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### SUB-SLAB DEPRESSURIZATION SYSTEMS FACT SHEET

**Purpose of a Sub-slab Depressurization System:** The purpose of an SSD system is to create a negative pressure field directly under a building and on the outside of the foundation (in relation to building ambient pressure). An SSD system is not intended to remediate the soil or groundwater beneath a building. Its design objective is to prevent soil gases from infiltrating the building. This is a proven technology to protect occupants from soil gas intrusion.

**Description of a Sub-slab Depressurization System:** A sub-slab depressurization system basically consists of a fan or blower which draws air from the soil beneath a building and discharges it to the atmosphere through a series of collection and discharge pipes. One or more holes are cut through the building slab so that the extraction pipe(s) can be placed in contact with subgrade materials, in order for soil gas to be drawn in from just beneath the slab. In some cases the system may require horizontal extraction point(s) through a foundation wall, although in most cases the pressure field from an extraction point in



**Figure 1 - Schematic Diagram of Typical Residential SSD System**

the slab will extend upward adjacent to the foundation walls. A schematic diagram of a typical residential SSD system is presented in Figure 1.

**Preparations for the installation of a Sub-slab Depressurization System:** Particular attention is paid to identifying all potential entry routes for VOC contaminated soil gases, such as cracks in concrete walls or slabs, gaps in fieldstone walls, construction joints between walls and slabs, annulus space around utility pipes, open sumps, etc. These potential entry points are surveyed with a portable PID or FID meter; it is often possible to find discrete "hits" at particular points where vapor intrusion is occurring.

Diagnostic testing is conducted by drilling small diameter holes through the building slab, applying a vacuum to one hole, and measuring pressure drops at surrounding test holes. The objective of diagnostic testing is to determine the number and location of needed system extraction points.

Reference: Text is broadly quoted from the Massachusetts Department of Environmental Protection(MADEP): "Guidelines for the Design, Installation, and Operation of Sub-Slab Depressurization Systems" by Thomas DiPersio and John Fitzgerald. This does not imply an endorsement by the MADEP.