

US EPA ARCHIVE DOCUMENT



Hey, Mr. Builder!

Do I Have Something for You!

EPA's RRNC Web-based Resources

US EPA Region 3 Radon Stakeholders' Meeting
April 2014

Indoor Air Quality (IAQ)

- **RRNC Builders' Directory**

Two Tracks

- Info for Builders
- Info for Consumers

Market Catalyst – Info Clearinghouse

- Builders' Directory
- RRNC Code Directory
- Resources

www.epa.gov/radon/rrnc



Radon-Resistant New Construction (RRNC)

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- Fuad Reveiz, Member of the National Association of Home Builders

Indoor Air Quality (IAQ)

"... The good news is you can build your customers a safer, healthier, radon-resistant home. The techniques to prevent radon from entering a home are practical and straightforward for any builder. It's an inexpensive way to offer families a benefit that could reduce their risk of lung cancer. And it's a smart way to build trust between you and your customer."
Fuad Reveiz, Member of the National Association of Home Builders

BUILDERS AND CONTRACTORS: Learn why building radon-resistant is important; get listed in the Builder Directory



[Learn the basics](#) about why you should build homes using radon-resistant new construction techniques.

[Review the techniques](#) - learn five basic construction features of radon-resistant new construction.

[Get Listed in EPA's new Directory of Builders](#). The Directory allows homebuyers to find companies that are building new homes with radon-resistant new construction techniques.

INFORMATION FOR HOME BUYERS: Know what to ask for; find a builder who is using RRNC near you



[Get the basic information](#) about radon-resistant new construction.

Know what to ask for, learn about the benefits and features of radon-resistant new construction. [Review the Techniques](#)

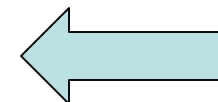
[Find a local or national builder who cares about your health in EPA's "Directory of Builders Using RRNC."](#)

Tools You Can Use

- [Building Codes: A Primer](#)
- [List of State Building Code Associations](#)
- [Listing of State and/or Local Jurisdictions that have RRNC Codes](#)
- [Builder/Contractor Resources](#)
- [Contact Your State Radon Coordinator, Find More State-by-State Resources](#)
- [Find RRNC Training](#)

All homes should be tested for radon. Learn about the health risks associated with radon.

Indoor Air Quality (IAQ)



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Builders and Contractors

Register for the Builder Directory

To complete the Builder Directory qualification process, you must complete all of the following:

- Answer the three questions (1-3) below
- Accept the five agreement statements (4-8) below
- Fill in your contact information (9-15) (Company Name, Name of Contact Person, Phone Number, and Contact E-mail are required)
- Read the General Terms and Disclaimers (16)
- Click the SIGN UP FOR THE DIRECTORY button (17) at the bottom of the page to submit your information

1. **Please select** which RRNC building code specification you use. To be included in the Builder's Directory, you must verify that you use the approved or recommended RRNC techniques. These techniques are included in ASTM E1465-08, International Residential Code (IRC) Appendix F, National Fire Protection Agency (NFPA 5000), or other (i.e. state code).

Please select one [Learn more about these RRNC techniques and features](#)

(If you use a building code other than a state code or one of the other three specified, please note that code here.)

2. **Verify that** you have built homes with RRNC techniques in the past 12 months. (If you have not, [we'd still like to work with you](#))
☐ I have built homes with RRNC within the past 12 months. (Note: To register for the RRNC Builder Directory, you need to have built at least one home using RRNC.)
3. **In which locations** does your company build new homes that incorporate RRNC? (Check up to six, if more than six locations, please select "Nationwide".)

☐ **Nationwide**

- | | | | | |
|-------------------------------------|-----------------------------------|--|---|------------------------------------|
| ☐ Alaska | ☐ Guam | ☐ Massachusetts | ☐ New Mexico | ☐ Tennessee |
| ☐ Alabama | ☐ Hawaii | ☐ Michigan | ☐ North Carolina | ☐ Texas |
| ☐ Arizona | ☐ Idaho | ☐ Minnesota | ☐ North Dakota | ☐ Utah |
| ☐ Arkansas | ☐ Illinois | ☐ Mississippi | ☐ Ohio | ☐ Vermont |
| ☐ California | ☐ Indiana | ☐ Missouri | ☐ Oklahoma | ☐ Virginia |

I don't qualify to be listed in the directory, what can I do?

