

We had noticed homes in our area with large white pipes run up the side. Some looked like downspouts, but extended up above the gutter. I asked around and was told that was for Radon mitigation. I did some research and learned that many homes cannot be sold until testing has proven Radon levels are low enough or mitigation has been done to achieve safe levels. Radon gas occurs in Colorado soil in many locations. This odorless gas can seep in through basements and cause Cancer. <http://www.epa.gov/radon>

A friend described his mitigation steps and told me about the contractor that performed it. This contractor also trains other contractors.

Before hiring the contractor, we followed their advice and bought an inexpensive sampling kit. We followed the kit's instructions to leave the small metal can open in the basement for the few days then seal it up and mail it to their laboratory. The resulting 12.4 pCi/l reading was high enough to be unsafe. We hired that same contractor.

Crawl Space Preparation:

- Remove all stored items
- Remove all construction debris (e.g.: sharp cornered rocks and concrete chunks, nails and metal scraps). Yes, this included empty soda cans.
- Provide ample supply of flattened corrugated cardboard boxes to protect the underside of the tough sealing membrane.

Provide good quality landscaping cloth. This can be used to wrap the perforated gas collection ducting and help filter out soil dust that could, over the years, start to clog the ducting.

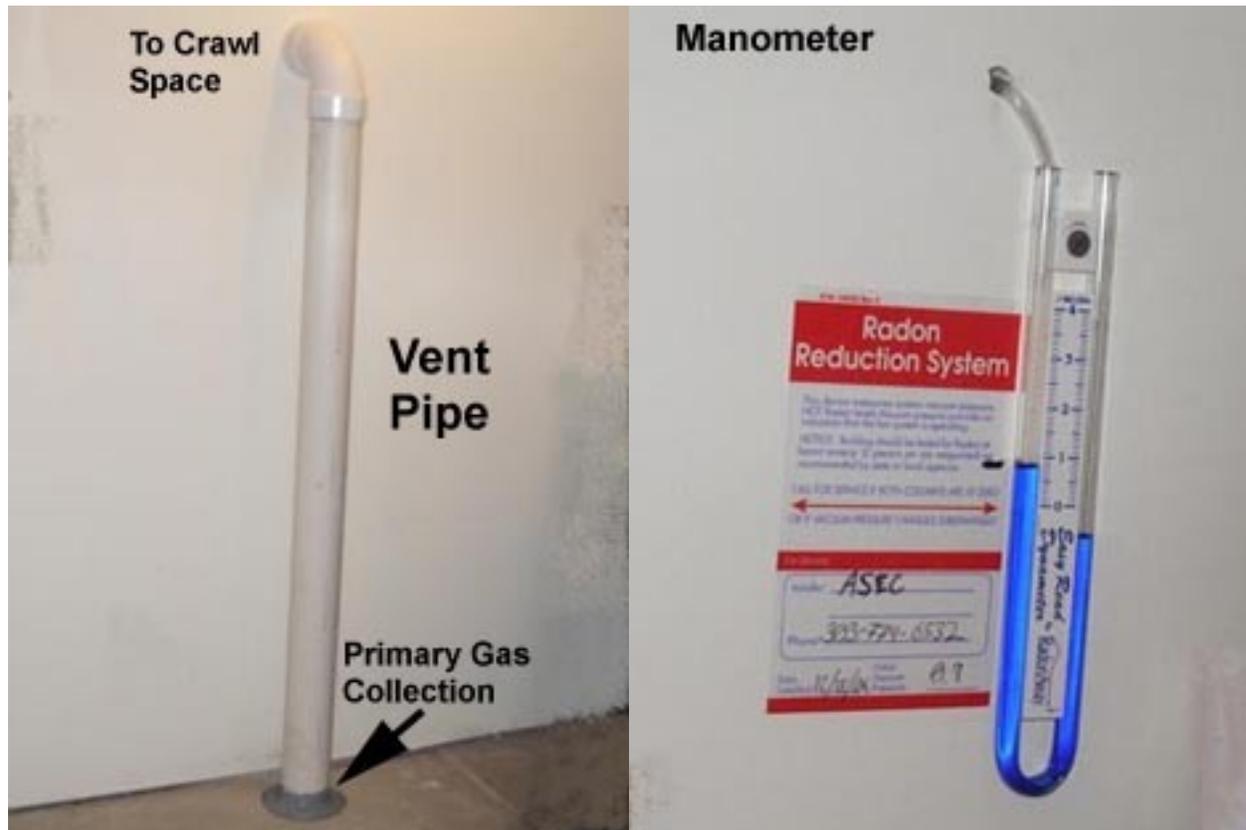
Sump Pump Pit:

