

Key Things to Know When Hiring a Radon Mitigation Contractor in Pennsylvania



Who is this guide for?

This guide is designed to support someone who has identified the need for radon mitigation in their home and is now seeking radon mitigation services in SWPA. If you are still in need of more education on radon or testing to understand if you have a need for radon mitigation, please refer to the other [Radon Resources](#) on the ROCIS website.

Summary:

- **Get referrals** for certified mitigators operating in your area (check the DEP's list).
- **Vet multiple contractors:** get site inspections + written proposals + system designs + references.
- **Make sure there's a contract:** everything from design to testing to warranty should be on paper.
- **Plan for follow-up:** retest after install, monitor system, maintain/replace parts as needed.

Details:

1. Certifications & Licensing

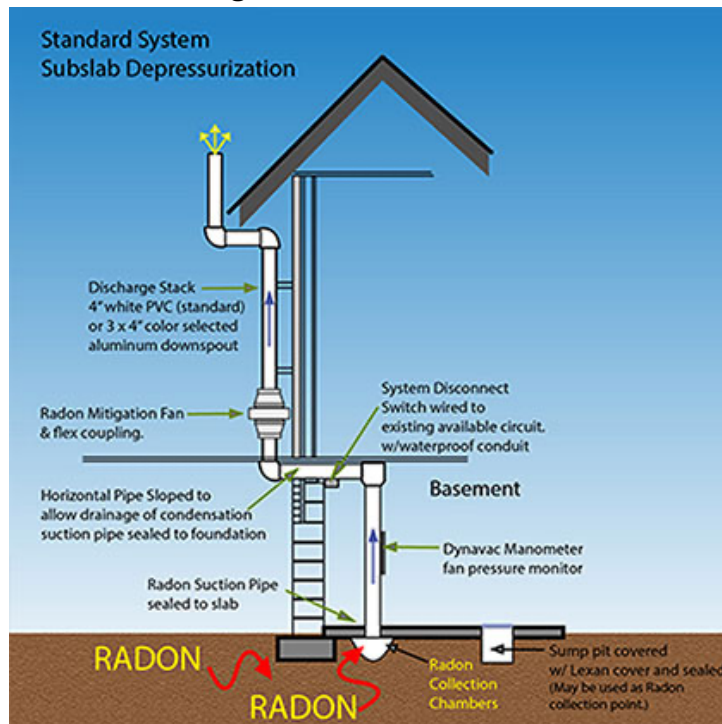
Radon Mitigation Contractors must be [certified by the Pennsylvania DEP](#). You can ask for their certification number or DEP-issued photo ID badge and/or confirm their DEP certification by [checking this list](#), which is sorted by county.

Note: While many contractors also take courses and receive certification from the National Radon Proficiency Program (NRPP) or the National Radon Safety Board (NRSB) as part of their DEP-approved training, note that NRPP/NRSB certification alone is not sufficient in Pennsylvania.

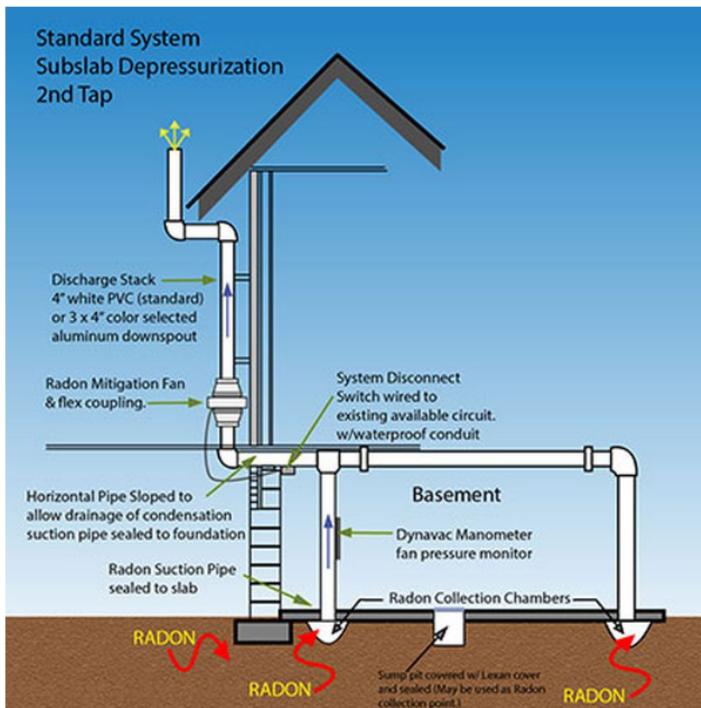
2. Scope of Work – Scenario 1: New system installation in an existing/older home

