

# **Schematics: Radon Mitigation Installation for New Construction**

**Technical Guidance Number 294-2309-004**



**COMMONWEALTH OF PENNSYLVANIA**

**Department of Environmental Protection**

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**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

**AUTHORITY:** This Policy is established under the authority of 25 Pa. Code Chapter 240 and the Radiation Protection Act, act of July 10, 1984, P.L. 688, No. 147 (35 P.S. §§ 7110.101-7110.703).

**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

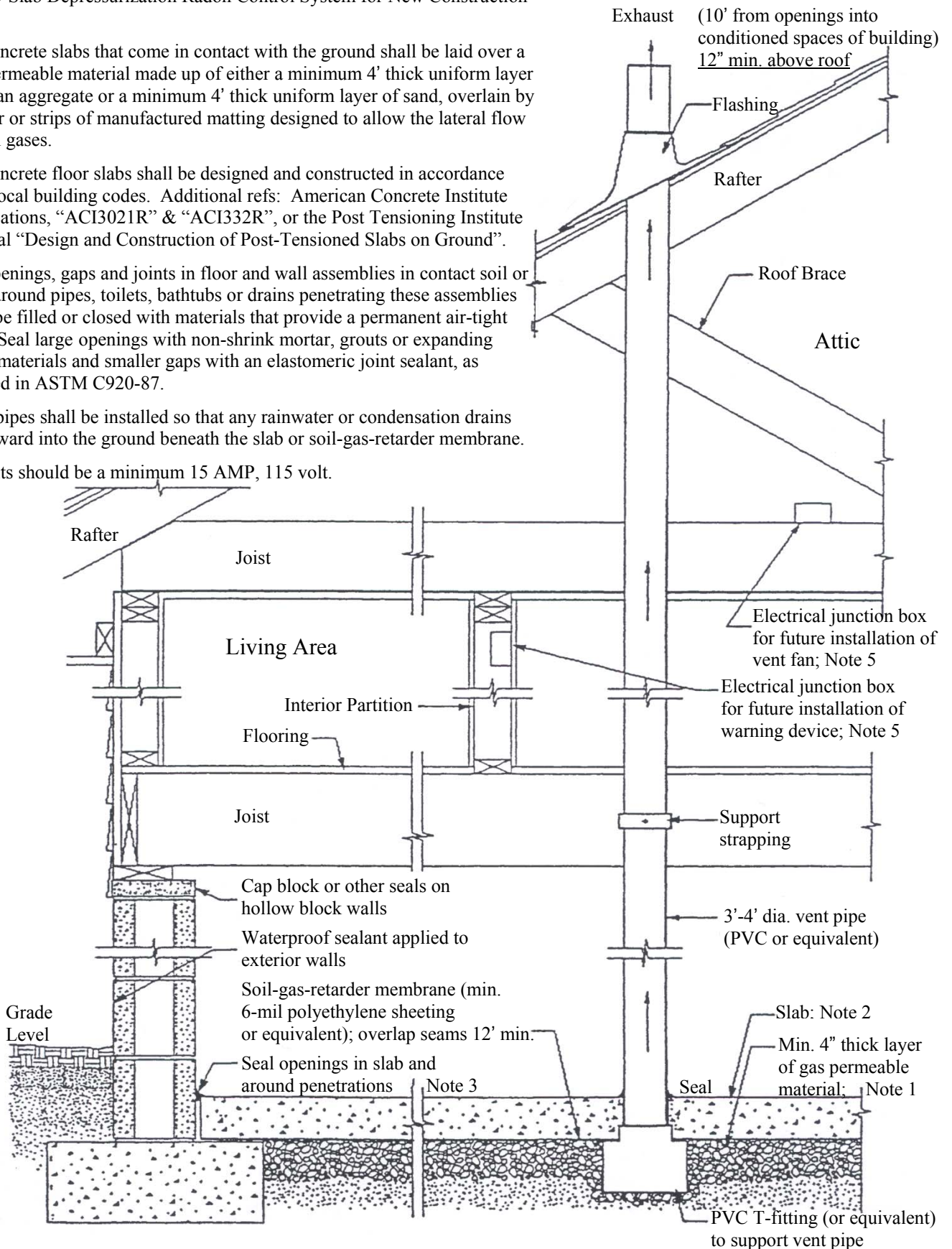
**LOCATION:** Volume 4, Tab 12

**DEFINITIONS:** N/A

Passive Sub-Slab Depressurization Radon Control System for New Construction

Notes:

