

## APPENDIX F: PASSIVE RADON GAS CONTROLS

(Adopted as revised)

**AF101.1** Revise the section as follows:

**AF101.1 General.** This appendix contains minimum requirements for new construction in the high radon potential counties as listed in Table AF101(1) regardless of the radon levels at the site. These requirements are intended to provide a passive means of resisting radon gas entry and prepare the *dwelling* for post-construction radon mitigation, if necessary (see Figure AF102). Active construction techniques, rather than passive techniques, shall be permitted to be used where approved.

Alternatively, the passive system requirements of ANSI/AARST Standard Designation #CCAH: “Reducing Radon in New Construction of One & Two Family Dwellings and Townhouses” 2013, may be used for new construction in Zone 1, or approved equal system.

Irrespective of which approach is used, no testing is required as follows:

1. for the radon levels at the site prior to construction;
2. for the radon control system when completed; or
3. in the building after completion of the project.

Therefore, such testing shall not be a condition of issuing a Certificate of Occupancy.

**AF102.1** Revise the definition of “GAS-PERMEABLE LAYER” as follows:

**GAS-PERMEABLE LAYER.** A gas-permeable layer shall consist of one of the following:

1. A uniform layer of clean aggregate that is not less than 4 inches (102 mm) thick. The aggregate shall consist of material that will pass through a 2-inch (51 mm) sieve and be retained by a 1/4-inch (6.4 mm) sieve.
2. A uniform layer of sand (native or fill) that is not less than 4 inches (102 mm) thick and that is overlain by a soil gas collection mat or soil gas matting installed in accordance with the manufacturer’s instructions. The soil gas mat or matting shall be designed for this purpose and condition, and have the capacity to freely transport soil gases to the collection point from the most remote area.

**AF103.2.2** Revise the subsection as follows:

**AF103.2.2 Sumps.** Sumps open to soil or serving as the termination point for subslab drain tile loops shall be covered with a gasketed or sealed lid. Sumps used as the suction point in a sub slab depressurization system shall have a lid designed

to accommodate the vent pipe. Sumps used as a floor drain shall have a lid equipped with a trapped inlet. Drainage systems that lead outside the foundation walls shall be isolated or trapped so as not to short-circuit the depressurization system.

**AF103.3.1** Revise the subsection as follows:

**AF103.3.1 Soil-gas-retarder.** The soil in *basements* and enclosed crawl spaces shall be covered with a soil-gas retarder. The soil-gas-retarder shall be lapped not less than 12 inches (305 mm) at joints and shall extend to foundation walls enclosing the *basement* or crawl space. The soil gas-retarder shall fit closely around any pipe, wire or other penetrations of the material. Punctures or tears in the material shall be sealed or covered with additional sheeting. The membrane shall extend upward six inches be sealed to the perimeter footing or wall with an ASTM C290 class 25 or higher sealant or equal.

**AF103.3.2** Revise the subsection as follows:

**AF103.3.2 “T” fitting and vent pipe.** A “T” fitting shall be inserted beneath the soil-gas-retarder and be connected to a 3-inch minimum vertical vent pipe. The vent pipe shall extend through the *conditioned space* of the *dwelling* and terminate not less than 12 inches (305 mm) above the roof in a location not less than 10 feet (3048 mm) away from any window or other opening into the *conditioned spaces* of the building that is less than 2 feet (610 mm) below the exhaust point. The horizontal legs of the “T” fitting shall connect to two five-foot long pieces of 4-inch diameter perforated pipe laid horizontally in a 50 square inch filled with the same gravel as used in the *gas-permeable layer*.

**AF103.4.2** Revise the subsection as follows:

**AF103.4.2 Soil-gas-retarder.** A soil-gas-retarder shall be placed on top of the gas-permeable layer prior to casting the slab or placing the floor assembly. The soil-gas retarder shall cover the entire floor area with separate sections lapped not less than 12 inches (305 mm) and shall extend upward six inches and be sealed to the wall with an ASTM C290 class 25 or higher sealant or equal . The soil-gas-retarder shall fit closely around any pipe, wire, or other penetrations of the material. Punctures or tears in the material shall be sealed or covered. Under-slab insulation, if used, shall be placed on top of the sheeting.

**AF103.4.2** Revise the subsection as follows:

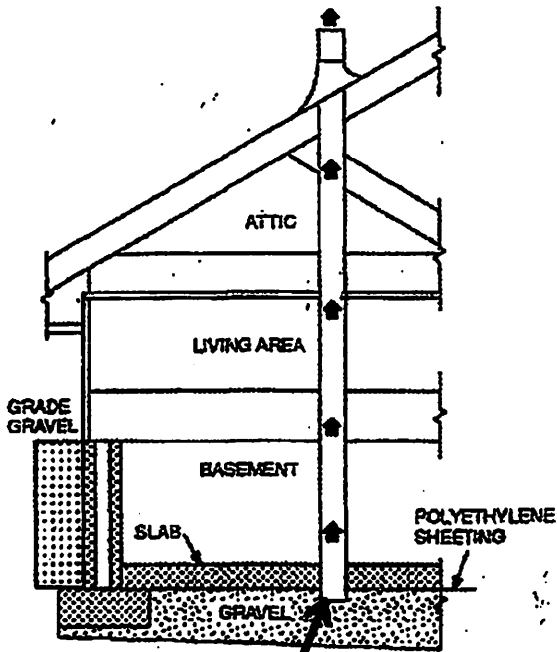
**AF103.4.3 “T” fitting and vent pipe.** Before a slab is cast or other floor system is installed, a “T” fitting shall be inserted below the slab or other floor system and the soil gas- retarder. The “T” fitting shall be connected to a 3-inch minimum vertical vent pipe. The vent pipe shall extend through the *conditioned space* of the *dwelling* and terminate not less than 12 inches (305 mm) above the roof in a location not less than 10 feet (3048 mm) away from any window or other

