



Vapor Intrusion

Office of Land Quality

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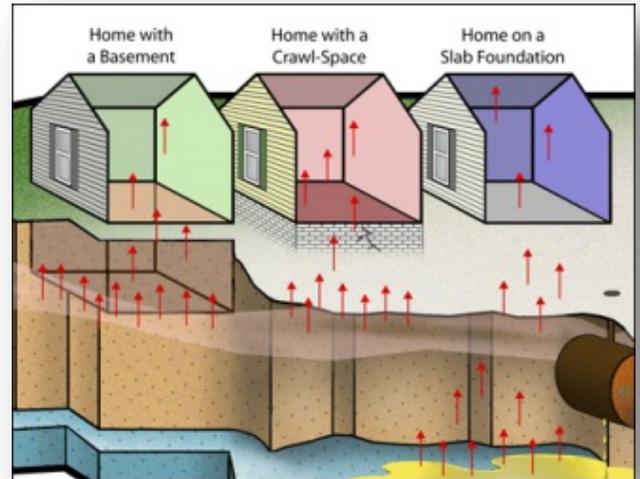
www.idem.IN.gov

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Introduction

Chemicals from dry cleaning, degreasers or even gasoline can cause concern when they are spilled or leak into soil or groundwater. These chemical spills can be recent or from a long time ago. Chemicals can move through the soil and mix with groundwater; they can evaporate from soil and groundwater, and the gas (vapor) can then get into buildings by moving through soil, or even inside sewer lines.

Underground gas can get into buildings through cracks in basements, foundations, or crawl spaces, or through holes, floor drains, sumps, or other openings. This movement is known as vapor intrusion. The gas can collect under the building and in the indoor air of homes and businesses. The chemical level (concentration) in indoor air can change for many reasons, changing the possible health impacts to the people that use these buildings.



How do I know if my home has vapor intrusion?

Because we can't smell or see many gases, special equipment is used to sample the air in and under buildings. This is a common part of many environmental investigations. If someone is investigating chemicals in your area, you may be asked to allow sampling.

A more common type of vapor intrusion is from radon, which is a naturally occurring gas. There are radon abatement systems that many people install in their homes to help reduce the gas from seeping through.

The Indiana Department of Environmental Management (IDEM) recommends that you allow sampling access in order to collect data for evaluation. Most of the time vapor intrusion isn't an immediate threat to your health and safety, but sampling is still needed. Even with special equipment, it can be difficult to figure out if the chemicals in the indoor air are from vapor intrusion, or if they are from our everyday product use.

Did you know?

Many household products have chemicals that can release gas into indoor air:

- *Paint / strippers / thinners*
- *Nail polish / remover*
- *Glues / Adhesives*
- *Gasoline*
- *Moth balls*
- *Clothing spot cleaners*
- *Cigarette smoke*
- *Pesticides*
- *Dry cleaned clothing*
- *Gun cleaners*

The environmental professional sampling your air will ask you about common products you may have. Your answers will help the environmental professional figure out if vapor intrusion is happening.

Routes of exposure and potential health impacts

Humans are exposed to chemicals by breathing in the vapors (inhalation) coming into their buildings. Potential health effects from vapor intrusion depend on how much, how long, how often, and what way(s) you are exposed. Young children, the elderly, and people with on-going health concerns may be more at risk for negative health effects. Please contact the Center for Disease Control's (CDC) Agency for Toxic Substances and Disease Registry (ATSDR) for additional information on chemicals that you may be exposed to via vapor intrusion (see below).

Vapor intrusion can be controlled

If vapor intrusion is happening, or has the potential to happen, then it needs to be addressed. By preventing (mitigating) vapor intrusion, we can make the indoor air you breathe safer for you and your family.

The most common vapor mitigation systems are sub-slab depressurizing systems (SSDS). SSDS are similar to a radon system which are common in Indiana. SSDS have been used for years and are safe and effective. Environmental professionals may use other mitigation strategies like passive systems or a vapor barrier.

If IDEM has identified someone responsible for the source of the gases, then they typically pay to install vapor mitigation strategies. The annual upkeep and operation of a typical SSDS is generally less than \$100 per year, mostly for electricity. During site cleanup, the responsible party pays for the costs, but the cost may eventually become the responsibility of the building owner, particularly if the building owner wants to operate the system when there is no longer a risk to human health.

IDEM protects public health

The mission of IDEM is to protect human health and the environment, while providing for safe industrial, agricultural, commercial and governmental operations vital to a prosperous economy. IDEM can help determine who is responsible for investigating and correcting vapor intrusion problems.

Additional information

For more information on vapor intrusion, please visit IDEM's website at <https://www.in.gov/idem/cleanups/investigation-and-cleanup-programs/vapor-intrusion> or the U.S. Environmental Protection Agency's website at <http://www2.epa.gov/vaporintrusion/what-vapor-intrusion>. Please direct questions to IDEM's Office of Land Quality, at (317) 232-3215 or (800) 451-6027, ext. 2-3215 (toll free). For more information on chemicals, you can call the CDC-INFO line for ATSDR: 800-232-4636 (M-F 8a-8p Eastern in English or Spanish) or TTY 888-232-6348,