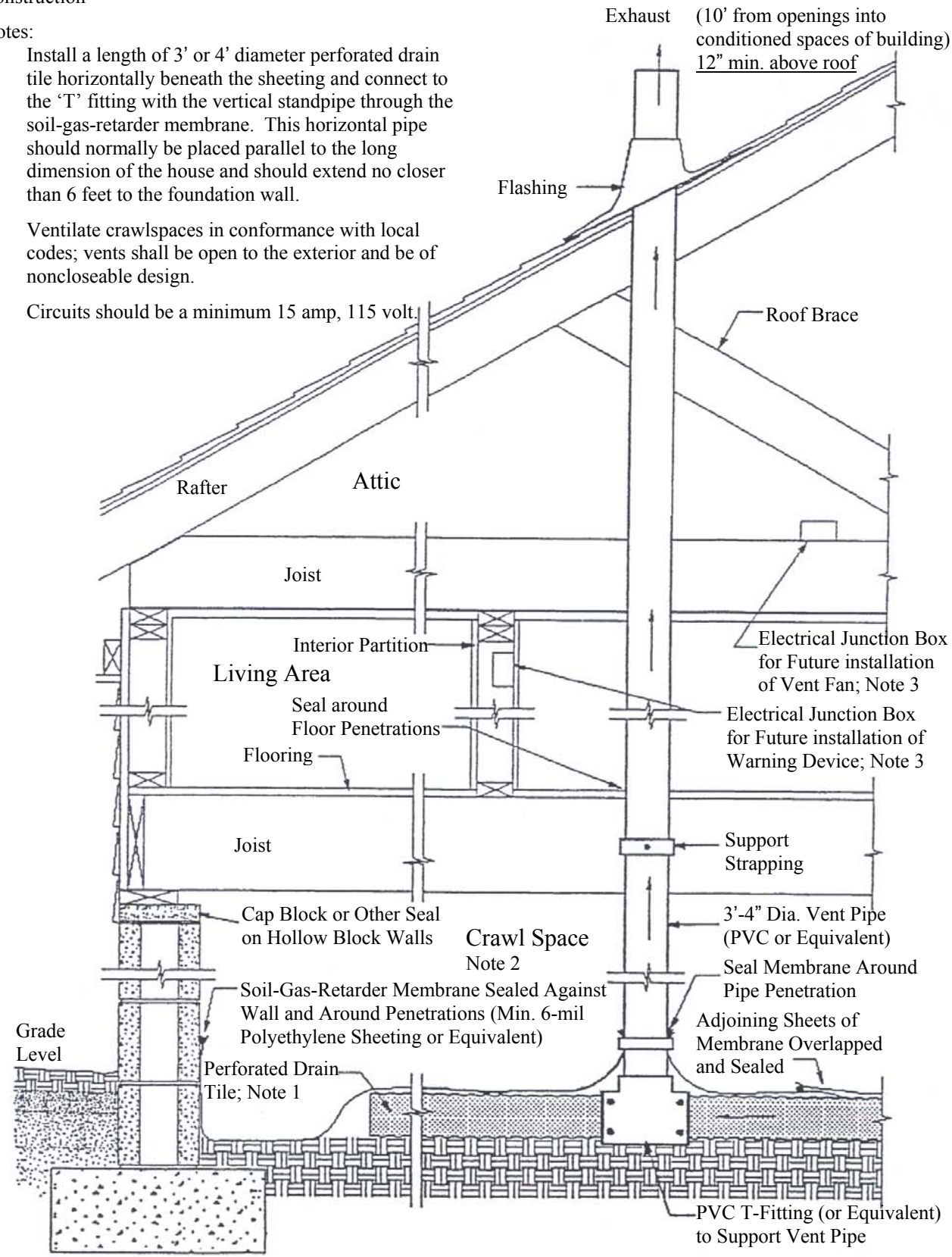
1. All concrete slabs that come in contact with the ground shall be laid over a gas permeable material made up of either a minimum 4' thick uniform layer of clean aggregate or a minimum 4' thick uniform layer of sand, overlain by a layer or strips of manufactured matting designed to allow the lateral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

