COLUMN FOR MARCH 11, 2006.
HEADLINE; RADIANT FLOOR HEAT; PART 1

Q; *We are going to add a large addition to our home this year. I have read some advertising about radiant floor heating and it sounds interesting. What are the real benefits and can this be used on the floor of our addition above the basement.*

A: A number of readers have written me about these systems. I will answer this in two parts, this week I will cover the Pro's and Con's. Next week we will discuss systems and installations. In-Floor Radiant Heating has been around commercially for a number of years and in the late 80's it began to make inroads into the residential marketplace. A number of homes in the American Midwest were built in the 80's using concrete pads and in-floor hot water radiant heating. It is a very efficient method of heating; the concrete pad acts as a thermal reserve. In recent years a number of different systems have entered the marketplace. Along with the hot water systems there are also electric coil radiant systems. In an area like a bathroom or an entrance I don't think there is a lot of difference between the two systems. The electric system may be cheaper to install, especially in a smaller area. My suggestion in a larger room or addition would be to install a hot water radiant in-floor or hydronic floor heating system, you will hear both terms used. There are a number of companies now making radiant hot water systems that are installed over wooden sub-flooring.

The first thing you should ask yourself, "Is a radiant floor what we want?" The strong points are; Radiant Floor heating is arguably the most comfortable type of heating. When your feet are warm, you feel warm. A radiant floor provides an even heat. It is a series of coils spaced evenly over the floor with a slow circulation of hot water travelling thru the coils. In many cases such our reader has, their hot water heater is likely capable of supplying the hot water for the system. They will have to add a circulating pump, controls, pressure valves and two manifolds along with the tubing. Without a doubt if anyone has air-borne allergies or concerns about mould, this is the system. The room is more useful when you do not have to consider floor registers or baseboard heaters when positioning furniture. If you are able to use your existing hot water tank it will cut down on your installed cost. If the addition and floor are properly insulated then you will likely find you can set the room temperature lower than a forced air system.

As with everything there are downsides. It is not a cheap system to install. I have heard of installed estimates running close to 15-20.00 per square foot for a complete home system including a separate boiler. We recommend you get three quotes from reputable heating contractors who advertise that they install these systems. Shop around and ask for references, these installations are new and while most HVAC companies, have trained installers these systems don't have a long track record as yet. Radiant In-Floor Heating is most effective installed under hardwood, approved laminate floors and tiles. I have heard where some of the vinyl floor makers don't recommend some grades of vinyl that are known to discolour over the long-term. Wall-to-wall carpet is not the best idea; it will diminish the efficiency of the system considerably. If you want air conditioning you will be required to add the ducting, provided your existing system can handle the extra living space. You should include this in you discussion with your HVAC Company. I often hit this snag in my former life where the existing heating/air conditioning system was inadequate for the planned addition. If the addition is a large family room and can be closed off then there is an alternative. The individual room A/C units that you see in some newer hotels are now available residentially. Your contractor would install a fairly compact fan unit above a window or your patio door. The compressor is mounted outside on a pad, not unlike a regular air conditioner. They are considerably quieter and more energy efficient than a window A/C unit. It takes some amount of time to raise or lower the temperature of a radiant floor. Unlike a forced air system where you can turn it down 10 degrees when you are away for a few days and then when you return, turn your furnace up and be comfortable within a couple of hours, a radiant system could take many more hours to regain a comfortable room temperature. Installing the finished floor over the tubing takes concentration. It you are using any type of nails or screws; puncturing the tubes will cause a real mess. If it's a pinhole and is not caught and repaired, over

time it will become a steady stream and if the ceiling below is finished, this is costly to find and repair.

Next week we will discuss the differences between “Wet” and “Dry” In-Floor Radiant Systems and the different kinds of radiant systems and their installation. The popularity of these systems should help bring down the cost of installation over the next few years. Even now there are some systems that are advertised as “homeowner friendly” as far as installation goes. It is the system of choice in the new super-insulated homes. These homes are amazingly energy efficient and coupled with low operational cost’s they are the way of the future.

Last week I asked what is an “interceptor?”. The answer was B) a receptacle installed to prevent foreign material entering a drain. This week we ask, what is a collar beam? Is it A) a steel beam that is welded to the main bearing steel beam B) a different term for attic framework called collar ties C) the secondary beam above the tie beam on a 1920’s gable roof porch? The answer in next week’s column.

Cam Allen L.I.W. RHI is a former builder/contractor and now teaches Heritage Home Inspection. He can be reached at cam.allen@sympatico.ca