Home Energy Loan Program

AIR SEALING YOUR HOME

Air sealing is one of the most essential, yet cost-effective ways to improve the comfort and energy efficiency of your home. Air sealing is the process of finding and sealing the air leaks throughout the building envelope of your home and should always be considered when performing upgrades. Air sealing helps block the movement of air through cracks, holes, or other gaps throughout the attic, walls, basement, and crawlspaces, and helps ensure that moisture does not enter the insulation or building envelope.

Air leaks occur where there is a hole or crack in the building envelope and a pressure difference. In a typical residence, air leaks may account for between 25 and 40 percent of the energy used for heating and cooling. Air leaks typically occur around windows and doors, cracks in the walls, and in areas that are harder to see such as penetrations in the attic for plumbing, wiring, lighting, and ductwork, or in areas where foundation and walls typically meet.

Common Air Leak Locations

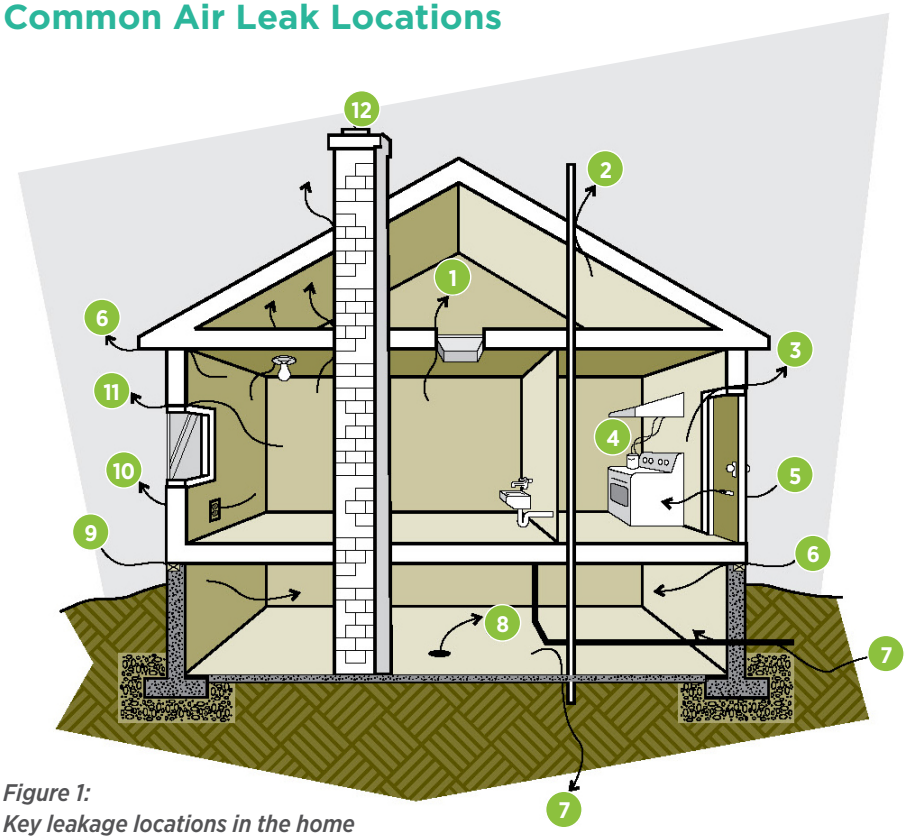

Figure 1:
Key leakage locations in the home
Courtesy of Natural Resources Canada

WHERE TO LOOK

Key locations to check for leaks:

1. attic hatch
2. ceiling penetrations into the attic
3. door
4. exhaust vent
5. mail slot
6. sill and header
7. service entry
8. floor drain
9. foundation crack
10. electrical outlet
11. window
12. chimney

Learn more about locating air leaks and air sealing your home at nrcan.gc.ca

Benefits of Air Sealing

Air sealing your home may provide many benefits including:

