GRINNELL PLANNING COMMITTEE MEETING
MONDAY, MARCH 2, 2020 AT 6:15 P.M.
IN THE COUNCIL CHAMBERS ON THE 2ND FLOOR OF THE CITY HALL

TENTATIVE AGENDA

ROLL CALL: Bly (Chair), Davis, Gaard.

PERFECTING AND APPROVAL OF AGENDA

COMMITTEE BUSINESS:

1. Marty Wymore, Region 6 Resource Partners & Peoplerides, will present information on Peoplerides.

2. Consider request from Les Ollinger to widen driveway, 801 Penrose St.

3. Discuss radon mitigation.

INQUIRIES:

ADJOURNMENT:

From: Marty Wymore <mwymore@region6resources.org>
Sent: Thursday, February 06, 2020 2:17 PM
To: Russ Behrens <RBehrens@grinnelliowa.gov>
Subject: Peoplerides Rates

Russ,

Due to a period of operating losses and inability to find/retain lower wage drivers we are needing to change our Peoplerides rate within the City of Grinnell. We appreciate the long term support that we have received from the city! If these changes are not acceptable we will need to jointly discuss some other options to increase revenues, or possibly reduce or shift driver hours. Driver hours is a very complicated piece, due to the region wide labor shortage.

The changes that we are proposing for 4/1/20 include the following:

- Our current passenger rate is $2.50/ride or $5.00 round trip. We are proposing to raise that in-town rate to $3/ride or $6 round trip.
- The city rate has remained the same at $2.25/ride for many years. Our new rate proposal to the city is $4/ride. There are no other sources of subsidy for our rides within Grinnell.

The rate on the Grinnell service between passenger rate and subsidy sources at $4/ride will equal what we are doing with other regional city services in Marshalltown. We no longer have much direct service in Iowa Falls and basically no city service in Tama-Toledo. The Iowa Falls service that we have (under 1,000 rides) is integrated with our county disabled operations.

Note the following data about the Grinnell service –

- Last year we provided 3,858 rides in Grinnell (not including the Medicaid rides). The Medicaid rides, for the non-CIRSI and non-Genesis, programs were likely a few hundred. In short ridership is fairly consistent with around 4,000 rides.
- For the last 6-7 years we have slowly had to move away from part time drivers to full time drivers. This has had a large impact on the historical Grinnell operation. Prior to this change we largely had lower wage part time drivers. Now to properly staff all the Poweshiek-Grinnell services we have 3 full time drivers. The rural operation hours are about 2,080 hours.
- $178,000 annual cost for 4,160 hours – town hours.
- Service is very integrated with the County disabled route into the CIRSI program. This route is about 1,300 hours per year. The Genesis program in Grinnell is no longer operational.
- We currently offer a daily shuttle from Grinnell College to Wal-Mart for $1.50/ride. That rate will be increasing also.
- $74,000 of Region 6 direct financial support for the service – this is 16% of our state and federal transit revenue.
- $2,400 of passenger fares.
- Other services (Medicaid and some others) cannot cover the $97,000 of other costs, like in some of the past good years.
- Regionally we can no longer find full or part time CDL drivers at $12.50/hour. That rate will be likely increasing to $15.31/hour on or around 4/1/20.

If you want to further chat about this let me know. I can easily come to Grinnell to discuss. I will be in the area on 2/13/20 and could meet in the 2-4 pm range, if that works.

Have a good day!

Marty Wymore, AICP
Director

Region 6 Resource Partners & Peoplerides
903 E Main Street
Marshalltown, IA 50158
641-752-0717 phone
641-751-3679 cell
mwymore@region6resources.org
*****Please update your contact information to reflect our new e-mail address*****

REGION 6 RESOURCE PARTNERS

COMMUNITY SOLUTIONS **START HERE**

801 Penrose Street – Driveway Proposal

City of Grinnell, Iowa

FROM: Tyler Avis
Director of Building and Planning

DATE: February 26, 2020

TO: Honorable Dan Agnew
Honorable Council Persons
Mr. Russell Behrens, City Manager
Ms. Ann Wingerter, City Clerk

Subject: Explanation of a request for a variance to the driveway regulations.

Les Ollinger, owner of 801 Penrose St, requests City Council approval to widen his driveway to better accommodate vehicles entering and leaving the recently completed garage addition on the west side of the residence. Chapter 140 of Grinnell City Code outlines regulations for Driveways and Culverts, and explicitly states that driveways shall be no wider than 35 feet at the curb, and 25 feet at the property line, also needing a 5 foot flare on each side at the curb. The proposed driveway would be 32 feet at the curb and near 50 feet wide at the property line. It should be noted that the 80 foot right of way of 3rd Avenue contributes to the situation present. City Council is authorized to modify application of the regulations to such an extent that the owner will be allowed such reasonable use of existing property as will be consistent with the safety of motorists and pedestrians and the use by the public of the affected streets.

