



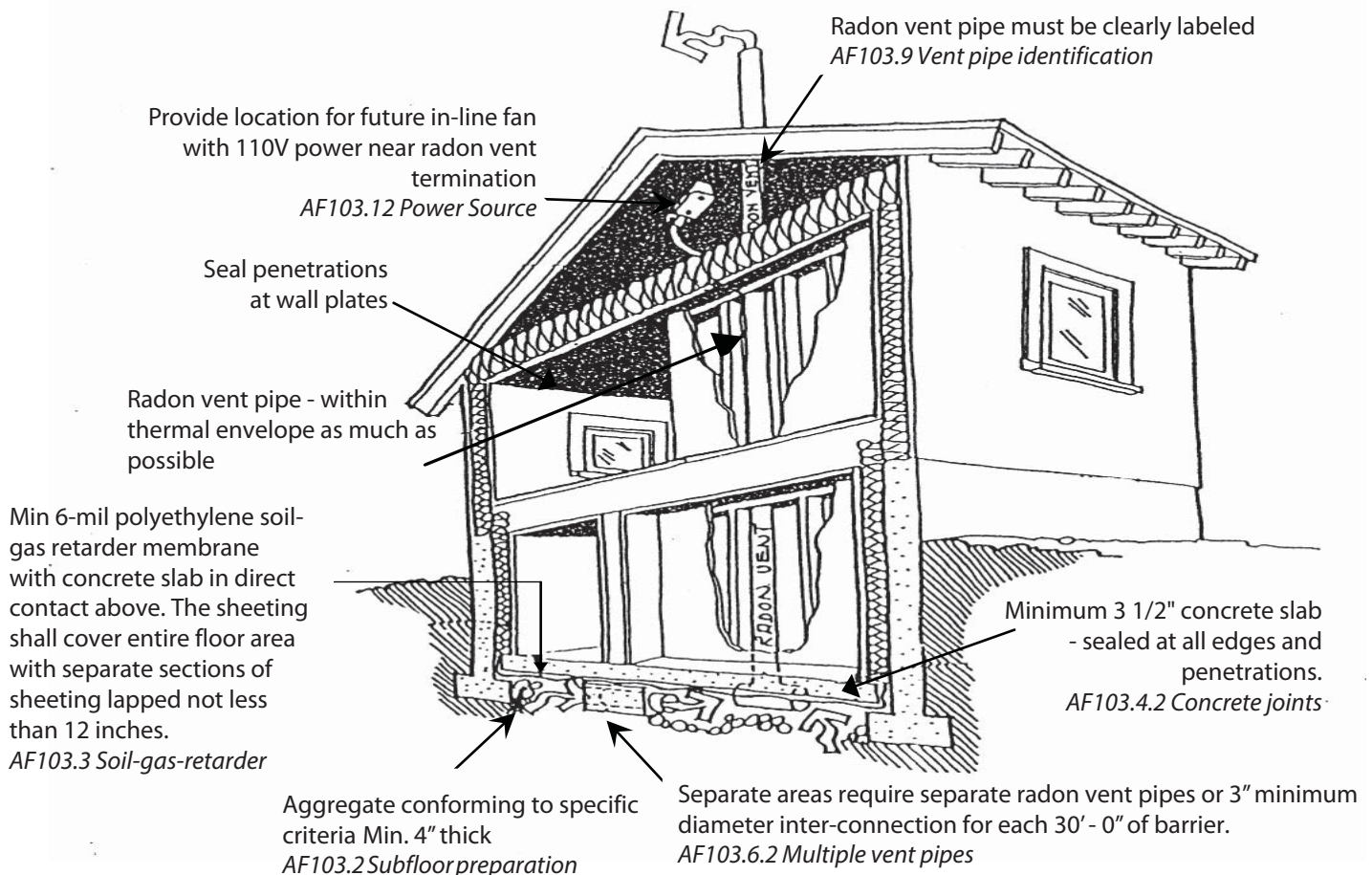
# Radon Mitigation Detail

**Skamania County  
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## Washington High Radon Potential

Clark, Ferry, Okanogan, Pend Oreille, **Skamania**, Spokane, and Stevens Counties

This brochure covers the minimum “prescriptive” requirements for Radon Mitigation. Alternative “performance” based systems installed by recognized radon mitigation firms may be employed. Refer to the 2021 IRC, Appendix F as amended by Washington State for code references.