We'd like to help your company qualify for the Directory of Builders Using Radon-Resistant New Construction Techniques. Let us work with your company to help you learn about and incorporate the basic RRNC techniques. EPA has many no-cost educational and technical resources that you can use. I'd like [more information on RRNC](#).

If you have questions or comments, please write to us at rrnc@epa.gov

Name	Contact	Notes
Wood Ridge Construction EXIT Disclaimer	(775) 250-1406	

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Colorado (CO)

Name	Contact	Notes
AirRadon EXIT Disclaimer	(303) 903-5077	
Coast to Coast Development EXIT Disclaimer	(303) 554-1567	
Colorado Signature Home, Inc. EXIT Disclaimer	(719) 676-4321	
Drennen Custom Contracting EXIT Disclaimer	(970) 482-9100	
ecoLogic EXIT Disclaimer	(720) 864-9400	
Natural Habitats, Inc. EXIT Disclaimer	(719) 539-4481	
Radon Home Measurement and Mitigation, Inc. EXIT Disclaimer	(970) 416-0196	

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Connecticut (CT)

Name	Contact	Notes
Coastal Point Construction, LLC EXIT Disclaimer	(203) 969-5224	
Timberdale Homes, LLC EXIT Disclaimer	(203) 912-3616	

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Georgia (GA)

Name	Contact	Notes
Davidson Signature Properties, Inc. EXIT Disclaimer	(770) 527-2444	
Maynard Construction	(770) 639-9491	



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Listing of States and Jurisdictions with RRNC Codes

Building codes are intended to protect the health, safety, and welfare of homeowners and residents by establishing minimum construction standards. [Read a Primer on Building Codes](#). Building codes also provide uniformity in the construction industry. Building codes embrace all aspects of construction. They set minimum standards for materials, structural elements, fire prevention, plumbing and sanitation, radon reduction, and the electrical and mechanical systems in a home. Building codes are adopted by a legislative body, then enacted to regulate building construction within a particular jurisdiction, such as a township, city, county, or state. Read how your municipality, county, or state can choose to adopt a code (or standard) that covers radon-resistant new construction, authored by one of several organizations. [Learn more](#)

To the best of EPA's knowledge, the list of jurisdictions by state represents the state and local codes that require the use of radon resistant construction techniques in new homes.

Note: These codes were in force in the jurisdictions named as of February, 2009. Links to state web sites, policies and codes are provided as were available at the time of the data collection, we intend to update this information periodically (last updated 11/23/09). If you have information about regulations in your state or your jurisdiction that relate to radon resistant new construction techniques that are not on this list, or if you believe that this list contains inaccurate information, please write to us at rrnc@epa.gov.

Tools You Can Use

[Building Codes: A Primer](#)
[List of State Building Code Associations](#)
[Listing of State and/or Local Jurisdictions that have RRNC Codes](#)
[Builder/Contractor Resources](#)
[Contact Your State Radon Coordinator, Find More State-by-State Resources](#)
[Find RRNC Training](#)

All homes should be tested for radon. [Learn about the health risks associated with radon.](#)

AK | [AL](#) | AR | AZ | [CA](#) | [CO](#) | CT | DC | DE | [FL](#) | GA | HI | [IA](#) | [ID](#) | [IL](#) | IN | [KS](#) | KY | LA | MA | [MD](#) | ME | [MI](#) | [MN](#) | MO | MS | [MT](#) | NC | ND | [NE](#) | NH | [NJ](#) | [NM](#) | [NY](#) | NV | [OH](#) | [OK](#) | OR | [PA](#) | PR | [RI](#) | [SC](#) | SD | [TN](#) | TX | UT | [VA](#) | VT | [WA](#) | [WI](#) | [WV](#) | [WY](#)

- **Twenty-six (26) States or Districts/Territories (3) DO NOT have statewide or local jurisdictions that have RRNC Codes.**

Alaska | Arizona | Arkansas | California | Connecticut | Delaware | District of Columbia | Georgia | Guam | Hawaii | Indiana | Kentucky | Louisiana | Massachusetts | Mississippi | Missouri | Nevada | New Hampshire | North Carolina | North Dakota | Oregon | Puerto Rico | South Dakota | Texas | Utah | Vermont

