

Air Sealing

What is Air Sealing?

Air sealing is the prevention of air leaking in or out of your home. This simple process can lead to immediate energy savings. Unlike other retrofits, air sealing has many components that a homeowner can easily complete on their own.

Heat often escapes through gaps in the building envelope, such as the space around windows and doors, penetrations in the foundation or attic, and any leaks in the exterior walls. Typical solutions range from using sealant in gaps to weather-stripping any doors, windows, and hatches



Did You Know?

A blower door test carried out by a professional energy advisor can help locate the sites of air leakage specific to your house.

Photo Credit: VHF

Important Considerations

Most air sealing can be performed by the homeowner with minimal impact on a home's heritage fabric. As always, exercise caution when looking at difficult-to-access points such as the attic. In some cases, homeowners may opt to hire a professional.

It is important to note that older homes were designed to be breathable, and while air sealing improves energy efficiency, it may change the flow of air through the home. Take ventilation and air quality into careful consideration when planning any interventions.



Photo Credit: VHF

Air sealing takes many forms and the best course of action depends on the specific sites of leakage in your home. This guide gives examples of common areas to address, however, homeowners should follow the recommendations that come from doing a blower door test.



Photo Credit: VHF

Top Three Ways To Improve

01 Windows and Doors

Doors and windows are a common site of heat loss. Ways of improving airtightness include weather-stripping moving parts and adding sealant to fixed components such as the area between the wall and the interior frame. Windows can also benefit from replacing inadequate hardware and repainting the sash and putty lines.



Photo Credit: VHF

02 Attic and Foundation

Because of the movement of warm air from the bottom of your home to the top, leaks in the attic and foundation are a common heat loss culprit. To prevent this, identify what types of leaks you have in your home and find appropriate sealing solutions for each site. Common problem areas in the attic include hatches, the plumbing stack, wires and light fixtures, and any ducts, fans, or chimneys. For the foundation, look for cracks, floor drains with perforated covers, and any pipes, wires, and ducts that go through the foundation. Solutions range from temporary covers to permanent sealant.

03 Walls

Walls facing the exterior of the house are the top priority. Common sites of air loss include electrical outlets, baseboards, and cracks. To prevent air escaping from the junction between the floor and the exterior wall, apply paintable sealant to the top of baseboards and consider adding quarter round trim to where the baseboards meet the floor. For interior walls, look for any gaps between the top of the walls and the ceiling — this area can be sealed to prevent heat loss through the roof. Be careful not to over-seal your walls in order to retain some breathability.

Getting Results

Even a minor reduction of air leakage leads to a measurable reduction in GHG emissions. One VHF grant program participant who improved air sealing by just 6% was able to cut down their yearly emissions by 0.25 tonnes. Combine air sealing with insulation upgrades and the results become significant. In one case, with insulation and air-sealing improvements alone, a participant cut their GHG emissions by 4.23 tonnes a year.

In addition to environmental benefits, air sealing goes a long way to improving the comfort and efficiency of a home. It's an important step in energy efficiency upgrades because it allows other retrofits, like a heating system upgrade, to function better and cost less over time. If performed correctly, air sealing has the added bonus of protecting against moisture, preventing rot and mold. This helps to improve the longevity of insulation and of the house overall. Air sealing is a simple process that makes a big difference to the functionality and livability of your home.



Photo Credit: VHF

Further Readings

BC Housing: Best Practice Guide Air Sealing & Insulation Retrofits for Single Family Homes
<https://www.bchousing.org/research-centre/library/residential-design-construction/best-practices-air-sealing-insulation-retrofits>

BC Hydro: Do-It-Yourself and Save - Reduce Drafts
<https://www.bchydro.com/powersmart/residential/tips-technologies/do-it-yourself-and-save/reduce-drafts.html#pads>

Manitoba Hydro: Sealing, Caulking and Weatherstripping
https://www.hydro.mb.ca/your_home/resources/1_sealing_caulking_and_weatherstripping.pdf