## **CRAWL SPACES**

Homes built with crawl space foundations contain the following elements:

Ventilation openings at a minimum shall net 1 square foot for every 150 square feet of under-floor area where a 6 mil black polyethylene soil-gas-retarder is used. The ground cover (soil-gas-retarder) shall overlap a minimum of 12 inches at joints, and extend to all foundation walls. A plumbing tee or other approved fitting shall be inserted into the permeable layer of gravel and connected to a 3 inch minimum diameter vertical vent pipe and a **minimum 10 feet of 3" perforated horizontal pipe**. The vertical vent pipe shall extend up through the building floors and terminate at least 12 inches above the roof in a location at least 10 feet away from any opening into the building. An electrical circuit must be provided and terminate in the attic near the radon vent pipe for the purpose of serving a future fan installation.

## **CONCRETE SLABS**

Concrete slabs in direct contact with the ground must have a minimum of 4 inches of aggregate placed beneath the slab. This requirement applies to slab-on-grade and basement slabs in residential construction. Slabs in garages and in other non-residential occupancies are exempt from this requirement. Additionally, a Soil-gas Retarder Membrane consisting of at least one layer of 6 mil polyethylene or equivalent material must be placed directly under the slab. The membrane must extend to the foundation wall or to the outside edge of a monolithic slab. Any seams must overlap at least 12 inches. A plumbing tee or other approved fitting shall be inserted into the permeable layer of gravel and connected to a 3 inch minimum diameter vertical vent pipe and a **minimum 10 feet of 3" perforated horizontal pipe**. The vertical vent pipe shall extend up through the building floors and terminate at least 12 inches above the roof in a location at least 10 feet away from any opening into the building. An electrical circuit must be provided and terminate in the attic near the radon vent for the purpose of serving a future fan installation. Refer to figure AF103 for additional options and details.

## **AGGREGATE STANDARDS**

The 4 inch aggregate used under the slab must meet one of the following gradation standards:

A uniform layer of clean aggregate, a minimum of 4 inches (102 mm) thick. The aggregate shall consist of material that is no smaller than 1/4 inch in size and is washed clean rock.

## **RADON VENT**

One continuous sealed pipe shall run from a point within the aggregate under each concrete slab, or from under the soil-gas-retarder, to a point outside the building. Joints and connections must be gas tight. The radon vent pipe must meet all the following requirements:

1. Minimum 3 inch diameter or as approved.
2. PVC schedule 40 or ABS or approved equivalent smooth walled pipe.
3. Must terminate no less than 12 inches above the roof.
4. Termination must be more than 10 horizontal feet from chimneys or operable windows.
5. Visibly labeled "RADON VENT" (each floor, attic, and crawl)
6. Vent pipe shall be installed to provide positive drainage to the ground beneath the slab or soil-gas-retarder.
7. Pipe must be located within the thermal envelope to the extent practicable.

## **FAN AND WIRING LOCATION**

Installation of a fan is not required but provision must be made for the possible location of an in-line fan. This location should be near the exit point of the pipe from the building. The location for the fan and all downstream piping should be isolated from the indoor air. A 110 volt power supply must be provided to a junction box near this location.

## **SEPARATE AGGREGATE AREAS**

If the 4 inch aggregate area underneath the slab is not continuous, and is separated into distinct iso-lated areas by footings or other barriers, a separate radon vent must be installed into each distinct area. Separate areas may be considered a single area if a minimum three inch diameter connection joining areas is provided for every 30 feet of barrier.