- **Four (4) states have statewide RRNC Codes that apply to certain designated jurisdictions.**

[Michigan](#) | [Minnesota](#) | [New Jersey](#) | [Washington](#)

- **Nineteen (19) states DO NOT have statewide RRNC codes, but DO have local jurisdictions that have RRNC codes.**

Radon-Resistant New Construction Home

Where You Live

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Review the Techniques

Get Listed in the Directory of Builders

Home Buyers: Learn the Basics

Know What to Ask For

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Colorado

State of Colorado	No statewide code for RRNC
City of Aspen	Adopted Appendix F 2003 IRC for all new residential construction and additions. www.aspenpitkin.com/depts/41/bldg_policies.cfm EXIT Disclaimer
City of Fort Collins	Adopted IRC Appendix F with local amendment in 2005 and extended RRNC requirements to multi-family dwellings in 2008. All new single and multi-family dwellings must include a passive system. See Fort Collins Municipal Code section 5-30 (102) for single-family and section 5-27 (45) for multi-family requirements. Commercial dwellings comply with 2006 International Building Code radon standards. www.colocode.com/ftcollins/municipal/chapter5.htm EXIT Disclaimer
City of Sterling Boulder County Logan County Archuleta County Huerfano County Las Animas County	These cities/counties require RRNC per Appendix F of the IRC

Florida

State of Florida	In July 1995, Florida adopted the "Florida Standard for Passive Radon-Resistant New Residential Building Construction" as mandated in Part X, Chapter 553, Florida Statutes. Standard is not mandatory and must be adopted by local jurisdictions, but can be exceeded as well; (1)Florida Statutes Ann. § 404.059 (2)Florida Statutes Ann. § 553.98 http://infosolutions.com/icce/gateway.dll/Florida EXIT Disclaimer Florida State RRNC Codes EXIT Disclaimer
Charlotte County	Appendix F of IRC adopted; Article IV, Building Regulations, Sec. 3-2-66
Seminole County	Radon-Resistant Building Standards adopted; Code of Ordinances, Part 4, Building Code; Ord. No. 73-10, § 50, 8-28-73; Ord. No. 73-10A, § 2(a), 11-19-73)
City of Dunnellon	Radon-resistant building mandatory for new construction; Division 1, Generally, Section 98-138; (Code 1985, § 22-48)
City of Hialeah Gardens	Enforcing the Radon Resistant New Construction annex in the Florida State Building Code
City of Jacksonville	Construction in passive radon area limits; Part I, Administration; Sec. 8-2; (Ord. No. 01-112, § 1, 7-10-01)
City of Lauderdale Lakes	Enforcing the Radon Resistant New Construction annex in the Florida State Building Code
City of Miami	Appendix F of IRC adopted; Article I, Administration; Sec 8-2
City of Pensacola	Radon resistant construction standards adopted; Code of Ordinances, Article I. In General, Sec. 14-1-3. (Ord. No. 19-02, § 1, 9-12-02)
City of Sanibel (Sanibel Island)	Radon-Resistant Building Standards adopted; Code of Ordinances, Article V. Standards, Sec. 14-211. (Code 1981, § 7-56; Ord. No. 97-18, §§ 1, 2, 11-4-1997; Ord. No. 00-17, § 1, 8-1-2000)



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Architectural Drawings

Passive Radon Control System for New Construction

For builders new to radon-resistant new construction techniques, EPA provides a set of Architectural Drawings for three foundation types.

- Available as a 522K [executable file](#) for use with CAD programs and,
- PDF Version ([PDF](#), 4 pp, 962KB)
- EPA 402-95-012, May 1995**



Checklist for Passive and Active Radon Systems

In cooperation with EPA's Indoor Environments Division, the American Society of Home Inspectors (ASHI) created the Radon Mitigation System Inspection Checklist. With just seven inspection elements, the *Checklist* takes under 15 minutes to complete. Builders can also use the checklist as a guide during the home building process. The checklist can be given to the home buyer to confirm the RRNC features installed.

- PDF Version ([PDF](#), 2 pp, 43KB)

ASHI recommends that home owners and home buyers test their current or prospective home for the presence of radon gas in indoor air.



Building Radon Out

For more information on building healthier, radon-resistant homes, download a copy of EPA's step-by-step guide Building Radon Out.

