

# MrPEX<sup>®</sup> Radiant Foam Panel<sup>™</sup>

**Installation Guide** 





MrPEX<sup>®</sup> Systems Radiant Foam Panel Installation Guide is published by

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# MrPEX<sup>®</sup> Radiant Foam Panel™

# **Installation Guide**





# MrPEX<sup>®</sup> Radiant Foam Panel: A Comprehensive Residential Radiant Panel System

Discover the innovative MrPEX<sup>®</sup> Radiant Foam Panel—a lightweight XPS Foam System laminated with aluminum to ensure exceptional heat-transfer capability for residential spaces.

# **Installation Overview**

Ideal for both new constructions and remodels, the MrPEX<sup>®</sup> Radiant Foam Panel simplifies the installation of ¾" or ½" MrPEX<sup>®</sup> O<sup>2</sup> barrier PEX. This all-in-one system integrates straight runs and return bends in a single panel, offering convenient ordering and efficient installation.

# **Installation Tools**

- Caulk gun
- Carpenter's or T square
- 7/16" (11mm) for 3%" PEX and 5%" (16mm) bowl and tray router bit
- Marker
- Retractable utility knife
- Router
- Safety glasses
- Tape measure
- Water-based adhesive
- Wood chisel

# **Floor Surface Preparation**

- Subfloor Inspection
   Thoroughly clean the subfloor, ensuring its stability and absence of high spots.
- 2. Define Panel-Free Zones Outline areas where MrPEX® Radiant Foam Panels won't be placed (e.g., around cabinets).
- 3. **Obstruct the Panel-Free Zones** Fill these designated areas with 5%" or 34" high-density foam, plywood, or alternative suitable materials.
- 4. Maintain the Panel-Free Zones Keep these areas open and accessible until the installation of MrPEX<sup>®</sup> Radiant Foam Panels is completed.

#### Important Note

Prioritize careful planning for the radiant loop layout before initiating the installation process. This proactive approach not only saves valuable time but also guarantees precise ordering of the foam panels.

# Calculations

Use MrPEX<sup>®</sup> Systems LoopCAD<sup>®</sup> for heat-loss calculations, system requirements, panel layout, and materials list.

#### **Panel Calculations**

Net floor area / 7.8 = number of panels (round up to next whole number)

#### Example

For a 375 square feet room:

375 / 7.8 = 49 panels (rounded up to the whole number)

#### **Pipe Calculations**

For 6115005

For 6115004

Net area × 1.5 = total ½" tubing

Net area × 2 = total 3/8" tubing

#### Example for 6115005

Room: 520 sq. ft. with a leader length of 15 ft. between the room and manifold

Net floor × 1.5 = total tubing for the area : 520 × 1.5 = 780 linear ft.

Determine leader length (double for supply and return):

Leader length (double) =  $15 \times 2 = 30$  ft.

Maximum loop length (300) - leader length = maximum heated area loop length:

#### 300 – 30 = 270 ft.

Total pipe for heated area/maximum heated area loop length = number of loops (round up):

#### 780 ft. / 270 = 3 loops

Total pipe for heated area/number of loops (whole number) = actual loop length:

#### 780 ft. / 3 = 260 ft.

Actual loop length + leader length = total loop length:

#### 260 ft. + 30 ft. = 290 ft.

Total loop length x number of loops = total pipe required:

290 ft. × 3 = 870 ft.

#### **Important Note**

If the BTU/hr/ft<sup>2</sup> load exceeds the panel output or recommended surface temperature, supplemental heating is required.

#### **Installation Planning**

To streamline the installation process, follow these preparatory steps:

#### 1. Layout Design

Sketch the MrPEX® Radiant Foam Panel layout on paper or refer to the MrPEX® LoopCAD layout before beginning installation. This proactive measure promotes a smoother workflow.

- 2. Manifold Placement Determine the optimal location for the manifold. A well thoughtout placement is an important factor in efficient and effective radiant heating.
- 3. Manifold Piping Work Area In case the manifold pipe is routed above the floor, designate a square area centered in front of the manifold. This area, extending 2' beyond the manifold width, serves as the manifold piping work area. It accommodates tightly spaced pipes for each radiant zone.
- 4. Integration with Finished Floor Integrate the choice of finished flooring into your MrPEX<sup>®</sup> Radiant Foam Panel layout. Collaborate with the flooring contractor to save time and minimize the risk of rework.

