limited to:**
 - a. Evaluate your subfloor, perform any maintenance or repairs to establish a properly sound, level, and clean subfloor.
 - b. Establish an ambient environment that is appropriate for a wood floor installation (HVAC system running normally, as much “wet work” done and dried prior to wood floor installation, temperature and humidity appropriate for wood floors).
 - c. Properly acclimate your wood flooring to the installation environment.
 - d. **See sources such as NWFA installation guidelines and jobsite checklists for more comprehensive overview of the requisite preparation for the installation of wood flooring.**
4. Familiarize yourself with the construction of the mat including (A) the fabric construction and (B) the lead wires connect the mat with the relay or thermostat. The end of the mat that has the lead wires attached will be positioned along the beginning wall of the flooring to allow it to roll out progressively perpendicular to the flooring lengths.

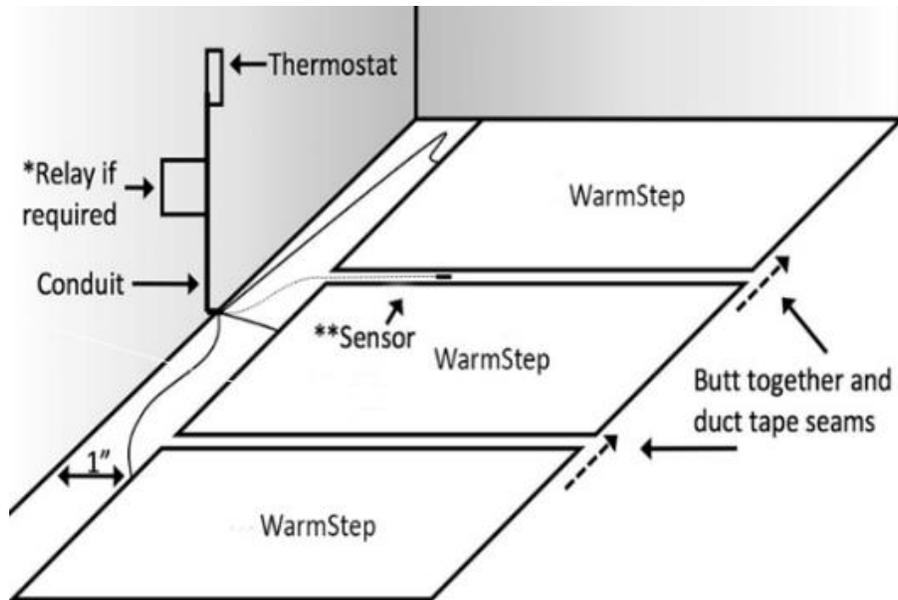


General Preparations

Please refer to the full WarmStep® Specifications for more detailed specifications and information about WarmStep®

1. **Before beginning** your installation, test the resistances of each mat. Record these readings with the included resistance recording paperwork. Resistance testing will happen multiple times during installation.
2. Prepare for your installation by positioning the heating mats in the room according to the plans or layout established when the mats were ordered.
 - a. WarmStep® will be immediately below the wood flooring, no other layers should be between the heating mats and the wood floor material in standard installation.
 - b. The mats should lay parallel to each other as shown in the figure below.
 - c. Do not overlap the mats. Do not duct tape the seams in a glue down installation.
 - d. The end of the mat with the lead wires attached will be positioned against starting wall of the flooring. This end of the mats should be about 1 to 2 plank widths away from the beginning wall or spaced as specified in the layout design.
 - e. Roll out the mats at this time to confirm that lengths are appropriate and that mats of differing lengths are ordered properly; the mats will need to be rolled back before installation begins
3. Per Figure 2, you may decide to run lead wires to the conduit at this time, however they should rest in a channel along the wall to not obstruct the laying of full lengths of flooring.
 - a. It is recommended at this time to use painter's tape to tape the lead wires against the wall and wait until an electrician runs the lead wires to the conduit for final electrical hookup
4. As shown in Figure 2, position the floor sensor between the heating mats and affix with a small amount of adhesive.
 - a. Also position your backup floor sensor now.
 - b. The floor sensor should be positioned in the heated area, centered between two heating elements, not in contact with a heating element.
5. Using a router or other appropriate wood working tool, created channels on the underside for the wood flooring that will lay over the lead wire connectors, this will also be necessary for the plank that sits over the in-floor sensor. This avoids height differential over these portions.
 - a. Routing may done at a later time, but it is prudent to be prepared for this step.

