

# RADON

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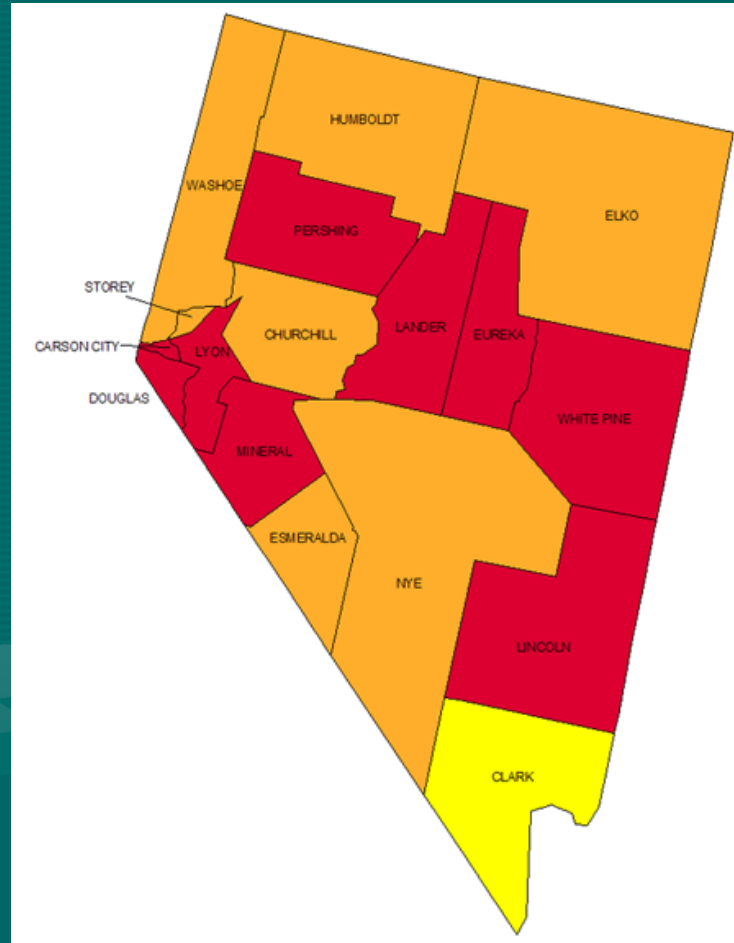
# What is Radon

Radon is a radioactive gas that has been found in homes all over the U.S. It comes from the natural breakdown of uranium in soil, rock and water and gets into the air you breath.

# Legend for Radon Zone Maps

-  **Zone 1** Highest Potential (greater than 4 pCi/L)
-  **Zone 2** Moderate Potential (from 2 to 4 pCi/L)
-  **Zone 3** Low Potential (less than 2 pCi/L)

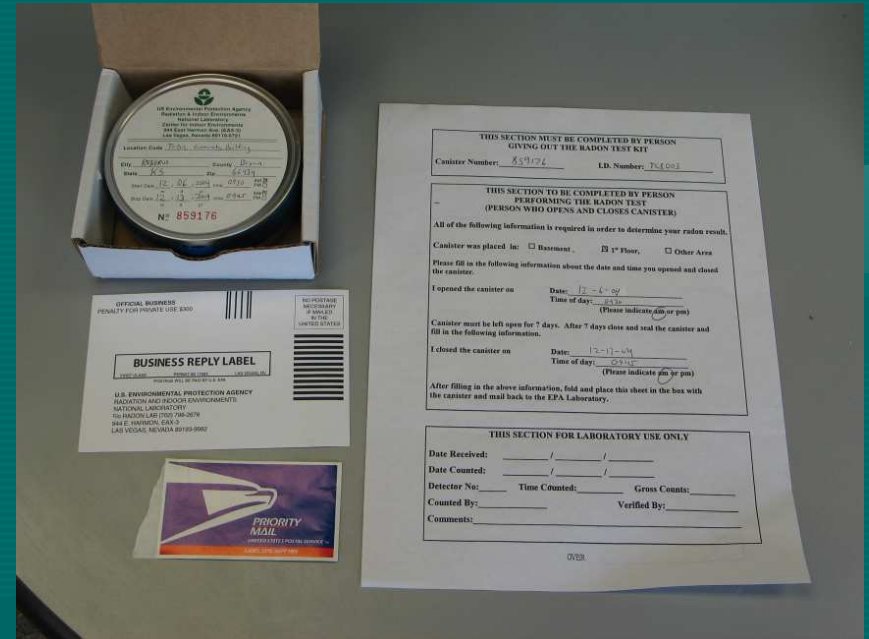
# Nevada







# Radon Canister



# Testing for Radon

There are Two General Ways to Test for Radon:

## ***SHORT-TERM TESTING:***

The quickest way to test is with short-term tests. Short-term tests remain in your home for two days to 90 days, depending on the device. "Charcoal canisters," "alpha track," "electret ion chamber," "continuous monitors," and "charcoal liquid scintillation" detectors are most commonly used for short-term testing. Because radon levels tend to vary from day to day and season to season, a short-term test is less likely than a long-term test to tell you your year-round average radon level. If you need results quickly, however, a short-term test followed by a second short-term test may be used to decide whether to fix your home.