#### 5. Flooring Specifics

- For hardwood floors, consult with the flooring contractor to determine the need for nailing strips along the room's perimeter and between each panel. If required, install 1½" wide x 5%" or ¾" thick wood filler.
- Carpeting necessitates a minimum of ¼" backer board on the MrPEX® Radiant Foam Panels. Coordinate with the flooring contractor to establish the need for a nailing strip along the room's perimeter to secure the carpet tack strip. If necessary, install a 3" wide x 5%" or ¾" thick wood filler. The tack strip can be securely fastened to the ¼" backer board and then glued into place.
- For tile, allocate a minimum of ¼" cement board on top of the MrPEX<sup>®</sup> Radiant Foam Panels.
- Linoleum requires a minimum of ¼" backer board on the MrPEX<sup>®</sup> Radiant Foam Panels.
- Laminate wood mandates a polyethylene floor pad atop the MrPEX<sup>®</sup> Radiant Foam Panels.

These important steps ensure a well-coordinated, efficient installation process and help ensure optimal performance of the MrPEX<sup>®</sup> Radiant Foam Panel system.

# **Piping Layouts**

#### **Pipe Above the Floor**

Plan your MrPEX<sup>®</sup> Radiant Foam Panel layout before getting started with the installation. A wellthought-out layout means you get even loops and waste less. Where you put the manifold matters, so decide whether it goes above or below the floor. Make sure it's easy to get to for maintenance.

#### Access from Below the Floor

Refer to **Figures 3 and 4** to locate the manifold in the joist cavity below the floor. You've got full access to the entire floor area. Notice the arrows indicating the water flow through the pipe. The dotted lines represent the supply and return lines beneath the floor.



#### Figure 1: Manifold location in the wall



Figure 3: Manifold location in the joist cavity



Figure 2: Manifold location in the wall



Figure 4: Manifold in the joist cavity

# **Panel Installation**

#### **Panel Direction**

Try placing MrPEX<sup>®</sup> Radiant Foam Panels parallel to the outside wall if you can. This way, the warm water will flow near the exterior, gradually moving towards the room's interior.



Figure 5: Arrow indicates straight runs parallel to exterior wall to provide warmest water to the coldest area

For hardwood floors, install MrPEX<sup>®</sup> Radiant Foam Panels so the straight runs are perpendicular to the direction of the wood grain of the flooring.



Figure 6: MrPEX<sup>®</sup> Radiant Foam Panel installed perpendicular to the hardwood floor grain

#### **Safety First**

Make sure to wear safety glasses throughout the installation.

- 1. Room Readiness
- Ensure the room temperature is a minimum of 50°F (10°C).
- Let the MrPEX<sup>®</sup> Radiant Foam Panels adjust to the environment.
- 2. Subfloor Prep

Thoroughly clean the subfloor, removing any dust or debris.

- Marking Zones
   Identify areas where panels are unnecessary.
- 4. For Nailing Strip Installations
- Carpet Tack Strips: Install 3" wide x 5%" or 34" thick wood filler.
- Hardwood Floors: Install 1½" wide x 5%" thick wood filler.
- 5. Loop Layout
- Use a utility knife to cut the MrPEX<sup>®</sup> Radiant Foam Panel panel to a 6" width along the entire length (See figure 8).
- Score the aluminum laminate with the utility knife and extend the blade to at least 2" for a controlled sawing motion through the foam.
- 6. Aligning Return Bend to Panel Straight Run
- Place the first panel perpendicular to the supply feed loop panel.

- Ensure return bends allow for proper looping of piping.
- Insert a 6" piece of PEX in the pipe groove between panels for perfect alignment.



Figure 7: Align return bend to panel straight run

- 7. Adhesive Application
- Apply adhesive along the complete outside edge of the MrPEX<sup>®</sup> Radiant Foam Panel.
- Additionally, apply four 1" circles of adhesive to the center of the panel (see Figure 9).



#### Figure 8: Recommended adhesive location

- 8. Panel Placement and Last Panel Consideration
- Lay additional panels into place in their intended sequence.

- Pay special attention to the last panel, turning it 180 degrees for correct return bend positioning.
- 9. Aluminum Laminate Removal Use a utility knife to cut the laminated aluminum from the return bends, facilitating PEX pipe routing.



Figure 9: Cut out aluminum to rout PEX in return bends

# **Pipe Installation**

#### **Important Note**

If your manifold sits below the subfloor, use a Bend Support (part number 7140375 or 7140500) for both the supply and return runs. This ensures the pipes align correctly through the subfloor.