Figure 2



- Leave 1" space from wall for wires. Small perimeter gaps do not need to be covered by underlayment.
- *A contactor/relay may be required for large installations. Consult an electrician.
- **Sensor can be run down the wall or in a separate conduit from the power leads.

Datalogger Installation

Please refer to the full WarmStep® Specifications for more detailed specifications of WarmStep®.

Fully read and follow datalogger manufacturer recommendations for installation and use. These instructions should serve only as a quick guide and introduction for installation.

Your WarmStep® system should use 1 datalogger per zone to monitor and record temperature and humidity data. **Consult with ThermoSoft® or datalogger manufacturer staff for help determining datalogger placement.**

ThermoSoft® offers Fidbox® brand dataloggers as part of a full WarmStep® system. If you wish to utilize a different datalogging device, please discuss this with WarmStep® staff at 866-569-4172 to see if your datalogging device can be ensured to fulfill warranty requirements.

Datalogger installation (done during the floor installation process):

1. Select the location for your datalogger.
 - a. This should be a heated area, and free of any permanent obstructions above the floor.
 - b. **Space the datalogger evenly between two heating elements.** Choose the board to contain the datalogger, position it over the heating mat, and use a pencil to mark off where the device should be positioned to sit evenly between heating cables.
 - c. The datalogger's longer edge should be parallel to the direction of the heat cables.
2. Route a space on the **underside** of the flooring in which the datalogger will be adhered.
 - a. Use your actual physical datalogger to draw a stencil for the routed area. Do not rely on any diagrams or dimensions referenced here for your routed area dimensions.
 - b. On **wider width plank flooring**, it should be appropriate to fit the datalogger's space within a single piece of flooring.
 - i. Attach the datalogger with construction adhesive or a peel and stick adhesive that may be preinstalled on the datalogger.
 - ii. Do not block sensor port with construction adhesive.
 - c. On **narrower strip flooring** it may be necessary to "bridge" the datalogger between two pieces of flooring
 - i. Adhere the datalogger to the first routed length of flooring to be installed with construction adhesive or a peel and stick adhesive that may be preinstalled on the datalogger.
 - ii. Do not block sensor port with construction adhesive.
 - iii. Install that length of flooring.
 - iv. Lay the second routed length of flooring, fitting it securely over the exposed end of the datalogger.
3. Activate your datalogger per manufacturer instructions and activate/link it to an account to retrieve the data.

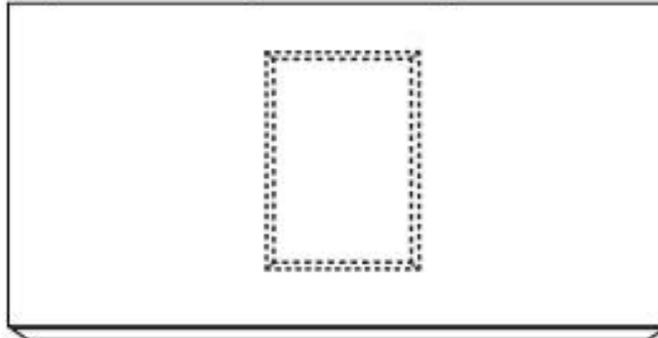
Important: Take care to not damage your datalogger during a nail down installation.

