



General Installation notes Underfloor system

To ensure a successful installation you will need the following components:

Radiantmax Underfloor Kit consisting of:

- Radiantmax ½" BPex Tubing
- Radiantmax Heat Transfer Plates
- Radiantmax Copper or Nickel Manifold Sets
- Radiantmax Split Ring Hanger Brackets
- Radiantmax Tubing Cutter
- RadiantMax Beveling Tool
- Radiantmax General Tubing Diagrams

General Guidelines

- Check local building codes before drilling holes in joists
- Wear safety glasses when working over head
- Check sub floor for protruding nails etc.
- Be sure to cover the ends of the Radiantmax BPEX tube with tape to prevent debris from getting in the tube while working on it.
- Depending on the zone size, hole may have to be as large as 3 inches in diameter or as small as 1 inch – you may alternatively plan to loop the tubing under the joists and avoid drilling.
- Begin by placing a manifold in a suitable location and temporarily mount.
- All loops of tubing begin and end at the remote manifold and should be attached one loop at a time. The pipe ends should be organized according to a planned piping layout – see diagram in appendix - , usually in supply/return order for every loop. Indicate supply and return side of each loop as well as where each loop goes and the length of each loop.
- Carefully feed/ install tube in bay.
- Starting at the end where the tube loops/returns snap the tube into the transfer plate – typically two loops per bay.
- If you drilled holes in joist feed remainder of tube through hole and into next bay and repeat the process.
- When getting toward the end of the 300 ft. Roll of tube make sure to leave enough left to get back to the manifold, either through the holes that were drilled or under the joist – note the measurements on the tubing and refer to your planned piping layout and revise as necessary.
- After the tube is in place and transfer plates installed you may now begin to apply the Reflective insulation. Transfer plates spacing approximately 1/2" between plates.