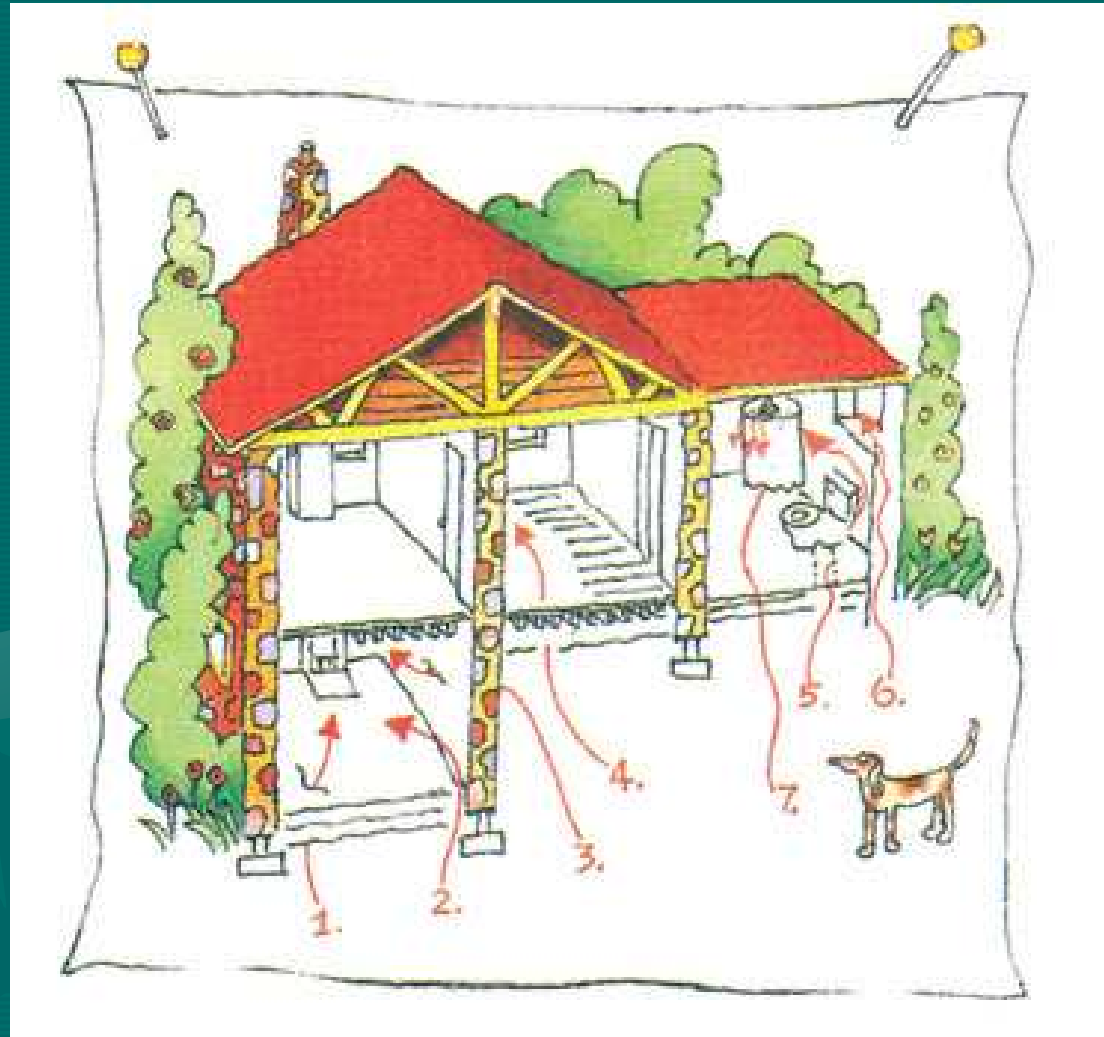
## ***LONG-TERM TESTING:***

Long-term tests remain in your home for more than 90 days. "Alpha track" and "electret" detectors are commonly used for this type of testing. A long-term test will give you a reading that is more likely to tell you your home's year-round average radon level than a short-term test.

