

The thermal imaging report that follows and the visual walkthrough that was conducted are not intended to constitute a complete energy audit and should not be used in determining an overall work scope. Although they can be very useful and in some cases give enough information to begin work, they do not cover the very important aspect of pressure differences and airflow within the house. It would be recommended to complete the diagnostics with a blower door test and a full written report.

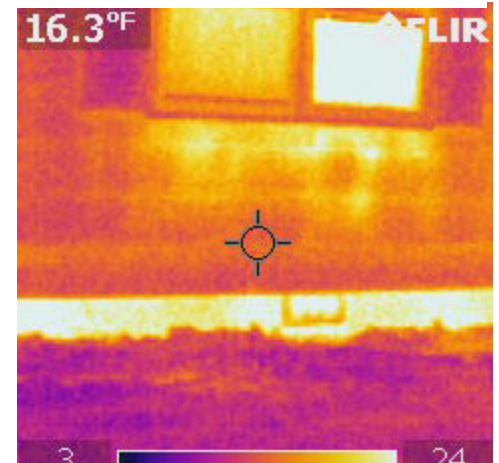
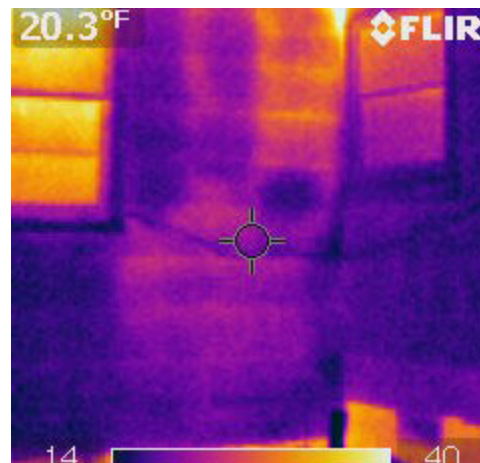
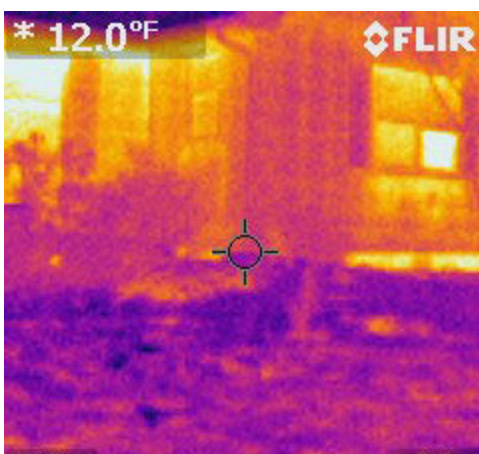
With the lighter colors being warmer and the darker colors cooler, we can see heat movement throughout the house. We are basically looking for breaks in the “thermal blanket” that are allowing heated air to leave the house in the winter and enter the house in the summer. Some air movement may also be visible and will be noted.



Inside corners typically have loose insulation as it has to be cut to fit into thinner cavities than the rest of the wall.

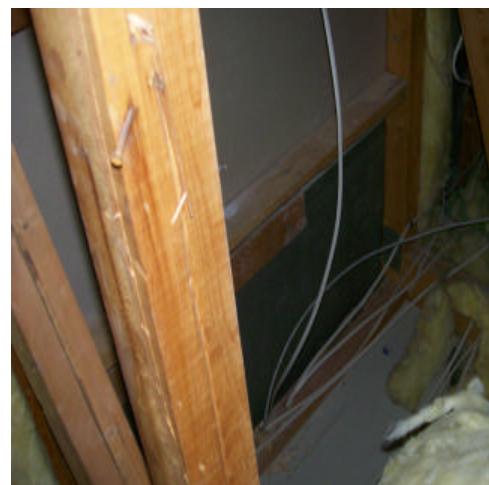
Even if insulation is present, if it is not in contact with the finished wall surface, it will not be effective. The center photo is an insulated wall before the interior wallboard was completed.

As the lighter areas are signs of heat loss, the foundation and rim joist (where the floor sits on the foundation or the first and second floor meet) show typical heat loss. If the structure is accessible from the basement or crawlspace, foam insulation would be an advisable and cost effective treatment.



