



# IEMA - Division of Nuclear Safety Radon Program Guide to Radon Mitigation

**Your radon concentration is at or above the USEPA action level of 4 picocuries per liter (pCi/L). What is next?**

- ◆ Contact a mitigation professional licensed by IEMA-Division of Nuclear Safety to reduce the radon levels in your home.
- ◆ Request two or three price estimates from licensed mitigation professionals. The cost of a radon reduction system generally ranges from \$800 to \$1200, depending on characteristics of the house and choice of radon reduction methods.
- ◆ Talk to your mitigator and be sure you understand the mitigation design.
- ◆ Residents of a dwelling may install a mitigation system in their own dwelling; however, without proper equipment or technical knowledge, you could actually increase your radon level or create other potential hazards.



## IEMA-Division of Nuclear Safety Assures Consumer Protection

- ◆ IEMA-Division of Nuclear Safety-licensed mitigation professionals have passed a radon qualification course and exam.
- ◆ IEMA-Division of Nuclear Safety-licensed radon professionals work to a Quality Assurance Program approved by the agency.
- ◆ IEMA-Division of Nuclear Safety performs performance audits on a regular basis to evaluate individual professional compliance.

## Mitigation Systems Reduce Radon By:

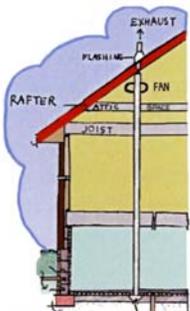
- ◆ Collecting radon prior to entry into the building and discharging it to a safe location.
- ◆ Modifying building pressure differentials.
- ◆ Diluting radon concentrations with increased ventilation.

## Mitigation Systems In Illinois Must Include:

- ◆ Effective radon reduction
- ◆ Unobtrusive and permanent installation
- ◆ Quiet operation
- ◆ Energy efficient operation and maintenance
- ◆ A system function indicator
- ◆ A primary suction point independent of the sump pit
- ◆ Sump covers with observation ports
- ◆ Exhaust above the highest eave

## Sub-Slab Depressurization (SSD)

Active Sub-slab depressurization uses a fan to draw radon from beneath the house. SSD systems collect radon prior to entry and exhaust it to a safe location above the highest eave.

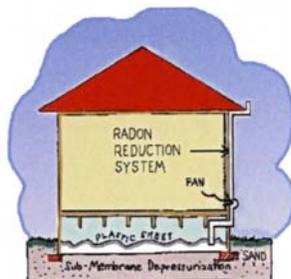


Sub-Slab Depressurization

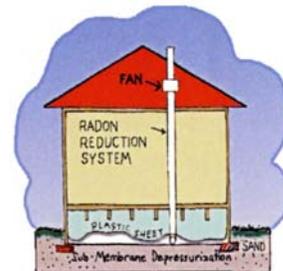
## Sub-Membrane Depressurization (SMD)

SMD is performed in crawl spaces and areas that are directly in contact with rock or soil. Suction is created:

- ◆ Under a specified polyethylene or equivalent flexible material (plastic sheet) permanently installed over exposed soil or rock.
- ◆ By a fan drawing radon from beneath the plastic sheet and exhausting the radon outdoors above the highest eave.



Sub-Membrane Depressurization



Sub-Membrane Depressurization

## Discharging Above The Highest Eave

Discharge above the highest eave ensures dilution of exhaust to the outdoor air and minimizes re-entry into the house and exposure to persons in the yard and neighboring areas. To ensure public health and safety, IEMA-Division of Nuclear Safety requires that the point of discharge be located:

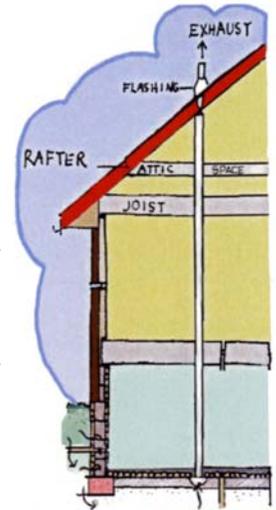
- ◆ Above the highest eave of the roof;
- ◆ As close to the roof ridge line as possible;
- ◆ 10 feet from any window, door or other opening (into the building) that is less than 2 feet below the exhaust point;
- ◆ 10 feet or more from any opening to an adjacent building

## Sealing

- ◆ Sealing enhances radon reduction techniques, because reducing the loss of conditioned air increases radon reduction system effectiveness and cost efficiency.
- ◆ IEMA-Division of Nuclear Safety does not recommend the use of sealing alone to reduce radon concentrations. Sealing alone has not been shown to lower radon levels significantly or consistently.

## New Construction Systems

Since 1995, radon control methods have been part of the International Code Council, Inc. (ICC) “One and Two Family Dwelling Code.” Several Illinois municipalities have adopted variations of the ICC code requiring the installation of radon control methods in newly constructed residences. These methods are known as *passive* and *skeletal new construction systems*. They may or may not reduce radon concentrations in homes to below the USEPA’s Action Level. IEMA-Division of Nuclear Safety encourages homeowners to test their home to determine the actual radon levels. With test results of 4pCi/L or more, *passive* and *skeletal new construction systems* should be converted to active soil depressurization systems by mitigation professionals licensed by IEMA-Division of Nuclear Safety.



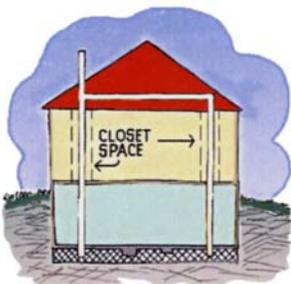
Passive New Construction

## Passive New Construction

Passive new construction systems rely solely on the convective flow of air upward in the vent pipe for sub-slab depressurization. The system consists of a vertical vent pipe routed through conditioned space from the suction pit to at least 12 inches above the roof.

## Skeletal New Construction

A skeletal system is a system that is designed for the installation of a vent fan and may consist of multiple vent pipes. This includes vertical and angled runs that are not necessarily routed through living space that may be joined to a single termination above the roof or may terminate separately above the roof.



Skeletal New Construction



Skeletal New Construction

## Always Perform a Post-Mitigation Test!

Post-mitigation tests are important evaluators of actual system function.

**The IEMA-Division of Nuclear Safety Radon Program provides:** Information about radon and radon testing; names of licensed radon measurement professionals; and names of licensed mitigation professionals trained to reduce radon.

**Contact the IEMA-Division of Nuclear Safety Radon Program at 1 (800) 325-1245**

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