

RADIANT SIDE TRAK™



RADIANT SIDE TRAK™ (Radiant heating or cooling panel)

provides an alternative method of installation which conforms to the natural ellipse of the **PE-RT** or PEX tube deployed under the subfloor.

These plates are installed facing each other in the joist bays and as the good sidewall integrity of the tube exerts its natural pressure it helps to keep the heating pipe securely in place. You will find the possibility of the tubing walking out over time greatly diminished.

- Reduced installation time as tubing whip is reduced!
- Reliable heat transfer performance!
- Easily stapled or screwed to sub-floor!
- Convenient 4' plate length with pre-punched holes (10 per plate!)
 - The rigid channel construction enables flexible PE-RT tubing to be easily "snapped" into place!
 - Available in both 3/8" and 1/2" ASTM sizes!
 - Radiant heat means conduction with heat transfer medium
 - Good performance means high comfort and economy of operation.

US Patent # 8,646,518 B2

Design Notes:

Radiant Side Track™ is sold for use in dry method radiant heat installations; where plastic heating pipes are secured into an extruded aluminum plate and fastened to the underside of a subfloor.

This is known as the staple up method.

Radiant ceiling heat and wall heating are other methods of which Radiant Side Track™ can be utilized

Proper installations:

Step 1.

Determine the your heating requirements

The first step in your radiant heating system design is to determine the individual area heating requirements. Conventional heat loss calculations should not be utilized (e.g. IBR method) for a radiant heating design.

The preferred heatloss method is Manual J or ASHRAE or equivalent.

The proper R or U values and air changes per hour should be selected in these calculations. Once this process has been completed then the proper tube spacing and tubing deployment patterns can be recommended.

Step 2.

Required performance

After your heatloss calculation has been performed, you can now derive your heatloss per square foot in each respective area.

Check the attached performance charts to make sure you're per square foot heatloss does not exceed maximum allowable performance characteristics. Your radiant heat system should never be designed to exceed 35 BTU's per square foot of performance, as excessive floor surface temperature (85F @ 68 F room temperature) can damage finish flooring materials-voiding manufacturers' warranties. Furthermore, excessive floor surface temperature will cause foot sweating and athletes foot.

Studies have revealed that high floor surface temperature can cause early onset of varicose veins and could be detrimental to ones cardio vascular system. If your heatloss exceeds 35 BTU's per square foot, then provide supplemental heat for the respective areas or select another style heat source.

Step 3. Formulas:

From Below:

Determining the amount of Radiant Side Track™ Extruded aluminum plates per room

For 24 on center Truss

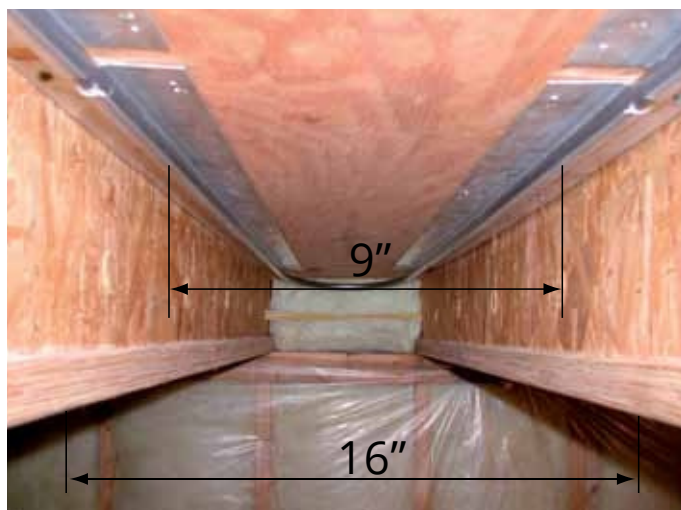
Multiply three runs per bay - Sq ft. of room x .3895 = Amount of plates for Staple Up from below.

For 16 on center Floor Joists

Multiply two runs per bay- Sq ft. of room x .3075 = Amount of plates for Staple Up from below.

For 12 on center Floor Joists

Multiply two runs per bay - Sq ft. of room x .3895 = Amount of plates for Staple Up from below.



Determining the amount tubing per circuit

24" on center Floor Joists

three runs per bay = Square footage X 2.0 Amount of heating tube in floor (6" average on center tube spacing)

16" on center Floor Joists

two runs per bay = Square footage X 1.6 = Amount of heating tube in floor (9" average on center tube spacing)

12" on center Floor Joists

two runs per bay = Square footage X 2.0 Amount of heating tube in floor (6" average on center tube spacing)

Maximum developed circuit lengths:

¾" = not to exceed 300 ft

½" = not to exceed 400 ft

Step 4.

