Tips for DIY Radon Mitigation

Radon mitigation can seem like an intimidating process, but with some planning, it’s a very doable job for an avid Do-It-Yourselfer. **If you are not comfortable using power tools or are unsure about your house’s construction, call a mitigation specialist.**

### What you’ll need

- Tape measure
- Saw
- Waterproof polyurethane caulk
- Ear protection
- 5” cement drill attachment + drill
- 4” PVC pipe segments
- Pipe supports + screws + screwdriver
- PVC cement
- Fire collar/Nelson barriers
- Drill + bits
- Radon fan
- Power cord for fan (optional)
- PVC/Metal vent cap
- u-Tube Manometer
- Smoke pen
- Carbon monoxide detector

- Seal all cracks in your basement floor and walls using waterproof polyurethane caulk or radon sealant caulk. For larger gaps, use foam backer rod at the bottom before filling the rest of the gap with sealant. Curing of the sealant can take 48 hours.

- Once you wish to install a pipe, consider where the pipe can rise through the different floors of the house and where it can exit (through the roof or the side of the house). The ideal location for a fan is in the attic, since **installation standards require the fan to be located outside of the living spaces in a home.** The fan could also be placed outside of the home or in a garage, but not on top of the roof.

- The attic of an attached garage will also work, but make sure to adhere to these building codes: The pipe must exit **12” from the surface of the roof** and be **more than 10ft away from the nearest window (horizontally).** If the pipe ends above a window, it must be **at least two feet above** the window. The pipe will need a screen/cap to prevent debris from falling inside (right). This can be purchased or made.

- If you already have a sump pump basin, this is an ideal location for the pipe and should also allow you to determine the material beneath your house (dirt, gravel, sand, clay etc.). The pipe can be installed right through the sump pump cover. **If there’s no drainage system or gravel under the concrete (common in homes built before the 1970s), consider consulting an expert.**

- If you don’t have a sump, drill a hole slightly larger than four inches in the concrete to accommodate a four-inch PVC pipe. You can rent or buy a 5” cement drill from a local hardware store, otherwise you could drill smaller holes in a circular pattern (right).
• After passing through the concrete, scooping out soil/gravel may be necessary for as far as you can reach inside of the hole. When the pipe is put inside, it should not be touching the ground and should have plenty of space around it for air to collect.

• Using PVC cement to connect pieces of pipe, direct the piping upward, making sure to support it every four feet horizontally and every 7–8 feet vertically. Any time the pipe passes through a wall from one room to another, a fire collar/Nelson barrier is required.

• The type of fan needed varies depending on factors like the size of your basement and the type of substrate under the concrete. For basements <1000ft$^2$, an RP140 or XP201 can be used (both of which can be found on Amazon or on indoor-air-health-advisor.com), for 1001-1500ft$^2$, the RP145 or XP151 will suffice, and for larger basements, use RP- and XR260s (and above).

• The fans will also need to be near a power source, but many of the fans’ output powers are less than 100 watts. Some fans don’t have a full power cord, so one must be added onto existing electrical connections on the fan in order to plug it into the wall.

• After installation, make sure that all joints and openings around the pipe are sealed.

• A DynaMeter u-tube manometer is also recommended on a lower section of pipe. This detects pressure differences between the outside and inside of the system and can easily and quickly show whether or not the fan is working.

• Furthermore, a carbon monoxide detector is also recommended to check for proper airflow in kitchen appliances and other flues. A smoke pen may also help to detect airflow patterns to ensure everything is functioning properly.