CMX
RADIANT CORP
INSTALLATION GUIDE

Installing RPM Mats is Easy! Here's a simple step-by-step guide.

Step-1: Preparation

Attention: During installation, use Knee Pads, Gloves, and Safety Glasses to ensure comfort and safety.

BEFORE YOU BEGIN

All surfaces to be covered must be structurally sound, dry, clean and free of dust, oil, grease, curing compounds, sealers, waxes, paints, loose or scaly materials, vinyl floorcovering or other non-porous surfaces, or any other foreign matter. Check for any protruding nails, screws or other objects and level off with the surface or remove. In addition to the substrate condition, check the RPM mats to ensure the mats are free of oils, dust or any other foreign matter that could hinder adhesion.

NOTE: During the installation of the RPM mats, DO NOT use a ground level halogen lamp as a light source! The heat generated from this form of lighting at close range far exceeds the temperature the electric heat wire produces. Avoid exposing RPM mats to extreme hot weather/temperatures or prolonged direct sun exposure. Any of these types of exposure could cause the mats to warp. Use only electric floor heat wire rated for under floorcovering application, DO NOT use wire rated for use as concrete slab heat (embedded into the middle of a concrete slab, usually attached to rebar).

QUICK LAYOUT

Do a quick layout of RPM mats in the area to be installed. This will help you with your layout to make cuts prior to applying the adhesive on the substrate.

CUT RPM MATS (See Figure 1)

Use a utility knife or scissors to easily cut the RPM mats. If using a utility knife (the preferred method), only a light score and snap is required, then break the RPM on the score line. You can customize the mats to go around corners, toilet plumbing, vents, or any custom shape.

SNAP CHALK LINE

For larger areas, snap a chalk line for a straight and aligned installation.

Figure 1

SPREAD ADHESIVE
(See Figure 2)

Using an 1/8" x 1/8" V-Notch trowel, spread the CMX Radiant Corp recommended adhesive (see "Material & Equipment Recommendations" guide) smooth and evenly over your plywood/OSB or concrete substrate.

Tip: Keep a bucket of water and a sponge nearby to periodically clean the trowel of excess build up of adhesive. This will keep the notches on the trowel clean and the adhesive spread rate even throughout the installation.

Figure 2

Step-2: Install RPM

LAY THE RPM (See Figure 3)

Lay the RPM mat into the adhesive and then continue by placing mats together, but don't overlap them. The studs should stay in a straight line with all adjoining mats to ensure you have a consistent grid.

Using a flat trowel or wood float, apply pressure to press the RPM mat evenly into the adhesive.

For plywood/OSB applications, install several mats prior to stapling, in case you need to re-adjust the mats if necessary to ensure the studs on the RPM mats are in the desired position.

MECHANICALLY FASTEN (See Figure 4)
(omit for concrete installation)

For plywood/OSB installations, once the mats are glued into position, mechanically fasten the mats using a Porter Cable Model #US58 Pneumatic Upholstery Stapler and 3/8" x 1/2" Galvanized Upholstery Staples, or a 1/4" Narrow Crown Stapler with depth control and 1/4" x 1/2" to 3/4" Galvanized Crown Staples. Staple the RPM every 4" to 6" in the field of the mats, along the perimeter of the mats every 4", and the corners as well.

Spacing of the staples is dependent upon a couple of factors. The first, is the condition of the substrate. The poorer the substrate condition, the more staples will be needed. The second, is how soon after the installation of the RPM mats will the heat wire be installed. If the wire is going to be installed before the glue sets (approx. 24 hrs) the spacing of the staples will need to be closer (approx. 4"). This will keep the RPM mats in place when applying tension to the studs on the RPM mats during the installation of the heat wire.

NOTE: For plywood/OSB applications, wait 24 hours before applying the cement mortar into the RPM mats, this will allow the vinyl adhesive to set. The reason for waiting is if the mortar is applied prior to the drying of the adhesive the shrinkage/curing of the mortar could "grab" the studs causing the RPM mats to lift out of the adhesive.

