

ASHI RADON MITIGATION SYSTEM INSPECTION CHECKLIST

Revision date: January 9, 2009

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 that the system is operating properly, and to repair or upgrade the system (as needed).

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

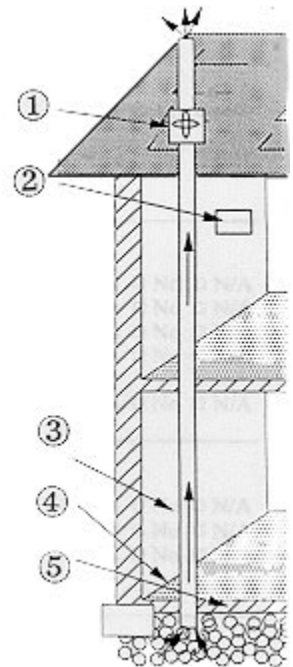
- Yes.** The system appears to meet recommended design/installation standards. Test the home to verify that the indoor radon level is below 4 pCi/L. If the test result is 4 pCi/L or more, have a qualified radon mitigator activate the system by installing a vent fan and a warning device.
- No.** The system 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* for existing homes.

*An *active* radon mitigation system has four basic elements: (1) an electric vent fan (located outside of conditioned space, i.e., in the attic, garage or outside the building envelope); (2) a system failure warning device (may also be in the basement); (3) a vent pipe running between sub-slab gravel up to above the roof or eave; and, (4) sealed and caulked cracks and joints. The estimated life of a quality vent fan (operating continuously) is 10 years. In an existing home, the vent fan, wiring and piping are all part of the same installation.

A *passive* system (installed at the time of construction) has: (1) a vent pipe extending from the sub-slab gravel up to above the roof or eave; and, (5) a physical barrier (polyethylene membrane) between the soil and house foundation.



II. CONSUMER INFORMATION

The American Society of Home Inspectors (ASHI) recommends that home owners and home buyers test their current or prospective home for the presence of radon gas in indoor air. The U.S. Environmental Protection Agency (EPA) *strongly recommends* that steps be taken to reduce the indoor radon level in your home when the test result is 4 picocuries per liter (pCi/L) of radon in air, or more. The Environmental Protection Agency estimates that about 21,000 lung cancer deaths each year are radon-related (see www.epa.gov/radon/risk_assessment.html). Exposure to radon in indoor air is the leading cause of lung cancer among non-smokers and the second leading cause of lung cancer after smoking.

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Got a question about these inspection results?

Contact your state radon office or local building department; visit www.epa.gov/iaq/whereyoulive.html (just click on your state) for details. Your state can help you find a qualified provider of radon services. Some states require radon services providers to be certified, licensed or registered. Some states may have specific conditions applicable to radon measurement or mitigation, e.g., allows only home owners or qualified professionals to test for radon. If buying or selling a home, read EPA's *Home Buyer's and Seller's Guide to Radon*. If fixing a home, read EPA's *A Consumer's Guide to Radon Reduction*. These and other publications on indoor air quality are available at www.epa.gov/radon/pubs/. For more home inspection information, visit ASHI online at www.ASHI.org.

About this Checklist

The main purpose of the *Radon Mitigation System Inspection Checklist*, is to educate home inspection clients about radon, and to encourage radon testing and mitigation when elevated radon levels (4 pCi/L or more) are found. The *Checklist* also helps to determine whether an existing system may need to be repaired or upgraded. The *Checklist* is not a comprehensive inspection tool. It does not replace, nor is it a substitute for, mitigation system inspections conducted or required by state or local governments or agencies.

Prior to 1989, EPA had no specific recommendations on the design of an effective mitigation system or how it should be installed. Between 1989 and 1991, EPA did make such recommendations, and allowed locating radon vent fans in basements. However, in 1991, EPA codified its earlier recommendations, including research results, and published the *Radon Mitigation Standards*. After 1991, radon vent fans were to be located only in unconditioned spaces, e.g., an attic or outside the building.

This *Checklist* is based upon EPA's *Radon Mitigation Standards* (EPA 402-R-93-078, Revised April 1994), the *Model Standards and Techniques for Control of Radon in New Residential Buildings* (EPA 402-R-94-009, March 1994), and radon control methods contained in residential construction codes. Also, this *Checklist* incorporates elements from several state radon inspection checklists (e.g., those of Pennsylvania, New Jersey, Iowa). This *Checklist* was developed by the American Society of Home Inspectors (ASHI) under cooperative agreement with the U.S. Environmental Protection Agency (EPA), is in the public domain, and should be reproduced in its entirety.

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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, and the seams appear to be overlapped by at least 12". Yes No N/A

✓ (5) Electrical (for active systems only)

- Vent fan plugged cord connection appears to be no more than 6-feet long. Yes No N/A
- Vent fan plugged cord connection is visible, and not concealed within a wall. Yes No N/A
- If outside the building, the vent/mitigation fan is hard wired to a disconnect switch. Yes No N/A
- Vent fan appears to be wired into a non-switched circuit. Yes No N/A
(That is, not wired through any other switches, e.g., lighting wall switch.)
- The circuit/breaker controlling (hard-wired) vent fan is labeled "Radon System". Yes No N/A

✓ (6) Vent or Mitigation Fan(s) (for active systems only)

- If outside, the fan is not below ground (e.g., in a pit). Yes No N/A
- Vent fan is mounted in a vertical (not horizontal) section of pipe. Yes No N/A
- If inside, the fan is located in an unconditioned space, e.g., the attic. Yes No N/A
(A fan located in the basement does not meet post-1991 EPA recommendations or standards.)

✓ (7) Sump

- If the sump is sealed, a trapped drain (or equivalent) should be present and located in the sump cover. Yes No N/A
(Independent of whether the vent pipe(s) passes through the floor/slab or is installed in the sump.)

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NOTES/RECOMMENDATIONS:

State Radon Office