APPENDIX AF
RADON CONTROL METHODS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

User note:

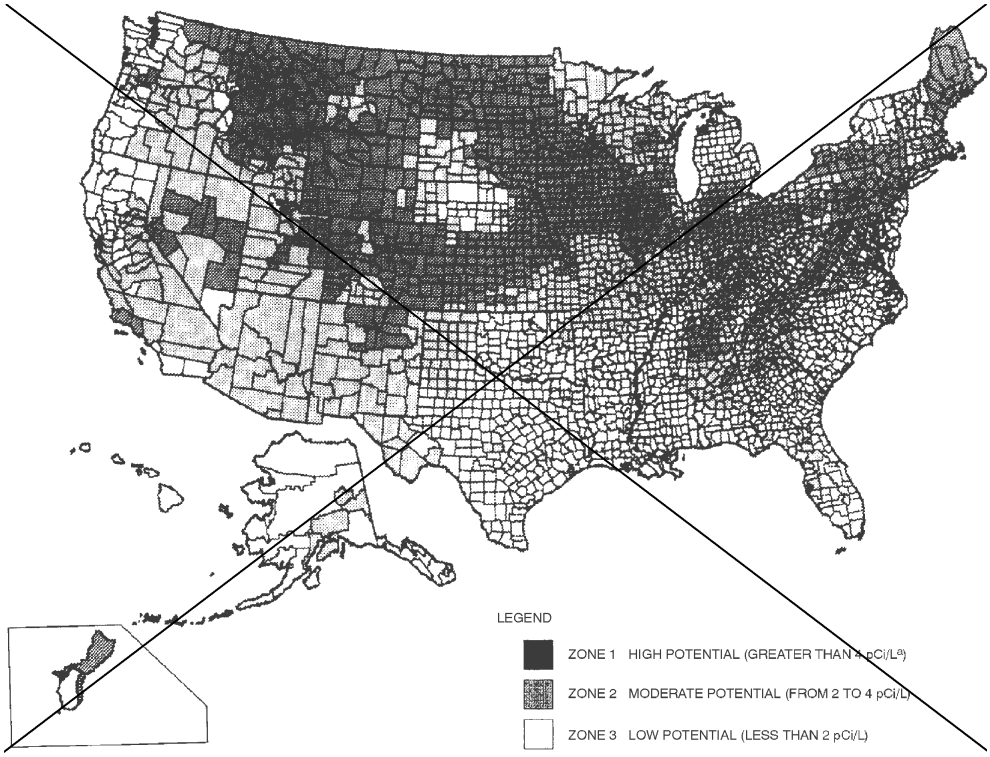
About this appendix: *Appendix AF contains provisions that are intended to mitigate the transfer of radon gases from the soil into dwelling units. Radon is a radioactive gas that has been identified as a cancer-causing agent. Radon comes from the natural breakdown of uranium in soil, rock and water.*

SECTION AF101
SCOPE

[W] AF101.1 General. This appendix contains requirements for new construction in *jurisdictions* where radon-resistant construction is required.

Inclusion of this appendix by *jurisdictions* shall be ((~~determined through the use of locally available data or determination of Zone 1 designation in Figure AF101.1 and Table AF101.1~~)) required in high radon potential counties as determined in Figure AF101 and as listed in Table AF101.1.

Unvented crawl spaces are not permitted in any high radon potential county. In other areas, requirements of this appendix apply to any structure constructed with unvented crawl spaces as specified in R408.3.



ZONE 1 HIGH POTENTIAL (GREATER THAN 4 pCi/L[a])**[Red/Darkest]**
ZONE 2 MODERATE POTENTIAL (FROM 2 TO 4 pCi/L)**[Orange/Midrange]**
ZONE 3 LOW POTENTIAL (LESS THAN 2 pCi/L)**[Yellow/Lightest]**

a. pCi/L ((~~stands~~)) standard for picocuries per liter of radon gas. ((~~The US Environmental Protection Agency (EPA)~~)) EPA recommends that all homes that measure 4 pCi/L and greater be mitigated.

The ((~~EPA~~)) United States Environmental Protection Agency and the ((~~US~~)) United States Geological Survey have evaluated the radon potential in the United States and have developed a map of radon zones designed to assist building officials in deciding whether radon-resistant features are applicable in new construction.

