COMMERCE DEPARTMENT

Air Sealing Guidance | Frequently Asked Questions (FAQ)

Q. Is there a minimum target goal?
   A. No, however, the general rule of thumb is 30% goal. Testing diagnostics and visual inspections noted by the auditor should help steer the direction of the goal.

Q. Do all homes need air sealing? What needs to be air sealed in every home?
   A. Yes, 4.4.2.8 Air Sealing
   POLICY: Infiltration reduction will be modeled in all dwellings. All work must be completed in accordance with the SWS. Required air sealing for all dwellings must include the following:
   - Chimney and flue bypasses
   - Soil stack bypasses
   - Exhaust fan bypasses

   Dense packed insulation is an allowed air sealing technique for inaccessible building assemblies such as: cantilevers, bay window attics, drop soffits, etc. The air sealing must be either an ECM or IRM and the cost and bag count must be detailed in the air sealing measure in WA and verified by the QCI.

   Soffits that are open to the attic should be covered with a rigid material (drywall, rigid foam, plywood) and sealed. Soffits connected to an exterior wall must be covered and dense packed with cellulose. See SWS 3.0102.9.

   If an auditor feels there should be no air sealing completed on a home and can verify that the minimum requirements are met (above), then justification in WA is needed.

Q. Can I plug anything during the blower door test?
   A. Yes, HRV/ERVs may be plugged during the blower door test. This aligns with current building code testing. Document and ensure all subsequent tests follow the same process.

Q. Can I rerun the audit if I get a tighter home than expected to get a higher SIR?
   A. Unless mistakes are made during a test, such as pre-install number is a lot different than audit, or something changes in the home from the time of audit, air infiltration numbers should not be re-ran.

Q. Do top plates need to be air sealed on all homes?
   A. This is a best practice of those achieving high air sealing reductions in homes. Follow 2.1 of the MN SWS Aligned Field Guide.

Q. Do we need IR cameras?
   A. While IR cameras are not a required tool, they are a great resource to add to your audits and inspections. IR cameras are an allowable expense and thermography training is an allowed T&TA expense.

Q. What zonal pressure (ZP) will guide air sealing?
   A. A general rule when running the blower door is to achieve a ZP as close to 50 as possible. While a ZP doesn't give an exact number of CFM connection (this is a qualitative, not quantitative, test), it gives you an initial number that shows the proportionate connection from the zone to home and the zone to outside. If you feel the attic needs specific diagnostics, you can complete a modifiable ZP test. You can use the free tool at RED Calc Zone Pressure Diagnostics | Building America Solution Center. This allows you to complete a ZP test with the hole to zone approach.

Q. What is H&S air sealing?
   A. H&S air sealing is sealing areas between conditioned and unconditioned spaces for H&S purposes such as radon, moisture, CO, and IAQ. Ask the questions: Why am I doing this? What am I trying to achieve? Is this allowable? Then properly document justification for H&S air sealing efforts under H&S tab in WA. This can also be used when there is no SIR for air sealing. Refer to AMC 1-14 – Seal bypasses in a tight house.

Q. Do I need to air seal open block tops?
   A. Yes. This can be done as an ECM or HSM. This is done for building integrity to prevent air and moisture intrusion. SWS 3.0104.1h: "Apply a continuous seal at all seams, cracks, joints, penetrations, and connections of foundations walls, sill, floors, etc. that are adjacent to unconditioned spaces…" This can also be done as an HSM for a pre-cautionary measure for radon.

Q. Do I need to air seal all cracks in foundations and floors?
   A. Yes. This is done as an HSM as a precautionary measure (NOT MITIGATION) for radon. Since we do not test for radon and do not mitigate for radon, we take precautionary steps to help protect the household.

Q. Can I dense pack for air sealing purposes?
   A. Yes, including dense packing interior soffits (not limited to kitchens).

Q. Can I air seal unused fireplaces?
   A. Yes, existing fireplace damper or "airtight" doors seldom provide a good air seal. Help the customer decide whether the fireplace will be used in the future or whether it can be taken out of service. Consider these solutions for chimneys with ineffective or missing dampers.
      a. Install an inflatable chimney seal along with a notice of its installation to alert anyone wanting to start a fire to remove the seal first.
      b. Air seal the chimney top from the roof with a watertight, airtight seal. Also seal the chimney from the living space with foam board and drywall. If you install a permanent chimney seal such as this, post a notice at the fireplace saying that it is permanently disabled.

Q. How do I pay for diagnostics if I do not have much in air sealing? What do I pay for with the SIR dollars?
   A. All BPI 1200 testing for H&S purposes can be costed to an HSM. If completing blower door guided air sealing, this diagnostic cost can first be applied to the SIR measure. If you are completing air sealing for H&S, then it can be costed as an HSM. Diagnostics should follow the parent category.