We have never had any flooding. They glued a little window into the Sump Pump Pit Cover and then sealed the Cover in place. In a rainy period, we can shine a light into the little window and assure ourselves that there is no water accumulation. The continuous Radon venting helps prevent the water accumulation.



Basement Floor:

The primary gas collection is through the basement floor. They drilled a hole through the concrete, removed soil to create the required open space under the floor. They sealed in a vent pipe connected to the Radon ventilation system. In our house the vent pipe is routed through the crawl space and out through the garage, through the attic and out a roof vent. The ducting is 4.5 inch outside diameter PVC drain waste and vent pipe.

**Crawl Space what to expect:**

4-5 inch diameter corrugated and perforated flexible plastic ducting will be placed around the periphery and plumbed in to the Radon venting system.

A very tough plastic sealing membrane will be sealed to the concrete foundation with construction adhesive.

Ventilation is recommended, initially, because the adhesive curing process does emit some fumes. The curing process is much shorter above 50 degrees F.

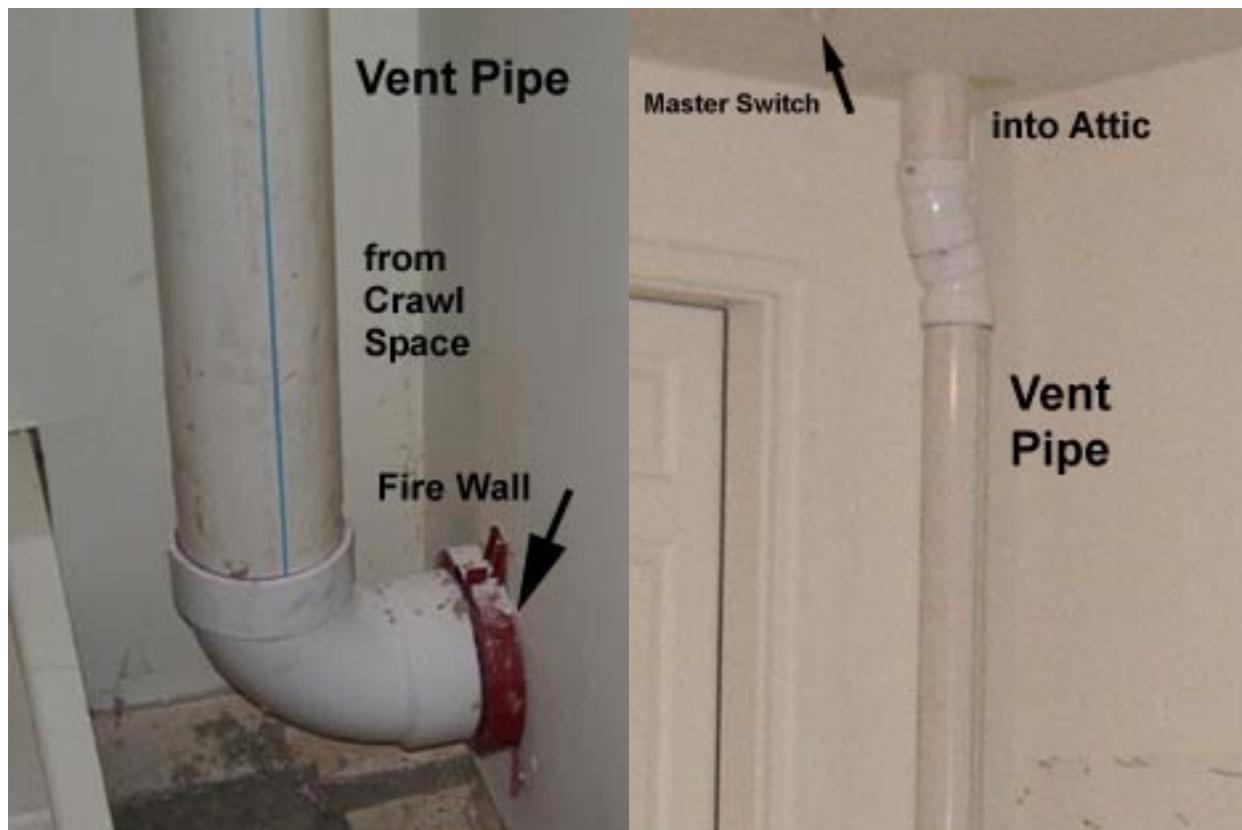
The manometer indicates if the system is maintaining the required vacuum under our house. Loss of this pressure differential would indicate pump failure or leakage in the sealing membrane and time to call the contractor.

