

## Radon Resistant New Construction (Passive Soil Depressurization)

These general guidelines are for radon resistant new construction. This is an inexpensive system that typically draws the radon out of the structure by the natural stack effect produced by a home.

### A. Gas Permeable Layer

This layer is placed beneath the slab or flooring system to allow the soil gas to move freely underneath the house. In many cases, the material used is a 4-inch layer of clean gravel.

#### A1. Perforated Piping in GPL (Gas permeable layer)

A network of perforated piping is installed & covered by the 4" gravel (GPL) Gas Permeable Layer. The perforated piping is connected to the Vent Pipe item "D".

### B. Plastic Sheeting

Plastic sheeting is placed on top of the gas permeable layer and under the slab to help prevent the soil gas from entering the home. In crawlspaces, the sheeting is placed over the crawlspace floor.

### C. Sealing and Caulking

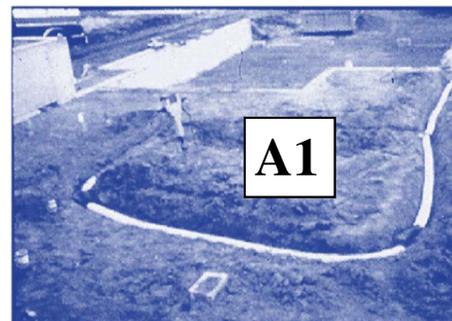
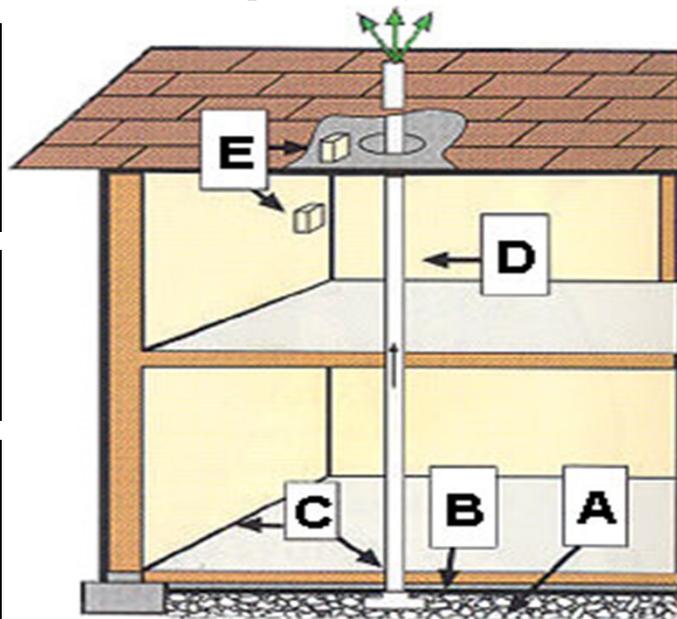
All openings in the concrete foundation floor are sealed to reduce soil gas entry into the home.

### D. Vent Pipe

A 3 or 4 inch gas-tight or PVC pipe (commonly used for plumbing) runs from the gas permeable layer through the house to the roof to vent radon and other soil gases safely above the house.

### E. Junction Box

An electrical junction box is installed in case an electric venting fan is needed later.



Sources:

Midwest Universities Radon Consortium 2007

Building Radon Out (Office of Air and Radiation)

EPA/402-K-01-002 April 2001

### Additional Considerations:

- Costs to eliminate radon can be lower using radon resistant construction rather than traditional mitigation systems. In many cases, the stack effect alone can reduce radon below the EPA action level so that no electric fan needs to be purchased or operated.
- Radon resistant construction may provide a marketing advantage when the home is being offered for sale.

### Definition of Stack Effect:

The stack effect is due to naturally higher barometric pressure in the basement and lower barometric pressure in the upper levels and attic. The radon exhaust piping routes up through the continuously lower pressure areas, naturally drawing/pulling the radon gas out of the home.

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