When a radon mitigation system is installed for the first time in an existing home, it is typically a sub-slab depressurization system designed and installed as shown in the accompanying images. Pipes run from a collection point* below the basement slab to an exhaust fan that is mounted on the exterior** of the home or in a garage attic. Another exhaust pipe extends past the roof line to expel the gas into the atmosphere.

*The contractor may determine that multiple interior collection (suction) points are needed to address different pockets of radon that are accumulating separately; this may be due to the soil conditions and/or the design of your home's foundation.



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Source: swat-radon.com

This is especially typical when an addition has been added or a crawl space exists adjacent to the basement. The contractor can determine the best way to connect multiple interior collection points into one pipe that exits the building to help minimize the number of exterior wall penetrations. If the contractor states that they may encounter conditions during the project that make more suction points necessary (to ensure the system works effectively), you should review their proposal to understand what additional costs may be incurred if that situation arises during the project.

The exhaust pipe should vent above the roof line at a safe distance from windows and doors so radon doesn't re-enter. ([Read more here.](#)) All of these pipes are typically white 4" PVC; if you are concerned about the aesthetics of the pipe on the exterior of your home, you can discuss alternative materials

with your contractor. For example, painting the PVC pipe or using metal pipe that matches existing downspouts can help the exterior vertical pipe to blend-in with your facade. There are also alternative exhaust fan styles that can be considered, and most fans can also be painted. Each option should be considered based on upfront costs as well as long-term maintenance (such as how often you may need to re-paint materials).

** Note that radon mitigation standards require the exhaust fan to be installed outside of the home, or in an attic, garage, or other unconditioned/unoccupied space inside. Adding a vertical 4" pipe through an existing home, from the basement up to the attic/roof, will often be cost-prohibitive; therefore, the design with the fan and exhaust pipe on the exterior, or in a garage attic, are the two most common. (Refer to the next section of this guide for additional details on this design option.) If a more robust home renovation project is taking place for other reasons, you can ask your general contractor to consider adding the radon mitigation system during that project, if you'd prefer to have it be installed within the interior of the home.



Exterior radon fan and stack
Source: Christine Benner Dixon

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The contractor's scope of work should include all materials & labor for the system as shown in the following images, including: drilling the hole in the basement slab and sealing the pipe connection, drilling a hole in the exterior wall and sealing it from water/pests/air-infiltration, installing all pipes and sealing pipe joints, installing the manometer, installing the exhaust fan and the



Source: Karen Benner

electrical connection in accordance with the National Electric Code (NEC), and securing the exterior pipe to the structure. If you've opted for custom painting of any materials, they can also typically be done by your contractor.

The contractor may also include sealing cracks or repairing holes in the floor slab as part of their proposal. If there is a sump pump, the contractor will also include sealing around it.



Manometer and fan switch

Source: Karen Benner

And if there is a crawl space or dirt floor, there may be additional work required to contain that area included in their proposal. Reference the "Crawlspace Homes" section in the [EPA Consumer's Guide to Radon Reduction](#).