- PDF Version ([PDF](#), 184 pp, 5.5MB)
- EPA 402-K-01-002, April 2001**

Tools You Can Use

For more topics-based links, go to: [General Indoor Air Quality Links](#), [Radon Links](#), [Asthma Links](#), or [IAQ Tools for Schools Links](#), or [Mold-related Links](#), or [Smoke-free Homes / Environmental Tobacco Smoke Links](#)

U.S. EPA, Office of Air and Radiation, Radiation Protection Program's Radon Page

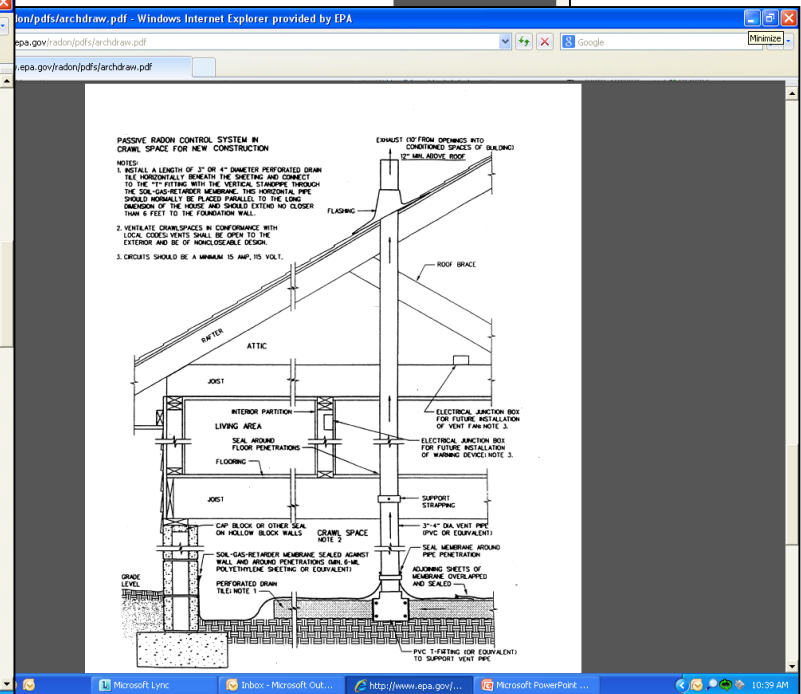
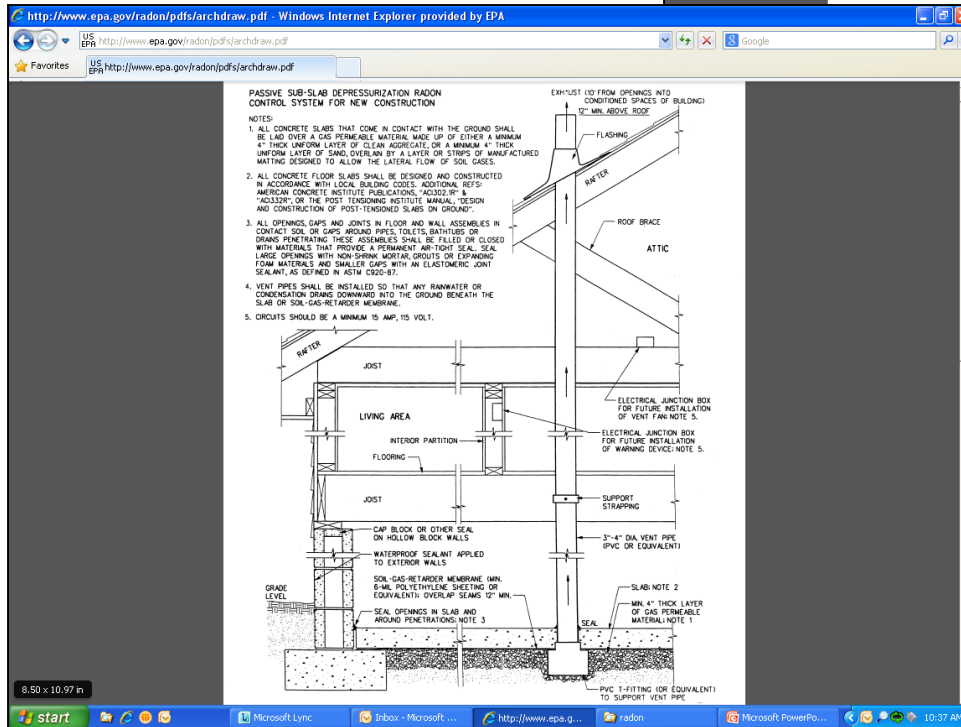
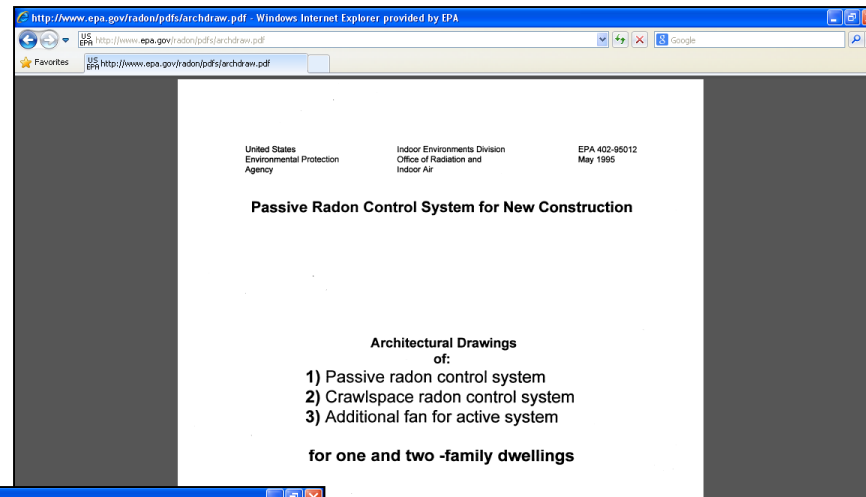
U.S. EPA National Air and Radiation Environmental Laboratory (NAREL), Montgomery, AL

