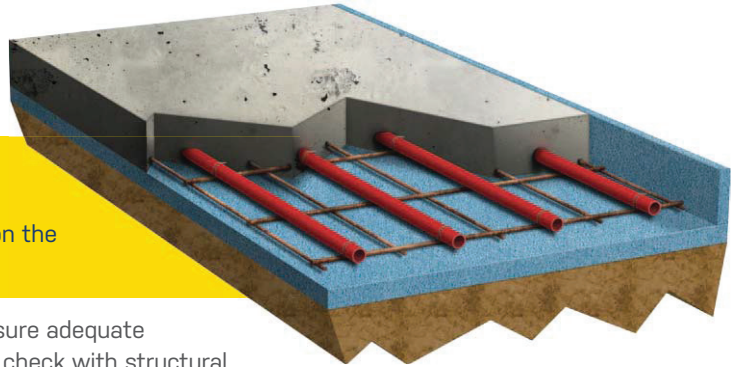


SLAB ON OR BELOW GRADE WITH INSULATION

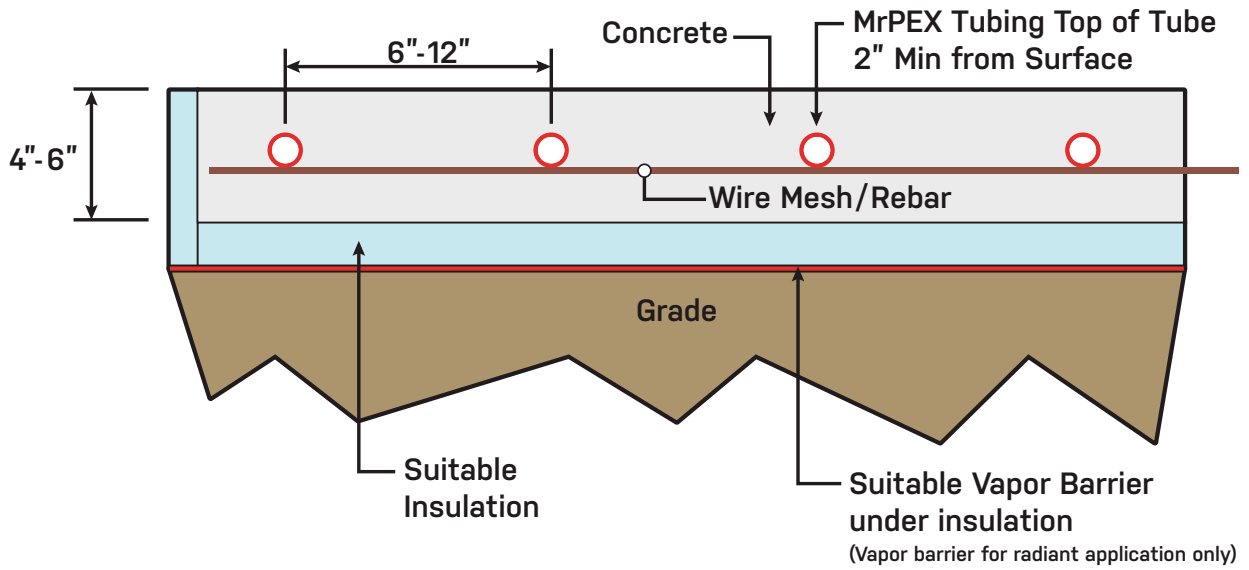
NOTE: Use MrPEX® Design Software to establish heat loss for the structure, and to calculate output, surface temperature, water temperature and tubing/manifold pressure drops.