opening into the *conditioned spaces* of the building that is less than 2 feet (610 mm) below the exhaust point. The horizontal legs of the “T” fitting shall connect to two five-foot long pieces of 4-inch diameter perforated pipe laid horizontally in a 50 square inch filled with the same gravel as used in the *gas-permeable layer*.

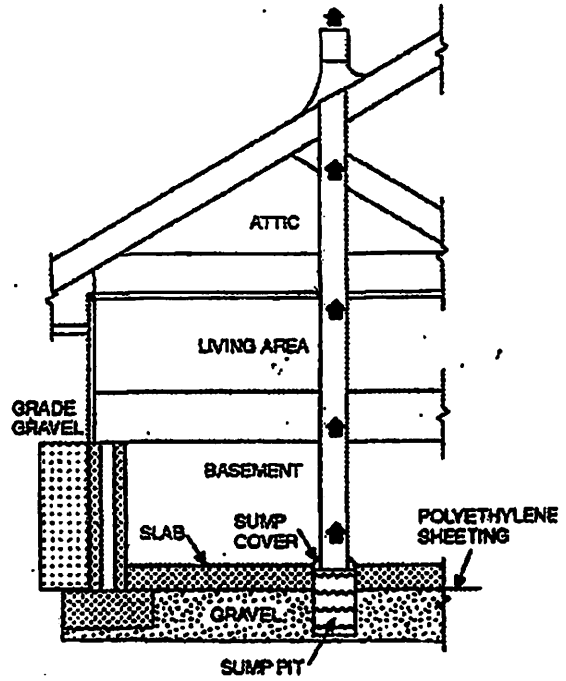
# Figure AF102

## RADON-RESISTANT CONSTRUCTION DETAILS FOR FOUR FOUNDATION TYPES

TYPICAL SUB-SLAB DEPRESSURIZATION  
PASSIVE RADON SYSTEM

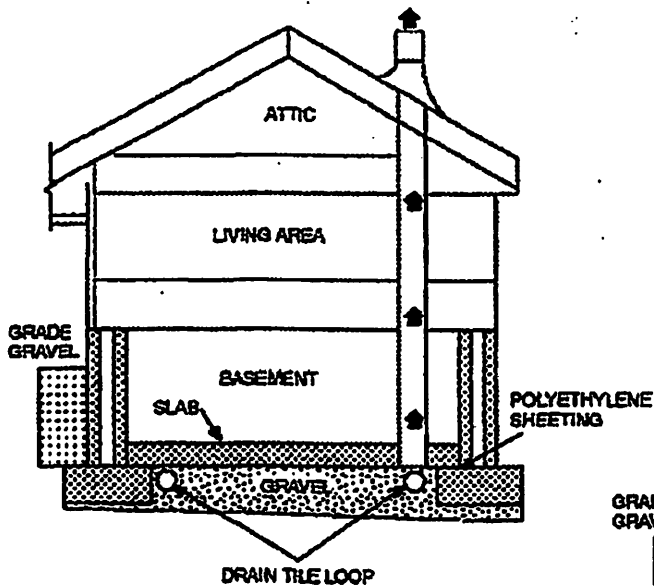


PASSIVE RADON SYSTEM VENTED  
THROUGH SUMP

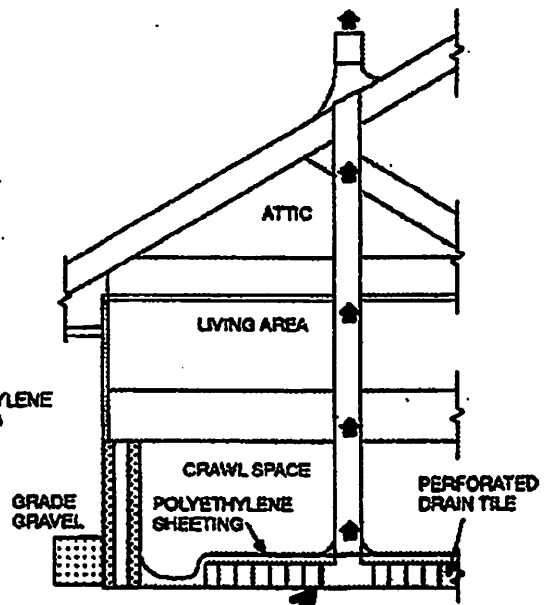


Note: T-connection to perforated piping  
or geotextile matting not shown. See AF 103.6.1.

PASSIVE RADON SYSTEM USING  
DRAIN-TILE LOOP



SUB-MEMBRANE DEPRESSURIZATION SYSTEM  
FOR CRAWL SPACE



Note: Alternative T-connection to  
perforated piping not shown. See AF103.5.3.