Respectfully Submitted,

Tyler Avis
Director of Building and Planning

CITY OF GRINNELL
520 Fourth Avenue
Grinnell, Iowa
50112-1947
Phone: 641-236-2600
Fax: 641-236-2626

MAYOR

DAN F. AGNEW
dagnew@grinnelliowa.gov

CITY COUNCIL

BYRON HUEFTLE-WORLEY
At-Large

JIM WHITE
At-Large

JULIE DAVIS
1st Ward

JO WRAY
2nd Ward

RACHEL BLY
3rd Ward

LAMOYNE GAARD
4th Ward

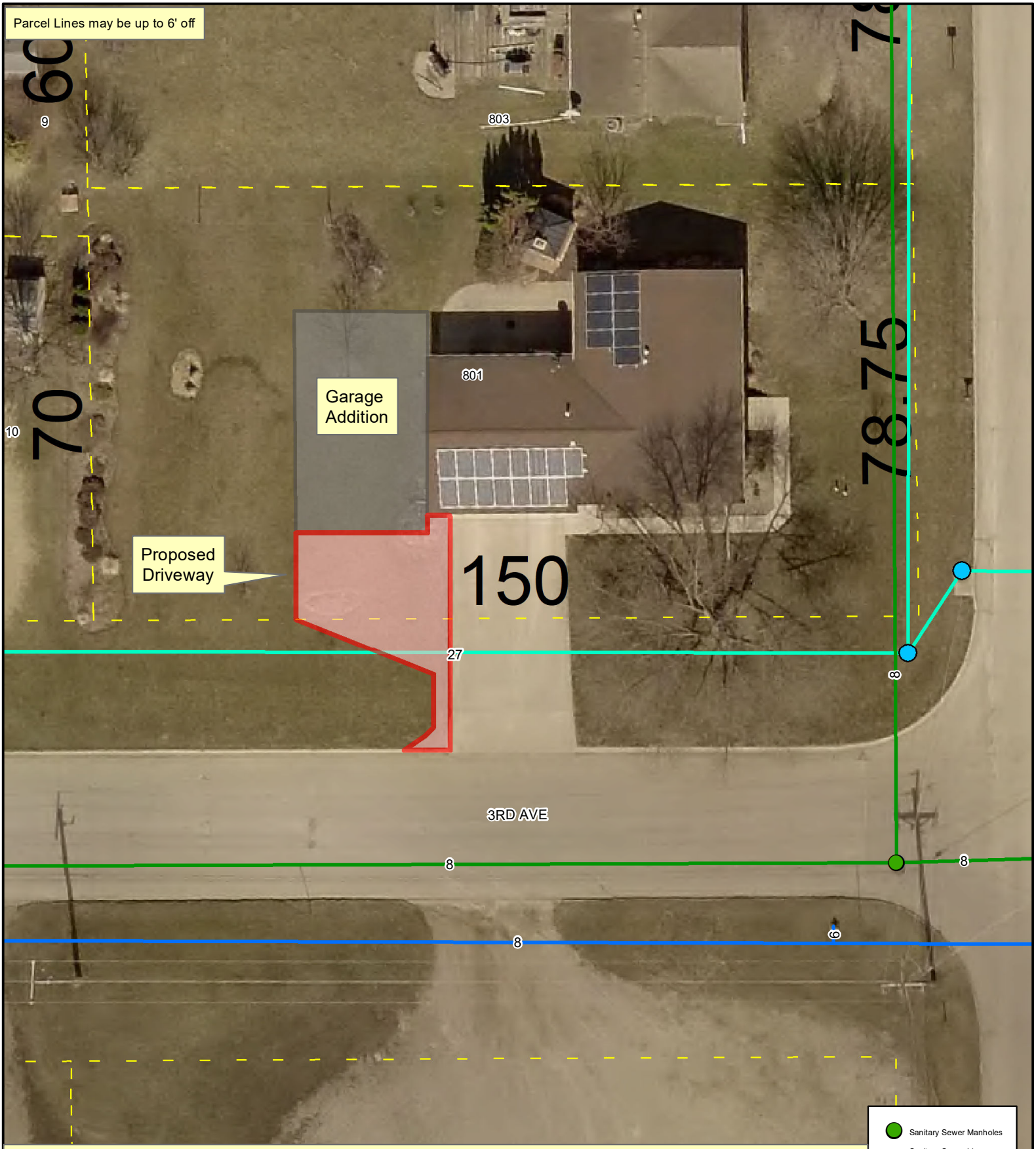
ADMINISTRATION

RUSSELL L. BEHRENS
City Manager
RBehrens@grinnelliowa.gov

ANNMARIE WINGERTER
City Clerk/Finance Director
AWingerter@grinnelliowa.gov

WILLIAM J. SUEPPEL
City Attorney
billjs@meardonlaw.com

Visit us at
www.grinnelliowa.gov



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February 19, 2020

Dan Agnew
Mayor
City of Grinnell
520 4th Avenue
Grinnell, IA 50112

Dear Mayor Agnew,

I, Andrew Stith, a resident of Grinnell would like express my interest in the improvement of radon awareness on our rental properties in the community.

My wife and I have been renting a home for three years and have recently become aware of the harm that elevated levels of radon can have on a person. Because of this, we decided to test our property for radon this winter. After completing two tests, on the home's first floor, we found there to be elevated levels of radon in which the Environmental Protection Agency recommends action be taken. Upon informing our landlord, no steps have been taken to remedy the situation.

Through research I found that Iowa City recently adopted an ordinance requiring all single family detached structures and duplex rentals to be tested prior to rental permit issuance. If radon exceeds certain levels, a radon mitigation system will be required. I would like to ask City Council to consider implementing radon testing for rental properties and taking action when radon levels exceed Environmental Protection Agency recommendations.

I brought my concerns to Russ Behrens, in which we discussed other potential ways the City might be able to help raise awareness while also potentially providing some assistance. An option we discussed might be a grant program to provide awareness and assistance for landlords helping them fund radon mitigation systems in their properties. Radon mitigation systems costs typically vary from $800 to $1500 with an average of $1200. With a grant from the City, landlords may be incentivized to install these systems, furthering the safety for tenants.

Without responsibilities for landlords to even disclose tests for heightened radon levels, I find it difficult to ensure citizens have a safe place to live in Grinnell. Given that renters account for more than 30% of the Grinnell community, I consider this a public health issue for many residents.

I would be happy to speak with you more about this issue and look forward to hearing your response.