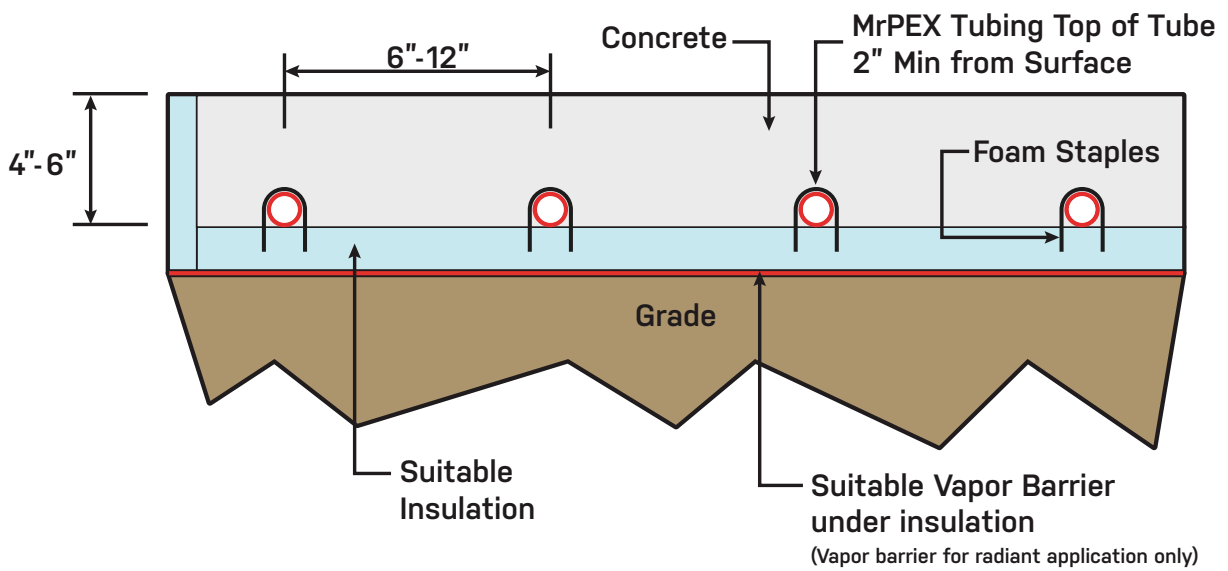
STRUCTURAL NOTE: Project Engineer, Project Architect or System Designer need to verify and approve the structural impact of the radiant system on the building prior to installation.

- › Review "Installing Insulation" on page 10, to make sure adequate R-value is used. Also, follow local building codes or check with structural engineer for correct compressive strength (PSI) for your application.
- › Lay down suitable foam insulation, covering the complete area. If a vapor barrier is required, make sure a suitable type is put down before the foam insulation. If there are areas that are uneven, you may need to adjust the grade to make sure the foam does not break when walked on. Tape the seams with suitable tape.
- › If you are using foam staples or clips, it is helpful to use a tape measure or story pole to mark the spacing on the insulation at certain intervals to aid the routing of the tubing and to keep the correct spacing. It is especially helpful around the manifold and where closer spacing is needed.
- › If 6 x 6 wire mesh is used, spacing is easier to maintain, but it is still helpful to mark the spacing on the insulation to plan the routing of the loops.
- › Place the uncoiler in an out of the way area, still close enough to easily feed the tubing to the area you are working on. Place the tubing coil on uncoiler and remove tape/straps. To keep uncoiler from tipping over, you can fasten it to a piece of plywood.
- › Pull the loose end of the coil over to the manifold and record the footage mark on tubing. Cut the end of the tubing with a suitable tubing cutter making sure the end is square and clean. If PEX-AL-PEX is used, also ream the end of the tubing using the MrPEX® Reaming tool. Attach a bend support to the tube. Connect to the supply of the first loop on the manifold using the correct fitting assemblies as outlined beginning on page 49, "Connecting the Loops to the Manifold."
- › Start routing the tubing along the supply path (typically along the outside wall) attaching it with foam staples, clips or ties to the wire mesh every 2–3 feet on the straights as necessary and every 1 foot on the bends. It is important to secure the tubing enough so that it does not float up to the surface during the slab pour. Foam Staples can be used to fasten **3/8" through 3/4" PEXa** and **3/8" through 5/8" PEX-AL-PEX** *NOTE: If chairs are to be used to lift the tubing into the slab, then leave mesh flat while installing tubing, then lift the mesh assembly with the tubing placing it on the chairs.*
- › The top of the tube should be embedded in the slab at a minimum of 2 inches below the surface.
- › Complete the loop following the design. Once back at the manifold record the footage mark on tubing. Attach another bend support to the tube. Cut the end of the tubing with a suitable tubing cutter making sure the end is square and clean. If PEX-AL-PEX is used, also ream the end of the tubing using the MrPEX® Reaming tool. Connect to the return of the first loop on the manifold using the correct fitting assemblies as outlined beginning on page 46, "Connecting the Loops to the Manifold."
- › Repeat the same process for remaining loops.

