

Illinois Department of Nuclear Safety (IDNS)

Guide to Radon Mitigation

Your radon level is 4 picocuries per liter (pCi/L) or higher. What are your options?

- ◆ Contact a mitigation professional licensed by IDNS 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 \$2500, 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.

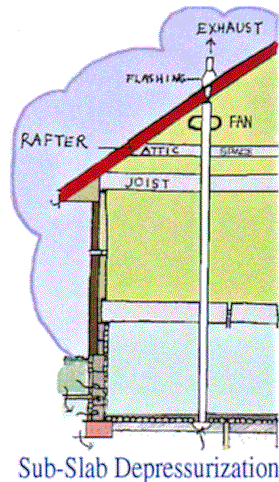


IDNS Assures Consumer Protection

- ◆ IDNS-licensed mitigation professionals have passed the U.S. Environmental Protection Agency (USEPA) radon qualification course and exam, or an equivalent course and exam approved by the department.
- ◆ IDNS-licensed radon professionals work to a Quality Assurance Program and a Worker Protection approved by the department.
- ◆ IDNS investigates and resolves complaints and non-compliance reports.
- ◆ IDNS performs performance audits on a regular basis to evaluate individual professional

compliance.

◆ IDNS radon regulations ensure that radon measurements and mitigations performed by licensed professionals are standardized throughout the state



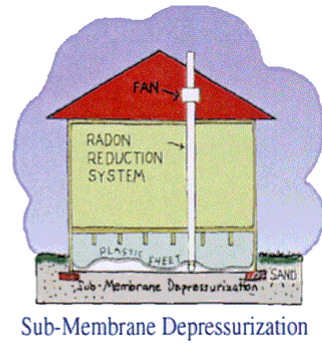
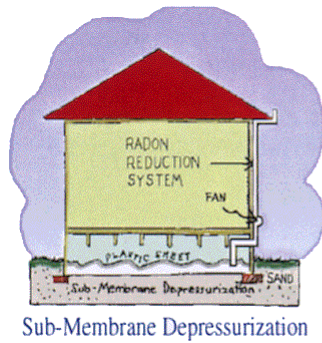
Mitigation Systems Reduce Radon By:

- ◆ 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 suction 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-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.

Discharging Above The Highest Eave

Discharge above the highest eave ensures that there is significant dilution of exhaust by outdoor air to minimize re-entry into the house and minimize exposure to persons in the yard and neighboring areas. To ensure public health and safety, IDNS requires that the point of discharge from fan-powered soil depressurization systems be located:

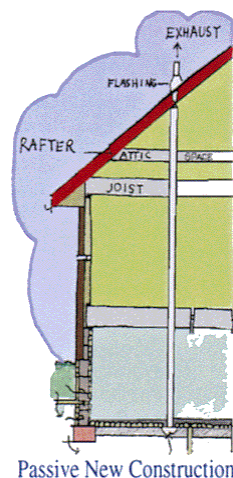
- ◆ Above the highest eave of the roof;
- ◆ As close to the roof ridge line as possible;
- ◆ 10 feet from any window, door or other opening (into the building) that is less than 2 feet below the exhaust point;
- ◆ 10 feet or more from any opening to an adjacent building

Sealing

Sealing enhances radon reduction techniques, such as SSD, SMD and Heat Recovery Ventilation. Reducing the loss of conditioned air increases radon reduction system effectiveness and cost efficiency. IDNS 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.

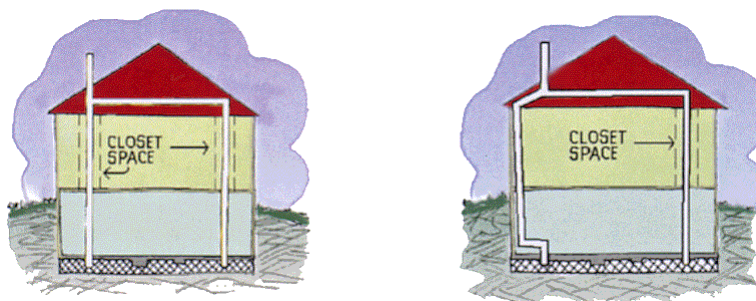
New Construction Systems

Since 1995, radon control methods have been part of the Council of American Building Officials (CABO) "One and Two Family Dwelling Code." Several Illinois municipalities have adopted variations of the CABO code requiring the installation of radon control methods in newly constructed residences. These methods are known as *passive* and *skeletal new construction systems*. *Passive* or *skeletal new construction systems* are not acknowledged mitigation systems and may or may not reduce radon concentrations in homes to below the USEPA's Action Level, 4.0 picocuries per liter of air (4pCi/L). IDNS encourages homeowners to test their home to determine the actual radon levels. With test results of 4 pCi/L or more, *passive* and *skeletal new construction systems* should be converted to active soil depressurization systems by mitigation professionals licensed by IDNS. IDNS recommends that post-mitigation measurements be performed by measurement professionals licensed by IDNS in order to ensure defensibility and reliability of test results.



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 12 inches above the roof.



Skeletal New Construction

Skeletal New Construction

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.

Always Perform a Post-Mitigation Test!

Post-mitigation tests are important evaluators of actual system function. Professional post-mitigation measurements must be performed to the applicable IDNS measurement protocol. The *Adopted Rule, 32 Illinois Administrative Code, Part 422*, prohibits mitigation professionals from performing radon measurements at a residence where they have installed a mitigation system.

The IDNS Radon Program provides:

Information about radon and radon testing

Names of licensed radon measurement professionals

Names of licensed mitigation professionals trained to reduce radon

Additional information about radon measurement and mitigation can be found in your local library.

Call the IDNS Radon Program at 1 (800) 325-1245