Sincerely,

Andrew Stith

APPENDIX F

PASSIVE RADON GAS CONTROLS

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

SECTION AF101
SCOPE

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

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 and Table AF101(1).

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.

ENCLOSED CRAWL SPACE. A crawl space that is enclosed with foundation walls inclusive of any windows, doors, access openings and required vents.

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.

RADON GAS. A naturally occurring, chemically inert, radioactive gas.

SOIL-GAS-RETARDER. A continuous membrane of 6-mil (0.15 mm) polyethylene used to retard the flow of soil gases into a *dwelling*.

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

SUBSLAB DEPRESSURIZATION SYSTEM (Passive). A system designed to achieve lower subslab air pressure relative to indoor air pressure by use of a vent pipe drawing air from beneath concrete floor slabs or other floor assemblies that are in contact with the ground.

VENT PIPE. Not less than a 3-inch-diameter (76 mm) ABS or PVC gas-tight pipe extending from the gas permeable layer through the roof.

SECTION AF103
PASSIVE RADON-RESISTANT SYSTEM REQUIREMENTS

AF103.1 General. The following components of a passive submembrane or subslab depressurization system shall be installed during construction.

AF103.2 Entry routes. Potential radon entry routes shall be closed in accordance with Sections AF103.2.1 through AF103.2.8.

AF103.2.1 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 expanding foam applied in accordance with the manufacturer's instructions.

AF103.2.2 Sumps. Sumps open to soil or serving as the termination point for subslab or exterior drain tile loops shall be covered with a gasketed or 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.

AF103.2.3 Foundation walls. Hollow block masonry foundation walls shall be constructed with a continuous course of *solid masonry*, one course of masonry grouted solid, or a solid concrete beam at or above *grade*. Where a brick veneer or other masonry ledge is installed, the course immediately below that ledge shall be *solid masonry*, one course of masonry grouted solid, or a solid concrete beam. Joints, cracks or other openings around penetrations of both exterior and interior surfaces of foundation walls below *grade* shall be filled with polyurethane caulk.

AF103.2.4 Dampproofing. The exterior surfaces of foundation walls below *grade* shall be dampproofed in accordance with Section R406.

AF103.2.5 Air-conditioning systems. Entry points, joints or other openings into air-conditioning systems in enclosed crawl spaces shall be sealed.

Exception: Systems with gasketed seams or that are otherwise sealed by the manufacturer.

