



# NATIONAL PROPERTY INSPECTIONS, INC.

## TECHNICAL BULLETIN

October, 2006

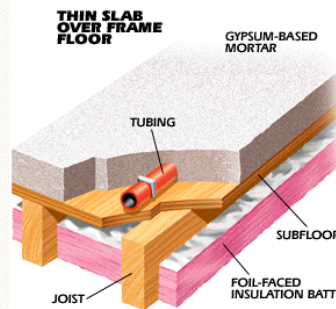
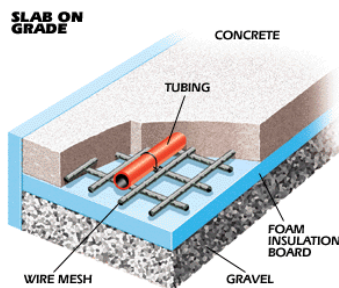
TOPIC: Entran II Tubing.

Radiant heat, also called radiant hydronic heat, is used to heat residential and commercial buildings in many parts of the US and Canada. Hot water is carried throughout the structure using pipes, tubes or baseboard heaters. Entran II, a type of rubber hose used in radiant heating and snowmelt systems, has had some major failure problems.

Scientists and juries have concluded that Entran II is defective. The hose can harden, leak and fail in some cases after just a few years of use. Tubing failure may cause the heat system to fail, leaving the property without heat. This can result in personal property damage.

Entran II was manufactured from 1989-1994 by Goodyear Tire and Rubber Company. Approximately 25 million feet of Entran II was sold, distributed and installed as part of radiant heat systems in nearly every state and province in the US and Canada. The hose was distributed to plumbing supply houses and contractors by Heatway Radiant Floors and Snowmelting.

### TYPICAL INSTALLATION CONFIGURATIONS

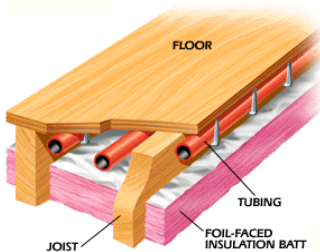


The tubes may be found installed as part of several different styles of radiant heating systems, including:

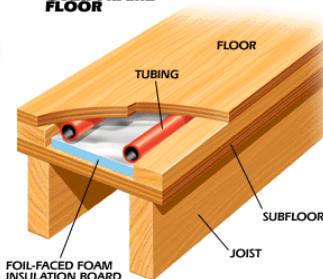
**In-slab** – the tubing is installed and looped in a typical concrete floor, or used as a snowmelt system in the driveway or garage.

**Thin slab or thin set** – the tubing is installed and looped in light weight concrete on a wood or concrete floor.

### STAPLE UP



### SANDWICH OVER FRAME FLOOR



**Staple up** – the tubing is fastened to the lower side of the subfloor, floor joists or ceiling joists. The tubing may be exposed or covered depending on the application.

**Sandwich** – this method of application may be wood over wood or wood over concrete with the tubing between.

Entran II was also used as a conduit between baseboard heating elements and the heat source.



Because Entran II hose is often buried under floors or embedded in concrete, it can be difficult to find and to identify. The first place to look is the boiler room where the tubing attaches to a manifold. The manifold may be concealed by an access panel or located in the control box of a snowmelt system. These boxes are often made of plastic and resemble the boxes used to house lawn sprinkler system valves.



When Entran II is found it may be in working order. Look for the following signs of failure:

1. Tubing that is hard at or near the connections.
2. Tubing that has changed color, usually going from orange to dark red, or reddish-brown, but sometimes white.
3. Leaks at the connections.
4. The entire hose is brittle, leading to other leaks.
5. A black sludge seeping from the hose and into the mechanical components of the heating system, causing other components to fail.



Entran II is reddish-orange in color. The words "Heatway" or "Heatway Systems" and a trade name such as Entran II, Twintran, Nytrace, Entran Trace, or Entran 2 Wire is usually stamped clearly on the outside of the tubing. The inside diameter of Entran II hose is about  $\frac{1}{4}$ " to  $\frac{3}{4}$ " of an inch, and the outside diameter is  $\frac{3}{4}$ " to 1". The Goodyear date code has both date, numbers, and a letter "A," "B," "C," "D," or "Z."

The Entran II hose manufactured by Goodyear from 1989-1994 is involved in a class action settlement for property damage claims involving the potentially-defective hose.

Special care must be taken in the identification of this product. Reddish-orange hoses that look similar, but do not exhibit the same defects, are manufactured by Dayco and Goodyear, including Entran III or Entran 3, or Entran EPDM products. These hoses are currently in use today in radiant heating and snowmelting systems and appear to work well.

Pictures used in this bulletin were downloaded from the following website. [www.entraniiisettlement.com](http://www.entraniiisettlement.com).

**This tech bulletin has been drafted to be general in nature and not technically exhaustive.**