

GREEN TECH THE SERIES COLUMN FOR SEPTEMBER 14, 2016
HEADLINE: ENJOY THE COMFORT OF A WARM FLOOR!

Over the past year, we have started to see more and more individual room in-floor heating, specifically in bathrooms. The rise in popularity of this type of heating, especially in a major renovation, is not unexpected. Advancements in the manufacture and types of electric radiant in-floor heating (ERFH) over the past 5 to 10 years, along with ensuing price reductions, have made this a popular upgrade. The largest benefit is that they can be installed in small areas as well as larger rooms. In the case of a bathroom, you lay in an underlay of different types, quick set being the most common, roll out the mat, cover it up and install your finished floor. There are actually some mat systems that can simply be laid on top of the sub floor and then the finished floor on top of this with practically no other preparation. "Warmzone" premier radiant heating is one company that makes such a simple method of install. ERFH is an evenly distributed heat source, warming where people are and, when linked to a room thermostat, make a great supplemental heat source.

While there was a time when actual hardwood was not recommended over radiant flooring, today there are options. Now, almost every kind of flooring can be installed over ERFH, including carpet. There are two methods available, one is a coiled system and the other is a mat style. This type of radiant heat is the most cost reasonable type of in floor heating; well below hydronic or air heated floor systems. The cost of installing ERFH in the whole house costs twice as much as a forced air system, which is why it's popular for a singular zone or individual room. Average operating costs run around 10-15 watts per square foot or about the cost of operating a couple of conventional 100 watt light bulbs on a daily basis for a reasonable sized bathroom.

Installing an ERFH floor can be done by a very handy homeowner who has access to a licensed electrician. Depending upon the size and type of mat or wire, most systems are 240V, with a small but growing number of 120V big box store packages available. Some of these smaller kits are very reasonable in price ranging from the \$150.00 range to \$400.00. Proper electrical supply, connecting a wall thermostat and ensuring the overall wiring installation is safe is paramount here, especially in a bathroom.

Depending upon the type of floor chosen, the wire type can raise a floor over an inch while the mat style may add less than ½" to the floor height. Based upon

the floor height in most renovations we see, the mat style is by far the most popular. Each manufacturer has different installation recommendations, but the use of quick-set, laying the mat on top and then ceramic or other hard surface flooring is the final step. Tile floors in bathrooms make up the majority of these installations. Where the ERFH popularity is growing is in basements, entrances and mud rooms.

We have seen more ERFH installations in basements recently, installed under laminate or architectural wood flooring. There was a time when this was frowned upon, but today it's becoming popular. The biggest concern and, thereby, the most conscious effort has to be in preparation. Humidity levels should be low, the closer to 35-40% the better and the overall floor temperature should be at least 60F. Acclimatizing the flooring before installation is also important. The boxes should be fully opened up and the flooring allowed to reach room temperature. While I can see laminate installations done, I am hesitant over real hardwood. That said, the folks at "Floor Heat," who make "Warmzone" state that they are comfortable with using their product directly underneath a hardwood floor. This 1.2mm mat is made of a polymer blend that heats when electricity moves over the mat. They claim that this mat can be cut to size and then wired by an electrician following their instructions. They go on to say that this polymer design acts as a sensor on the entire surface area and will not overheat. You attach this polymer mat with glue or staples to the actual sub floor. No mention of below grade in their specs, so I would expect this is limited to above grade installations. They also claim that this polymer mat will not discolor and damage the wood floor from either excessive heat or expansion.

The advantages are clear, warm evenly heated floor to walk on and to step out onto from your shower. If installed under ceramic or porcelain tiles, even when turned off, it will remain warm for some time afterwards. There are a few negatives to be aware of, as with any heating system. Initial installation can be costly, especially if getting a proper electrical supply is not readily accessible. ERFH systems, in fact all in-floor radiant heating systems can take some time to heat up in some cases up to a half an hour or more depending upon the type of flooring. The last point to consider, and this is one that is not commonly known, is that placement of some furniture can damage some items, especially wooden legs if they are located directly in line with a coil or mat heat line.

With the declining cost and simplicity of installation, we expect to see this "creature comfort" flooring's popularity to continue for some time yet. Programmable thermostats are available for every ERFH floor. This will allow you

to step into your bathroom on the coldest winter day and enjoy bare footed warmth.

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