In order to take full advantage of your datalogger you must refer to the full instructions or guidelines provided by the datalogger manufacturer. **These instructions here are to serve only as an introductory guide.**

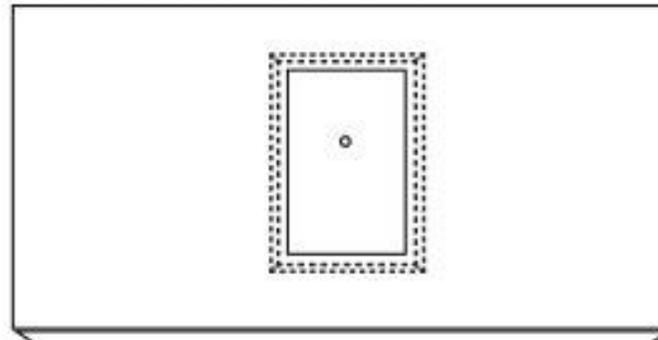
Figure 1:

Wood Plank Installation

Step 1: Route Out Space for Data Logger

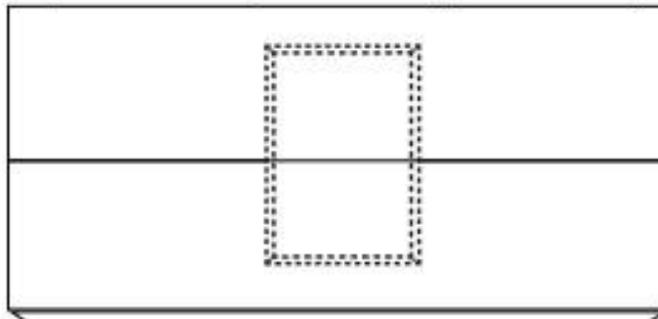


Step 2: Adhere Data Logger Inside

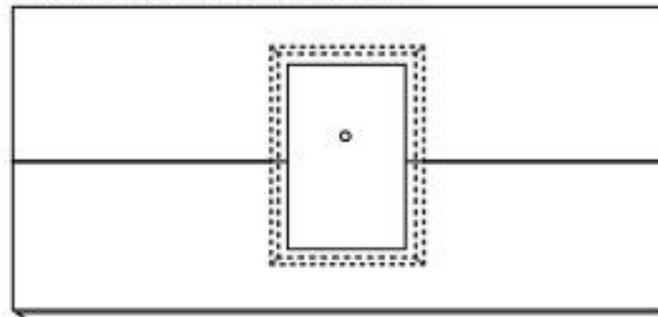


Wood Strip Installation

Step 1: Route Out Space for Data Logger Between Strips



Step 2: Adhere Data Logger Inside



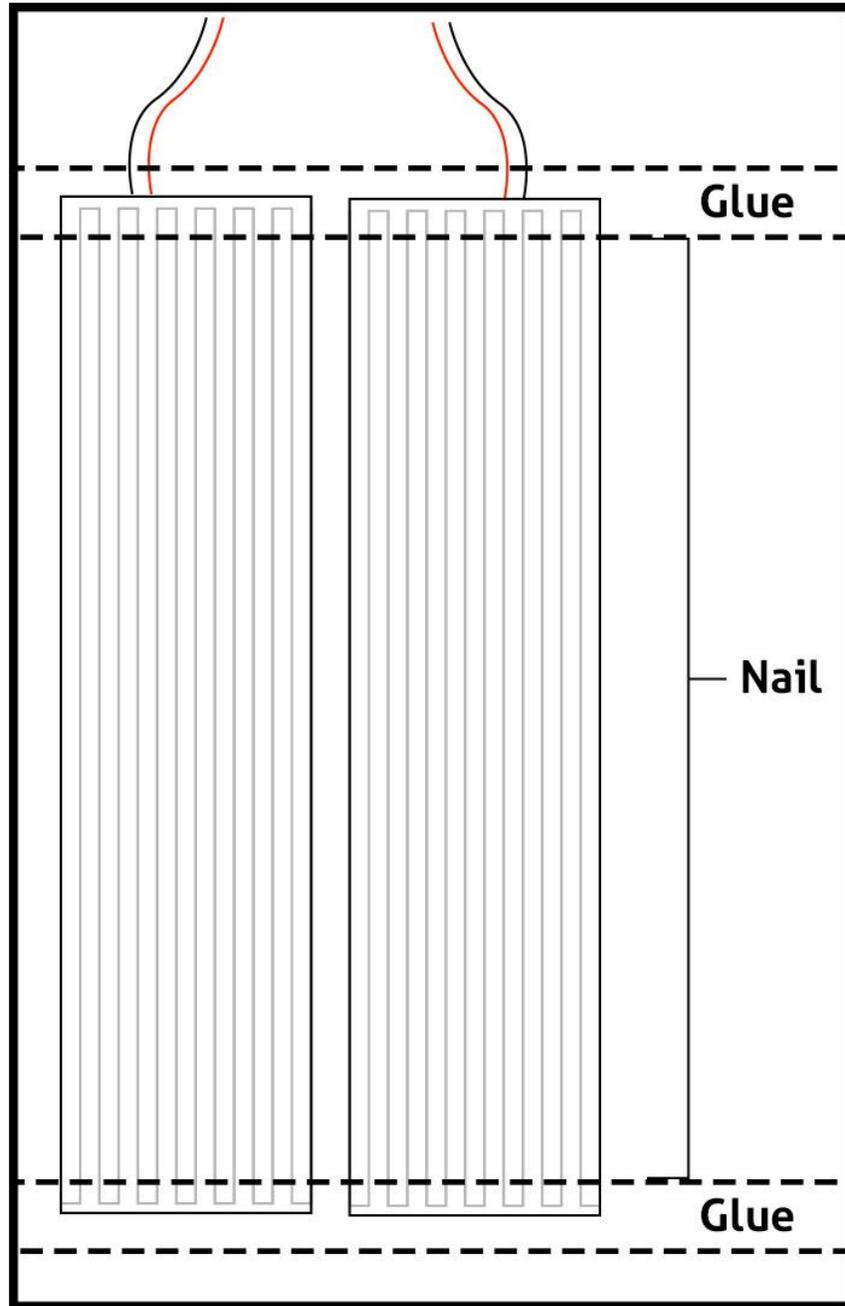
Nail Down Installation

Please refer to the full WarmStep® Specifications for more detailed specifications and information about WarmStep®

1. Per the **General Preparations** on page 8:
 - a. Your mats should be positioned, ready to roll out progressively or already rolled out.
 - b. Lead wires should be securely out of the way of the install area
 - c. The in-floor sensor and backup should be positioned properly.
 - d. You should have a router on hand to make channels for some small components that are thicker than the mat itself.
 - e. **Note:** Be sure to not disturb the angle of the mats as a shift in their position could cause overlap farther down the length of the mat. You can use cleats/staples or a small amount of constructive adhesive to tack down the beginning of the mats as you begin installing the flooring.
2. **Test all mat resistances before beginning floor installation. Record these readings.**
3. The beginning widths of boards may require some channels to be routed to allow for level floors over lead wire connection to the mat, or the in-floor sensor further in to the floor.