CONCRETE SLAB ON GRADE WITH REBAR WITH INSULATION

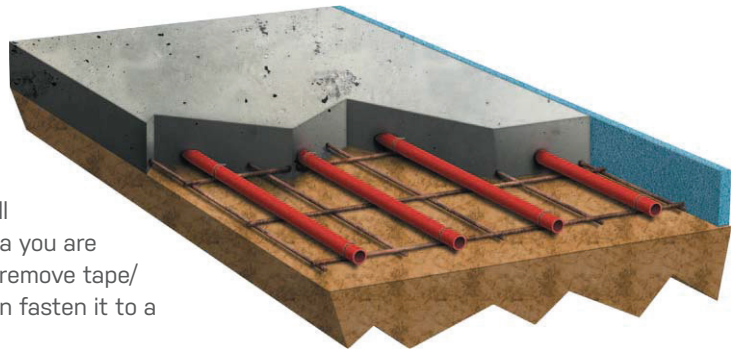


CONCRETE SLAB ON GRADE WITH STAPLES WITH INSULATION



SLAB ON OR BELOW GRADE WITHOUT UNDERSLAB INSULATION

› Although not recommended for most applications by MrPEX® Systems, this is the prescribed method. Follow local building codes or check with structural engineer for correct compressive strength (PSI) for your application.



› Place the uncoiler in an "out of the way area", still close enough to easily feed the tubing to the area you are working on. Place the tubing coil on uncoiler and remove tape/straps. To keep uncoiler from tipping over, you can fasten it to a piece of plywood.

› Pull the loose end of the coil over to the manifold and record the footage mark on tubing, if using a longer coil than needed. Cut the end of the tubing with a suitable tubing cutter making sure the end is square and clean. If PEX-AL-PEX is used, also ream the end of the tubing using the MrPEX® Reaming tool. Attach a bend support to the tube. Connect to the supply of the first loop on the manifold using the correct fitting assemblies as outlined beginning on page 49, "Connecting the Loops to the Manifold."

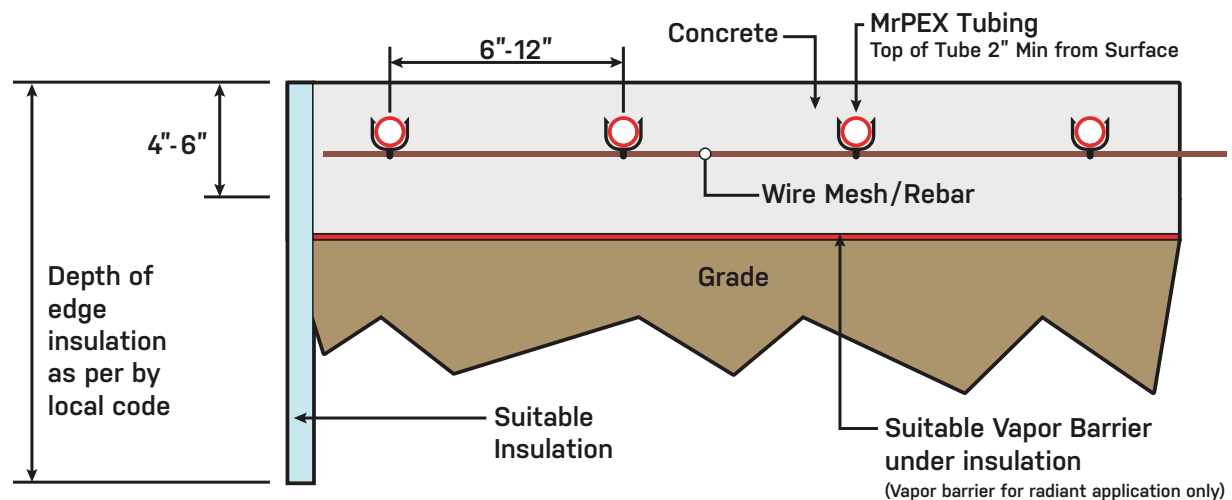
Start routing the tubing along the supply path (typically along the outside wall/edge) attaching it with quip clips or ties to the wire mesh every 2–3 feet on the straights as necessary and every 1 foot on the bends. It is important to secure the tubing enough so that it does not float up to the surface during the slab pour. NOTE: If chairs are to be used to lift the tubing into the slab. To aid installation, leave mesh flat while installing tubing, then lift the mesh assembly with the tubing placing it on the chairs.