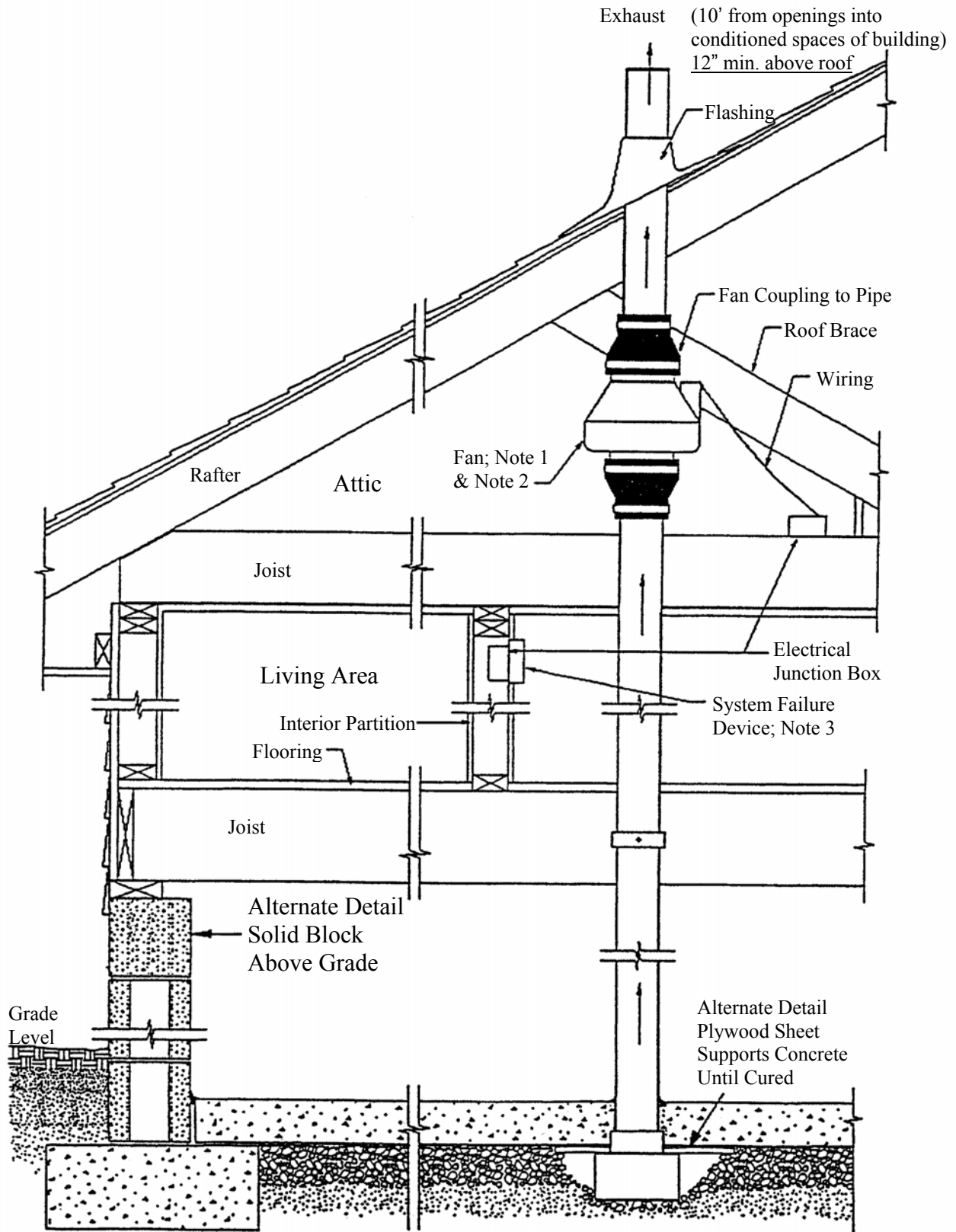


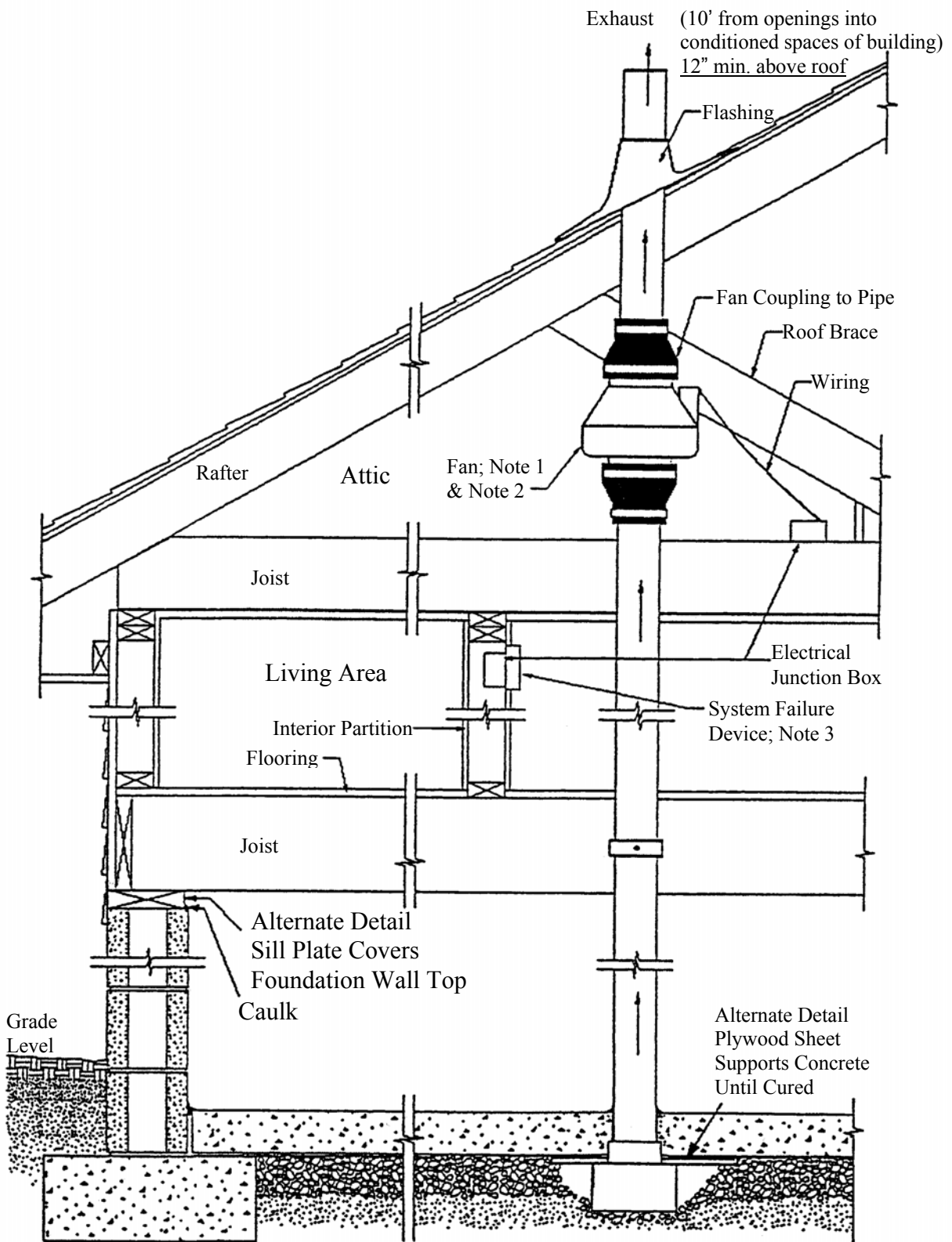
Passive Radon Control System in Crawl Space for New Construction