Source: [CrawlPros LLC](#)

The purpose of a sub-slab depressurization system is to create a negative pressure field under the slab that prevents radon gas from entering the building. It only works if the negative pressure is generated under the entire sub-slab surface. Large holes and large cracks act as short-circuits that prevent the negative pressure field from working as it is designed. Therefore, *large holes and large cracks* in the floor slab should be sealed; however, sealing *hairline cracks* does not confer enough of an additional performance benefit compared to the increased cost. [Reference this PA DEP video for more details.](#)

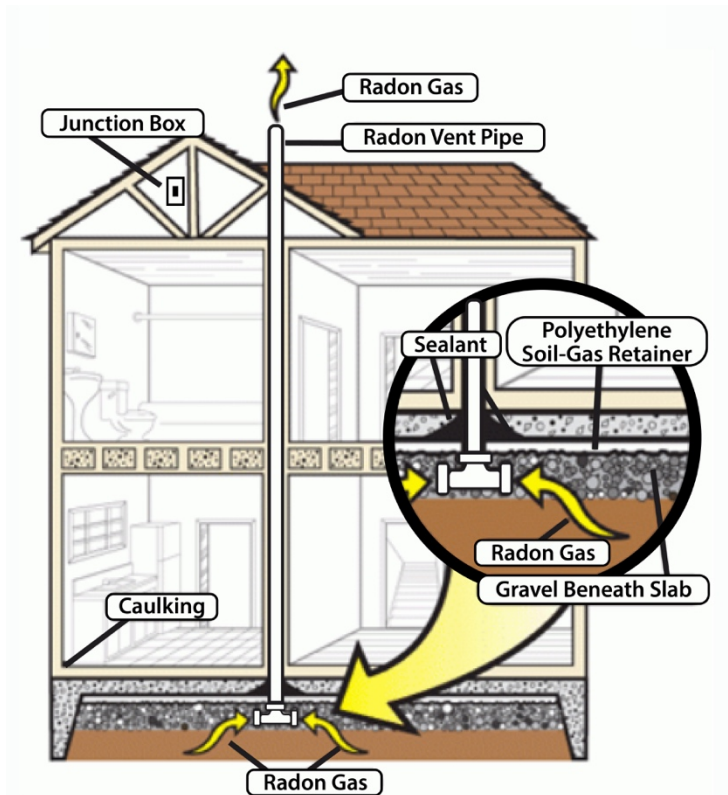
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3. Scope of Work – Scenario 2: Existing passive system upgraded to active system in a newer home

Newer homes may already have a passive radon system installed if required by local building codes. That type of system is very similar to the one described above, with these exceptions:

- The exhaust vent pipe is installed within the interior of the home, so there is no visible system on the outside except where it exits the roof. That vertical exhaust pipe is typically connected to horizontal pipes below the slab and then contained within a wall or a chase through all floors of the house.
- The vertical exhaust vent pipe of a passive system does not include an exhaust fan; the system relies on thermal stack effect to remove the radon gases from the home without an active ventilation fan.



Passive radon system

Source: www.epa.gov/radon

When a home with a passive radon mitigation system still has high radon levels, the system can be converted to “active” through a typical scope of work that includes:

- Installing the manometer and the radon-specific exhaust fan in-line with the vertical exhaust vent pipe. The fan is typically installed in the attic or near the roofline. (The fan should not be installed within living spaces.)
- Installing an electrical outlet near the fan and installing electrical connection to the fan. (Some homes will already have an electrical connection installed as part of the passive system.)
- Ensuring that all existing pipe connections are secure and fully sealed, including at the slab, at the roof, and at each pipe joint.

It's possible that this system conversion can be completed without hiring a radon mitigation professional, but it is not recommended.

Additional EPA reference: [Activating a Passive Radon System](#).

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4. Soliciting Proposals

As with any contracting job, having 2-3 estimates helps you compare methods, costs, and each contractor's knowledge & professionalism. Ask for references from past clients, including before/after radon measurements, or talk to people who have had systems installed and check how responsive contractors are after installation (for maintenance, retesting, etc.).