› The top of the tube should be embedded in the slab at a minimum of 2 inches below the surface.

› Complete the loop following the design. Once back at the manifold record the footage mark on tubing. Attach another bend support to the tube. Cut the end of the tubing with a suitable tubing cutter making sure the end is square and clean. If PEX-AL-PEX is used, also ream the end of the tubing using the MrPEX® Reaming tool. Connect to the return of the first loop on the manifold using the correct fitting assemblies as outlined beginning on page 49, "Connecting the Loops to the Manifold."

› Repeat the same process for remaining loops.

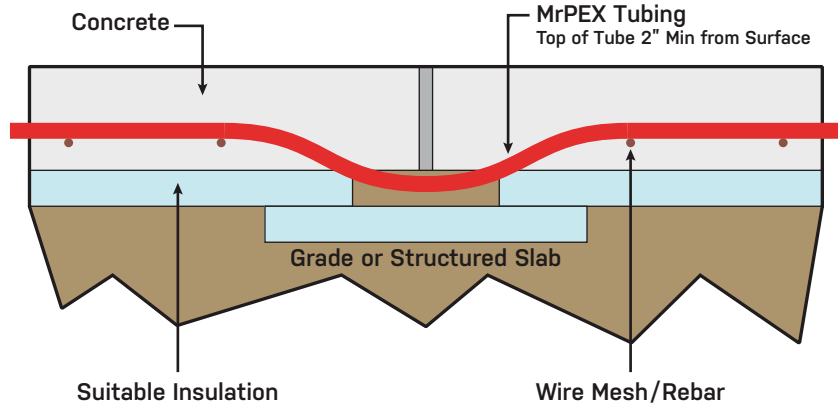
SLAB ON GRADE USING QUIP CLIPS



EXPANSION JOINTS

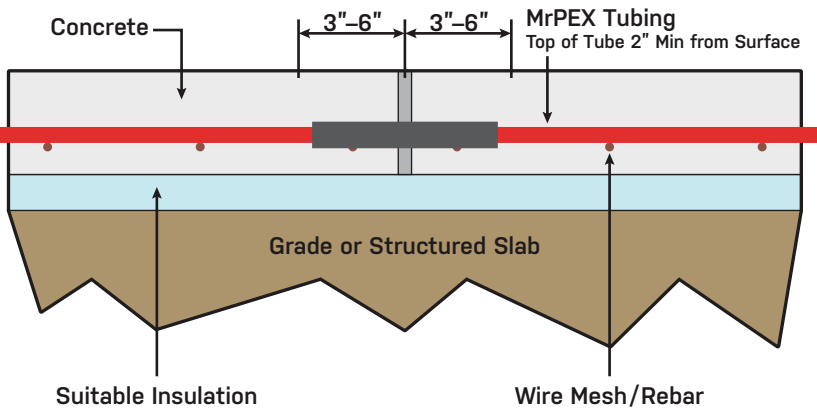
Note 1, Expansion Joint

Dipping the tubing underneath the expansion joint prior to where the joint is installed greatly aids the installation. This method completely avoids the tubing being subjected to any movement of the slab.