The map assigns each of the 3,141 counties in the United States to one of three zones based on radon potential. Each zone designation reflects the average short-term radon measurement that can be expected to be measured in a building without the implementation of radon-control methods. The radon zone designation of highest priority is Zone 1. Table ((~~AF101.1~~)) 1 of this appendix lists the Zone 1 counties illustrated on the map. More detailed information can be obtained from state-specific booklets (((~~EPA-401-R-93-021~~)) EPA-402-R-93-021 through 070) available through the State Radon Offices or from the U.S. EPA Regional Offices.

[W] FIGURE ((~~AF101.1~~)) AF101
EPA MAP OF RADON ZONES LEGEND

TABLE AF101.1
HIGH RADON-POTENTIAL (ZONE 1) COUNTIES[a]

ALABAMA	Kit Carson	Clark	Macon	Fulton
Calhoun	Lake	Clearwater	Marshall	Grant
Clay	Larimer	Custer	Mason	Hamilton
Cleburne	Las Animas	Elmore	McDonough	Hancock
Colbert	Lincoln	Fremont	McLean	Harrison
Coosa	Logan	Gooding	Menard	Hendricks
Franklin	Mesa	Idaho	Mercer	Henry
Jackson	Moffat	Kootenai	Morgan	Howard
Lauderdale	Montezuma	Latah	Moultrie	Huntington
Lawrence	Montrose	Lemhi	Ogle	Jay
Limestone	Morgan	Shoshone	Peoria	Jennings
Madison	Otero	Valley	Piatt	Johnson
Morgan	Ouray	**ILLINOIS**	Pike	Kosciusko
Talladega	Park	Adams	Putnam	LaGrange
CALIFORNIA	Phillips	Boone	Rock Island	Lawrence
Santa Barbara	Pitkin	Brown	Sangamon	Madison
Ventura	Prowers	Bureau	Schuyler	Marion
COLORADO	Pueblo	Calhoun	Scott	Marshall
Adams	Rio Blanco	Carroll	Stark	Miami
Arapahoe	San Miguel	Cass	Stephenson	Monroe
Baca	Summit	Champaign	Tazewell	Montgomery
Bent	Teller	Coles	Vermilion	Noble
Boulder	Washington	De Kalb	Warren	Orange
Chaffee	Weld	De Witt	Whiteside	Putnam
Cheyenne	Yuma	Douglas	Winnebago	Randolph
Clear Creek	**CONNECTICUT**	Edgar	Woodford	Rush
Crowley	Fairfield	Ford	**INDIANA**	Scott
Custer	Middlesex	Fulton	Adams	Shelby
Delta	New Haven	Greene	Allen	St. Joseph
Denver	New London	Grundy	Bartholomew	Steuben
Dolores	**GEORGIA**	Hancock	Benton	Tippecanoe
Douglas	Cobb	Henderson	Blackford	Tipton
El Paso	De Kalb	Henry	Boone	Union
Elbert	Fulton	Iroquois	Carroll	Vermillion
Fremont	Gwinnett	Jersey	Cass	Wabash
Garfield	**IDAHO**	Jo Daviess	Clark	Warren
Gilpin	Benewah	Kane	Clinton	Washington
Grand	Blaine	Kendall	De Kalb	Wayne
Gunnison	Boise	Knox	Decatur	Wells
Huerfano	Bonner	La Salle	Delaware	White
Jackson	Boundary	Lee	Elkhart	Whitley
Jefferson	Butte	Livingston	Fayette	**IOWA**
Kiowa	Camas	Logan	Fountain	All Counties

TABLE AF101.1—continued
HIGH RADON-POTENTIAL (ZONE 1) COUNTIES[a]

