Schematics: Radon Mitigation Installation for New Construction

Technical Guidance Number 294-2309-004
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Radiation Protection

DOCUMENT NUMBER: 294-2309-004

TITLE: Schematic: Radon Mitigation Installation for New Construction

EFFECTIVE DATE: June 7, 2003


POLICY: This document provides guidance to individuals installing a radon mitigation system in new construction.

PURPOSE: The purpose of this document is to provide guidance to individuals installing a radon mitigation system in new construction.

APPLICABILITY: This document applies to all individuals installing a radon mitigation system in new construction.

DISCLAIMER: The policies and procedures outlined in this guidance are intended to supplement existing requirements. Nothing in the policies or procedures shall affect regulatory requirements.

The policies and procedures herein are not an adjudication or a regulation. There is no intent on the part of DEP to give the rules in these policies that weight or deference. This document establishes the framework within which DEP will exercise its administrative discretion in the future. DEP reserves the discretion to deviate from this policy statement if circumstances warrant.

PAGE LENGTH: 10 Pages

LOCATION: Volume 4, Tab 12

DEFINITIONS: N/A
Passive Sub-Slab Depressurization Radon Control System for New Construction

Notes:
1. All concrete slabs that come in contact with the ground shall be laid over a gas permeable material made up of either a minimum 4” thick uniform layer of clean aggregate or a minimum 4” thick uniform layer of sand, overlain by a layer or strips of manufactured matting designed to allow the lateral flow of soil gases.

2. All concrete floor slabs shall be designed and constructed in accordance with local building codes. Additional refs: American Concrete Institute publications, “ACI3021R” & “ACI332R”, or the Post Tensioning Institute Manual “Design and Construction of Post-Tensioned Slabs on Ground”.

3. All openings, gaps and joints in floor and wall assemblies in contact soil or gaps around pipes, toilets, bathtubs or drains penetrating these assemblies shall be filled or closed with materials that provide a permanent air-tight seal. Seal large openings with non-shrink mortar, grouts or expanding foam materials and smaller gaps with an elastomeric joint sealant, as defined in ASTM C920-87.

4. Vent pipes shall be installed so that any rainwater or condensation drains downward into the ground beneath the slab or soil-gas-retarder membrane.

5. Circuits should be a minimum 15 AMP, 115 volt.
Passive Radon Control System in Crawl Space for New Construction

Notes:
1. Install a length of 3’ or 4’ diameter perforated drain tile horizontally beneath the sheeting and connect to the ‘T’ fitting with the vertical standpipe through the soil-gas-retarder membrane. This horizontal pipe should normally be placed parallel to the long dimension of the house and should extend no closer than 6 feet to the foundation wall.
2. Ventilate crawlspace in conformance with local codes; vents shall be open to the exterior and be of noncloseable design.
3. Circuits should be a minimum 15 amp, 115 volt.
Exhaust (10' from openings into conditioned spaces of building)
12" min. above roof

Fan Coupling to Pipe
Flashing
Fan; Note 1 & Note 2

Rafter
Joist
Attic
Interior Partition
Living Area
Flooring
Joist

Alternate Detail
Solid Block Above Grade

Grade Level

Alternate Detail
Plywood Sheet
Supports Concrete Until Cured

System Failure Device; Note 3

Electrical Junction Box
Exhaust (10' from openings into conditioned spaces of building) 12" min. above roof

Fan Coupling to Pipe

Roof Brace

Wiring

Flashing

Attic

Living Area

Interior Partition

Flooring

Joist

Alternate Detail

Sill Plate Covers

Foundation Wall Top

Caulk

Grade Level

Alternate Detail

Plywood Sheet Supports Concrete Until Cured

System Failure Device; Note 3

Electrical Junction Box

Fan; Note 1 & Note 2

Alternate Detail

Sill Plate Covers

Foundation Wall Top

Caulk

Rafter

Joist

Grade Level

294-2309-004 / June 2003 / Page 4
Additional Components Required for Activation of Passive Sub-Slab Depressurization or Crawlspace Radon Control System

Notes:
1. Install the vent fan in the vertical run of the vent pipe. The size and air movement capacity of the vent fan shall be sufficient to create and maintain a pressure field beneath the slab or crawlspace membrane that is lower than the pressure above the slab or membrane.
2. All positively pressured portions of the vent pipe and fan shall be located outside the habitable space of the building.
3. Provide a visible or audible warning system to alert the building occupant if there is a loss of pressure or air flow in the vent pipe.
Joist

Flooring

Sill Plate Covers

Foundation Wall Top

Caulk

Grade

294-2309-004 / June 2003 / Page 7
Joist

Grade Level
Alternate Detail
Plywood Sheet
Supports Concrete Until Cured