U.S. EPA Radiation and Indoor Environments National Laboratory (R&IENL), Las Vegas, NV

Get the Adobe Acrobat Reader to view PDF files linked on this page. See EPA's PDF page to learn more. [\[En Espanol\]](#)

Indoor Air Quality (IAQ)

Architectural Drawings



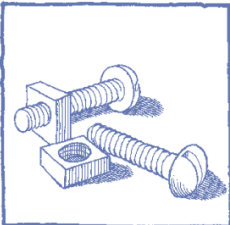
http://www.epa.gov/radon/pdfs/buildradonout.pdf - Windows Internet Explorer provided by EPA

US EPA http://www.epa.gov/radon/pdfs/buildradonout.pdf

★ Favorites US EPA http://www.epa.gov/radon/pdfs/buildradonout.pdf

Nuts and Bolts: Installation Guide

Installation is easy.



- As you'll see in this chapter, installing radon-resistant features is simple, because you use common building practices and materials.
- Proper installation of the radon-resistant features is very important. Improper installation could actually increase indoor radon levels.
- This section gives you step-by-step instructions - the nuts and bolts - on how to install radon-resistant features.
- The techniques in this document apply primarily to new one- and two-family dwellings and other residential buildings three stories or less in height.

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http://www.epa.gov/radon/pdfs/buildradonout.pdf - Windows Internet Explorer provided by EPA

US EPA http://www.epa.gov/radon/pdfs/buildradonout.pdf

★ Favorites US EPA http://www.epa.gov/radon/pdfs/buildradonout.pdf

United States Environmental Protection Agency
Office of Air and Radiation
EPA/402-K-01-002
April 2001

Building Radon Out

A Step-by-Step Guide On How To Build Radon-Resistant Homes

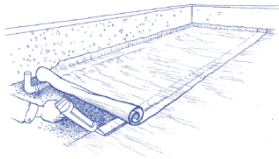
Step-by-Step Installation Guide
Crackplugs (Continued)

Optional Improvements: Sealing seams and edges of plastic sheeting

Sealing The Sheeting
Although not required in current radon resistant construction building codes, increasing the air tightness of the seams in the plastic sheeting may enhance the system's effectiveness and integrity. Sealing should be sufficiently durable to withstand anticipated traffic through the crackplugs. To effectively seal the plastic sheeting, use a 1/4 inch bead of caulk.