KANSAS	Pawnee	Monroe	Lenawee	Pennington
Atchison	Phillips	Nelson	St. Joseph	Pipestone
Barton	Pottawatomie	Pendleton	Washtenaw	Polk
Brown	Pratt	Pulaski	**MINNESOTA**	Pope
Cheyenne	Rawlins	Robertson	Becker	Ramsey
Clay	Republic	Russell	Big Stone	Red Lake
Cloud	Rice	Scott	Blue Earth	Redwood
Decatur	Riley	Taylor	Brown	Renville
Dickinson	Rooks	Warren	Carver	Rice
Douglas	Rush	Woodford	Chippewa	Rock
Ellis	Saline	**MAINE**	Clay	Roseau
Ellsworth	Scott	Androscoggin	Cottonwood	Scott
Finney	Sheridan	Aroostook	Dakota	Sherburne
Ford	Sherman	Cumberland	Dodge	Sibley
Geary	Smith	Franklin	Douglas	Stearns
Gove	Stanton	Hancock	Faribault	Steele
Graham	Thomas	Kennebec	Fillmore	Stevens
Grant	Trego	Lincoln	Freeborn	Swift
Gray	Wallace	Oxford	Goodhue	Todd
Greeley	Washington	Penobscot	Grant	Traverse
Hamilton	Wichita	Piscataquis	Hennepin	Wabasha
Haskell	Wyandotte	Somerset	Houston	Wadena
Hodgeman	**KENTUCKY**	York	Hubbard	Waseca
Jackson	Adair	**MARYLAND**	Jackson	Washington
Jewell	Allen	Baltimore	Kanabec	Watonwan
Johnson	Barren	Calvert	Kandiyohi	Wilkin
Kearny	Bourbon	Carroll	Kittson	Winona
Kingman	Boyle	Frederick	Lac Qui Parle	Wright
Kiowa	Bullitt	Harford	Le Sueur	Yellow Medicine
Lane	Casey	Howard	Lincoln	**MISSOURI**
Leavenworth	Clark	Montgomery	Lyon	Andrew
Lincoln	Cumberland	Washington	Mahnomen	Atchison
Logan	Fayette	**MASS.**	Marshall	Buchanan
Marion	Franklin	Essex	Martin	Cass
Marshall	Green	Middlesex	McLeod	Clay
McPherson	Harrison	Worcester	Meeker	Clinton
Meade	Hart	**MICHIGAN**	Mower	Holt
Mitchell	Jefferson	Branch	Murray	Iron
Nemaha	Jessamine	Calhoun	Nicollet	Jackson
Ness	Lincoln	Cass	Nobles	Nodaway
Norton	Marion	Hillsdale	Norman	Platte
Osborne	Mercer	Jackson	Olmsted	
Ottawa	Metcalfe	Kalamazoo	Otter Tail	

TABLE AF101.1—continued
HIGH RADON-POTENTIAL (ZONE 1) COUNTIES[a]

MONTANA	Teton	Phelps	Taos	Transylvania
Beaverhead	Toole	Pierce	**NEW YORK**	Watauga
Big Horn	Valley	Platte	Albany	**N. DAKOTA**
Blaine	Wibaux	Polk	Allegany	All Counties
Broadwater	Yellowstone	Red Willow	Broome	**OHIO**
Carbon	**NEBRASKA**	Richardson	Cattaraugus	Adams
Carter	Adams	Saline	Cayuga	Allen
Cascade	Boone	Sarpy	Chautauqua	Ashland
Chouteau	Boyd	Saunders	Chemung	Auglaize
Custer	Burt	Seward	Chenango	Belmont
Daniels	Butler	Stanton	Columbia	Butler
Dawson	Cass	Thayer	Cortland	Carroll
Deer Lodge	Cedar	Washington	Delaware	Champaign
Fallon	Clay	Wayne	Dutchess	Clark
Fergus	Colfax	Webster	Erie	Clinton
Flathead	Cuming	York	Genesee	Columbiana
Gallatin	Dakota	**NEVADA**	Greene	Coshocton
Garfield	Dixon	Carson City	Livingston	Crawford
Glacier	Dodge	Douglas	Madison	Darke
Granite	Douglas	Eureka	Onondaga	Delaware
Hill	Fillmore	Lander	Ontario	Fairfield
Jefferson	Franklin	Lincoln	Orange	Fayette
Judith Basin	Frontier	Lyon	Otsego	Franklin
Lake	Furnas	Mineral	Putnam	Greene
Lewis and Clark	Gage	Pershing	Rensselaer	Guernsey
Madison	Gosper	White Pine	Schoharie	Hamilton
McCone	Greeley	**NEW HAMPSHIRE**	Schuyler	Hancock
Meagher	Hamilton	Carroll	Seneca	Hardin
Missoula	Harlan	**NEW JERSEY**	Steuben	Harrison
Park	Hayes	Hunterdon	Sullivan	Holmes
Phillips	Hitchcock	Mercer	Tioga	Huron
Pondera	Hurston	Monmouth	Tompkins	Jefferson
Powder River	Jefferson	Morris	Ulster	Knox
Powell	Johnson	Somerset	Washington	Licking
Prairie	Kearney	Sussex	Wyoming	Logan
Ravalli	Knox	Warren	Yates	Madison
Richland	Lancaster	**NEW MEXICO**	**N. CAROLINA**	Marion
Roosevelt	Madison	Bernalillo	Alleghany	Mercer
Rosebud	Nance	Colfax	Buncombe	Miami
Sanders	Nemaha	Mora	Cherokee	Montgomery
Sheridan	Nuckolls	Rio Arriba	Henderson	Morrow
Silver Bow	Otoe	San Miguel	Mitchell	Muskingum
Stillwater	Pawnee	Santa Fe	Rockingham	Perry