AF103.2.6 Ducts. Ductwork passing through or beneath a slab within a *dwelling* shall be of seamless material unless the air-conditioning system is designed to maintain continuous positive pressure within such ducting. Joints in such ductwork shall be sealed.

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

AF103.2.7 Crawl space access. Access doors and other openings or penetrations between *basements* and adjoining crawl spaces shall be closed, gasketed or sealed.

AF103.3 Basements or enclosed crawl spaces with soil floors. In *dwellings* with *basements* or enclosed crawl spaces with soil floors, the following components of a passive submembrane depressurization system shall be installed during construction.

Exception: *Basements* or enclosed crawl spaces that are provided with a continuously operated mechanical exhaust system in accordance with Section R408.3.

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.

AF103.3.2 "T" fitting and vent pipe. A 3- or 4-inch "T" fitting shall be inserted beneath the soil-gas-retarder and be connected to a 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.

AF103.4 Basements or enclosed crawl spaces with concrete floors or other floor systems and slab-on-grade dwellings. The following components of a passive subslab depressurization system shall be installed during construction in slab-on-*grade dwellings* or in *dwellings* with *basements* or crawl spaces with concrete or other floor systems.

AF103.4.1 Sub-slab preparation. A layer of gas-permeable material shall be placed under concrete slabs and other floor systems that directly contact the ground and are within the walls of the dwelling.

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). 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.

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 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.

AF103.5 Drain tile and sump used for depressurization. As an alternative to inserting a vent pipe into a "T" fitting, a vent pipe shall be permitted to be inserted directly into an interior perimeter drain tile loop or through a sump cover where the drain tile or sump is exposed to the gas-permeable layer.

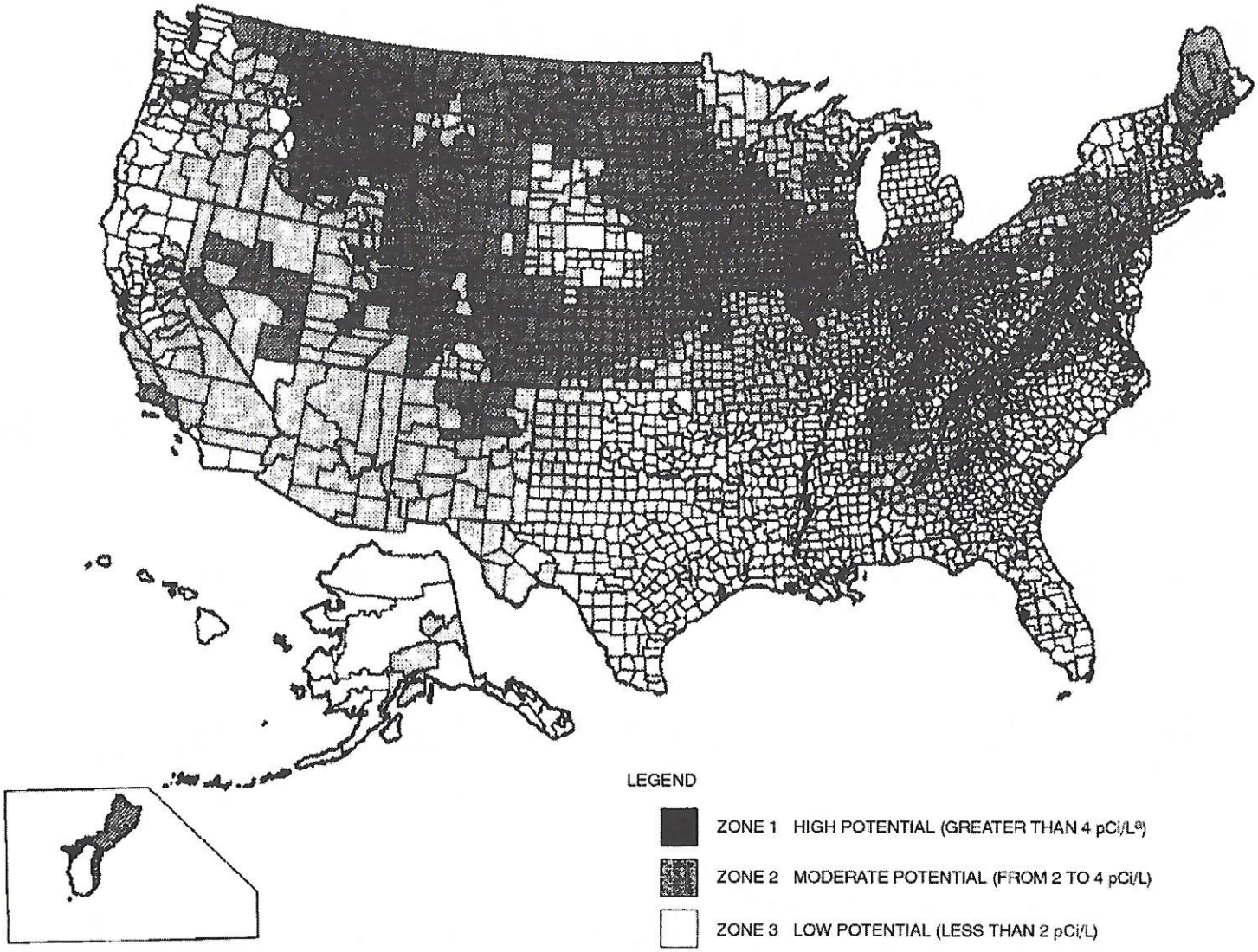
AF103.6 Multiple vent pipes. In *dwellings* where interior footings or other barriers separate the gas-permeable layer, each area shall be fitted with an individual vent pipe. Vent pipes shall connect to a single vent that terminates above the roof or each individual vent pipe shall terminate separately above the roof.