Sealing Seams
Seams between adjoining sheets of sheeting are usually sealed by applying a continuous bead of sealant between the sheets to the 12 inch strip where the sheets overlap. Firmly press the overlapping sheets together.

Type Of Caulk
Polyurethane caulk will provide some adhesion to the polyethylene sheeting. However acoustical sealant, butyl rubber, or butyl acrylic caulk from a more durable brand with the plastic. Field work suggests that other proprietary sealants are also effective, such as ProSeal by Gencal.



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Building Radon Out --
www.epa.gov/radon/pdfs/buildradonout.pdf

ASHI Checklist

www.epa.gov/radon/pdfs/ashicklst.pdf

ASHI RADON MITIGATION SYSTEM INSPECTION CHECKLIST

Client: _____ Date: _____

Address: _____

I. INSPECTION RESULTS (complete only one of A, B or C)

☐ **A. This home has an active radon mitigation system***

☐ **Yes.** The system appears to meet recommended design/installation and operating standards. Test the home to verify that the radon level is below 4 pCi/L.

☐ **No.** The system does not appear to meet recommended design/installation and operating standards. Test the home to verify that the radon level is below 4 pCi/L. Have a qualified radon mitigator verify the system is operating properly, and to repair or upgrade the system (as needed).

☐ **B. This home has a passive radon mitigation system***

☐ **Yes.** The system appears to meet recommended design/installation standards. Test the home to verify that the radon level is below 4 pCi/L. If the test result is 4 pCi/L or more, have a qualified radon mitigator install a vent fan and a warning device.

☐ **No.** The system does not appear to meet recommended design/installation standards. Have a qualified radon mitigator repair or upgrade the system (as needed). Test the home for radon and have a qualified radon mitigator activate the system if the test result is 4 pCi/L or more.

☐ **C. This home does not appear to have a radon mitigation system of any kind.**

Test the home's indoor air for radon. If the result is 4 pCi/L or more, have a qualified radon mitigator install a mitigation system that meets the state's or EPA's *Radon Mitigation Standards*.

III. INSPECTION ELEMENTS

(1) Vent pipe size/type and labeling

☐ Vent pipe/fittings appear to be PVC, ABS (or equivalent; down spout OK outside). ☐ Yes ☐ No ☐ N/A

☐ Vent pipe diameter is approximately 3-4". ☐ Yes ☐ No ☐ N/A

☐ Vent pipe labeled as "radon reduction system"; on each level where pipe is visible. ☐ Yes ☐ No ☐ N/A

(2) Vent pipe location and installation

☐ Vent pipe appears to extend at least 10-feet above the ground, and at the exhaust point to end above the eave/roof (12-24" is typical). ☐ Yes ☐ No ☐ N/A

☐ Vent pipe appears to end at least 10-feet from any opening into conditioned space (e.g., window or door), or at least 2-feet above any such opening. ☐ Yes ☐ No ☐ N/A

☐ Vent pipe appears to end at least 10-feet from any opening into conditioned space (e.g., window or door), in an adjacent or nearby building. ☐ Yes ☐ No ☐ N/A

☐ Fire collar/damper appears to be present if vent pipe penetrates fire rated wall. ☐ Yes ☐ No ☐ N/A

☐ A short rough-in vent pipe ending above the slab within the basement is capped. ☐ Yes ☐ No ☐ N/A

(This type of vent pipe is not an approved installation. As a safety precaution the vent pipe should be capped or sealed to prevent radon entry. These installations are incomplete and a consequence of non-conformance with recommended standards; see **About This Checklist** on page 2.)

(3) Vent pipe system integrity

☐ Pipe, fittings/connections appear to be air tight, properly joined/sealed. ☐ Yes ☐ No ☐ N/A

☐ There are no visible openings or breaks in the pipe system. ☐ Yes ☐ No ☐ N/A

☐ A pressure monitor is present and operating, and is accessible. ☐ Yes ☐ No ☐ N/A

(In active systems only: a non-electric instrument, e.g., U-Tube manometer, cylinder, or gauge; or an audible instrument.)