TABLE AF101.1—continued
HIGH RADON-POTENTIAL (ZONE 1) COUNTIES[a]

OHIO—continued	Lancaster	Douglas	Hawkins	Brunswick
Pickaway	Lebanon	Edmunds	Hickman	Buckingham
Pike	Lehigh	Faulk	Humphreys	Buena Vista
Preble	Luzerne	Grant	Jackson	Campbell
Richland	Lycoming	Hamlin	Jefferson	Chesterfield
Ross	Mifflin	Hand	Knox	Clarke
Seneca	Monroe	Hanson	Lawrence	Clifton Forge
Shelby	Montgomery	Hughes	Lewis	Covington
Stark	Montour	Hutchinson	Lincoln	Craig
Summit	Northampton	Hyde	Loudon	Cumberland
Tuscarawas	Northumberland	Jerauld	Marshall	Danville
Union	Perry	Kingsbury	Maury	Dinwiddie
Van Wert	Schuylkill	Lake	McMinn	Fairfax
Warren	Snyder	Lincoln	Meigs	Falls Church
Wayne	Sullivan	Lyman	Monroe	Fluvanna
Wyandot	Susquehanna	Marshall	Moore	Frederick
PENNSYLVANIA	Tioga	McCook	Perry	Fredericksburg
Adams	Union	McPherson	Roane	Giles
Allegheny	Venango	Miner	Rutherford	Goochland
Armstrong	Westmoreland	Minnehaha	Smith	Harrisonburg
Beaver	Wyoming	Moody	Sullivan	Henry
Bedford	York	Perkins	Trousdale	Highland
Berks	**RHODE ISLAND**	Potter	Union	Lee
Blair	Kent	Roberts	Washington	Lexington
Bradford	Washington	Sanborn	Wayne	Louisa
Bucks	**S. CAROLINA**	Spink	Williamson	Martinsville
Butler	Greenville	Stanley	Wilson	Montgomery
Cameron	**S. DAKOTA**	Sully	**UTAH**	Nottoway
Carbon	Aurora	Turner	Carbon	Orange
Centre	Beadle	Union	Duchesne	Page
Chester	Bon Homme	Walworth	Grand	Patrick
Clarion	Brookings	Yankton	Piute	Pittsylvania
Clearfield	Brown	**TENNESEE**	Sanpete	Powhatan
Clinton	Brule	Anderson	Sevier	Pulaski
Columbia	Buffalo	Bedford	Uintah	Radford
Cumberland	Campbell	Blount	**VIRGINIA**	Roanoke
Dauphin	Charles Mix	Bradley	Alleghany	Rockbridge
Delaware	Clark	Claiborne	Amelia	Rockingham
Franklin	Clay	Davidson	Appomattox	Russell
Fulton	Codington	Giles	Augusta	Salem
Huntingdon	Corson	Grainger	Bath	Scott
Indiana	Davison	Greene	Bland	Shenandoah
Juniata	Day	Hamblen	Botetourt	Smyth
Lackawanna	Deuel	Hancock	Bristol	Spotsylvania