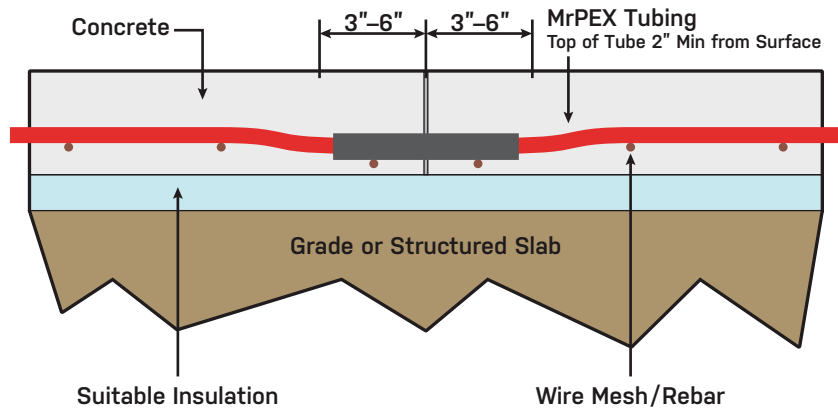
Note 2, Expansion Joint

For installations where tubing has to penetrate the expansion joint. Sleeve the tubing with 3/8" closed foam pipe insulation such as armoflex. This allows the slab to move at least 3/8" before interfering with the tubing.



Note 3, Control Joint (Sawcut or formed)

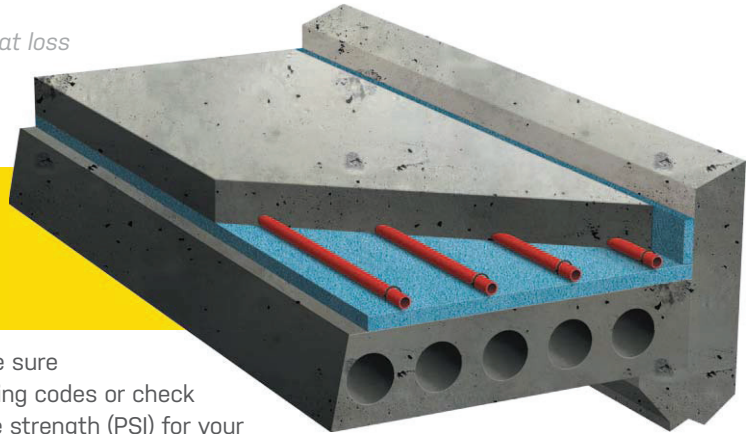
For installations where tubing has to penetrate through or under a control joint. For protection against shifting slab, sleeve the tubing with 3/8" closed foam pipe insulation such as armoflex. This allows the slab to move at least 3/8" before interfering with the tubing. It is however not necessary to do this if there is no risk of the concrete shifting.



SUSPENDED SLAB OR SLAB ON DECK

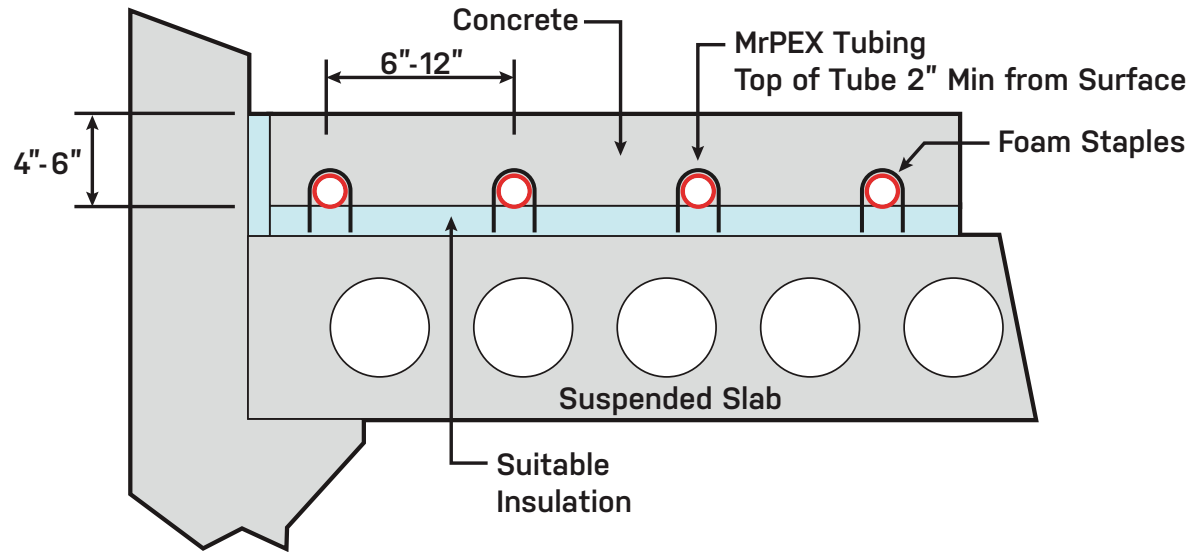
NOTE: Use MrPEX® Design Software to establish heat loss for the structure, and to calculate output, surface temperature, water temperature and tubing/manifold pressure drops.