**Crawl Space Continuing Care:**

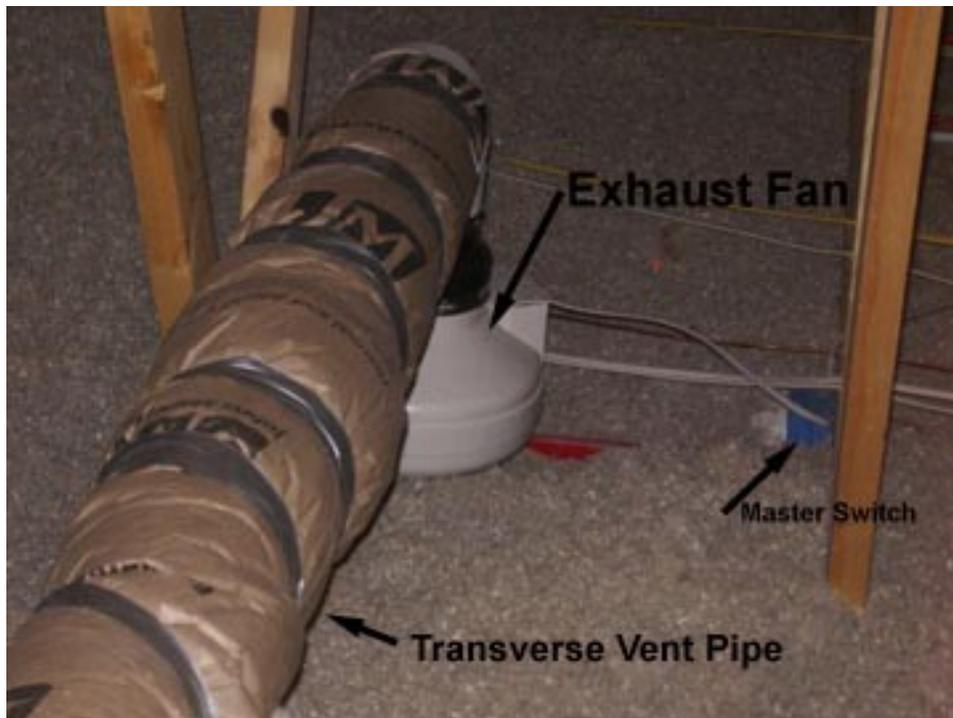
Since we use our crawl space extensively for storage, we keep adding any larger flattened corrugated boxes we receive (all staples removed!) on top of the sealing membrane. Of course we are careful about footwear as we crawl or duck walk around in there.