TABLE AF101.1—continued
HIGH RADON-POTENTIAL (ZONE 1) COUNTIES[a]

VIRGINIA—continued	Brooke	**WISCONSIN**	Richland	Hot Springs
Stafford	Grant	Buffalo	Rock	Johnson
Staunton	Greenbrier	Crawford	Shawano	Laramie
Tazewell	Hampshire	Dane	St. Croix	Lincoln
Warren	Hancock	Dodge	Vernon	Natrona
Washington	Hardy	Door	Walworth	Niobrara
Waynesboro	Jefferson	Fond du Lac	Washington	Park
Winchester	Marshall	Grant	Waukesha	Sheridan
Wythe	Mercer	Green	Waupaca	Sublette
WASHINGTON	Mineral	Green Lake	Wood	Sweetwater
Clark	Monongalia	Iowa	**WYOMING**	Teton
Ferry	Monroe	Jefferson	Albany	Uinta
Okanogan	Morgan	Lafayette	Big Horn	Washakie
Pend Oreille	Ohio	Langlade	Campbell	
Skamania	Pendleton	Marathon	Carbon	
Spokane	Pocahontas	Menominee	Converse	
Stevens	Preston	Pepin	Crook	
W. VIRGINIA	Summers	Pierce	Fremont	
Berkeley	Wetzel	Portage	Goshen	

a. The EPA recommends that this county listing be supplemented with other available state and local data to further understand the radon potential of a Zone 1 area.

SECTION AF102
DEFINITIONS

AF102.1 General. For the purpose of these requirements, the terms used shall be defined as follows:

DRAIN TILE LOOP. A continuous length of drain tile or perforated pipe extending around all or part of the internal or external perimeter of a *basement* or *crawl space* footing.

RADON GAS. A naturally occurring, chemically inert, radioactive gas that is not detectable by human senses. As a gas, it can move readily through particles of soil and rock, and can accumulate under the slabs and foundations of homes where it can easily enter into the living space through construction cracks and openings.

SOIL-GAS-RETARDER. A continuous membrane of 6-mil (0.15 mm) polyethylene or other equivalent material used to retard the flow of soil gases into a building.

SUBMEMBRANE DEPRESSURIZATION SYSTEM. A system designed to achieve lower submembrane air pressure relative to *crawl space* air pressure by use of a vent drawing air from beneath the soil-gas-retarder membrane.

SUBSLAB DEPRESSURIZATION SYSTEM (Active). A system designed to achieve lower subslab air pressure relative to indoor air pressure by use of a fan-powered vent drawing air from beneath the slab.

SUBSLAB DEPRESSURIZATION SYSTEM (Passive). A system designed to achieve lower subslab air pressure relative to indoor air pressure by use of a vent pipe routed through the *conditioned space* of a building and connecting the subslab area with outdoor air, thereby relying on the convective flow of air upward in the vent to draw air from beneath the slab.

SECTION AF103
REQUIREMENTS

[W] AF103.1 General. The following construction techniques are intended to resist radon entry and prepare the building for post-construction radon mitigation, if necessary (see Figure AF103.1). These techniques are required in ((~~areas~~)) high radon potential counties where designated ((~~by the *jurisdiction*~~)) in Table AF101.1.