# How Radon gets into Homes

## **RADON GETS IN THROUGH:**

1. Cracks in solid floors
2. Construction joints
3. Cracks in walls
4. Gaps in suspended floors
5. Gaps around service pipes
6. Cavities inside walls
7. The water supply



# Updated Assessment for Radon in Homes

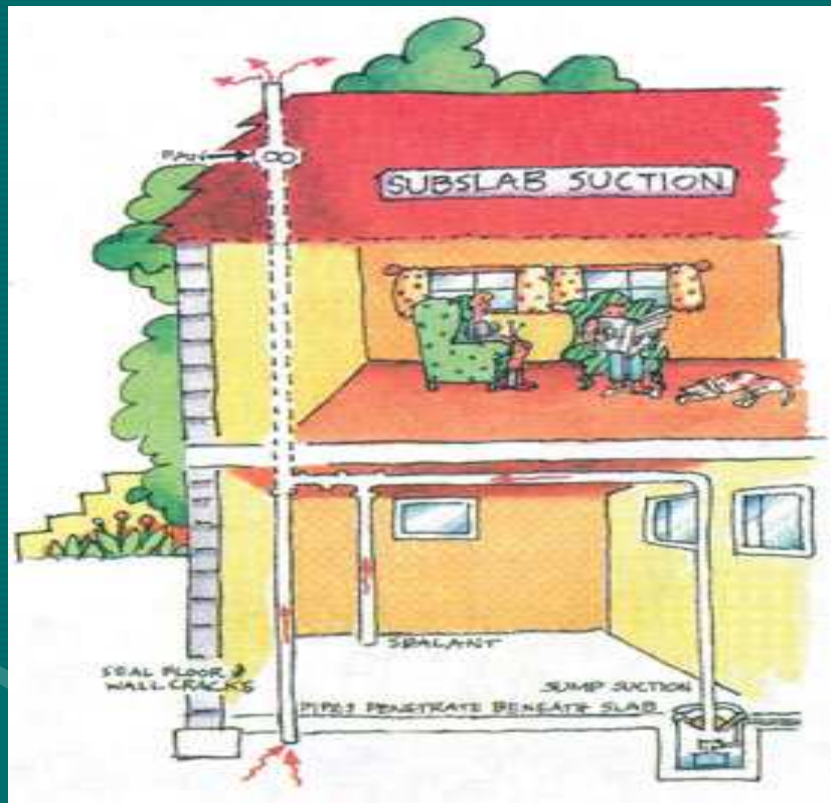
Radon Level <sup>a</sup>	Lifetime Risk of Lung Cancer Death (per person) from Radon Exposure in Homes <sup>b</sup>		
	pCi/L	Never Smokers	Current Smokers <sup>c</sup>
20	36 out of 1,000	26 out of 100	11 out of 100
10	18 out of 1,000	15 out of 100	56 out of 1,000
8	15 out of 1,000	12 out of 100	45 out of 1,000
4	73 out of 10,000	62 out of 1,000	23 out of 1,000
2	37 out of 10,000	32 out of 1,000	12 out of 1,000
1.25	23 out of 10,000	20 out of 1,000	73 out of 10,000
0.4	73 out of 100,000	64 out of 10,000	23 out of 10,000

a Assumes constant lifetime exposure in homes at these levels.

b Estimates are subject to uncertainties as discussed in Chapter VIII of the risk assessment.

c Note: BEIR VI did not specify excess relative risks for current smokers.

# Mitigation



Most homes can be fixed for about the same cost as other common home repairs.

*Note: The diagram is a composite view of several mitigation options. The typical mitigation system usually has only one pipe penetration through the basement floor; the pipe may also be installed on the outside of the house.*

# Sub-Slab Depressurization Unit



# Cost and reasons for Mitigation

- Better health
- Ranges from \$ 1000.00 to \$1700.00
- Dependent upon the difficulty of installation.

# Who can help.....

- Environmental Office (Local, State, Federal)
- HUD
- IHS

These are all entities that may have funding for mitigation.

# Glossary of Terms

- Radon - Radon is a gaseous radioactive element having the symbol Rn, the atomic number 86, an atomic weight of 222, a melting point of  $-71^{\circ}\text{C}$ , a boiling point of  $-62^{\circ}\text{C}$ , and (depending on the source, there are between 20 and 25 isotopes of radon - 20 cited in the chemical summary, 25 listed in the table of isotopes); it is an extremely toxic, colorless gas; it can be condensed to a transparent liquid and to an opaque, glowing solid; it is derived from the radioactive decay of radium and is used in cancer treatment, as a tracer in leak detection, and in radiography. (From the word *radium*, the substance from which it is derived.)
- Pci/l - **picocuries per liter**; A unit of measure for levels of radon gas.
- Mitigation - Actions taken to avoid, reduce, or compensate for the effects of environmental damage. Among the broad spectrum of possible actions are those which restore, enhance, create, or replace damaged ecosystems.

# Works Cited

- U.S. EPA Website, Radon Education
- Rick Campbell, Sac and Fox Tribe, Radon Poster and Picture of Mitigation Unit
- Citizen's Guide to Radon in your Home
- [Office of Communications, Education, and Media Relations: Terms of Environment: Glossary, Abbreviations, and Acronyms \(Revised December 1997\)](#)