Many contractors ask for information to be provided online—such as photos, your address, and current radon levels—to allow them to provide a preliminary estimate without making a site visit. *A quality contractor will make a site visit to assess what system design makes sense for your unique project.* Design details to confirm during the site visit include:

- Where will the suction point(s) and the route of the pipe be inside the house? It's possible the contractor will state that the design they are proposing is based on their visual observations and that design details may require alterations if they discover unexpected conditions when they start drilling through your basement slab. In that case, you should confirm what to expect about the approval process of a "change order."
- Where will the fan be mounted outside, and where will the electrical connection & switch to the fan be located?
- What is the sone (sound) rating of the exhaust fan proposed, and what should you expect regarding noise levels on the interior & exterior?
- Where does the exterior exhaust pipe go, and what color/material will it be?

Finally, during the site visit, make sure the contractor observes/is aware of all combustion appliances in the home (such as a gas furnace, water heater, etc.) because poor radon mitigation design could interfere with these appliances venting properly; this phenomenon is also known as "backdrafting."

5. Choosing the Contractor

You should receive a written proposal that clearly describes what work will be done, the system design, timeline, cost, payment schedule, and what happens if the system doesn't reduce radon adequately. Other factors to consider when choosing your contractor include:

- Understand the warranty that each contractor is providing for both materials & labor should the fan or system stop working and what your responsibilities are to ensure that warranty is honored (such as additional monitoring or testing for a certain period of time).
- You might also ask if they guarantee a certain reduction in radon levels and for how long. Since the guidance on unacceptable radon levels varies between the Environmental Protection Agency (EPA) (≥ 4 picocuries/liter) and the World Health Organization (WHO) (≥ 2.7 picocuries/liter) it's also important to ensure you & your contractor agree on the target level to be achieved and the associated guarantee.
- Ensure they carry liability insurance and their proposal is clear about cleanup at the end of the project.
- Confirm who is responsible for permits or compliance with any building codes, if applicable.

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6. How to Prepare for the Work to be Completed

Ensure the contractor can access the areas where the system components will be installed, including access to the electrical panel, in order to work safely and efficiently. You may need to relocate furniture or stored items inside the basement, or exterior furniture or other items in the area of the fan and exhaust pipe. Since the contractor will be working both inside and outside the home, you may also need to clear a path and/or lay down floor protection during the project.

7. After the Project

Confirm that the contractor completed all work according to the contract documents and design details and ensure they review your warranty and maintenance procedures with you. Reference the “Checking Your Contractors Work” section in the [EPA Consumer’s Guide to Radon Reduction](#).

Look at your warning device on a regular basis to make sure the system is working correctly. Fans may last for five years or more (manufacturer warranties tend not to exceed five years) and may then need to be repaired or replaced. If you are not using a daily radon/air quality monitor, it is a good idea to retest your home at least every two years to be sure radon levels remain low.

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Contractor Red Flags:

- No PA DEP certification
- No references or before/after radon test results from previous installations
- No site inspection/diagnostics before quoting
- No warning device for system failure
- No post-install test
- No post-install guarantee
- Questionable exhaust route (too close to windows, etc.)

Good Questions to Ask Your Contractor:

1. What is your DEP certification number (or can you show me your DEP ID badge)?
2. Can you walk me through the system design for my house?
3. Where will you put the fan, and where will the exhaust vent come out?
4. Will there be a warning device to alert me if the fan stops?
5. What is the sone rating of the exhaust fan you are proposing?
6. Do you include a post-mitigation radon test in your price? If not, can I hire someone separately?
7. What is the expected operating & maintenance cost (e.g., exhaust fan wattage, associated electric usage, fan replacement, or painting)?
8. Do you guarantee a certain radon level after mitigation?
9. What's your warranty on the equipment?
10. Do you have insurance/liability coverage?

Things the Contractor May Ask You About Your Home:

1. What is the current average radon level?
2. What style is your home and how many stories? (Ranch, two-story, townhome, condo, etc.)
3. Have there been any home additions?
4. Is your basement finished or unfinished?
5. Are there any large cracks in the basement floor?
6. Does the home have any sump pumps or drains?
7. What is the foundation made of? (Block, limestone, etc.)
8. What is the basement floor made of? (Concrete, dirt, etc.)
9. What is on the exterior of the house? (Brick, siding, etc.)
10. Where are your utilities (electrical panel, combustion appliances, etc.) located?