Installation-Staple up method

Inspect your sub floor system and make sure all nails and obstacles are removed from the sub floor where the **Radiant Side Track™** will be installed. Typically on staple up installations tube spacing is determined by the center to center dimension of the floor joist system. We suggest fastening **Radiant Side Track™** to the underside of the sub floor by using the side of the floor joists as a ledger. This will provide a uniform center to center dimension and if other trades will be nailing into the subfloor, precise dimensions showing the location of **Radiant Side Track™** can be given. Once the surface preparation of the subfloor area is made the installer can screw or staple **Radiant Side Track™** to the subfloor. **Radiant Side Track™** comes with 10 pre-punched openings per



panel if screws are to be used. Staple and screws lengths should not exceed $\frac{3}{4}$ ". If a pneumatic air gun is available, you could use $\frac{3}{4}$ " -16 gauge construction staples. Staples or screws should have 10 per panel, 5 per side.

The novel advantage of **Radiant Side Track™** is that the C-channels now face one another, so when the tubing is deployed the natural ellipse of the tubing forces pressure on the opening. You can now use a scrap 2 X 4 (12-18" in length) to easily walk the tubing into the channel with the help of a hammer or rubber mallet.

After the panels are installed, you can now determine the amount of tubing circuits required for each room. Consult the charts for maximum developed lengths for your circuit. It is always better to fall below maximum circuit length as it will offer the system more efficient circulator power consumption characteristics.

If you have a stick built floor joist system you will have to drill holes 2" down from the subfloor and two holes 2" on center near the



interior of the room (see image).

For engineered floor systems (TJI), you can utilize knock out holes provided in the same fashion. Truss flooring systems will present less of a problem. The only caution in Truss flooring is the sharpness of the fastener as they have a tendency to be sharp and can cause a breach in the tubing wall. It can also peel the EVOH barrier off Pex.

Place **Radiant Side Track™** 14 inches away from outside walls and 12" away from carrying beams to utilize easy tubing deployment.





Step 5.

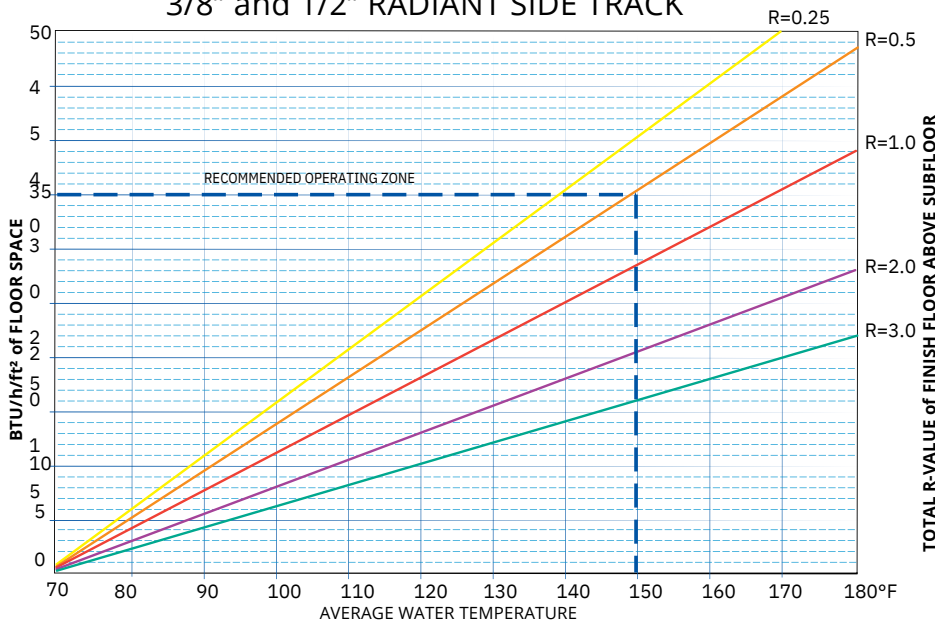
Control Strategy

We strongly recommend using a mixing valve reset control with constant circulation for maximum comfort and the best economy of operation. A mixing valve is the only way to accurately deliver the precise water temperature to your radiant heating system.

There are two different types of mixing valve reset controls available, indoor and outdoor. With indoor reset control only (part # 5083), you will set the desired room temperature and the control will adjust the delivery water temperature at the mixing valve so the system maintains the set room temperature.

The electronic control (part # 5250) is more sophisticated (mostly large radiant systems) and records outdoor temperature. A supply sensor is mounted on the discharge side of the system to input delivery water temperature. This allows the proper regulation of temperature for the mixing valve.

3/8" and 1/2" RADIANT SIDE TRACK



PERFORMANCE CHART

based on 16" joist bay in 9" center tube spacing