Q. What products do I need to use in habitual space?
   A. Fire rated approved products. This includes 1 part foam.

Q. What about radon?
   A. Per the Confirmation of Receipt of A Citizen's Guide to Radon Pamphlet: Since all counties in MN are considered to have moderate-to high-potential radon levels by the EPA, precautionary measures indicated below will be installed as part of weatherization:
      a. Exposed dirt floors covered and sealed
      b. Floor/foundation penetrations sealed
      c. Open sump pit capped
      d. Implement ventilation as required by ASHRAE 62.2 2016
      e. Other measures as defined by SP

      Per MN State Plan 6.15 Radon: Clients must sign an informed consent form prior to receiving weatherization services. This form must be kept in the client file. In homes where radon may be present, work scope must include precautionary measures based on EPA Healthy Indoor Environment Protocols for Home Energy Upgrades, to reduce the possibility of making radon issues worse where feasible. Whenever site conditions permit, cover exposed dirt floors within the pressure/thermal boundary with 6 mil (or greater) polyethylene sheeting, lapped at least 12" and sealed with appropriate sealant at all seams, walls, and penetrations. Other precautions may include, but are not limited to, sealing any observed floor and/or foundation penetrations, including open sump pits, isolating the basement from the conditioned space, and ensuring crawl space venting is in place or installed. Radon assessments are not part of weatherization in Minnesota. Dwellings with previously identified radon problems should not be left with an increased negative pressure in the contaminated area after weatherization work. Vapor barriers are installed in dwellings with accessible crawlspaces where there is exposed soil.

      MN does not test nor install radon mitigation systems. We take the approach of assuming levels are higher and take the pre-cautionary approach to reduce the risk of increasing the levels of radon due to aggressive air sealing by installing measures as an HSM in conjunction with ASHRAE ventilation. Properly assess the home to align with this approach and document in the H&S tab the extent of what work will be done.

Q. Do I need to air seal every pump cover and how do I seal it?
   A. Any sump that is connected to the ground must be sealed. If a sump is directly connected to the ground such as a hole in the floor of the slab or dirt floor, or if drain tile is connected to the sump, the opening shall be covered with a cover and sealed (SWS 2.0401.2) when applicable (WPN 22-7).

      When sumps are installed to allow for bulk moisture to drain, a one-way ball valve fitting should be installed if there is enough room. Sump covers are required when applicable to help reduce the possibility of radon from entering the home. Covers shall be sealed with silicone caulk or other material that will allow for an airtight seal, along with any penetrations through the cover. If there is a pump present, it shall be turned off and unplugged prior to any work commencing.

Sump pumps come in two styles, submersible or pedestal pumps. Submersible pumps sit totally submerged in the sump crock. Pedestal pumps have the pump motor extended above the sump crock. In principle, both types of sump pumps operate the same. As the water rises in the sump crock, a float attached to the pump rises until it triggers the pump to turn on and pump water out of the crock. Submersible pumps can have floats that are free floating or that ride up and down on a shaft. The float on a pedestal pump rides on a rigid shaft that extends above the plane of the sump crock.

Sump covers for submersible pumps

- For flat covers, sump pit cover materials must be rigid and made of polycarbonate plastic or other rot resistant material such as pressure treated plywood.
- The covers shall be secured with silicone caulk. If gasketing material is used mechanical fasteners are required so that the cover can be removed.
- All sump cover penetrations shall be sealed.

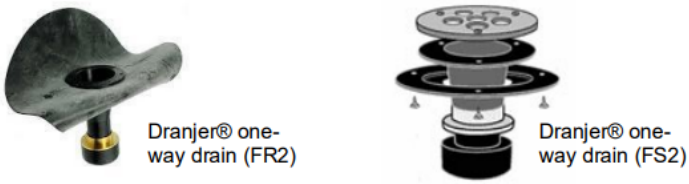
Pedestal pump Sump covers

There is no way to take the pump apart so holes can be drilled in the cover for the pedestal and rigid tubing that the float is attached to. The tubing cannot be sealed since it moves when the float moves. The only options for sealing a sump with a pedestal pump are to.

- Replace the pedestal pump with a submersible pump and then seal the sump.
- Install a commercially made cover for the pedestal pump.

If the sump is used as a floor drain, or if a floor drain is connected directly to the ground under a slab and not to any waste plumbing, installing a one-way drain may help reduce the possibility of radon entering the home.

- Determine if the floor drain is connected to the ground under the slab or to waste plumbing.
- If the drain is connected to the ground, follow the manufacturer's instructions for installing the appropriate one-way drain. Examples below:



Dranjer® one-way drain (FR2)

Dranjer® one-way drain (FS2)

Photos courtesy of Dick Kornbluth, LLC