SUMMIT
ENVIRONMENTAL, INC.

VI. ASBESTOS AND RADON

Asbestos and radon are among the most publicized indoor air pollutants and known human carcinogens. Their effect are not immediate but only evident years after prolonged exposure.

A. Asbestos

Asbestos may be found predominately in heating systems and acoustic insulation, in floor and ceiling tiles, and in shingles in many older houses. When asbestos material is damaged, microscopic fibers may be dispersed into the air. Over as long as thirty years or more, the presence of the fibers within the lungs result in many lung related defects including asbestosis and lung cancer.

Products containing asbestos are not always labeled, construction professionals or state and local environmental agencies may inspect and analyze suspect materials. Removal is not always the best choice to reduce exposure. The EPA requires asbestos removal only in order to prevent significant public exposure and generally recommend an in-place management program when asbestos has been discovered and is in good condition.

TESTING:

Air samples for asbestos are typically done by two methods:

Phase-Contrast Microscopy: The most common method that is used because it is relatively inexpensive. However, it is not specific for asbestos fibers and in areas where other fibers are present the fiber count will be elevated.
Transmission Electron Microscopy (TEM): This is a test specifically for asbestos fibers but usually costs more than 10 time as much as Phase-Contrast Microscopy analysis.
NOTE: An inspector licensed under the USEPA-AHERA program, or a certified industrial hygienist must collect the samples. A laboratory licensed and accredited under the USEPA-AHERA program must analyze the samples. If any of the required samples show any asbestos content, even trace amounts, the material is considered asbestos-containing, unless a more sensitive analysis of the sample is undertaken.

REMEDIAL ACTION:

Response action to the findings of asbestos in a sample depends on the condition, type, and accessibility of the material. Repair, removal, or isolation of the asbestos containing material depends on the laboratory findings and evaluation of the environment it is in.

B. Radon

Radon, a colorless, odorless and tasteless substance, is the second most leading cause of lung cancer, following smoking. It is a naturally occurring radioactive gas resulting from the decay of radium, which itself is a decay product of uranium. These decay products, attach to airborne particles, are inhaled, where further decay can take place in the lungs before removal by clearance mechanisms such as coughing.

Tobacco smoke in combination with radon exposure has a interactive effect. Smokers and former smokers are believed to be at especially high risk. Scientists estimate radon exposure to smokers increases the risk of lung cancer 10 to 20 times higher than those who have never smoked.

The EPA estimates that as many as 6 million homes in the U.S. have elevated levels of radon. Since 1988, the EPA and Office of the Surgeon General have recommended that homes below the third floor be tested for radon.

TESTING:

Short term testing is the quickest way to determine if a potential problem exists, taking from 2 to 90 days to complete. Low-cost radon test kits are available by mail order, in hardware stores, and through other retail outlets.
Measurement devices should be state-certified or display the phrase "meets EPA requirements". Trained contractors who meet EPA's requirements can also provide testing services.

COMMON DEVICES:

Charcoal canisters
Electric ion detectors
Alpha track detectors
Continuous monitors placed by contractors
Short-term testing should be conducted in the lowest lived in area of the home, with the doors and windows shut.
Long-term testing can take up to a full year but is more likely to reflect the home's year round average radon level. Alpha track detectors and electric ion detectors are the most commonly used long-term testing devices.
Corrective steps include sealing foundation cracks and holes, and venting radon-laden air from beneath the foundation. Professional expertise should be sought for effective execution of these measures.
REMEDIAL ACTIONS:

Radon reduction strategies fall into two basic categories:

Those that prevent the entry of radon gas into the unit.
Those that attempt to remove radon once it has entered the home.
Both of these strategies recommend using a type of Radon Mitigation System. EPA does not recommend the use of sealing alone to reduce radon because, by itself, sealing has not been shown to lower radon levels significantly of consistently.

"Sub-slab Depressurizations" Technique: Removes radon-laden air from beneath the foundation and vents it outside the home by installing a fan and inserting a pipe through the foundation into the aggregated below, running it to a point outside the shell of the house.

"Sub-membrane Depressurization" Technique: Similar to the "Sub-slab" technique but is effective in buildings with earth-floored crawl spaces or basements because it uses a plastic barrier over the soil as a collection cover.
"Blockwall Depressurization" Technique: Uses a fan and duct work to draw suction on the hollow interior of a concrete block wall. By keeping the air pressure in the basement, the soil gas is removed before it can enter the basement.
NOTE: Reducing level of radon requires special skills and technical knowledge, EPA operates a Radon Contractor Profiling Program. Selecting a radon contractor is much like choosing any other kind of contractor and should be researched before any agreement is reached.