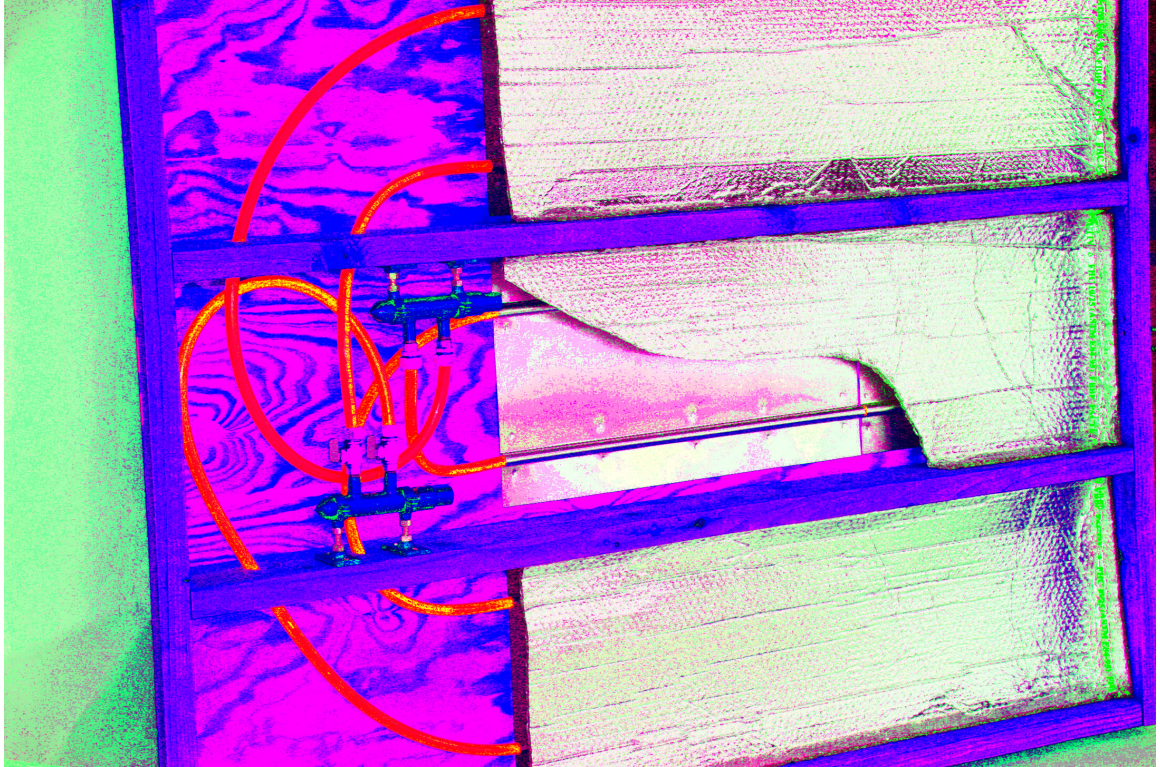
- Starting at either end of the bay, staple the Reflective insulation to the sides of joists if possible trying to leave a air gap between tube and Reflective insulation
- Sometimes it is necessary to cut the transfer plate in half lengthwise. An example of this application might be for the supply and return lengths of tubing for a particular 300' loop in a zone.
- The aluminum plates can be scored and snapped using a standard utility knife blade to allow for the proper length. Be sure to smooth any rough edges or burs so as not to leave a sharp surface to rub on the tubing. -- You can make a transfer plates ripping board pattern 4 inches wide by 20 inches
 - Lay plates down on floor flat side down set pattern board on top up against tube recess and score with a utility knife
 - Bend in half to finish the cut
 - If cutting the plates the width /in half you use tin snips or a circular saw with the blade in backward
 - What ever way you use to cut the plates in the width direction after the cut use needle nose pliers or some other tool to deburr the tube slot
- When installing the tube tails to the remote manifold outlets, wet the O-ring on the manifold outlets prior to sliding the tubing on (a little water, or even spit will do). Inspect the end of the tubing that is to be connected. Make sure the end of the tube is cut square and is free of any nicks or burrs. To give the tubing that is to be connected to the remote manifold outlet a square end, place the end of the tube in the tubing cutter so there is approx. 1" of tubing extending beyond the cutting blade. Make sure that the tubing that is to be cut is laying flat on the surface of the cutting tool and is square with the cutting blade. When the tube is properly aligned, squeeze the handles of the cutting tool together so the cutting blade runs completely through the tubing. Be sure to bevel the inside edge of the tube tail with the beveling tool before sliding it on the manifold. To bevel the inside edge of the tube tail, slide the compression nut and ring fitting over the end of the tube tail. Make sure the nut goes on first, then the compression ring. Insert the beveling tool into the end of the tubing. Notice that the beveling tool is stepped. Each step on the tool corresponds to a particular tube size, eg. 3/8", 1/2", 5/8", etc. Determine the step on the tool that corresponds with the size of the tube that you are attempting to bevel and insert the beveling tool into the tubing up to this step. Keeping the tool firmly seated in the tube tail, twist the beveling tool so the cutting edge goes completely around the inside edge of the tube. This will help keep the O-ring from getting damaged and make inserting the tubing onto the remote manifold outlet easier.
- When all loops have been installed and attached to the remote manifolds, prepare the system for pressure testing. Install the pressure test gauge on the open end of the Return manifold. The Return manifold is the manifold without the shutoff valves on it. Place the shutoff valves, on the Supply manifold, in the closed position. Plug any unused manifold ends on the Return manifold. This can be done with a short piece of tubing attached to the manifold port and a cap placed on the end of the tubing. Another option is to create a dead end loop from the Return manifold port to the Supply manifold port. Pressurize the system with air to between 50 and 60 psi. Write down your gauge pressure reading for reference. You will initially lose a few pounds of pressure as the tubing relaxes and settles down. This is normal. Give the system an hour or so to relax, then check your

gauge. If you have lost more than 5-10 lbs of pressure, re-pressurize the system and check for leaks. Use a soap bubble solution to check for leaks at the manifold/tubing connections and pressure gauge. If none are found at these locations check your tubing for a puncture. Leave the loops pressurized for 24 hours. Do not be alarmed if the pressure in the tubing has decreased the morning after installation. Air pressure will vary due to outdoor air temperature. There should however still be air pressure in the tubing. Leave the tubing pressurized during the installation of the floor covering.

Additional Reminders

- DO NOT DEFORM THE HEAT TRANSFER PLATE TUBE CHANNEL IN ANY WAY.
- The aluminum plates can be attached using simple staples.





Underfloor Tubing Layout Example