- 1. Prepare the Subfloor
- Use an <sup>5</sup>/<sub>8</sub>" or <sup>3</sup>/<sub>4</sub>" drill bit to create two adjacent holes (**Figure 11**).
- Square off these holes using a sharp wood chisel. This preparation allows the 3%" or 1/2" Metal Bend Support to sit flush with the top of the panels (refer to Figure 12).



# Figure 10: Drill two %" holes through subfloor



# Figure 11: Trim foam with utility knife to fit bend support

#### 2. Clear the Groove

Vacuum the groove to clear away any debris and prepare for pipe installation.

- 3. Thread the Pipe
- Feed the pipe through the opening (Figure 11).
- Connect the pipe to the supply or return loop on the manifold.

#### 4. Secure the Bend Support

- Once the pipe has been attached to the supply manifold, secure the %" or ½" Metal Bend Support to the pipe where it emerges from the floor.
- Start by fastening the bend support on the side of the pipe that remains beneath the floor.
- Position the bend support at your desired spot on the pipe and snap it into place.
- Push the bend support into the hole drilled in the MrPEX<sup>®</sup>

Radiant Foam Panel groove.

- 5. Pipe Placement
- The pipe is now linked to the supply manifold and extends through the subfloor.
- Press the pipe into the groove with your hands or shoes (see **Figure 13**).
- 6. Loop Completion
- To complete the loop installation, slide the pipe through the hole.
- Install a ¾" or ½" Metal Bend Support, following the cues in Figure 11.
- Final Connection
   Connect the pipe to the return manifold.
- 8. **Repeat the Process** Repeat these steps for any additional loops.

# Figure 12: Press pipe into the groove





# **Pressure Testing**

- 1. **Connect Loops to Manifold** Ensure all loops are correctly connected to the manifold.
- 2. **Pressure Test Preparation** Before installing the finished floor, conduct a pressure test on the system of at least 60 psi.
- Test Duration Maintain this pressure for at least 24 hours.
- 4. **Compliance Check** Ensure the test complies with local code requirements.
- 5. Inspection

Inspect the entire system after the pressure test.

6. Proceed to Finished Floor Installation

Once the pressure test is complete, and the system is inspected, you can proceed with installing the finished floor.

#### **Important Note**

During the installation of the finished floor covering, make sure the MrPEX® Radiant Foam Panel system is either under an air test or operating with water.

## Finished Floor Applications

#### Important Note

Work closely with the flooring contractor to prevent unnecessary rework.

## Floating Laminate Parquet/ Laminate Flooring on Concrete or Wood Subfloor



Figure 13: Laminate wood with MrPEX' Radiant Foam Panel on wood subfloor



Figure 14: Laminate wood with MrPEX Radiant Foam Panel on concrete

- Direction Matters
   Lay the floor perpendicular
   to the PEX pipes for optimal
   performance.
- Subfloor Stability Check
   Ensure the subfloor is stable and level; utilize self-leveling floor screed if needed.
- Secure Adhesion
   Affix the MrPEX<sup>®</sup> Radiant Foam
   Panels to the subfloor using a
   reliable water-based sealant.

- PEX Pipe Installation Install PEX pipe into the MrPEX<sup>®</sup> Radiant Foam Panels.
- Underlayment (Optional) Optionally, install underlayment on top of the panels for improved acoustics.
- 6. Additional Requirements for Specific Floor Types For luxury vinyl tile/plank, vinyl flooring, or carpet, install ¼" backer board to distribute pressure over the panels.

## Glued Hardwood on Wood or Concrete Subfloor



Figure 15: Glued hardwood with MrPEX Radiant Foam Panel on concrete

1. Direction Matters

Lay the floor perpendicular to the PEX pipes for optimal performance.

- 2. **Subfloor Stability Check** Ensure the subfloor is stable and level; utilize self-leveling floor screed if needed.
- Secure Adhesion
   Affix the MrPEX<sup>®</sup> Radiant Foam
   Panels to the subfloor using a
   reliable water-based sealant.
- 4. **Post-Adhesion Cleanup** After panel attachment and PEX pipe installation, clean the surface with a cotton cloth and mild soap.
- Selecting the Right Adhesive Use parquet/floor adhesive when working with hardwood flooring.
- 6. **Option for Herringbone Parquet** For herringbone parquet, some may glue the flooring to a wooden panel atop the foam panels. This is not mandatory and may slightly extend the system's response time.