4. **In a nail down installation, the first few board widths will need to be glued down.** The beginning of the WarmStep® mats have wiring that is not in the 3 inch spaced parallel pattern. Use adhesive in these first few widths to avoid nailing through wiring that is not easily avoided.
 - a. **See page 12 for glue down instructions.**
 - b. **Adhesive is also used at the ends of the mats** that have the looping/return pattern for the heating element for the same reasons as at the beginning of the mats.
 - c. See Figure 3 for illustration of these mat sections.
 - d. **Do not risk nailing through wiring or heating element.**
5. Once the flooring widths are wholly beyond the sections of heating element that are run in parallel pattern, nailing may begin.
 - a. We recommend cleats rather than staples. While there is no technical reason that staples would not perform appropriately, cleats have a lower profile and therefore make avoiding striking heating elements easier.
6. Nail down the wood flooring according to a normal nailing schedule, always nailing in between the heating elements as evenly as possible, giving yourself close to the full 1.5-inch space on either side of the nail.
7. Continue in this fashion until you approach the looped ends of the mat, **at which point you must use a glue down method** over that section of the mat.
8. Flooring laid past the looped end of the cabling on the mat may be nailed according to a normal nailing schedule.
9. Test all mat resistances after finishing floor installation. **Record these readings.**

Always take every precaution to avoid the risk of nailing through the heating element and refer to the full user manual for more detailed specifications of the WarmStep® system.