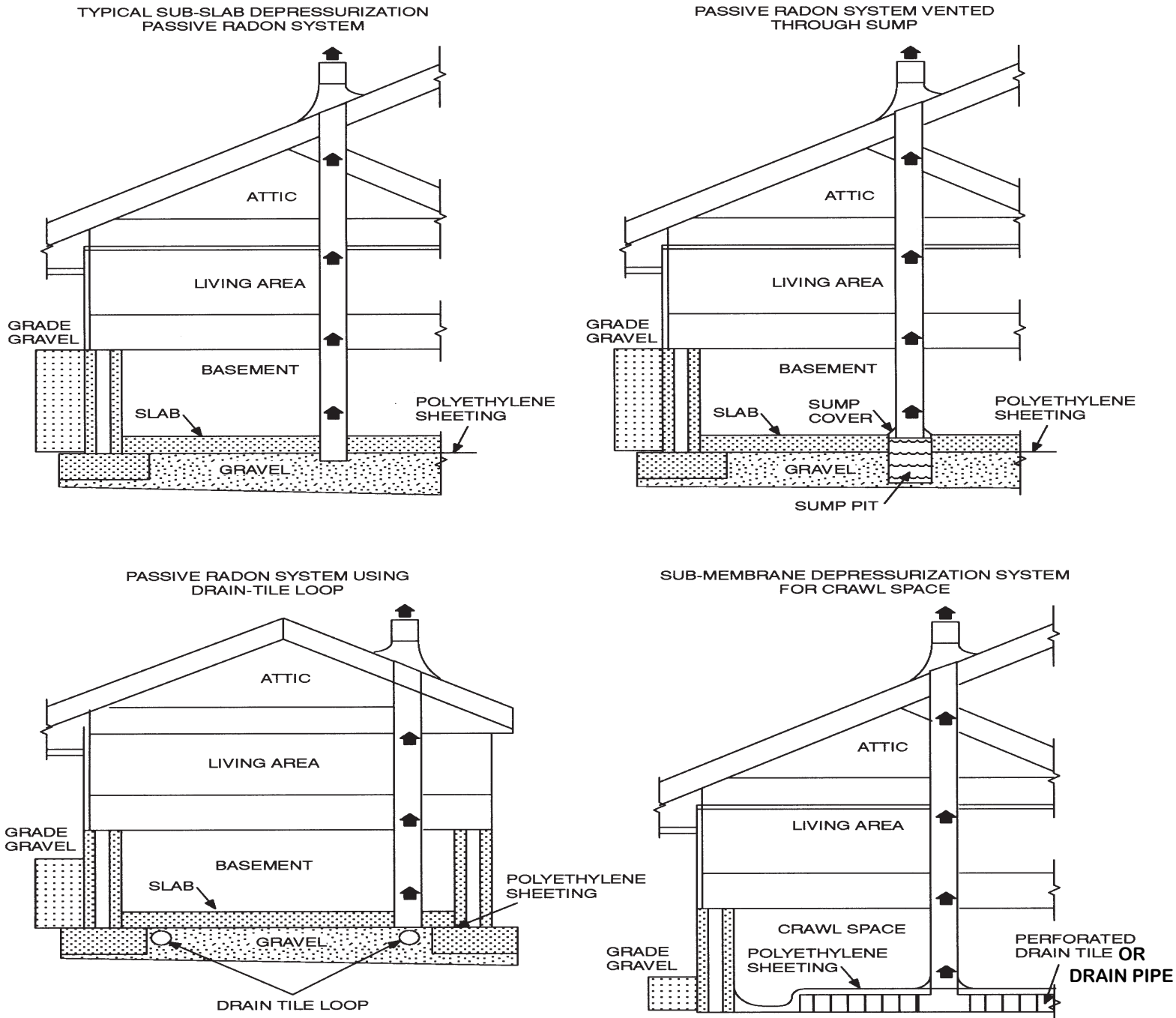
## OTHER REQUIREMENTS

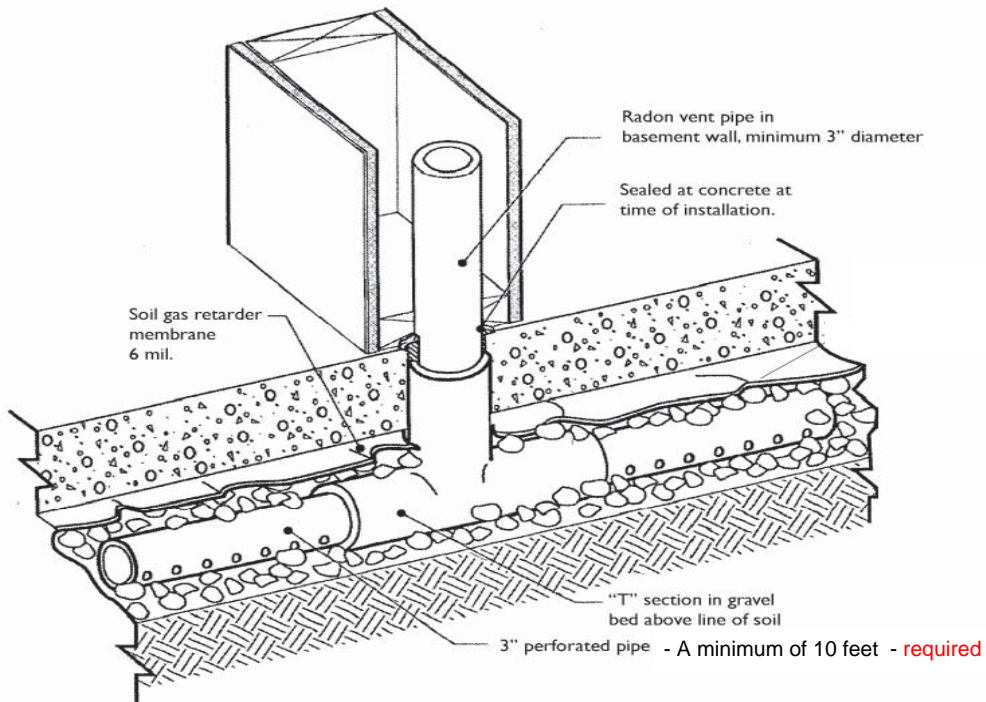
For other requirements that may apply see the International Residential Code, Appendix F, and the Washington State Amendments to the International Residential Code or contact your local building jurisdiction.

## For more information contact:

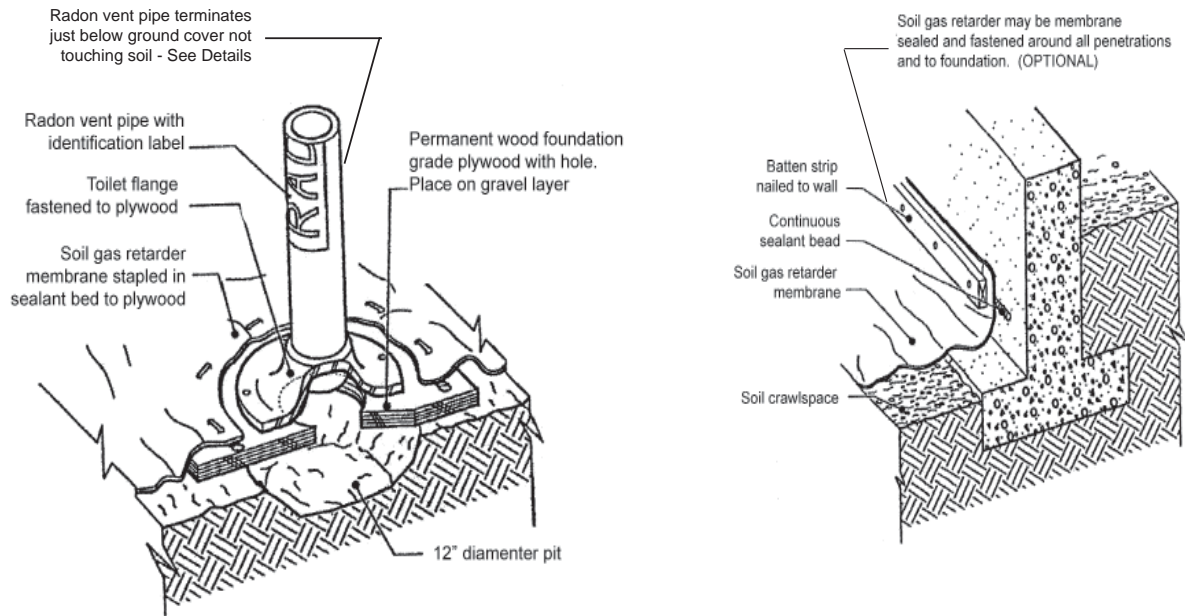
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### FIGURE AF103





OPTION: Sand or gravel may be placed over the membrane. Joints in the membrane must be lapped a minimum of 12 inches.



Please note that while every effort is made to assure the accuracy of the information contained in this brochure it is not warranted for accuracy. This document is not intended to address all aspects or regulatory requirements for a project and should serve as a starting point for your investigation. For detailed information on a particular project, permit, or code requirement refer directly to applicable file and/or code/regulatory documents or contact the appropriate division or staff.