

A thermal imaging camera is a great tool because it can see what your eyes can't. You can use the camera to see air leaks and missing insulation in your home. Insulation and air sealing are key to home comfort and lower utility bills.

**To get started**, here are a couple ideas of where to point the thermal imaging camera in your home.

Doors and windows

Recessed ceiling lights and outlets

Exterior of your home and roof

Ceilings and walls

Fireplace

Attic access areas

It is best to use the camera when the temperature difference between the outside and the inside of your home is 20 degrees or more.

**Here are a few examples of how the thermal imaging camera can be used:**

The images on the next page were taken in winter. They show cold areas as blue and purple. The yellow, orange, red, and white areas are warmer.

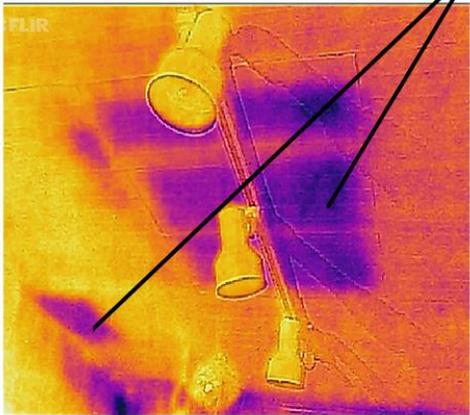
When looking at the inside of your home in the **winter**, blue and purple indicates that cold air is leaking into your home. When taking photos in the winter from the outside, yellow, orange, and red areas show where heat is escaping from your home.

In the **summer**, leaking windows and doors will likely be warmer (warm air leaking in from the outside). Missing insulation will likely appear as warmer as well, when viewed from the inside.

Missing roof insulation



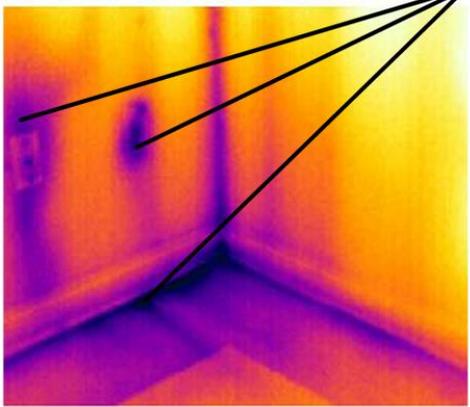
Missing attic insulation



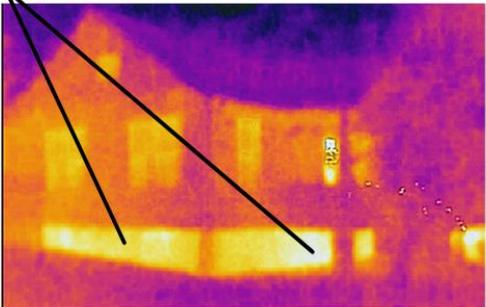
Air leaks at the front door



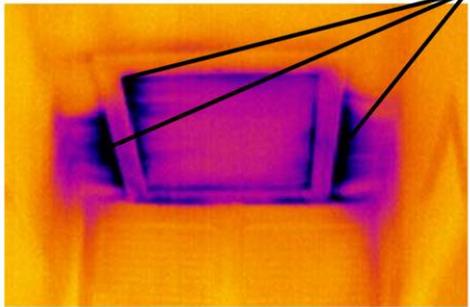
Floor and outlet air leaks



No basement insulation



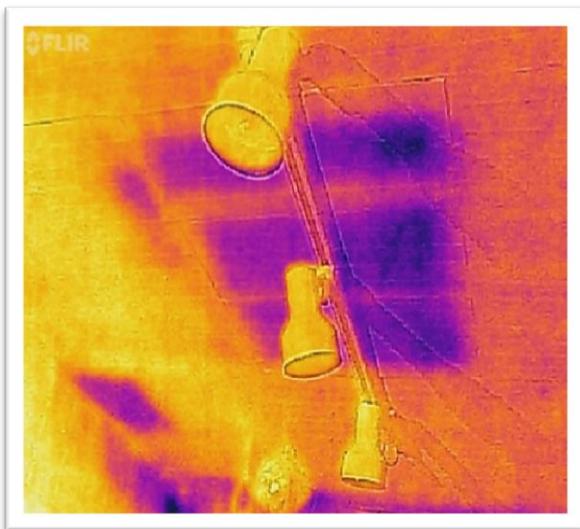
Attic access air leaks



**Doors and windows** are areas that commonly leak and create drafty homes. The image on the left shows cold air leaks around a front door that can be fixed with weather stripping. The image on the right shows a cold air leak around the window trim. This gap can easily be sealed with a bead of caulk.