Figure 3:

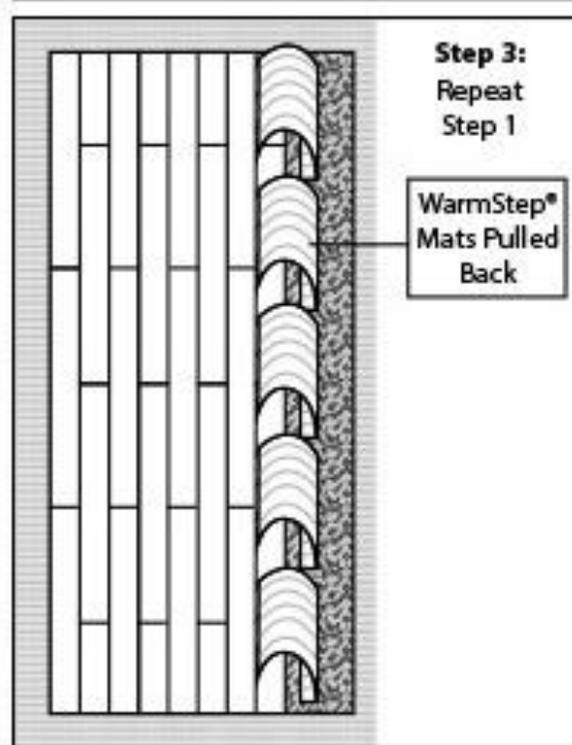
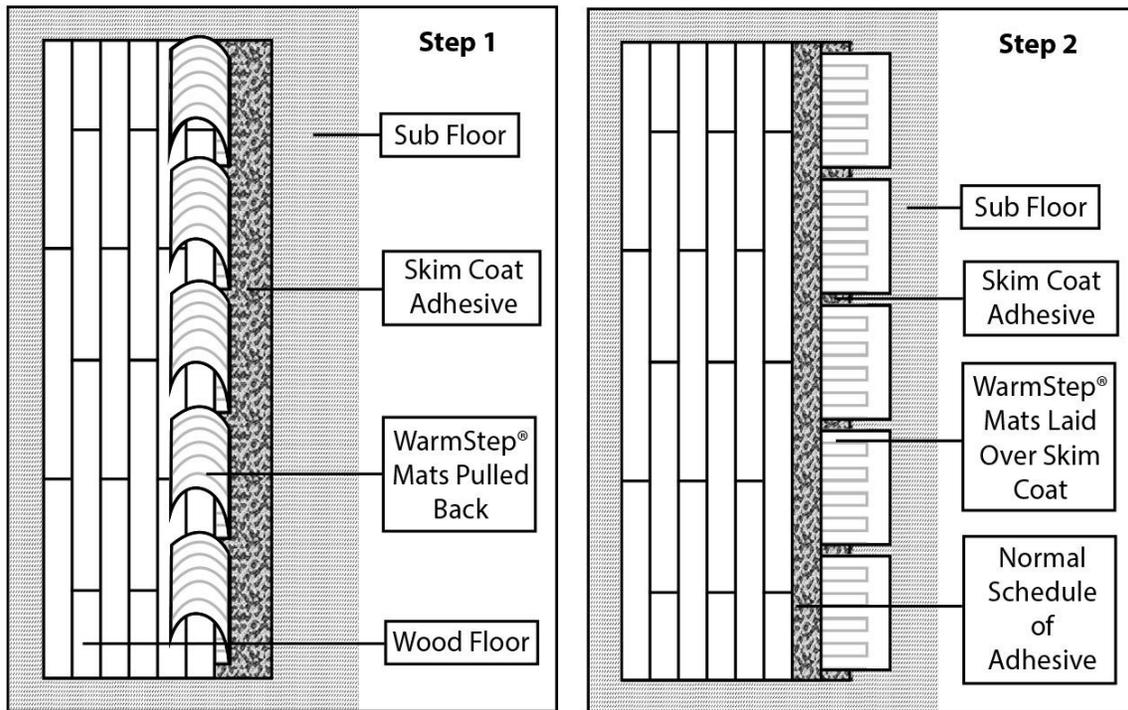