AF103.7 Combination foundations. Where *basement* or crawl space floors are on different levels, each level shall have a separate vent pipe. Multiple vent pipes shall be permitted to be connected to a single vent pipe that terminates above the roof. **

AF103.8 Vent pipe drainage. Components of the radon vent pipe system shall be installed to provide positive drainage to the ground beneath the soil-gas-retarder.

AF103.9 Vent pipe identification. Exposed and visible interior 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 Power source and access for future radon fan. To provide for future installation of a radon fan, an electrical circuit terminated in an *approved* box shall be installed during construction in the anticipated location of the radon fans. An accessible clear space 24 inches (610 mm) in diameter by 3 feet (914 mm) in height adjacent to the vent pipe shall be provided at the anticipated location of a future radon fan.



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

The EPA and the U.S. 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 lists the Zone 1 counties illustrated on the map. More detailed information can be obtained from state-specific booklets (EPA-402-R-93-021 through 070) available through State Radon Offices or from EPA Regional Offices.

FIGURE AF101
EPA MAP OF RADON ZONES

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

ALABAMA
Calhoun
Clay
Cleburne
Colbert
Coosa
Franklin
Jackson
Lauderdale
Lawrence
Limestone
Madison
Morgan
Talladega

CALIFORNIA
Santa Barbara
Ventura

COLORADO
Adams
Arapahoe
Baca
Bent
Boulder
Chaffee
Cheyenne
Clear Creek
Crowley
Custer
Delta
Denver
Dolores
Douglas
El Paso
Elbert
Fremont
Garfield
Gilpin
Grand
Gunnison
Huerfano
Jackson
Jefferson
Kiowa
Kit Carson
Lake
Larimer
Las Animas
Lincoln
Logan
Mesa
Moffat
Montezuma
Montrose
Morgan
Otero
Ouray
Park
Phillips
Pitkin
Prowers
Pueblo
Rio Blanco
San Miguel
Summit
Teller
Washington
Weld
Yuma

CONNECTICUT
Fairfield
Middlesex
New Haven
New London

GEORGIA
Cobb
De Kalb
Fulton
Gwinnett

IDAHO
Benewah
Blaine
Boise
Bonner
Boundary
Butte
Camas
Clark
Clearwater
Custer
Elmore
Fremont
Gooding
Idaho
Kootenai
Latah
Lemhi
Shoshone
Valley

ILLINOIS
Adams
Boone
Brown
Bureau
Calhoun
Carroll
Cass
Champaign
Coles
De Kalb
De Witt
Douglas
Edgar
Ford
Fulton
Greene
Grundy
Hancock
Henderson
Henry
Iroquois
Jersey
Jo Daviess
Kane
Kendall
Knox
La Salle
Lee
Livingston
Logan
Macon
Marshall
Mason
McDonough
McLean
Menard
Mercer
Morgan
Moultrie
Ogle
Peoria
Piatt
Pike
Putnam
Rock Island
Sangamon
Schuyler
Scott
Stark
Stephenson
Tazewell
Vermilion
Warren
Whiteside
Winnebago
Woodford

INDIANA
Adams
Allen
Bartholomew
Benton
Blackford
Boone
Carroll
Cass
Clark
Clinton
De Kalb
Decatur
Delaware
Elkhart
Fayette
Fountain
Fulton
Grant
Hamilton
Hancock
Harrison
Hendricks
Henry
Howard
Huntington
Jay
Jennings
Johnson
Kosciusko
LaGrange
Lawrence
Madison
Marion
Marshall
Miami
Monroe
Montgomery
Noble
Orange
Putnam
Randolph
Rush
Scott
Shelby
St. Joseph
Steuben
Tippecanoe
Tipton
Union
Vermillion
Wabash
Warren
Washington
Wayne
Wells
White
Whitley