NOTE: For concrete applications, allow a minimum of 24-48 hours after the installation of the adhesive and RPM mats before installing the heat wire into the mats. This will allow the adhesive to set prior to applying tension to the studs on the RPM mats.

WIRE SPACING (See Figure 5)

The stud spacing on the RPM mats is configured to space the wire at 2", 2.5", 3" or any spacing desired. Follow the heat wire manufacturer's recommendation for minimum and maximum spacing requirements. Refer to our Wire Spacing Chart online to see how to achieve the desired spacing. If multiple wires are to be installed, be sure to leave sections of the RPM mats clear of heat wire to make it available for other heat wires.
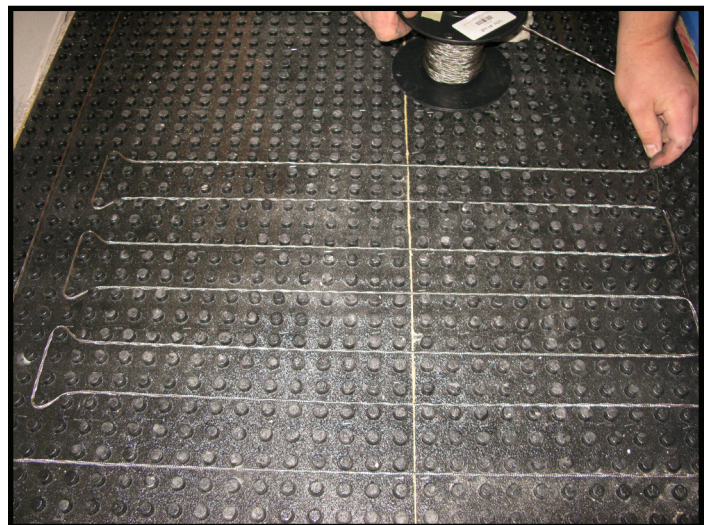
Figure 3

Figure 4

Figure 5

This picture illustrates 2.5" spacing. It shows how the installer wraps the wire around four studs, then keeps the wire pulled tight against the stud row and wraps the wire around three studs at the other end. This keeps the wire pulled tight down the side of the row of studs and keeps the spacing consistent at 2.5".

Step-3: Install Wire

OHM TEST HEAT WIRE (See Figure 6)

Remove the spool of wire from the box. With an ohm tester, do a continuity test on the cable prior to installation. Follow the manufacturer's recommendations for testing the wire.

INSTALL COLD LEAD (See Figure 7)

Determine the start point of the wire in the floor. Begin by taking the splice connection of the heat wire (in most cases the heat shrink section between the cold lead and the heat wire) and lay it between the studs of the RPM mat. Next, using hot glue attach this section to the RPM mat. Make sure the cold lead lays flat in between the studs so it does not rise above the surface of the mat (on the RPM-330 you may need to chisel out a section into the substrate to get the cold lead section below the surface of the RPM-330 mats). Secure the cold lead using hot glue.

INSTALL HEAT WIRE (See Figure 8)

Begin uncoiling the wire from the spool and lay it between the studs of the RPM mats. When an area is reached where the direction of the wire needs to change, wrap the wire around the appropriate studs and continue laying the wire. For longer wire runs across a room, wrap the wire half-around a stud mid-way to keep tension on the wire, which minimizes the chance of the wire slipping off a stud during installation.

With RPM mats you can easily make corrections to the spacing or change the direction of the wire.

When the end of the wire is reached (if you are using a wire that has an end splice), hot glue the end splice to the RPM mat. Do not zigzag the end splice between the studs, the end splice should be straight, with no bends.

USE GROMMETS TO SECURE WIRE
(See Figure 9)

During or after heat wire installation, RPM Grommets are used to keep the wire from accidental lifting out of the RPM mats. When an area is reached where the direction of the wire needs to change, wrap the wire around the stud and use an RPM Grommet to hold the wire down (grommets may not be necessary depending on the brand of heat wire used, check with your distributor). It's easier to use a tool to push down the grommets to speed up the installation process. RPM GT Pro Grommet Tool or any rigid plastic tube with a 1/2" inside diameter works well.