STRUCTURAL NOTE: Project Engineer, Project Architect or System Designer need to verify and approve the structural impact of the radiant system on the building prior to installation.



- › Review "Installing Insulation" on page 10 to make sure adequate R-value is used. Also, follow local building codes or check with structural engineer for correct compressive strength (PSI) for your application.
- › Lay down suitable foam insulation, covering the complete area. If there are areas that are uneven, you may need to adjust the grade to make sure the foam does not break when walked on. Tape the seams with suitable tape.
- › If you are using foam staples or clips, it is helpful to use a tape measure or story pole to mark the spacing on the insulation at certain intervals to aid the routing of the tubing and to keep the correct spacing. It is especially helpful around the manifold and where closer spacing is needed.
- › If 6 x 6 wire mesh is used, spacing is easier to maintain, but it is still helpful to mark the spacing on the insulation to plan the routing of the loops. *NOTE: It is helpful to leave mesh flat on the surface while tying the tubing layout to it, and then lifting the entire assembly up on chairs. Make sure that the top of the tubing is at least 2" from the surface of the finished slab.*
- › Place the uncoiler in an out of the way area, still close enough to easily feed the tubing to the area you are working on. Place the tubing coil on uncoiler and remove tape/straps. To keep uncoiler from tipping over, you can fasten it to a piece of plywood.
- › Pull the loose end of the coil over to the manifold and record the footage mark on tubing. Cut the end of the tubing with a suitable tubing cutter making sure the end is square and clean. If PEX-AL-PEX is used, also ream the end of the tubing using the MrPEX® Reaming tool. Attach a bend support to the tube. Connect to the supply of the first loop on the manifold using the correct fitting assemblies as outlined beginning on page 46, "Connecting the Loops to the Manifold."
- › Start routing the tubing along the supply path (typically along the outside wall) attaching it with foam staples, clips or ties to the wire mesh every 2–3 feet on the straights as necessary and every 1 foot on the bends. *NOTE: If pressure testing is made with air, it is important to secure the tubing enough so that it does not float up to the surface during the slab pour.*
NOTE: If chairs are to be used to lift the tubing into the slab. To aid installation, leave mesh flat while installing tubing, then lift the mesh assembly with the tubing placing it on the chairs.
- › The top of the tube should be embedded in the slab at a minimum of 2 inches below the surface.
- › Complete the loop following the design. Once back at the manifold record the footage mark on tubing. Attach another bend support to the tube. Cut the end of the tubing with a suitable tubing cutter making sure the end is square and clean. If PEX-AL-PEX is used, also ream the end of the tubing using the MrPEX® Reaming tool. Connect to the return of the first loop on the manifold using the correct fitting assemblies as outlined beginning on page 49, "Connecting the Loops to the Manifold."
- › Repeat the same process for remaining loops.
- › Organize the loops leading into the manifold before pouring the concrete.

SUSPENDED SLAB



SLAB ON DECK

