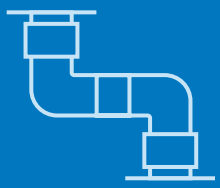

Air sealing

Air sealing is a fundamental step in making your home more energy efficient. Just by air sealing gaps and holes in your attic, crawlspace and other breaks in the thermal boundary, you could save 10% or more on your energy bills. TVA EnergyRight® and your local power company make it easy to hire with confidence for your air sealing improvements when you choose a TVA-approved contractor— licensed, insured and trained to stop air leaks—through our Quality Contractor Network (QCN).

Why is air sealing important?

Air sealing is one of the most cost-effective ways to improve your home's energy efficiency and comfort. In addition to sealing gaps or holes in your attic or crawlspace, you'll also want to air seal your home's exterior walls, ceilings, windows, doors and floors. And before you add any insulation, make sure your home has been properly air sealed. Once that's complete, you could save 10% or more on your total annual energy bills.

What does air sealing improve?

- Reduces energy bills.
- Improves comfort, especially during winter and summer months.
- Reduces noise from the outside.
- Prevents allergens, dust, contaminants and insects from entering your home.
- Improves indoor air quality.
- Improves humidity control.

What areas should be air sealed?

Many air leaks and drafts are easy to find because you can feel them, especially hot or cold drafts sneaking in around windows and doors. But those aren't the only places where energy and money could be slipping out of your home. Holes hidden in attics, basements and crawlspaces are usually bigger problems. Penetrations in ceilings and floors for electrical wires, plumbing, ducts, chimneys, flue pipes and recessed lights can be major sources of air leakage and are often not visible. The nature of the leak and the surface to be sealed will determine what type of air sealing material to use, e.g., caulk, expanding foam, rigid foam board, weather stripping, etc. Make sure to let your contractor know about any excessively drafty areas in your home.

What about air sealing windows?

Old windows can usually be made more energy efficient at a much lower cost than replacement windows with a few air sealing fixes. Jambs and trim will need to be adequately air sealed to optimize the energy efficiency potential of both new and old windows. And if new windows are installed, they should contain energy efficiency features, like low-e coatings and gas filling. Look for the ENERGY STAR® label on new windows.

TVA installation requirements for air sealing*

General standards:

- Roof leaks and moisture issues to be repaired before work begins.
- Major penetrations in the ceiling, basement and crawlspace to be sealed.
- If the foundation perimeter is sealed, then the installation must meet all TVA standards for closed crawlspaces.
- Non-airtight recessed lights, if accessible, to be sealed with an airtight recessed baffle trim as long as the work does not require cosmetic ceiling repairs.
- Bath fan-light combo units should be sealed like a non-airtight recessed light.
- Attic access to have an airtight cover. Minimum R-10 insulation is recommended.
- Seams, cracks, joints, penetrations and connections to have a continuous seal.
- Installing contractor to ensure there is enough fresh air in the home for the occupants.
- Exposed rigid foam or spray foam insulation to have a fire barrier per local code requirements.
- Do not block or seal openings required for combustion ventilation.
- QCN member to advise customer to install a working carbon monoxide (CO) monitor if the home has any gas appliances or an attached garage.

Caulking, sealants, backers and glazing materials:

- Surfaces to be clean, dry and repaired prior to installing caulk or glazing.
- Sealants to be compatible with intended surfaces.
- No material to be installed within 3 inches of a heat source (6 inches for single wall vent pipe) unless it is fireproof (fire-rated caulk, metal flashing, mineral wool).
- Depth of caulk not to be greater than the width of the joint; use appropriate backer materials as needed to minimize hole size.
- Foam products to be protected from direct sunlight.
- Support material to be installed if air barrier spans wider than 24 inches, or as rated.
- Excess caulk and sealants to be removed from adjoining areas.
- Ineffective glazing to be replaced; glazing points to be no further than 12 inches apart and within 3 inches of each corner of glass.

Weather stripping and thresholds:

- Weather stripping to be high quality with a minimum 20-year life expectancy.
- Weather stripping to be permanently attached with approved hardware and caulk, and to create an effective air seal.
- Sash locks, eye hooks or other hardware may be necessary to achieve air seal.
- Threshold to be metal with vinyl insert or metal saddle with door shoe.
- Threshold to be secured with screws or bolts to achieve a good air seal.
- Door or window to open and close properly.

Go to **EnergyRight.com** to register your home and connect to the Quality Contractor Network.

**This sheet is not a substitute for the TVA Standards.*

RECOMMENDED BEST PRACTICES

- Air seal attached garage, walls, windows and doors.
- Caulk gaps smaller than ¼ inch.
- Foam gaps ¼ to 1 inch.
- Use a backer for gaps larger than 1½ inch.
- Maintain a continuous air barrier around building envelope.
- Sealants in visible areas should be limited to low sheen clear caulks or paintable caulks.
- Air seal perimeter of crawlspace or basement near water pipes at risk of freezing.
- If some areas are inaccessible, strategic dense pack and/or foam insulation should be considered to reduce air leakage.
- Install mechanical ventilation if less than 0.35 ACH.
- Ensure combustion safety carbon monoxide (CO).
- MSDS sheets for air sealing materials should be on each job site.