(4) Vertical vent pipe penetration(s) (to subsoil beneath the basement floor or slab)

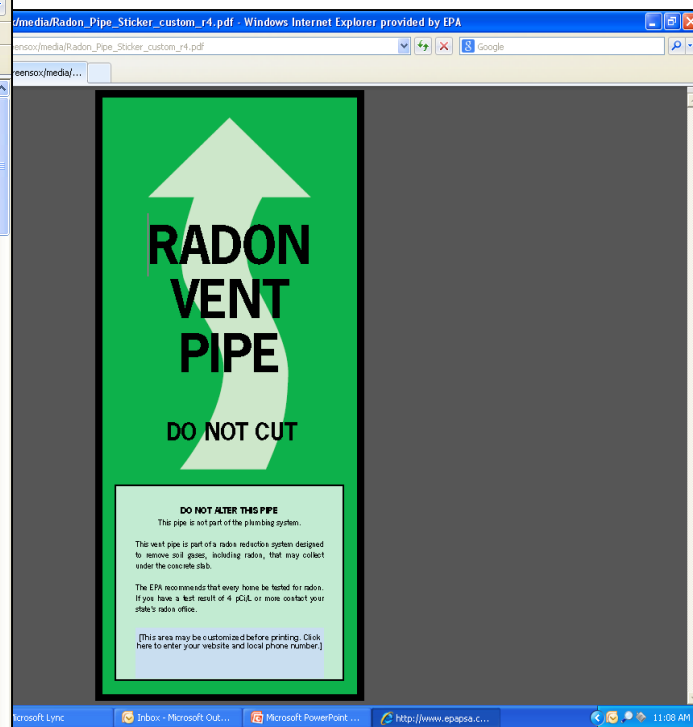
☐ The sealing/caulking around the vent pipe in the basement floor is intact. ☐ Yes ☐ No ☐ N/A

☐ A vertical or horizontal vent pipe penetration is present in a (full or partial) crawl space. ☐ Yes ☐ No ☐ N/A

☐ The crawl space vapor barrier (soil-gas-retarder, e.g., polyethylene) appears to extend to the foundation walls. ☐ Yes ☐ No ☐ N/A

Public Service Announcements – PSA's

The screenshot shows the EPA website's 'Radon Media Campaigns' page. The header includes the EPA logo and navigation links like 'THE ISSUES', 'SCIENCE & TECHNOLOGY', 'LAWS & REGULATIONS', and 'ABOUT EPA'. The main content area is titled 'Radon Media Campaigns' and features a sidebar with links to 'Radon Home', 'Radon Information', 'Where You Live', 'A-Z Subject Index', 'Health Risks', 'Applications', 'Frequent Questions', 'Library', 'Related Links', and 'AñoL'. The main text area includes a breadcrumb trail: 'You are here: EPA Home » Air » Indoor Air » Radon » Media Campaigns'. Below this, there's a section for 'Living Healthy & Green' with a paragraph about radon gas and a video player for 'Baby's First Green Steps'. To the right, there's a section for 'Dr. Oz Discusses: The #1 Cancer Risk at Home' with a video player and a link to watch the show.



www.epa.gov/radon/media_campaigns.html#Living_Healthy

www.epapsa.com/campaigns/greensox/

Radon PSAs - Green Sox - Windows Internet Explorer provided by EPA

http://www.epapsa.com/campaigns/greensox/



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TV

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Local Radio

Print - Newspaper

"Green Sox"

QuickTime .MP4

All files are MP3

"Contemporary" :60

Gospel

All files are PDF

"Brown Family"

128K MP3

"Neighbors"

Consumer Magazine

Press-ready PDF

"Stethoscope"

Print - Trade

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"FuadRuler"

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"FuadBlueprint"

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Radon PSAs - Green ...

11:09 AM

Radon PSAs - Build Green! It's easy to build new homes radon-resistant... Windows Internet Explorer provided by EPA

http://www.epapsa.com/campaigns/fuad/



BUILD GREEN!
IT'S EASY TO
BUILD NEW HOMES
RADON-RESISTANT.

Fuad Reveiz,
Member of the National Association of Home Builders

NEW campaign available now
[Hard copies can be ordered here »](#)

This information is provided as a public service to help protect our environment and public health.
 The EPA does not endorse this particular builder or any other commercial service or enterprise.

Radio

Consumer Magazine

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128K MP3

"Neighbors"

Press-ready PDF

"Stethoscope"

Press-ready PDF

"FuadRuler"

Press-ready PDF

"FuadBlueprint"

Microsoft Lync

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www.epapsa.com/campaigns/fuad/

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Thank You!!

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