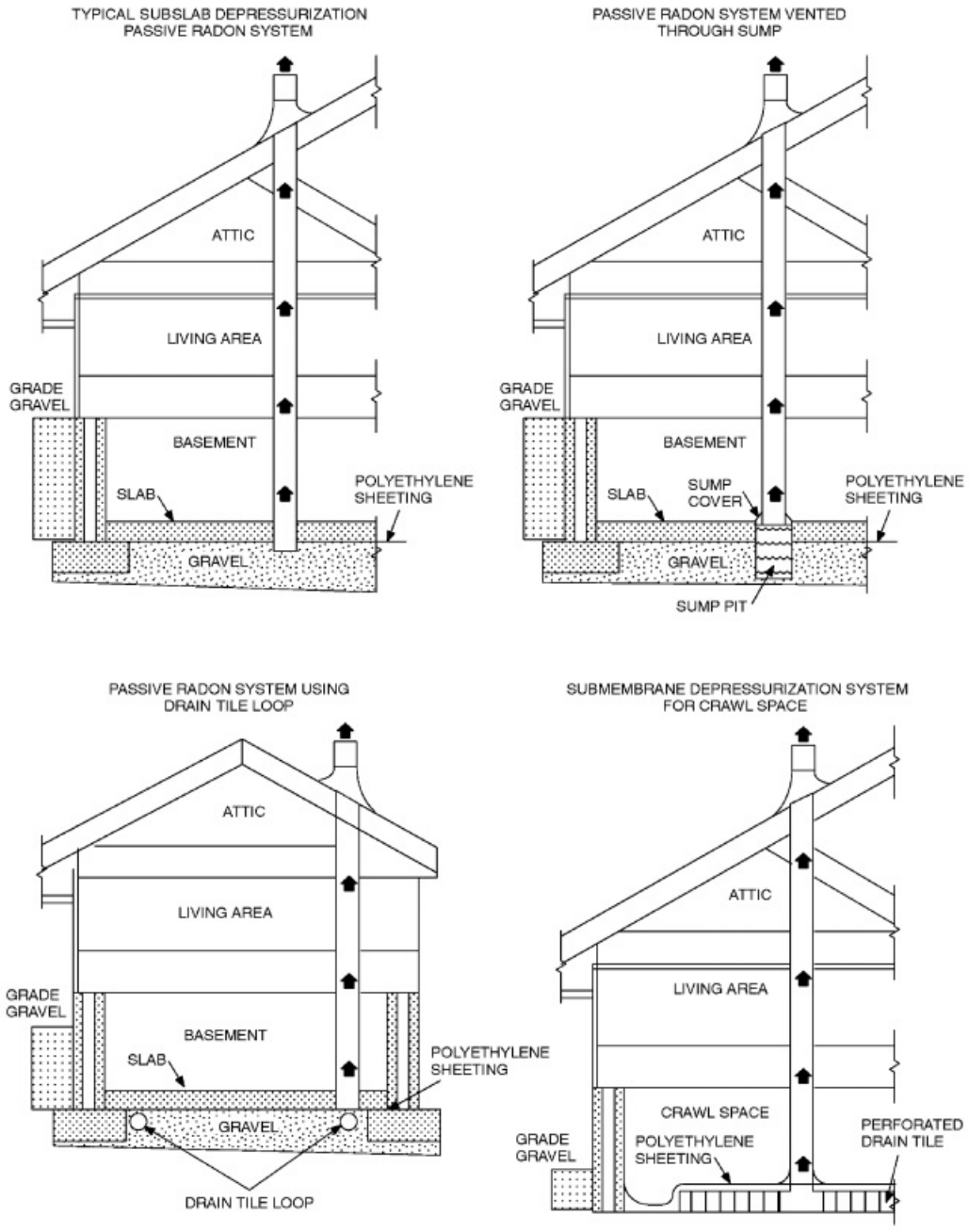


FIGURE AF103.1
RADON-RESISTANT CONSTRUCTION DETAILS FOR FOUR FOUNDATION TYPES

AF103.2 Subfloor preparation. A layer of gas-permeable material shall be placed under all concrete slabs and other floor systems that directly contact the ground and are within the walls of the living spaces of the building, to facilitate future installation of a subslab depressurization system, if needed. The gas-permeable layer shall consist of one of the following:

1. A uniform layer of clean aggregate, 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), not less than 4 inches (102 mm) thick, overlain by a layer or strips of geotextile drainage matting designed to allow the lateral flow of soil gases.
3. Other materials, systems or floor designs with demonstrated capability to permit depressurization across the entire subfloor area.

AF103.3 Soil-gas-retarder. A minimum 6-mil (0.15 mm) [or 3-mil (0.075 mm) cross-laminated] polyethylene or equivalent flexible sheeting material shall be placed on top of the gas-permeable layer prior to casting the slab or placing the floor assembly to serve as a soil-gas-retarder by bridging any cracks that develop in the slab or floor assembly, and to prevent concrete from entering the void spaces in the aggregate base material. The sheeting shall cover the entire floor area with separate sections of sheeting lapped not less than 12 inches (305 mm). The sheeting 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.

