

Consider These Facts

1. Radon-resistant new construction (RRNC) typically costs a builder between \$250 and \$750.
2. RRNC could cost less than \$250 if the builder already uses some of the same techniques for moisture control.
3. It is much less expensive to install a radon-resistant system during construction than to go back and fix a radon problem identified later.
4. If a new homeowner tests for radon and has to mitigate high levels, it could cost the builder or the owner as much as \$2,500.

These radon-resistant new construction techniques comprise a "passive" radon system. The system is intended to overcome pressure differences experienced by most houses and includes a pipe to vent gas safely to the outdoors. A radon test should be conducted immediately after moving into the home. In those cases where the passive system does not reduce the radon to at least below 4.0 pCi/L, a fan may be added to pull the radon gas from the underlying soil, creating an active radon system.

For information about radon, radon resistant new construction techniques, and testing your home for radon please contact:

New York State Department of Health
Bureau of Environmental Radiation Protection
- Radon Program
1-800-458-1158
518-402-7556
radon@health.state.ny.us
www.nyhealth.gov/radiation



State of New York
Department of Health

Build a Green Home!



**RADON
RESISTANT
NEW
CONSTRUCTION**

What you should know about radon

Radon is a naturally occurring, radioactive gas found in soil and rock. It seeps into homes through cracks in the foundation, walls, and joints. All homes should be tested for radon. Among non-smokers, radon is the leading cause of lung cancer in the United States. Based on EPA estimates, lung cancer due to radon exposure claims about 21,000 U.S. lives annually. In many cases lung cancer can be prevented; this is especially true for radon-related lung cancer. Using common materials and straightforward techniques, builders can construct new homes that are resistant to radon entry.

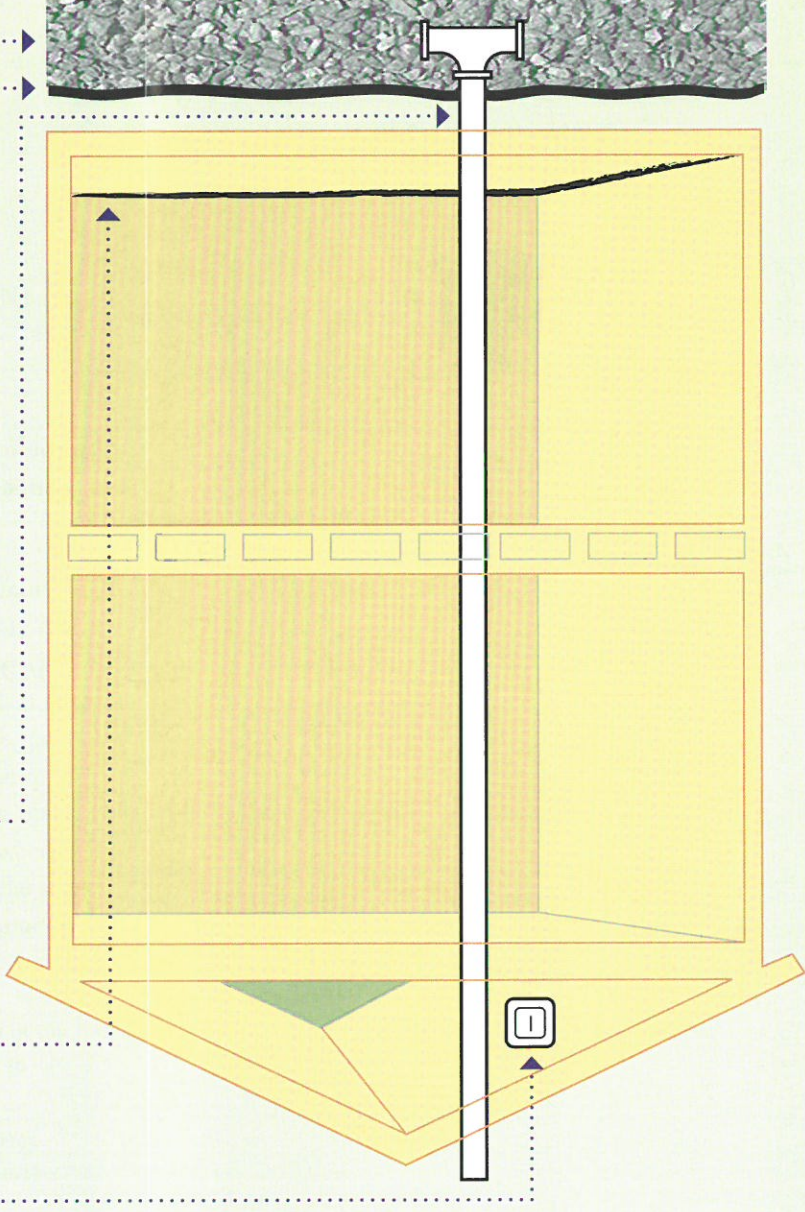
Because radon comes from the soil, the geology of an area can help to predict the potential for elevated indoor radon levels. The U.S. Environmental Protection Agency (EPA), working with state and federal geologists and the New York State Department of Health's radon measurement program for homeowners, has developed maps which predict and confirm the potential indoor radon basement levels for every area in New York State. The following counties are designated as Zone 1 with predicted average radon levels at or above the EPA's 4.0 pico-Curies per liter (pCi/L) action level.

New York State Zone 1 Counties

Albany	Delaware	Oneyda	Schuyler
Allegany	Dutchess	Onondaga	Steuben
Broome	Erie	Ontario	Sullivan
Cattaraugus	Genesee	Orange	Tioga
Cayuga	Greene	Otsego	Tompkins
Chautauqua	Herkimer	Putnam	Ulster
Chemung	Lewis	Rensselaer	Washington
Chenango	Livingston	Saratoga	Wayne
Columbia	Madison	Schenectady	Wyoming
Cortland	Montgomery	Schoharie	Yates

Basic Techniques for Radon Resistant New Construction

Homes in all areas can be built with radon resistant new construction. Here are a list of the basic techniques for the installation of RRNC.



5 Junction Box: Install an electrical junction box (outlet) in the attic for use with a vent fan, should, after testing for radon, a more robust system be needed.

4 Sealing and Caulking: Seal all openings, cracks, and crevices in the concrete foundation floor (including the slab perimeter crack) and walls with polyurethane caulk to prevent radon and other soil gases from entering the home.

3 A Vent Pipe: Run a 3-inch or 4-inch solid PVC Schedule 40 pipe, like the ones commonly used for plumbing, vertically from the gravel layer (studded up when the slab is poured) through the house's conditioned space and roof to safely vent radon and other soil gases outside above the house. This pipe should be labeled "Radon System."

2 Plastic Sheeting or Vapor Retarder: Place heavy duty plastic sheeting (6 mil. polyethylene) or a vapor retarder on top of the gravel to prevent the soil gases from entering the house. The sheeting also keeps the concrete from clogging the gravel layer when the slab is poured.

1 Gravel: Use a 4-inch layer of clean, coarse gravel below the "slab," also called the foundation. This layer of gravel allows the gases — including radon — that occur naturally in the soil to move freely underneath the house. Builders call this the "air flow layer" or "gas permeable layer" because the loose gravel allows the gases to circulate.