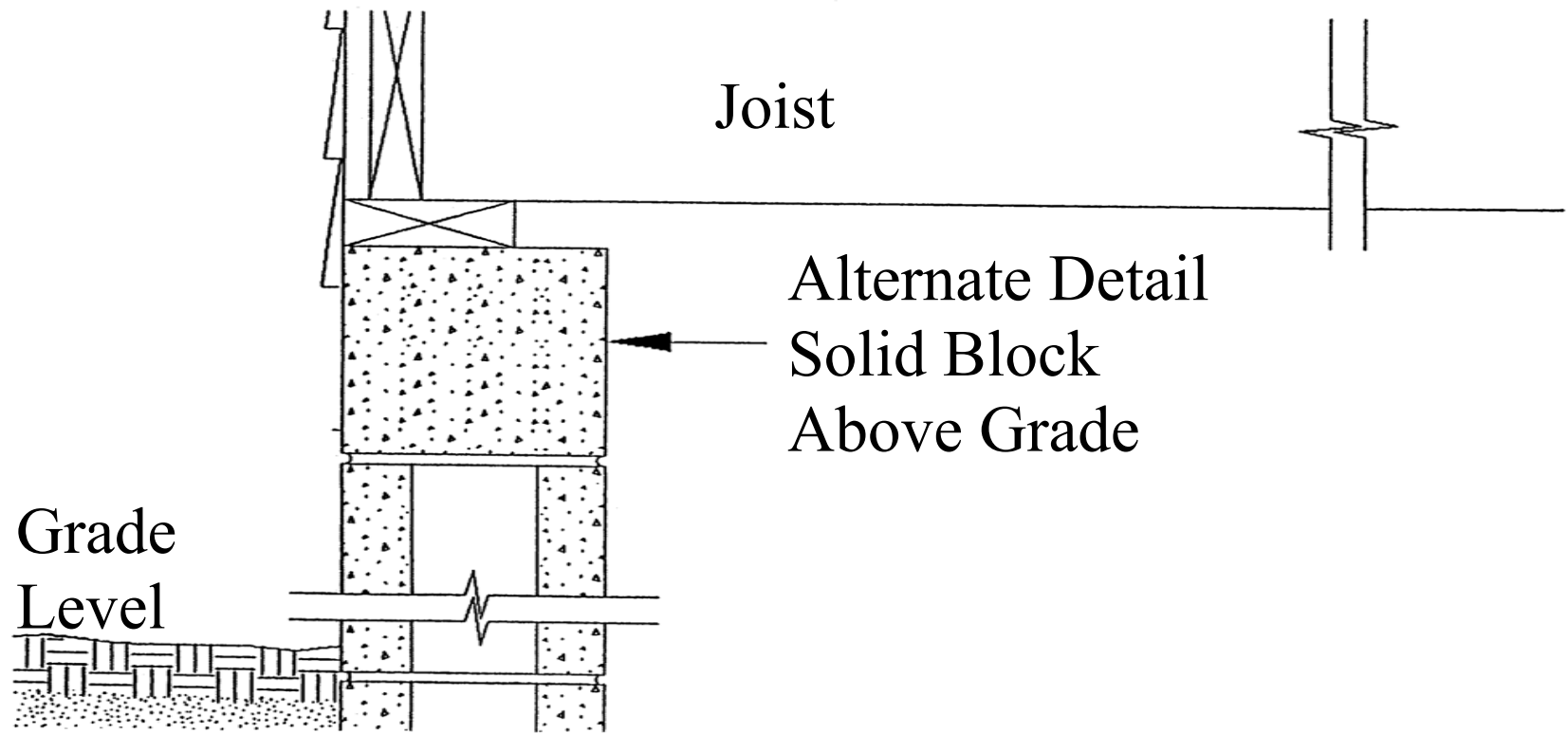
Notes:

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 crawlspaces 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.







