

RADON-RESISTANT NEW CONSTRUCTION

What is radon?

- Radon is a cancer-causing, radioactive gas that can be found in homes all across the U.S.
- Radon comes from radioactive breakdown (decay) of uranium in soil and rock.
- Radon gets into the air we breathe.
- Radon can get into any type of building, including homes, offices, and schools.
- Testing is the only way to know if you or your family is at risk

Introduction of resistant new construction.

- Radon-resistant New Construction (RRNC) techniques are affordable, using simple technology to help protect families from the risk of lung cancer posed by radon.
- EPA, in conjunction with the building industry, scientists, and engineers, has developed simple construction techniques.

Why worry about new homes?

- It makes sense to put RRNC features in while a home is being built -- before the structure is closed in because:
 - It's cheaper than having to fix a radon problem after the house is built.
 - It helps protect everyone, not just those who can afford to fix an existing home.
 - Most features of radon-resistant construction are common building practices since it only involves a few extra steps to prevent radon entry.

Benefits of passive RRNC system.

- Reduces radon levels by about 50%, on average.
- Allows for easy addition of a fan later if activation is needed to further reduce radon levels.

- Helps reduce entry of moisture and other soil gases in the home (e.g., methane, pesticides, and termiticides).

Benefits of a passive RRNC system.

- Low-cost when compared with fixing a radon problem in an existing home.
- Added resale value, especially as radon testing and mitigation are more frequently a part of real estate transactions.
- RRNC techniques are consistent with energy-efficient construction (e.g., sealing and weatherization).

Labeling the radon vent pipe.

- Clearly label the vent pipe as a “Radon Reduction System” to avoid it being misused for plumbing or drainage.

Sealing and Caulking.

- Helps retard radon entry.
- Helps reduce the stack effect which causes suction from the ground to the house.
- Helps control moisture and save energy.

Major components of Radon-Resistant Construction.

- A Layer of Gas Permeable Material (i.e. 4" Layer of Gravel).
- A Minimum 6-mil Polyethylene Sheeting.
- 3" Perforated pipe under polyethylene sheeting.
- Installation of Minimum 3" Diameter PVC pipe.
- Sealing and Caulking All Openings in the Foundation Floor.
- Sealed sump cover.
- Electrical junction box placement in attic shall be within 6 feet of radon vent stack.

Passive system concept for houses built over a crawl space.

- Suction point is under plastic sheet placed over exposed soil or rock.
- Radon is collected and exhausted outdoors.
- Seams and edges are sealed.

Post-Occupancy Testing and System Activation.

- All new homes with RRNC features should be tested after occupancy to determine whether system activation is needed to further reduce radon levels.
- To activate a passive radon control system, a fan and a system failure device are added.
- This is a simple and inexpensive task if a passive system is in place.
 - Fan operates continually.
 - Additional cost is \$550.00.

Installing a radon fan.

- A fan is added to the radon vent pipe.
- The fan should be placed outside the habitable spaces, such as in an attic.
- In case of failure in the active system, a warning system should be installed in a visible area of the radon vent pipe and be easily interpreted by the occupant.

RADON-RESISTANT NEW CONSTRUCTION MAKES SENSE

- Low-cost:
 - \$650 per home for a passive system
 - (\$1200) per home total for an active system)
 - Versus average \$1,350 to retrofit
- Simple – uses common building materials

- Effective – reduces radon levels by about 50%
- Other benefits include moisture control and energy savings.
- RRNC protects families

Helpful EPA Radon Publications

- *Building Radon Out: A Step-by-Step Guide on How to Build Radon-Resistant Homes* (EPA 402-K-01-002):
 - 81-page, illustrated guide for educating home builders about RRNC.
 - Detailed instructions on RRNC techniques, with helpful tips and optional improvements to enhance installations.
- Two consumer-oriented brochures for RRNC:
 - *Buying a New Home? How to Protect Your Family from Radon* (EPA 402-F-98-008)
 - *Building a New Home – Have You Considered Radon?* (EPA 402-F-98-001)

For more information

- Where available, contact your state radon program office.
- Visit EPA's website: www.epa.gov/radon.
- Call EPA's Indoor Air Quality Clearinghouse to get more information and order EPA publications at 1-800-IAQ-INFO.