- Reducing heating and cooling costs
- Improving the durability of your home
- Increasing the comfort of your home by reducing drafts, cold air, and unwanted noise
- Decreasing moisture and condensation by eliminating warm air from entering gaps and cracks in the walls, attics, and basement, which can also lead to mold and mildew problems
- Improving air quality by reducing incoming outdoor air pollutants, dust, radon, and unwanted insects or pests

Measuring Airtightness

Figure 2: Blower door test

Before sealing any leaks in your home, it is important to have a registered Energy Advisor perform an EnerGuide audit, which includes a Blower Door Test, and determines how much air flows through your home. Airtightness is measured by placing a depressurizing fan inside one of the doors and pulling air outside of the home to force exterior air to come back in through any holes, cracks, or gaps, and measuring the flow of the incoming air with a pressure gauge. Air leakage is measured in air changes per hour at 50 Pascals (ACH@50Pa). The fewer air changes per hour, the more air-tight the building envelop is.

Your EnerGuide audit report will provide you with a target to improve the airtightness of your home to achieve an improvement in the ACH@50Pa.

Learn more about EnerGuide energy efficiency home evaluations at NRCan.gc.ca

How To Air Seal Your Home

Air-sealing can be done by hiring a contractor or by doing the work yourself. Typically, the targets defined for your home will be achieved through the assistance of an air-sealing professional who can properly seal those hard-to-find places such as the holes, cracks, or gaps in the attic. Attics often have leaks at the chimney, vents, plumbing pipes, and electrical boxes which can account for substantial heat loss and can lead to a variety of moisture-related problems. Air sealing is and can often done in conjunction with insulation and/or vapor barrier upgrades. To find an air-sealing contractor, take a look at our pre-vetted contractor list and our factsheet for tips on choosing a contractor.

Areas that are readily accessible such as visible leaks around windows and doors, may be more suitable for the do-it-yourself (DIY) approach. If you are planning the DIY approach, please visit NRCan Keeping the Heat In for tips.

There are many products available for air sealing including caulks, foams (spray foam, including expandable polyurethane and water-based foams), tension seal, felt, weatherstripping, gaskets, tapes, aluminum or stainless-steel door sweeps, and house wraps.

Common DIY areas for air sealing include:

- Caulking door and window frames.
- Weather-stripping doors and moving windows.
- Installing foam backers behind the outlet covers and child proof plugs to stop air coming out the outlet holes.
- Caulking or using spray foam to seal leaks around light fixtures, vents, bathroom fans, light fixtures, interior trim, open wall cavities, floors, ceilings, soffits over cabinets, furnaces, water heaters, and plumbing stacks.

What about Ventilation?

The Blower Door Test may also find that your home is sealed too tightly, if this is the case it may require additional ventilation. Furnaces, water heaters,

fireplaces, and all fuel-burning appliances require air for combustion and need to be able to exhaust the products of combustion out of the house. Therefore, it is important to ensure that proper measures are taken because without proper ventilation, excessive water vapor and harmful combustible gases such as carbon monoxide can accumulate in your home.

What is the HELP Rebate Amount for Air Sealing?

The Home Energy Loan Program is offering rebates to all participants of $900 for air sealing if the target in the Renovation Upgrade Report is met.

Your Renovation Upgrade Report will provide you with a target to improve the airtightness of your home to achieve an improvement in the ACH@50Pa. If this target is met, the qualifying rebate will be applied to your final loan amount. Validation will be provided through post-retrofit EnerGuide evaluation.

Please see the **HELP Rebates Factsheet** for eligibility requirements, and further details on how to receive HELP rebates.

To learn more about air sealing, please visit:

- NRCan Keeping The Heat In
- Seal and Insulate with Energy Star
- U.S Department of Energy Air Sealing Your Home

Sources: Natural Resources Canada, Greener Homes Grant Initiative, U.S. Department of Energy, U.S Environmental Protection Agency, and HERA Edmonton.