VAPOR INTRUSION MITIGATION

Vapor intrusion mitigation refers to methods used to prevent harmful chemical vapors in soil or groundwater from entering buildings through cracks, openings or porous elements of the foundation. These vapors often come from pollutants left behind by past industrial or commercial activities, like dry cleaners, gas stations, or factories.

Mitigation systems block or redirect vapors before they reach indoor spaces. They prevent vapors from reaching unsafe levels and protect people in the building. **Below are some common methods:**

VAPOR BARRIERS
Plastic or membrane layers under the floor to block vapors.

SUB-SLAB DEPRESSURIZATION SYSTEMS (SSDS)
Fans that pull vapors out from under the building. May be designed as soil vapor extraction (SVE) systems that will remediate the subsurface soils.

PASSIVE VENTING
Pipes and vents that let vapors escape naturally; can be upgraded to active systems later.

SEALING CRACKS AND OPENINGS
Closing gaps around floors, walls, and utilities.

IMPROVED VENTILATION
Bringing in fresh air to dilute any vapors inside the building.

DESIGN CONSIDERATIONS

NEW CONSTRUCTION:
- Install vapor barriers and venting layers before pouring slabs.
- Include stub-outs for future SSDS piping if needed.
- Seal utilities and slab penetrations during construction.

EXISTING BUILDINGS:
- Retrofit with SSDS or passive sub-slab ventilation systems.
- Seal cracks, gaps, and utility penetrations.
- Improve ventilation if needed.

MORE INFORMATION

Engineered Controls Factsheet
EPA Indoor Air Vapor Intrusion Mitigation Approaches
Community Guide to Capping

Common Chemicals/Vapors

Trichloroethylene (TCE) – Used in metal degreasing; common at former industrial sites.

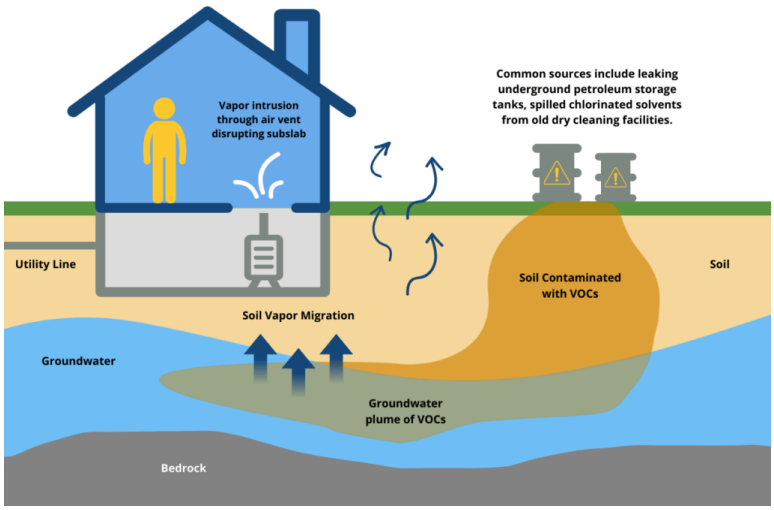
Tetrachloroethylene (PCE /"Perc") – Dry cleaning solvent; often found at former dry cleaners.

Benzene, Toluene, Ethylbenzene, Xylenes (BTEX) – Components of petroleum products; common near former gas stations or fuel storage areas.

Petroleum Hydrocarbons – Gasoline, diesel, or other fuels from underground storage tanks.

Other Volatile Organic Compounds (VOCs) – Solvents, paints, or chemical byproducts from manufacturing sites.

How Indoor Air Can be Affected by Vapors From Subsurface Contamination



uconn-tab@uconn.edu
tab.program.uconn.edu