IOWA
All Counties

KANSAS
Atchison
Barton
Brown
Cheyenne
Clay
Cloud
Decatur
Dickinson
Douglas
Ellis
Ellsworth
Finney
Ford
Geary
Gove
Graham
Grant
Gray
Greeley
Hamilton
Haskell
Hodgeman
Jackson
Jewell
Johnson
Kearny
Kingman
Kiowa
Lane
Leavenworth
Lincoln
Logan
Marion
Marshall
McPherson
Meade
Mitchell
Nemaha
Ness
Norton
Osborne
Ottawa
Pawnee
Phillips
Pottawatomie
Pratt
Rawlins
Republic
Rice
Riley
Rooks
Rush
Saline
Scott
Sheridan
Sherman
Smith
Stanton
Thomas
Trego
Wallace
Washington
Wichita
Wyandotte

KENTUCKY
Adair
Allen
Barren
Bourbon
Boyle
Bullitt
Casey
Clark
Cumberland
Fayette
Franklin
Green
Harrison
Hart
Jefferson
Jessamine
Lincoln
Marion
Mercer
Metcalfe
Monroe
Nelson
Pendleton
Pulaski
Robertson
Russell
Scott
Taylor
Warren
Woodford

MAINE
Androscoggin
Aroostook
Cumberland
Franklin
Hancock
Kennebec
Lincoln
Oxford
Penobscot
Piscataquis
Somerset
York

MARYLAND
Baltimore
Calvert
Carroll
Frederick
Harford
Howard
Montgomery
Washington

MASS.
Essex
Middlesex
Worcester

MICHIGAN
Branch
Calhoun
Cass
Hillsdale
Jackson
Kalamazoo
Lenawee
St. Joseph
Washtenaw

MINNESOTA
Becker
Big Stone
Blue Earth
Brown
Carver
Chippewa
Clay
Cottonwood
Dakota
Dodge
Douglas
Faribault
Fillmore
Freeborn
Goodhue
Grant
Hennepin
Houston
Hubbard
Jackson
Kanabec
Kandiyohi
Kittson
Lac Qui Parle
Le Sueur
Lincoln
Lyon
Mahnomen
Marshall
Martin
McLeod
Meeker
Mower
Murray
Nicollet
Nobles
Norman
Olmsted
Otter Tail
Pennington
Pipestone
Polk
Pope
Ramsey
Red Lake
Redwood
Renville
Rice
Rock
Roseau
Scott
Sherburne
Sibley
Stearns
Steele
Stevens
Swift
Todd
Traverse
Wabasha
Wadena
Waseca
Washington
Watonwan
Wilkin
Winona
Wright
Yellow Medicine

MISSOURI
Andrew
Atchison
Buchanan
Cass
Clay
Clinton
Holt
Iron
Jackson
Nodaway
Platte

MONTANA
Beaverhead
Big Horn
Blaine
Broadwater
Carbon
Carter
Cascade
Chouteau
Custer
Daniels
Dawson
Deer Lodge
Fallon
Fergus
Flathead
Gallatin
Garfield
Glacier
Granite
Hill
Jefferson
Judith Basin
Lake
Lewis and Clark
Madison
McCone
Meagher
Missoula
Park
Phillips
Pondera
Powder River
Powell
Prairie
Ravalli
Richland
Roosevelt
Rosebud
Sanders
Sheridan
Silver Bow
Stillwater
Teton
Toole
Valley
Wibaux
Yellowstone

(continued)

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

NEBRASKA
Adams
Boone
Boyd
Burt
Butler
Cass
Cedar
Clay
Colfax
Cuming
Dakota
Dixon
Dodge
Douglas
Fillmore
Franklin
Frontier
Furnas
Gage
Gosper
Greeley
Hamilton
Harlan
Hayes
Hitchcock
Hurston
Jefferson
Johnson
Kearney
Knox
Lancaster
Madison
Nance
Nemaha
Nuckolls
Otoe
Pawnee
Phelps
Pierce
Platte
Polk
Red Willow
Richardson
Saline
Sarpy
Saunders
Seward
Stanton
Thayer
Washington
Wayne
Webster
York

NEVADA
Carson City
Douglas
Eureka
Lander
Lincoln
Lyon
Mineral
Pershing
White Pine

