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HEADLINE RADIANT FLOOR HEAT; PART 2

Last week I briefly outlined the Pro's and Cons of this type of heating system. This week we discuss the different systems. There are basically two kinds, the wet system and the dry system. The wet system is a poured floor, usually used in new home construction. The tubing is positioned uniformly over a base of various materials, as recommended by the engineer, architect or Building Official. This is a prepared base, compacted stone, insulation, a vapour barrier, reflective foil and concrete. This type of home is generally a slab design with no basement. There is also lightweight gypsum poured floor that can be applied over a correctly engineered wood frame and plywood sub floor. A professional crew usually installs these systems in a new home. This type of system is better suited for tile and parquet flooring. I have heard that there is some issues with moisture in the concrete and the shrinkage, swelling and cracking that accompany some hardwood flooring.

The system that has become the most popular, especially for additions or renovations is the dry systems. There are three styles in use with a number of variations depending upon the manufacturer. Electric radiant coils are probably the easiest, they are manufactured in a sheet that is secured to the floor and then a layer of thin-set is applied over which the tiles are laid. This is an easy installation for a small bathroom or laundry room.

The next style is an aluminium-backed plywood strip panel that is laid like a sub floor over your present plywood or OSB sub floor. There are different styles of this type of radiant flooring. If the homeowner has strong carpentry skills and an access to an experienced heating contractor, this type of system can be used in an addition when the present heating system lacks the ability to heat additional space. It is also nice in a larger bathroom or a mudroom; actually anywhere you want the warmth of radiant heating. Your heating contractor should calculate the heat loss for the area. This calculation should account for room size, insulation, number and type of windows and the type of flooring that will go over the radiant system. They should get back to you with the recommended size of tubing to use and the correct spacing you will need. Included in the HVAC recommendations should be the length of the tubing runs and how they are connected to a regulating control called a manifold, along with the pump and hot water controls. Your hot water heater must be able to sustain the added requirements for a radiant floor system. If this is a large addition or an entire level of a home is being renovated and radiant heat is being planned, discussion with the heating contractor as to installing a closed loop system that uses glycol instead of water may be worth considering. This liquid generates more efficient heat than water and will not freeze should you ever loose power for an extended period.

Once you know where the system will enter the area, you can begin securing the grooved panels to the sub-floor. Hopefully you can lay the panels horizontal to the pattern if you are using hardwood flooring. It is a lot easier to nail the hardwood and not hit the tubing if the tubes and the flooring are opposite grains. These systems are screwed down and effort to keep it square to the room is a good idea. You must also take extra care in fitting the panels together; if the grooves are not in line then the tubing won't fit correctly. The one style I saw laid required that a bead of silicone was set into the groove before the tubing was set into place. The installers vacuumed the grooves before they ran a bead of silicone. The contractor installing the panels told me that this was the one part of the installation where he was extra careful to make sure there was no debris in the grooves. If a leak was found during the air test, removing a run of tubing or making a repair was time consuming and costly. They also took their time laying the tubes into the grooves, especially going around the curves. At this point the HVAC contractor took over and installed the manifolds and controls. They did an air pressure test on the installation to ensure there were no leaks. When the final floor was installed they did their hook-ups to the hot water heater. The last thing the contractor did was insulating the area between joists below the floor with fibreglass batts. They ran wood strips in a pattern to hold the insulation into place.

The last type is the under floor method where the tubing is attached to the sub-floor. This is about the only method available if you already have a finished floor and you want to add radiant heat. The same discussions with your heating specialist should also be done here. The tubing is then installed against the sub-floor with

clips and then it is covered with aluminium sheeting that is fitted to the spacing between the floor joists. Fibreglass batts are then installed and secured with wood strips. This method is not quite as efficient as the panel method; you end up heating the sub-floor as well as the finished floor. The one installation that I saw done with this method had been in place for some months and I noticed that even the floor joists felt warmer.

As far as finished flooring, tiles are the most effective for heat retention. If you are going to use wood, give the new-engineered wood flooring a serious look. This flooring has a solid wood layer bonded to a plywood base. I had the chance last Christmas to lay about 500 sq ft of this material. The floor I was working on was not especially level and I could see an advantage to the engineered floor. The plywood backing was slotted to allow some flex to the wood. If you use solid wood, pay attention to the moisture content of the wood. Ask if it is quarter sawn, it is more stable than flat sawn. The narrow or “ribbon” strip flooring will not usually expand or contract as much as the wide plank flooring.

I was able to go back to the home where they installed the plank-tube system after it was finished and I was impressed, the floor and room had a nice, even warm feeling to it.

Last week I asked what a collar beam was. The answer was C) a secondary beam above the tie beam on a 1920's gable porch roof. This week we ask, “What is a drip board?” Is it A) wide trim board above a door lintel. B) A section of decorative fascia on Victorian Homes C) a flashing used under siding that is set back from the foundation. The answer in next week's column.

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