AF103.4 Entry routes. Potential radon entry routes shall be closed in accordance with Sections AF103.4.1 through AF103.4.10.

AF103.4.1 Floor openings. Openings around bathtubs, showers, water closets, pipes, wires or other objects that penetrate concrete slabs, or other floor assemblies, shall be filled with a polyurethane caulk or equivalent sealant applied in accordance with the manufacturer's recommendations.

AF103.4.2 Concrete joints. Control joints, isolation joints, construction joints, and any other joints in concrete slabs or between slabs and foundation walls shall be sealed with a caulk or sealant. Gaps and joints shall be cleared of loose material and filled with polyurethane caulk or other elastomeric sealant applied in accordance with the manufacturer's recommendations.

AF103.4.3 Condensate drains. Condensate drains shall be trapped or routed through nonperforated pipe to daylight.

AF103.4.4 Sumps. Sump pits open to soil or serving as the termination point for subslab or exterior drain tile loops shall be covered with a gasketed or otherwise sealed lid. Sumps used as the suction point in a subslab 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.

AF103.4.5 Foundation walls. Hollow block masonry foundation walls shall be constructed with either a continuous course of *solid masonry*, one course of masonry grouted solid, or a solid concrete beam at or above finished ground surface to prevent the passage of air from the interior of the wall into the living space. Where a brick veneer or other masonry ledge is installed, the course immediately below that ledge shall be sealed. Joints, cracks or other openings around all penetrations of both exterior and interior surfaces of masonry block or wood foundation walls below the ground surface shall be filled with polyurethane caulk or equivalent sealant. Penetrations of concrete walls shall be filled.

AF103.4.6 Dampproofing. The exterior surfaces of portions of concrete and masonry block walls below the ground surface shall be dampproofed in accordance with Section R406.

AF103.4.7 Air-handling units. Air-handling units in crawl spaces shall be sealed to prevent air from being drawn into the unit.

Exception: Units with gasketed seams or units that are otherwise sealed by the manufacturer to prevent leakage.

AF103.4.8 Ducts. Ductwork passing through or beneath a slab shall be of seamless material unless the air-handling system is designed to maintain continuous positive pressure within such ducting. Joints in such ductwork shall be sealed to prevent air leakage.

Ductwork located in crawl spaces shall have seams and joints sealed by closure systems in accordance with Section M1601.4.1.

AF103.4.9 Crawl space floors. Openings around all penetrations through floors above crawl spaces shall be caulked or otherwise filled to prevent air leakage.

AF103.4.10 Crawl space access. Access doors and other openings or penetrations between *basements* and adjoining crawl spaces shall be closed, gasketed or otherwise filled to prevent air leakage.

AF103.5 Passive submembrane depressurization system. In buildings with *crawl space* foundations, the following components of a passive submembrane depressurization system shall be installed during construction.

Exception: Buildings in which an *approved* mechanical *crawl space* ventilation system or other equivalent system is installed.

AF103.5.1 Ventilation. Crawl spaces shall be provided with vents to the exterior of the building. The minimum net area of ventilation openings shall comply with Section R408.1.

AF103.5.2 Soil-gas-retarder. The soil in crawl spaces shall be covered with a continuous layer of minimum 6-mil (0.15 mm) polyethylene soil-gas-retarder. The ground cover shall be lapped not less than 12 inches (305 mm) at joints and shall extend to all foundation walls enclosing the *crawl space* area.

AF103.5.3 Vent pipe. A plumbing tee or other *approved* connection shall be inserted horizontally beneath the sheeting and connected to a 3- or 4-inch-diameter (76 or 102 mm) fitting with a vertical vent pipe installed through the sheeting. The vent pipe shall be extended up through the building floors, 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, and 10 feet (3048 mm) from any window or other opening in adjoining or adjacent buildings.

AF103.6 Passive subslab depressurization system. In *basement* or slab-on-grade buildings, the following components of a passive subslab depressurization system shall be installed during construction.

AF103.6.1 Vent pipe. A minimum 3-inch-diameter (76 mm) ABS, PVC or equivalent gastight pipe shall be embedded vertically into the subslab aggregate or other permeable material before the slab is cast. A "T" fitting or equivalent method shall be used to ensure that the pipe opening remains within the subslab permeable material. Alternatively, the 3-inch (76 mm) pipe shall be inserted directly into an interior perimeter drain tile loop or through a sealed sump cover where the sump is exposed to the subslab aggregate or connected to it through a drainage system.