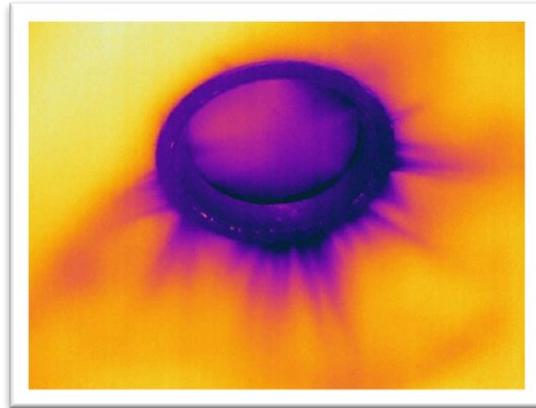
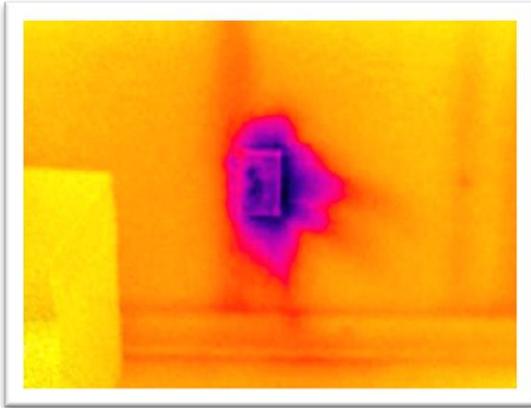
**Ceilings and walls** can be tricky in Falls Church homes. Many Falls Church homes were built when insulation wasn't widely used.



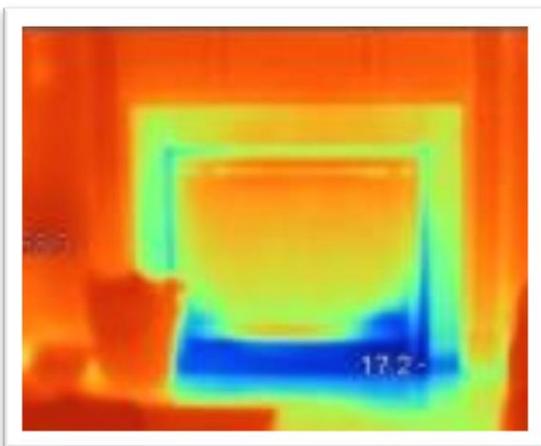
Top floor ceilings with an attic above are often poorly insulated. The walls of upstairs rooms with crawl space behind them (a.k.a. knee walls) are also areas where added insulation can make a big difference. This image shows an area of missing insulation above track lighting in a ceiling.

**Recessed ceiling lights** (a.k.a. can lights) and **electrical outlets** are often installed in rough openings that are not sealed.

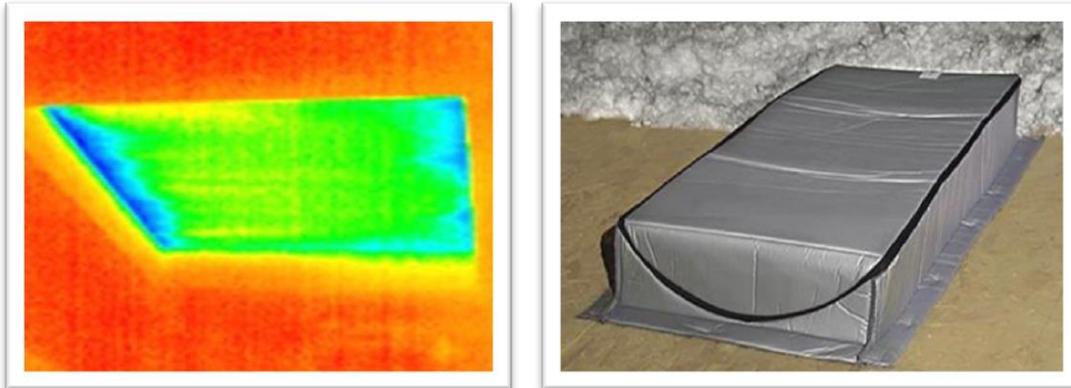
You can caulk recessed lights and install foam gasket covers to keep drafts from getting in through your outlets. These images show air leaks getting in through an outlet (photo on left) and air leaks around a recessed ceiling light (photo on right).