Exhaust Vent:

The collected gas is vented above the roof line to prevent its reentering the home. Some homes have it vented at the side of the house through an 'up spout'. In our case, we selected the option to have the ducting run through the garage, through the attic and out through a roof vent.

**Exhaust Fan:**

The Exhaust Fan is located in the attic. It is wired with a master switch mounted in the garage ceiling. Our fan is quieter and is a higher quality than many. It cannot be heard from any of the bedrooms nor the outside. A soft hum can sometimes be heard, however, from the Bedroom closet that has an attic trapdoor and also may be heard from the hallway. After a rainy period, the fan works harder to pump out the added moisture and is noisier for a while. When dryer weather returns, it quiets back down. I wonder if it is realistic to mount it to the attic trusses with vibration isolators so it could not be heard at all? I do not think anyone else has ever noticed any sound from our Radon mitigation system. The transverse duct in the attic is insulated to prevent any water vapor in it from freezing.



Results:

The Radon Mitigation process took part of a day. After the Radon Mitigation process, we used another test kit. Its results were 1.3 pCi/l.

The Radon level reading before Mitigation was 12.4 pCi/l.

Since the mitigation (18-Dec-2006), the readings have remained 1.3 and occasionally 1.4 throughout these winter months.

Two and half years after the mitigation, the readings with our long-term monitor remain in the 1.2 - 1.4 range and vacuum pressure remains at 0.7.

We are now breathing easy and are confident in using our finished basement for family guests!

<small>AccuStar Labs www.accustarlabs.com</small>	AccuStar <small>Professional Radon Laboratory Services Since 1984</small>	<small>800.523.4964 sales@accustarlabs.com</small>						
1/30/2007								
REPORT OF RADON TEST RESULTS								
Clark Anerson								
<p>Thank you for using AccuStar radon detectors and laboratory services. The radon level measured from the test kit exposed in your home or office is as follows:</p> <p>Canister Opened: 1/21/2007 Canister Closed: 1/25/2007</p> <table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;"><u>Location</u></th> <th style="text-align: left;"><u>Serial No.</u></th> <th style="text-align: left;"><u>Radon Level - pCi/l Picocuries per liter</u></th> </tr> </thead> <tbody> <tr> <td>Bst.Main Room</td> <td>2035397</td> <td>1.3</td> </tr> </tbody> </table> <p>Charcoal canisters are recommended by the U.S. Environmental Protection Agency (EPA) as a simple, cost-effective way to obtain quick "screening" measurements of indoor radon. However, since indoor radon levels can change from room to room and from season to season, a single screening test is not a reliable means of making mitigation decisions for your home or office. This test result only indicates whether you may have a potential radon problem that would require further testing.</p> <p>EPA recommends that you perform follow-up tests if your initial screening measurement is 4.0 pCi/l or above. The EPA also recommends that corrective actions should be taken to reduce levels to below 4 pCi/l when radon levels measured in your home reach a long-term average of 4 pCi/l or greater.</p> <p>AccuStar Labs has successfully passed every round of EPA's proficiency tests (EPA Method # 402-R-92-004), and we maintain an extensive quality control program to assure the accuracy of test results. However, AccuStar Labs does not warrant that test results are representative of any conditions in your home. Results are based on the information provided by the client. We take no responsibility for any decisions made based on these test results.</p> <p>If you have questions or would like more information about radon, please contact your state health department at (800)846-3986. If you wish to order additional radon test kits, (short or long term test kits) please call AccuStar-Lebanon at (800)-523-4964.</p>			<u>Location</u>	<u>Serial No.</u>	<u>Radon Level - pCi/l Picocuries per liter</u>	Bst.Main Room	2035397	1.3
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PADEP#2344-2340 NJLabID#-PA955 MES#11135 MEB90122 NRSBARL0007 page 1 of 1	David Kapturowski/Radon Specialist Sandy Bender/Lab Supervisor							