The pipe shall be extended up through the building floors, and terminate not less than 12 inches (305 mm) above the surface of 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, and 10 feet (3048 mm) from any window or other opening in adjoining or adjacent buildings.

AF103.6.2 Multiple vent pipes. In buildings where interior footings or other barriers separate the subslab aggregate or other gas-permeable material, each area shall be fitted with an individual vent pipe. Vent pipes shall connect to a single vent that terminates above the roof or each individual vent pipe shall terminate separately above the roof.

AF103.7 Vent pipe drainage. Components of the radon vent pipe system shall be installed to provide positive drainage to the ground beneath the slab or soil-gas-retarder.

AF103.8 Vent pipe accessibility. Radon vent pipes shall be accessible for future fan installation through an attic or other area outside the *habitable space*.

Exception: The radon vent pipe need not be accessible in an attic space where an *approved* roof-top electrical supply is provided for future use.

AF103.9 Vent pipe identification. Exposed and visible interior radon vent pipes shall be identified with not less than one *label* on each floor and in accessible *attics*. The *label* shall read: "Radon Reduction System."

AF103.10 Combination foundations. Combination *basement*/*crawl space* or slab-on-grade/*crawl space* foundations shall have separate radon vent pipes installed in each type of foundation area. Each radon vent pipe shall terminate above the roof or shall be connected to a single vent that terminates above the roof.

AF103.11 Building depressurization. Joints in air ducts and plenums in unconditioned spaces shall meet the requirements of Section M1601. Thermal envelope air infiltration requirements shall comply with the energy conservation provisions in Chapter 11. Fireblocking shall meet the requirements contained in Section R302.11.

AF103.12 Power source. To provide for future installation of an active submembrane or subslab depressurization system, an electrical circuit terminated in an *approved* box shall be installed during construction in the attic or other anticipated location of vent pipe fans. An electrical supply shall be accessible in anticipated locations of system failure alarms.

[S] ((~~SECTION AF104~~
~~TESTING~~

~~**AF104.1 Testing.** Where radon-resistant construction is required, radon testing shall be as specified in Items 1 through 11:~~

1. ~~Testing shall be performed after the dwelling passes its air tightness test.~~
2. ~~Testing shall be performed after the radon control system and HVAC installations are complete. The HVAC system shall be operating during the test. Where the radon system has an installed fan, the dwelling shall be tested with the radon fan operating.~~
3. ~~Testing shall be performed at the lowest occupied floor level, whether or not that space is finished. Spaces that are physically separated and served by different HVAC systems shall be tested separately.~~
4. ~~Testing shall not be performed in a closet, hallway, *stairway*, laundry room, furnace room, bathroom or kitchen.~~
5. ~~Testing shall be performed with a commercially available radon test kit or testing shall be performed by an *approved* third party with a continuous radon monitor. Testing with test kits shall include two tests, and the test results shall be averaged. Testing shall be in accordance with this section and the testing laboratory kit manufacturer's instructions.~~
6. ~~Testing shall be performed with the windows closed. Testing shall be performed with the exterior doors closed, except when being used for entrance or exit. Windows and doors shall be closed for not fewer than 12 hours prior to the testing.~~
7. ~~Testing shall be performed by the builder, a *registered design professional* or an *approved* third party.~~
8. ~~Testing shall be conducted over a period of not less than 48 hours or not less that the period specified by the testing device manufacturer, whichever is longer.~~

~~9. Written radon test results shall be provided by the test lab or testing party. The final written test report with results less than 4 picocuries per liter (pCi/L) shall be provided to the code official.~~

~~10. Where the radon test result is 4 pCi/L or greater, the fan for the radon vent pipe shall be installed as specified in Sections AF103.9 and AF103.12.~~

~~11. Where the radon test result is 4 pCi/L or greater, the system shall be modified and retested until the test result is less than 4 pCi/L.~~

~~**Exception:** Testing is not required where the occupied space is located above an unenclosed open space.~~))