NEW HAMPSHIRE
Carroll

NEW JERSEY
Hunterdon
Mercer
Monmouth
Morris
Somerset
Sussex
Warren

NEW MEXICO
Bernalillo
Colfax
Mora
Rio Arriba
San Miguel
Santa Fe
Taos

NEW YORK
Albany
Allegany
Broome
Cattaraugus
Cayuga
Chautauqua
Chemung
Chenango
Columbia
Cortland
Delaware
Dutchess
Erie
Genesee
Greene
Livingston
Madison
Onondaga
Ontario
Orange
Otsego
Putnam
Rensselaer
Schoharie
Schuyler
Seneca
Steuben
Sullivan
Tioga
Tompkins
Ulster
Washington
Wyoming
Yates

N. CAROLINA
Alleghany
Buncombe
Cherokee
Henderson
Mitchell
Rockingham
Transylvania
Watauga

N. DAKOTA
All Counties

OHIO
Adams
Allen
Ashland
Auglaize
Belmont
Butler
Carroll
Champaign
Clark
Clinton
Columbiana
Coshocton
Crawford
Darke
Delaware
Fairfield
Fayette
Franklin
Greene
Guernsey
Hamilton
Hancock
Hardin
Harrison
Holmes
Huron
Jefferson
Knox
Licking
Logan
Madison
Marion
Mercer
Miami
Montgomery
Morrow
Muskingum
Perry
Pickaway
Pike
Preble
Richland
Ross
Seneca
Shelby
Stark
Summit
Tuscarawas
Union
Van Wert
Warren
Wayne
Wyandot

PENNSYLVANIA
Adams
Allegheny
Armstrong
Beaver
Bedford
Berks
Blair
Bradford
Bucks
Butler
Cameron
Carbon
Centre
Chester
Clarion
Clearfield
Clinton
Columbia
Cumberland
Dauphin
Delaware
Franklin
Fulton
Huntingdon
Indiana
Juniata
Lackawanna
Lancaster
Lebanon
Lehigh
Luzerne
Lycoming
Mifflin
Monroe
Montgomery
Montour
Northampton
Northumberland
Perry
Schuylkill
Snyder
Sullivan
Susquehanna
Tioga
Union
Venango
Westmoreland
Wyoming
York

RHODE ISLAND
Kent
Washington

S. CAROLINA
Greenville

S. DAKOTA
Aurora
Beadle
Bon Homme
Brookings
Brown
Brule
Buffalo
Campbell
Charles Mix
Clark
Clay
Codington
Corson
Davison
Day
Deuel
Douglas
Edmunds
Faulk
Grant
Hamlin
Hand
Hanson
Hughes
Hutchinson
Hyde
Jerauld
Kingsbury
Lake
Lincoln
Lyman
Marshall
McCook
McPherson
Miner
Minnehaha
Moody
Perkins
Potter
Roberts
Sanborn
Spink
Stanley
Sully
Turner
Union
Walworth
Yankton

TENNESEE
Anderson
Bedford
Blount
Bradley
Claiborne
Davidson
Giles
Grainger
Greene
Hamblen
Hancock
Hawkins
Hickman
Humphreys
Jackson
Jefferson
Knox
Lawrence
Lewis
Lincoln
Loudon
Marshall
Maury
McMinn
Meigs
Monroe
Moore
Perry
Roane
Rutherford
Smith
Sullivan
Trousdale
Union
Washington
Wayne
Williamson
Wilson

UTAH
Carbon
Duchesne
Grand
Piute
Sanpete
Sevier
Uintah

VIRGINIA
Alleghany
Amelia
Appomattox
Augusta
Bath
Bland
Botetourt
Bristol
Brunswick
Buckingham
Buena Vista
Campbell
Chesterfield
Clarke
Clifton Forge
Covington
Craig
Cumberland
Danville
Dinwiddie
Fairfax
Falls Church
Fluvanna
Frederick
Fredericksburg
Giles
Goochland
Harrisonburg
Henry
Highland
Lee
Lexington
Louisa
Martinsville
Montgomery
Nottoway
Orange
Page
Patrick
Pittsylvania
Powhatan
Pulaski
Radford
Roanoke
Rockbridge
Rockingham
Russell
Salem
Scott
Shenandoah
Smyth
Spotsylvania
Stafford
Staunton
Tazewell
Warren
Washington
Waynesboro
Winchester
Wythe

WASHINGTON
Clark
Ferry
Okanogan
Pend Oreille
Skamania
Spokane
Stevens

W. VIRGINIA
Berkeley
Brooke
Grant
Greenbrier
Hampshire
Hancock
Hardy
Jefferson
Marshall
Mercer
Mineral
Monongalia
Monroe
Morgan
Ohio
Pendleton
Pocahontas
Preston
Summers
Wetzel

WISCONSIN
Buffalo
Crawford
Dane
Dodge
Door
Fond du Lac
Grant
Green
Green Lake
Iowa
Jefferson
Lafayette
Langlade
Marathon
Menominee
Pepin
Pierce
Portage
Richland
Rock
Shawano
St. Croix
Vernon
Walworth
Washington
Waukesha
Waupaca
Wood

WYOMING
Albany
Big Horn
Campbell
Carbon
Converse
Crook
Fremont
Goshen
Hot Springs
Johnson
Laramie
Lincoln
Natrona
Niobrara
Park
Sheridan
Sublette
Sweetwater
Teton
Uinta
Washakie

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.

