TESTING FOR AND REMEDYING VAPOR INTRUSION

INFORMATION SHEET

Through a process called vapor intrusion, soil vapors can migrate through cracks or openings in a building's foundation and may potentially affect indoor air quality.

Until recently, little was known about vapor intrusion, but today, we use the latest science to test for it.

What does a vapor intrusion investigation entail and how long does it take?
We contract with experienced environmental consultants who are qualified to do this work. For initial sampling, they will drill into the ground to sample air contained in the soil — commonly referred to as soil gas. Chemists working at third-party laboratories, and using standard methods, analyze the samples. This sampling is typically done at least twice — once during winter conditions when buildings are heated (November through March) and once during warmer, non-heating seasons (April through October).

Results are evaluated against EPA or state environmental agency screening levels, which are deliberately set conservatively to err on the side of caution. If results surpass the screening levels, it does not necessarily indicate a public or environmental risk but rather that more investigation is appropriate. For additional investigation, our consultants, with permission from property owners, will test inside buildings by drilling into foundation floors to sample soil gas below and around buildings.

Testing inside buildings usually requires two separate visits to the property to collect samples. To take the first sample, the consultant will install vapor monitoring points by drilling small holes through the basement floor. Typically, the holes are about one to two inches in diameter and are placed in out-of-the-way locations, beneath any flooring. After drilling the holes, the samples are collected, with the entire process lasting a few hours. Small temporary caps are placed on the holes for follow-up testing.

Results from the first samples are normally available within 30 days and are used to determine if additional sampling, or possibly mitigation, is required. For follow-up sampling during the next season (heating or non-heating, depending on when the first sample was taken), the consultant will return, remove the temporary caps from the holes and collect another sample. This takes approximately one to two hours. If results from the follow-up sampling indicate that mitigation is not necessary, then the consultant will return to remove the temporary caps and fill the holes.

For additional questions, please email our offices.

Upper Midwest:
nspccrinquiries@xcelenergy.com

Colorado:
pscoccrinquiries@xcelenergy.com

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The entire process can last three to six months or sometimes longer depending on the sampling results, access issues and other factors, such as weather. The sampling process is shown below.

Figure 1: Process for Sampling Air Beneath a Building (Barr Engineering)

1. Drilling borehole for vapor pin

2. Placing vapor pin

3. Covered vapor pin

4. Collecting sample

Are the results of a vapor intrusion investigation provided to the public?

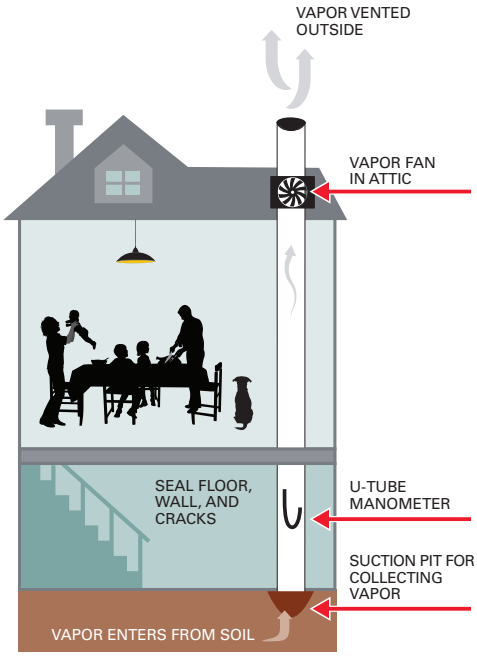
We provide results to property owners and other stakeholders, and often include state or local environmental agencies that will make the results public. We also can provide experts to explain results to interested individuals.

How do you remedy vapor intrusion?

A common solution for vapor intrusion is to install a vapor mitigation system, which is very similar to a radon mitigation system. The system collects soil vapors below a building and vents them outside, preventing the vapors from entering the building.

The parts of a vapor or radon mitigation system are shown in figure 2.

Figure 2:
Vapor Mitigation System



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