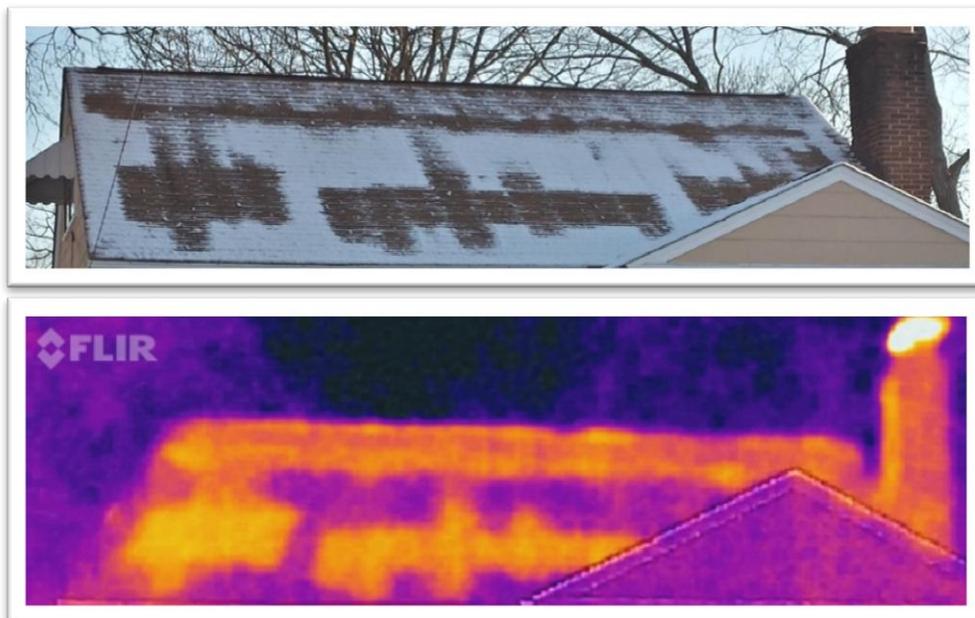
**Fireplaces** are common sources of air leaks. Fireplaces are not used often in most homes but create drafts all year. An inflatable chimney balloon is a simple do-it-yourself fix for leaking fireplace dampers. The balloon inflates to seal the chimney opening completely when not in use and can be quickly removed when you are ready to light a fire. The images below show an unsealed fireplace (on the left) and a chimney balloon (on the right).



**Attics are often accessed** through a pop up panel or a pull down hatch with an extending ladder. Either way, a well-sealed attic access panel can help save energy and money. Below is an image of a leaking attic hatch taken from inside the home (photo on left). The image on the right shows an attic tent as viewed from the attic. The attic tent prevents air from getting in or out of the living space from the attic. The attic tent is easily stapled in place and zips open and closed when attic access is needed.



**Attic and roof insulation** are critical to keep heat in during the winter and prevent the summer sun from heating your house up. In the photos below, the thermal image (top photo) was taken without snow on the roof and shows areas where insulation is missing inside the roof. The bottom image was taken a month later and shows a clear correlation between the missing insulation and snow melt (snow melted on the roof in areas where there is no insulation).



## What If You Find An Issue?

If you are handy and can use a caulk gun or install insulation, give it a try! If not, contact a local contractor to help.

Getting an energy audit is the best way to comprehensively evaluate your home. An energy audit provides you with a prioritized list of actions to take in order to save energy and money. Energy auditors can also connect you with skilled weatherizers and insulation installers to help make your home more energy efficient and comfortable. BPI Certified contractors are trained to do energy audits.

**BPI Certified Contractor Search:**

[http://www.bpi.org/individual\\_locator.aspx](http://www.bpi.org/individual_locator.aspx)

## Questions Or More Information?

Send questions to the City's Environmental Programs Coordinator:

[kwalker@fallschurchva.gov](mailto:kwalker@fallschurchva.gov)

For more information, visit: [www.virginiaenergysense.org](http://www.virginiaenergysense.org)

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