# How to Install Radiant Floor Heating

Stepping onto ice-cold bathroom tile is a cruel way to wake up in the morning. It's no wonder so many of us invest in extra-thick slippers and giant bath mats. But what if we were able to shed our slippers and step barefoot onto tile that's toasty warm? Radiant-floor heating makes that possible. And you can install it in your home with far less trouble and expense than you might expect. Radiant-floor heating has been around for centuries. The principle is simple: The floor radiates heat to your feet, warming you all over. Most familiar are hydronic systems that heat your entire house. They produce wonderful heat, but they require serpentine runs of plastic tubing, water heaters or boilers, pumps and manifolds. This makes hydronic systems expensive and complicated to install. A simpler, less expensive alternative for just a single room is one of the electric systems discussed here.

**System Basics** An electric radiant system consists of thin heating cables, like the wires in an electric blanket, installed under ceramic tile. Because the cables are so thin they don't raise the level of the flooring much; this makes them great for remodeling. They're installed where warm floors are appreciated: bathrooms, mudrooms, and kitchens. Controlled by their own thermostat, these electric floor heating systems don't replace your main heating unit—they augment it. If you're installing radiant floor heat in an existing room, you'll need a dedicated 15- to 20-amp GFCI-protected circuit to power the system, and an excuse to lay a new tile floor. If you're remodeling, it's a good time to satisfy both requirements. A bathroom-size warm-floor retrofit will cost $400 to $700 including the cost of the new tile. This electric floor heating system will consume about the same amount of electricity as three 100W lightbulbs.

Installation Details

While you can hire a pro to do a radiant-floor retrofit, it's not a difficult job if you're comfortable setting floor tiles. We recommend that a licensed electrician hook up the new electrical circuit. The objective is to cover the subfloor with a continuous, closely spaced pattern of heating cable, connect it to a thermostat on the new circuit, and cover the cable with thinset and tile. There are two types of cable systems on the market. The SunTouch system uses heating cable that's woven into 1- or 2-foot-wide plastic mats. While the mats can be cut to extend the cable into odd-shaped areas, this system is easiest to use when your installation area is rectangular. The heating cable for the Warm Tiles Electric Floor Warming System from EasyHeat is supplied in lengths determined by layout requirements. The cable fits in slotted plastic channels fastened to the floor at right angles to cable runs. This system has a real advantage when the installation needs to go around curves or extend into odd-shaped corners. The best way to get started with either system is to make a scale drawing of the floor plan and identify the "walking area" where the cable will run. You don't want cable under or against cabinets, a tub, shower enclosure, and the like; it should also be at least 6 inches from wax seals for toilets or bidets. Send a copy of your floor plan to the cable supplier (see Where to Find It). The technical support staff can determine the optimum layout and quantity of cable you need. Standard thermostats are available for each system, but you're better off spending a few extra dollars for a setback model. You'll save energy by cutting heat during periods when the system is in use. Once the cable is down and the wiring is hooked up, all that remains is the tile work. While these systems are compatible with any tile, there are certain thinsets that work better than others; check with the cable supplier for specific recommendations.

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