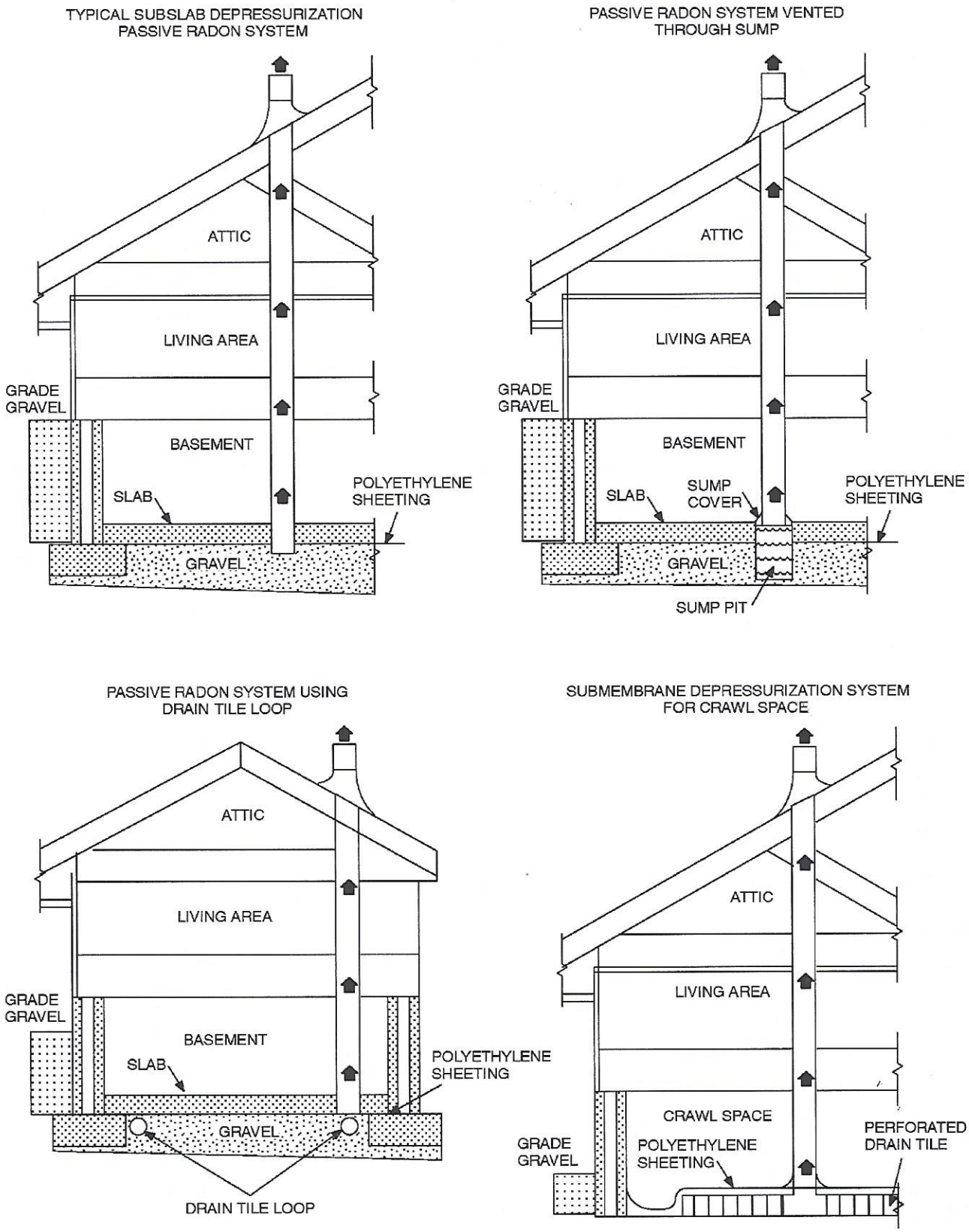


FIGURE AF102
RADON-RESISTANT CONSTRUCTION DETAILS FOR FOUR FOUNDATION TYPES