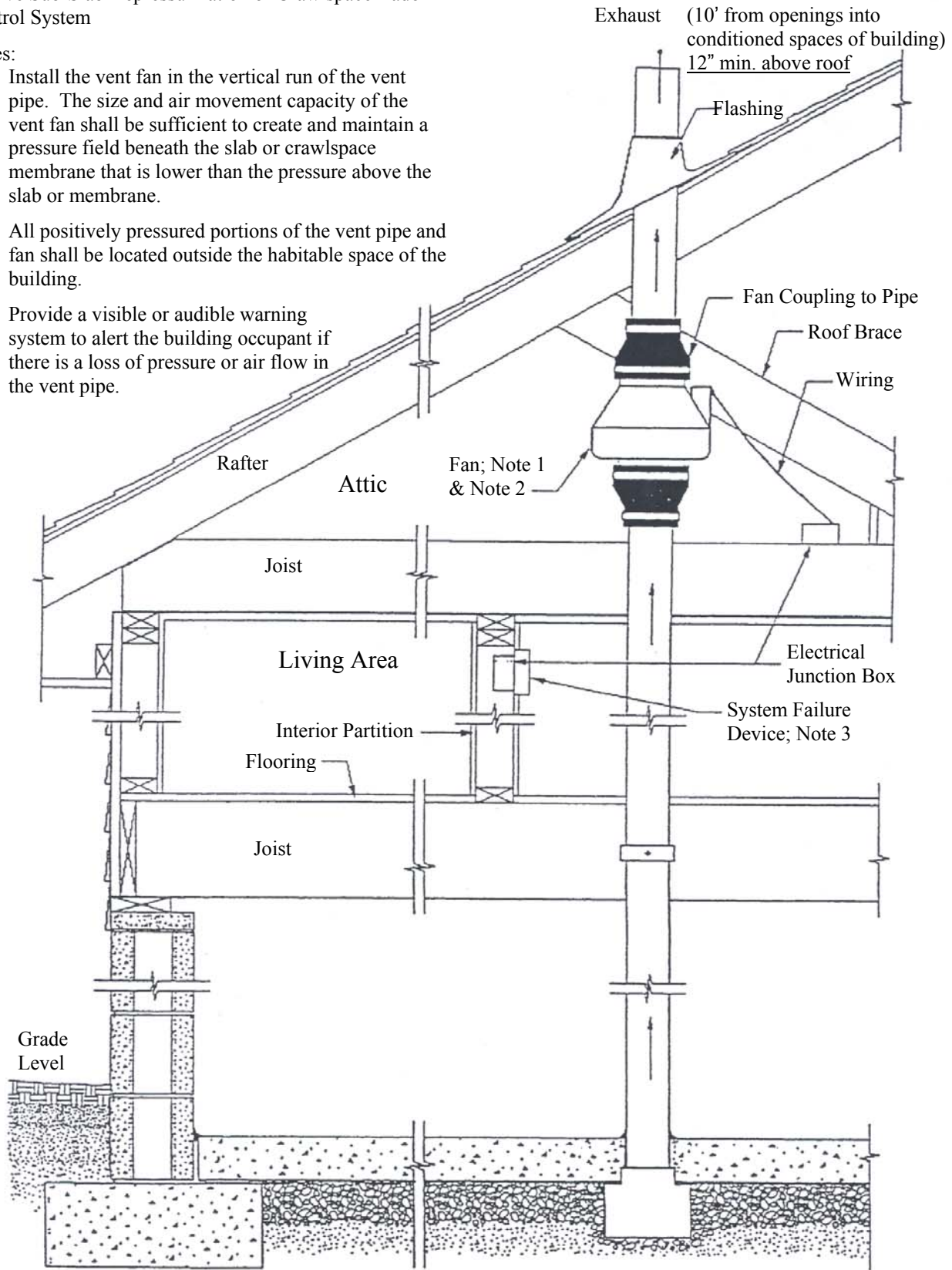




Additional Components Required for Activation of Passive Sub-Slab Depressurization or Crawlspace Radon Control System