Glue Down Installation

Please refer to the full WarmStep® Specifications for more detailed specifications and information about WarmStep®

1. Per the **General Preparations** on page 8:
 - a. Your mats should be positioned, ready to roll out progressively or already rolled out.
 - b. Lead wires should be securely out of the way of the install area
 - c. The in-floor sensor and backup should be positioned properly.
 - d. You should have a router on hand to make channels for some small components that are thicker than the mat itself.
 - e. **Note:** Be sure to not disturb the angle of the mats as a shift in their position could cause overlap farther down the length of the mat. You can use cleats/staples or a small amount of construction adhesive to tack down the beginning of the mats as you begin installing the flooring.
2. **Test all mat resistances before beginning floor installation. Record these readings.**
3. The beginning widths of boards may require some channels to be routed to allow for level floors over lead wire connection to the mat, or the in-floor sensor further in to the floor.
4. Any areas that are to be covered with hardwood flooring but not over a mat directly may be glued as normal, per flooring and adhesive manufacturer recommendation.
 - a. If a board is being laid over lead wires but not the mat, the lead wire may be glued over, or the wire may be laid over the adhesive.
5. To glue down your flooring over the heating mats, use a **double-glue method** as described below (see Figure 4 for illustration):
 - a. Adhesive manufacturers usually recommend only applying adhesive to an area you can cover with flooring relatively quickly, or make some other recommendation regarding progressively applying adhesive and materials. **Maintain this progressive approach with a WarmStep® glue down application.**
 - b. Pull back or lift the WarmStep® mats and **apply a thin layer of adhesive to the subfloor.** This may be done with a flat edge or notched edge of a trowel.
 - c. **Lay the WarmStep® mat over the thin layer of adhesive.** With light pressure, some adhesive should begin permeating the mat. It is not required to apply this pressure now, as enough pressure will be applied throughout the remainder of installation.
 - d. **Apply a normal schedule of adhesive over the section of the WarmStep® mat that has been laid over the thin layer of adhesive.**
 - i. “Normal schedule” refers to the flooring and adhesive manufacturer recommended type of adhesive, trowel/notch size, and an appropriate type of adhesive for the subfloor type, floor type, and other project considerations.
 - ii. A number of adhesives have been tested for compatibility with the double glue installation of WarmStep®, visit www.WarmStep.com or call 866-569-4172
 - e. **Lay the flooring** per manufacturer recommendation over the second layer of adhesive.
 - f. Repeat this process as you continue laying sections of flooring.

Figure 4:



Floating Floor Installation

Please refer to the full for more detailed specifications and information about WarmStep®

1. Your underlayment padding should be laid over the subfloor according to the padding manufacturer specifications.
 - a. We highly recommend using the underlayment padding available directly from ThermoSoft® as part of your full WarmStep® system purchase. WarmStep® has been specifically tested with the padding available from ThermoSoft®.
2. Per the **General Preparations** on page 8
 - a. Your mats should be positioned, ready to roll out progressively or already rolled out.
 - b. Lead wires should be securely out of the way of the install area
 - c. The in-floor sensor and backup should be positioned properly.
 - d. You should have a router on hand to make channels for some small components that are thicker than the mat itself.
 - e. **Note:** Be sure to not disturb the angle of the mats as a shift in their position could cause overlap farther down the length of the mat. You can use cleats/staples or a small amount of construction adhesive to tack down the beginning of the mats as you begin installing the flooring.
3. **Test all mat resistances before beginning floor installation. Record these readings.**
4. The beginning widths of boards may require some channels to be routed to allow for level floors over lead wire connection to the mat, or the in-floor sensor further in to the floor.
5. Follow the manufacturer's recommendations of the floating floor installation process.
 - a. If your floating floor requires a tongue and groove adhesive, you can call 866-569-4172 to discuss tongue and groove adhesives approved for use specifically with WarmStep® or use a tongue and groove adhesive that is approved by the manufacturer for use over radiant heat.



847-553-4408

Questions?

Call 847-553-4408 or visit WarmStep.com for more information