INSTALL SENSOR PROBE(S)
(See Figure 10)

Once the heat wire is installed, place the thermostat sensor probe(s) into the RPM mats and secure with hot glue. This picture shows two sensor probes installed, which is not required, but recommended (a backup in case one fails).
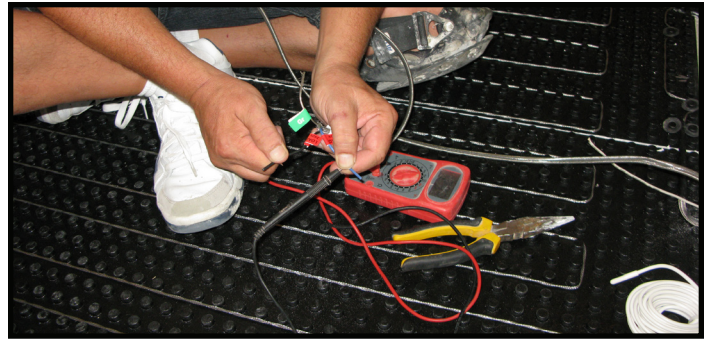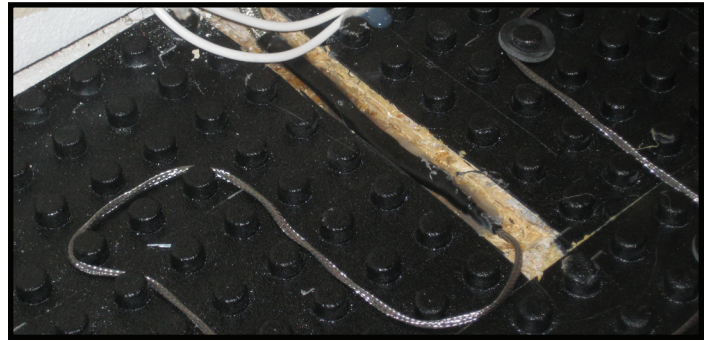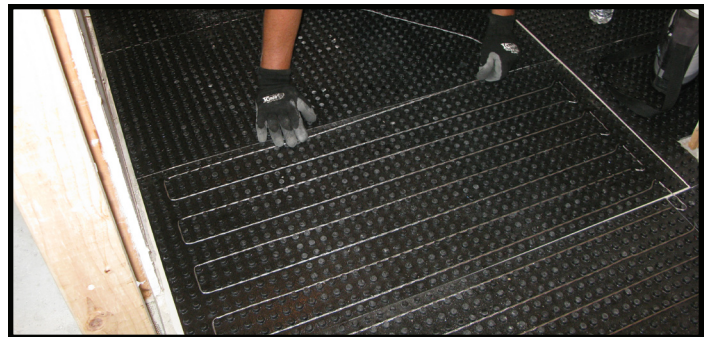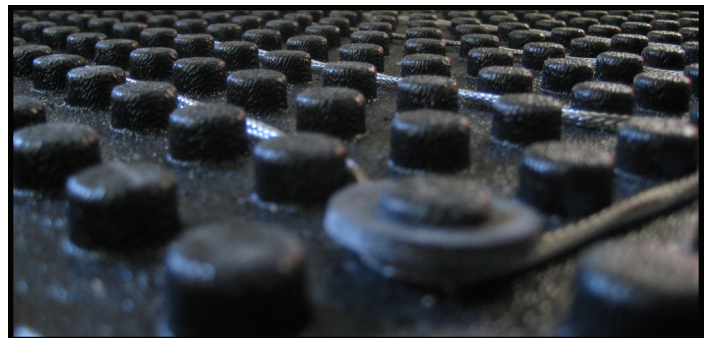
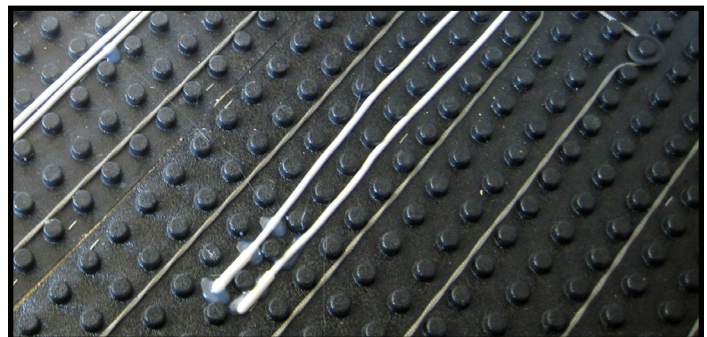Figure 6