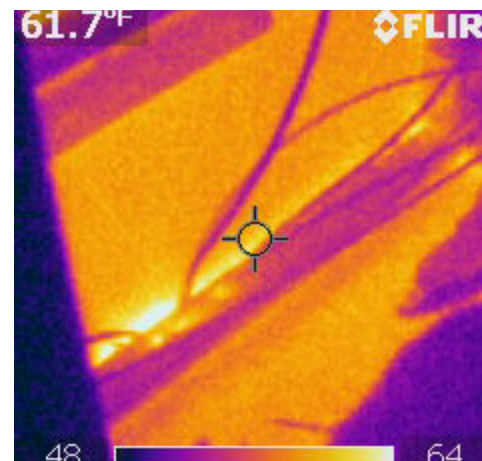
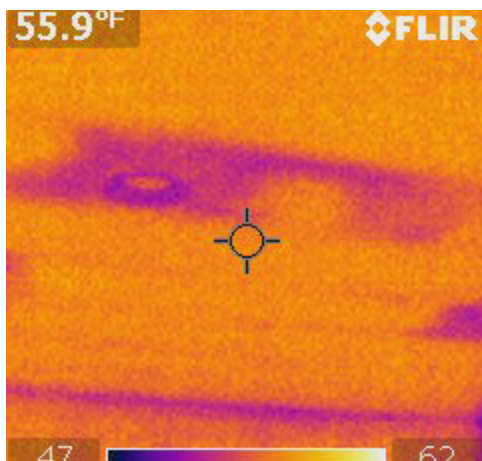
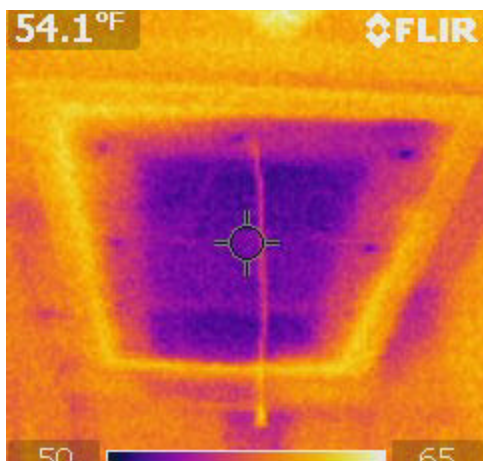
Ideally your house should be completely wrapped in a “thermal blanket” (insulation) and be in total contact with an “air barrier” (generally interior wallboard or other finishing materials). MOST HOUSES ARE NOT. Main areas of concern will be the attic, unfinished basement, crawlspace, and garage connections to the house. By reducing the connections to these areas that are “outside” we can greatly reduce fuel usage and increase the comfort level with the house.

Probably the largest but easily repaired openings into the attic are hatches (pull down stairs are major heat loss and air leakage sources), whole house fan louvers, and recessed lights. If you do nothing else to control heat loss, sealing attic penetrations will make a difference.



A major source of heat loss is often hidden under the insulation. The tops of interior partition walls are filled with holes for wires and pipes that connect the interior conditioned rooms to the attic. Even though the insulation looks good, it is not an air seal. These holes need to be filled. If you can feel cold air coming out of a first floor outlet, it’s probably being pulled into the house because warm air is leaving through the attic.

The third photo is from the attic. Because the attic is ventilated it is supposed to be close to the temperature outside. Look at the heat (62 degrees worth) coming through the wire holes and ceiling where the insulation is missing. These are not hard to fix when you know what you’re looking for!



SUMMARY:

Insulate and seal the attic access and whole house fan.

Have covers made for the recessed lights that provide at least 3” of clearance between the box and the fixture or replace the fixtures with ones that can be in contact with insulation (called ICATs - in contact and air tight).

Lift insulation above partition walls and seal wire penetrations and gaps in the wallboard.

Insulate accessible rim joists in basement and crawlspace.

Insulate crawlspace walls to bring the area “into” the house or seal the wall up between the house and the crawlspace (install an insulated hatch for access) and keep the area “outside“ the house.

Weather strip all doors leading to outside areas or areas that are not heated.

Conduct a blower door test before and after any work is done to verify effectiveness of the air sealing.



HUDSON VALLEY ENERGY CONSULTANTS

THERMAL IMAGING REPORT

Prepared for: Anyone

Address: Anywhere

Date: Any time

Weather conditions: snow

Outside temperature and relative humidity: 23deg./ 20%