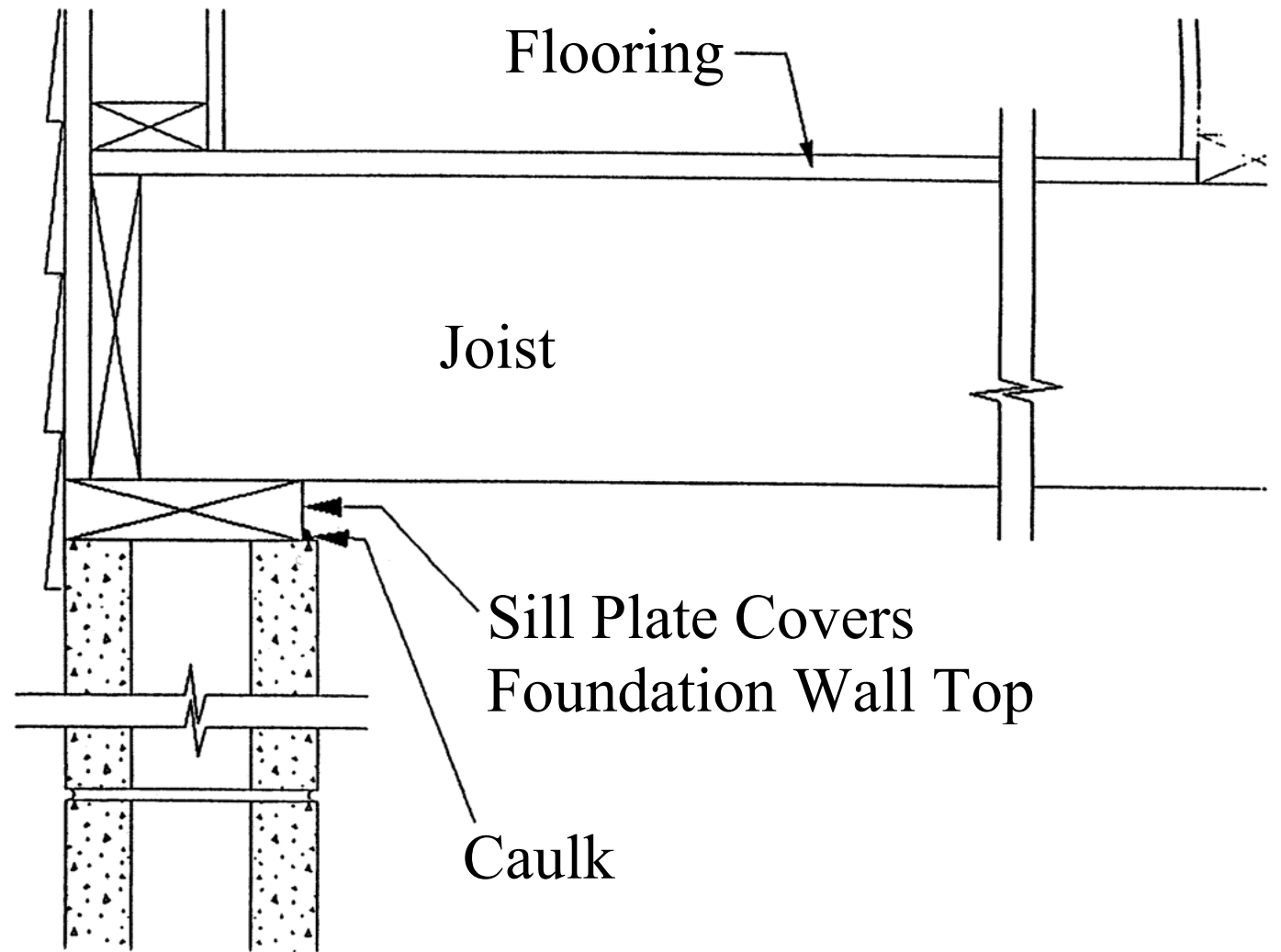
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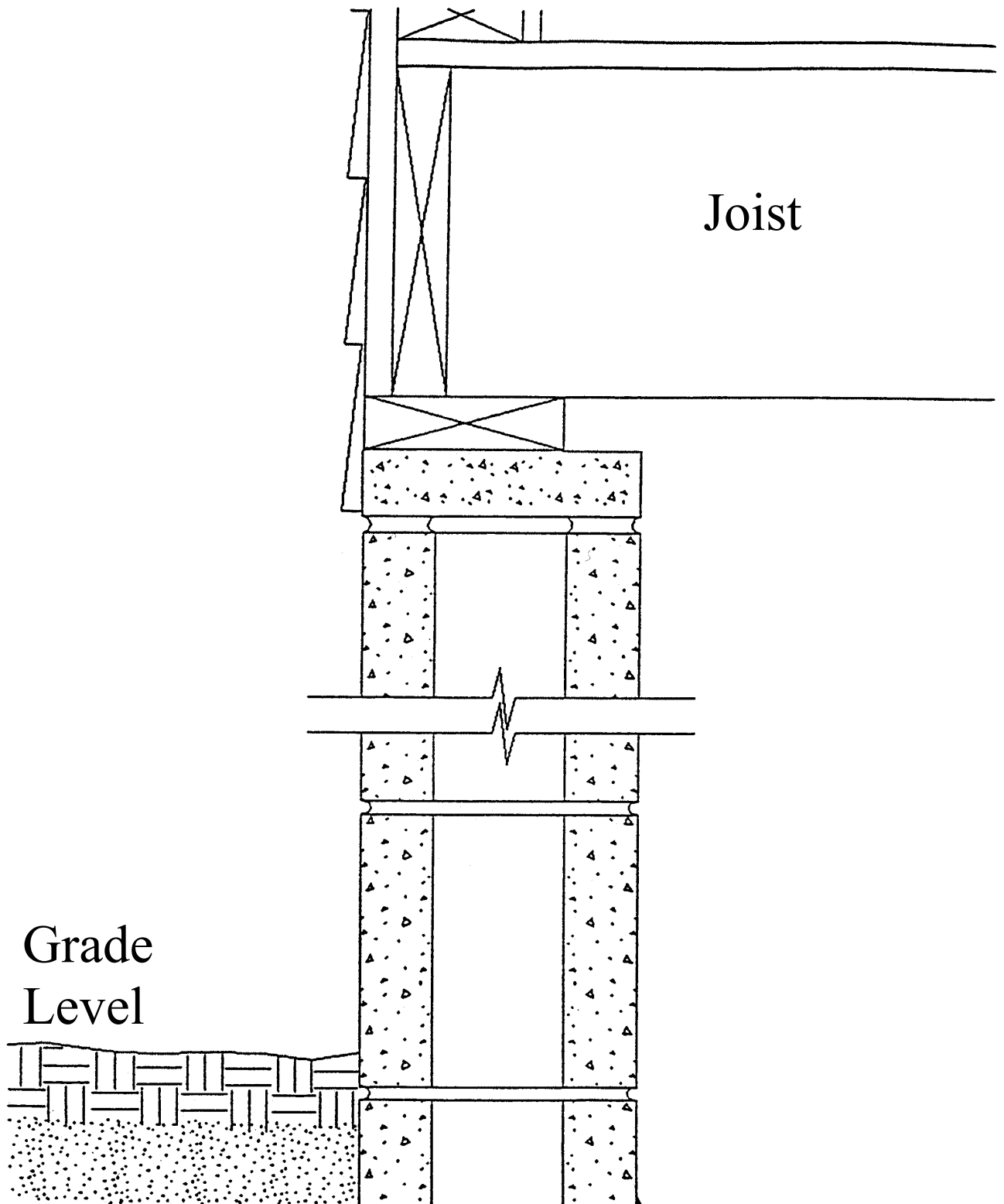
1. Install the vent fan in the vertical run of the vent pipe. The size and air movement capacity of the vent fan shall be sufficient to create and maintain a pressure field beneath the slab or crawlspace membrane that is lower than the pressure above the slab or membrane.
2. All positively pressured 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.