Figure 7

Figure 8

Figure 9

NOTE: Sensor probe wires cannot cross over heat wire. Must enter thru an opening and end about 12" into wire pattern.
Figure 10

Step-4: Install Leveling Cement

RECHECK SURFACE

Check the RPM mats to ensure the surface is free of oils, dust or any other foreign matter that could hinder adhesion.

APPLY BONDING AGENT (See Figure 11)

Begin by using a CMX Radiant Corp approved Bonding Agent. Follow the manufacturer's recommendation for use.

A pump sprayer is the recommended method to apply the Bonding Agent because it will install much faster and more evenly, however a brush will also do the job.

Spray evenly and do not allow the Bonding Agent to puddle, if it does, brush out the puddled area. Coat in both directions back and forth to cover all sides of the studs and base of the RPM mats. Follow the manufacturer's recommendation for tack time.

MIX & SPREAD UNDERLAYMENT
(See Figure 12)

Once the Bonding Agent has tacked up, begin installing a cementitious floor leveler and use the surface of the RPM mats to screed the floor leveler smooth. CMX Radiant recommends a self-leveling underlayment or a trowelable leveling mortar.

Using a flat trowel, spread the underlayment into the mats. The consistency of the underlayment should be workable so it is easy to screed off the surface of the studs. The wire is protected from any potential damage from the trowel since the wire is below the surface of the studs.

Allow the leveling product ample time to dry before setting tile or other flooring products to the surface.

NOTE: DO NOT turn on the electric heat wire for 28 days after total completion of your installation. This could accelerate the cure time of the leveling product, thinset mortar or cement based tile grouts which could cause the cement products to lose some of their adhesive qualities or get shrinkage cracks in the grout.

INSTALLATION COMPLETE!
(See Figure 13)

Congratulations! When finished, you have a smooth floor with no wires exposed, ready for your flooring installation.
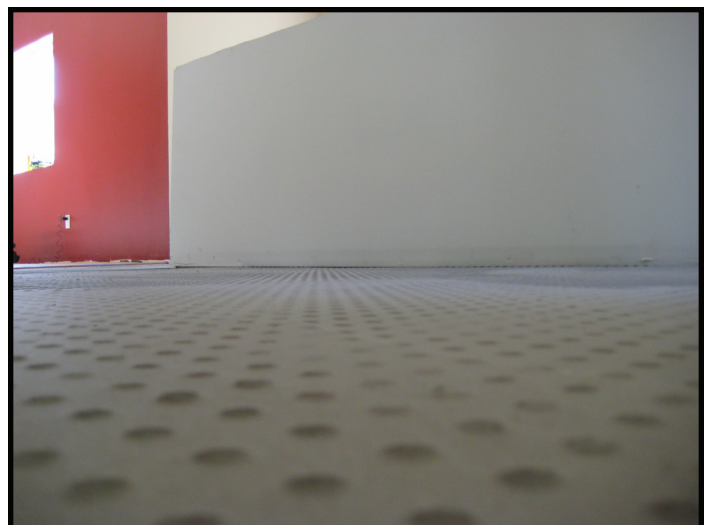

Figure 11

Figure 12

Figure 13

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Phone 425-583-7886
info@cmxradiant.com
www.RPMmats.com