# **Tile on Concrete**

# **Tile on Wood**





#### Figure 16: Tile with MrPEX<sup>®</sup> Radiant Foam Panel on concrete

- Subfloor Stability Check
   Ensure the subfloor is stable and level; utilize self-leveling floor screed if needed.
- 2. **Priming the Foundation** Prime the subfloor with a standard primer, ensuring dryness before proceeding.
- Secure Adhesion
   Affix the MrPEX<sup>®</sup> Radiant Foam
   Panels to the subfloor using a
   reliable water-based sealant.
- 4. PEX Pipe Integration and Surface Cleaning

After panel adhesion and PEX pipe installation, cleanse the surface with a cotton cloth and mild soap.

- Panel Priming Prime the panels with a standard primer to optimize the bonding process.
- Enhance Load Distribution
   Protect longevity by applying ¼" cement board or uncoupling membrane to the foam panels.
- Tile Installation Poceed to lay the tiles.

Figure 17: Tile with MrPEX<sup>®</sup> Radiant Foam Panel on wood subfloor

- 1. Subfloor Stability Check Ensure the subfloor is stable and level; utilize self-leveling floor screed if needed.
- 2. Secure Adhesion Affix the MrPEX<sup>®</sup> Radiant Foam Panels to the subfloor using a reliable water-based sealant.
- 3. **PEX Pipe Integration** Carefully install the PEX pipe into the designated channels of the MrPEX<sup>®</sup> Radiant Foam Panels, following the recommended layout for optimal performance.
- 4. Enhance Load Distribution Protect the longevity of the radiant floor by applying ¼" cement board or uncoupling membrane to the foam panels.
- 5. **Tile Installation** With the foundation prepped, proceed to lay the tiles.

## Carpet on Wood and Concrete



Figure 18: Carpet with MrPEX<sup>®</sup> Radiant Foam Panel on wood subfloor



Figure 19: Carpet with MrPEX® Radiant Foam Panel on concrete

1. Subfloor Stability Check

Ensure the subfloor is stable and level; utilize self-leveling floor screed if needed.

- 2. Secure Adhesion Affix the MrPEX<sup>®</sup> Radiant Foam Panels to the subfloor using a reliable water-based sealant.
- 3. PEX Pipe Integration and Surface Cleaning

After panel adhesion and PEX pipe installation, cleanse the surface with a cotton cloth and mild soap.

- 4. Enhance Load Distribution Protect the longevity of the radiant floor by applying ¼" cement board or uncoupling membrane to the foam panels.
- 5. **Carpet Installation** Following the surface preparation, proceed to install the carpet.











# **Important Guidelines for Installation**

#### **Complete Floor Coverage**

Ensure the MrPEX<sup>®</sup> Systems Radiant Foam Panels cover the entire floor, except under fixed installations like kitchen cabinets. This maximizes the effectiveness of the heating system.

#### **Exclusion of Pipes Under Fixed Installations**

Avoid running pipes beneath permanent fixtures such as kitchen cabinets. This ensures easy access to the heating system for easy maintenance.

#### Adjustment for Additional Tracks

In cases where pipes need to transition between rooms or if extra tracks are necessary, use a router for seamless adjustments. Order a router bit suitable for the %" (11mm) or ½" (16mm) pipe along with the panels for convenience.

## **Change the Way You Work**

#### All-In-One Solution

 $\label{eq:main_states} MrPEX^{\circledast} \mbox{ Systems Radiant Foam Panels offer an innovative all-in-one solution. A single panel includes $\Omega$-shaped tracks for pipe turns, supplementary tracks for supply flow, and an aluminum coating for even heat distribution.}$ 

#### Versatile Compressive Strength

The extra-high compressive strength of the panels allows installation of almost all flooring types. Whether it's wooden flooring, laminate, tile, or others, MrPEX<sup>®</sup> Systems Radiant Foam Panels provide a versitile foundation.

#### Streamline Installations while Promoting Energy Conservation

MrPEX<sup>®</sup> Systems Radiant Foam Panels stand out as one of the newest and most innovative solutions in floor heating. They are designed to enhance energy efficiency by providing effective insulation and even heat distribution, reducing energy waste compared to some traditional installation methods. Experience the convenience of a comprehensive system that simplifies your floor heating installations with cutting-edge features and versatile applications.

## For more information, visit mrpexsystems.com







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