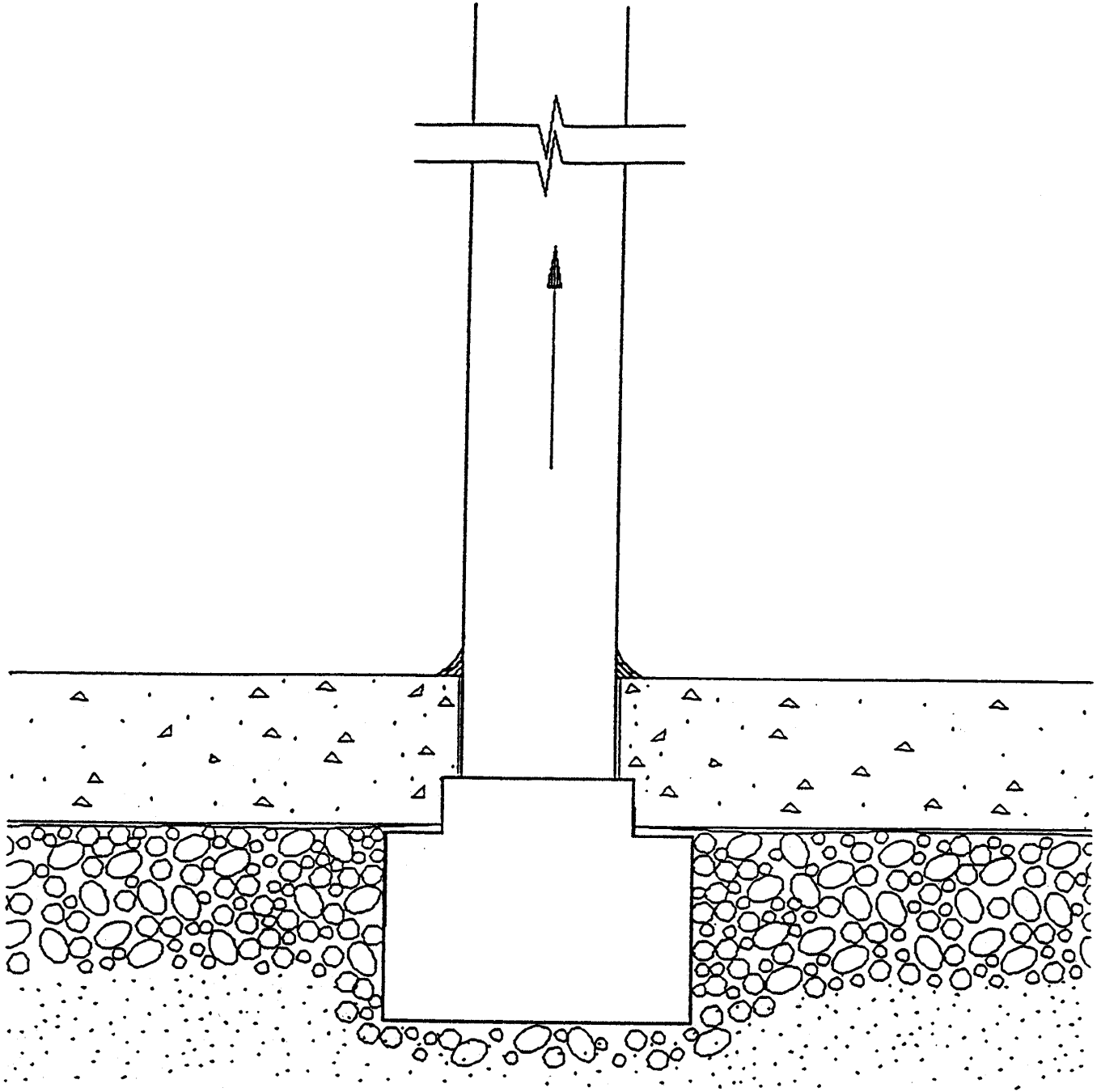


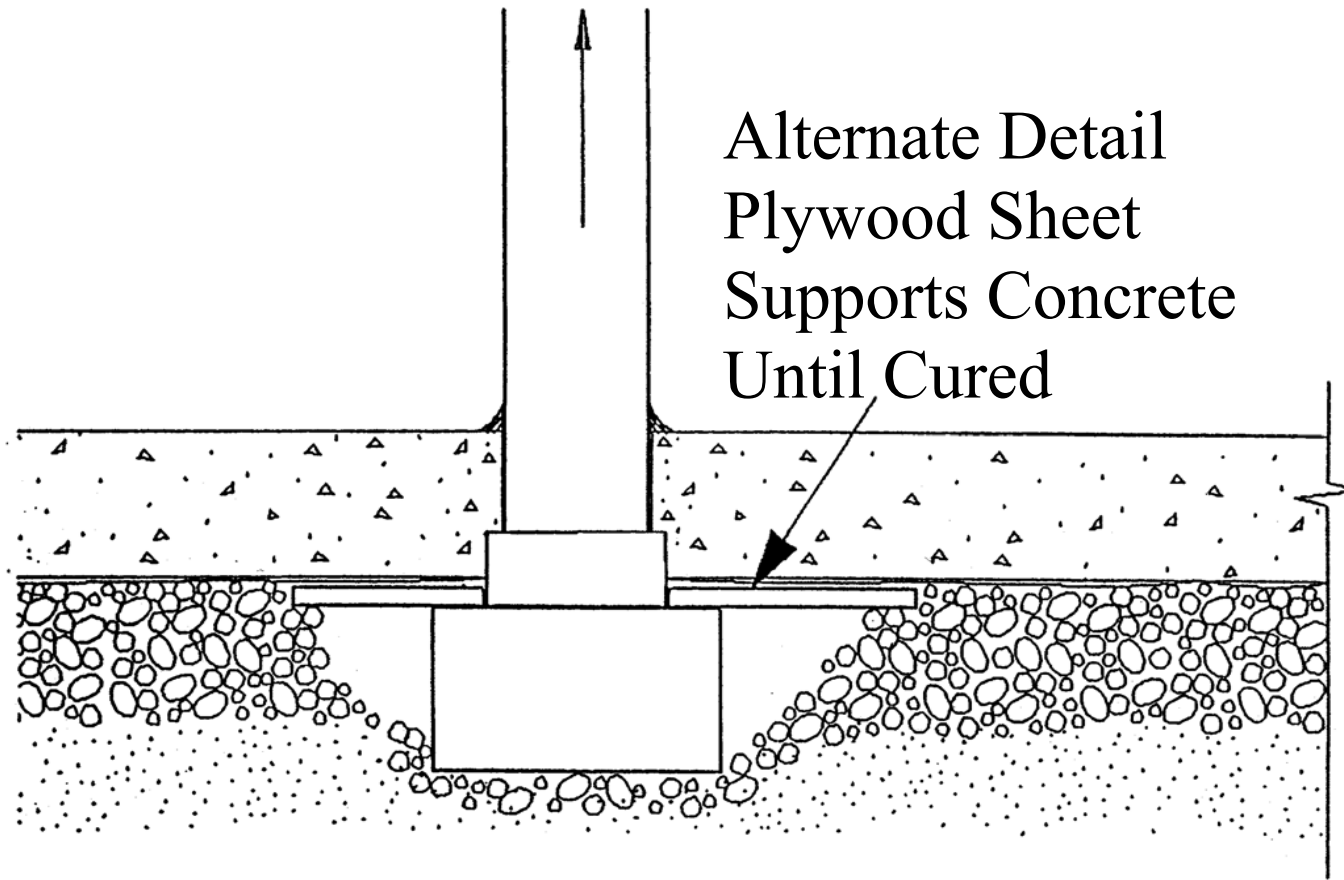


Grade









Alternate Detail  
Plywood Sheet  
Supports Concrete  
Until Cured