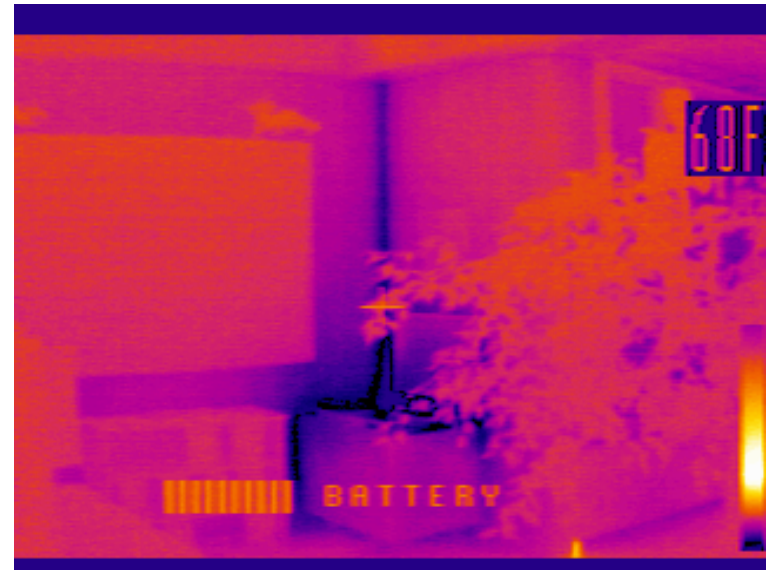




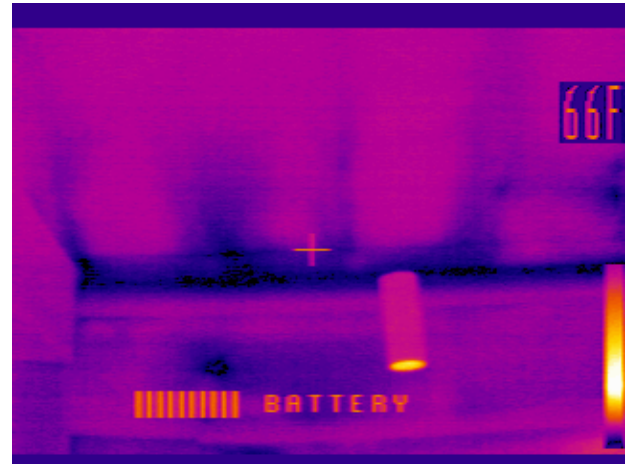
Thermographic – or infra red - images:

Brighter colors indicate warmer surface temperatures – darker areas indicate coolth.

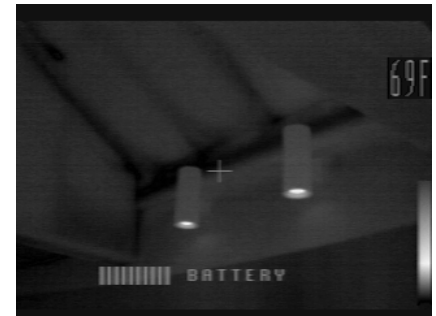
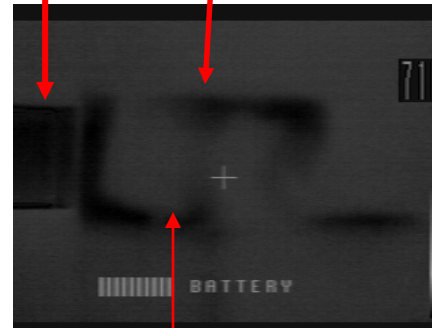
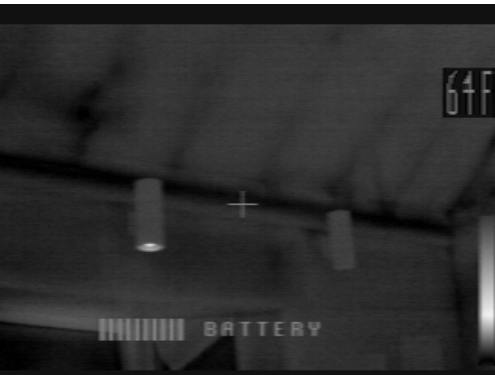
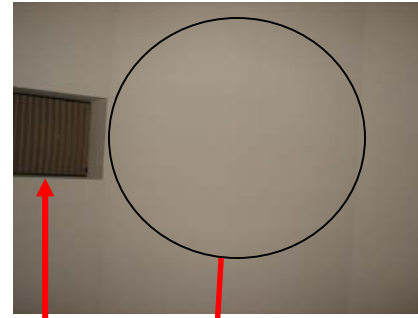
Therefore, the above image depicts significant heat loss at the floor of the ‘alcove’ areas, as well as, to somewhat lesser degrees, below the roof eaves and through the entire foundation wall.



Corners are often areas of coolth for one or more reasons – 1. more structural members (with diminished insulation value 2. air infiltration and joints of wall, floor, or ceiling assemblies 3. indoor air circulation 4. all of the above!



Insulation in the ceiling cavities is most likely fiberglass, which despite its predominance in the market, has the poorest performance of all. While its “R-Values” reflects its effectiveness if reducing heat loss through conduction, Its low density properties, which allow thorough air movement, make it completely useless in preventing or even reducing heat loss through convection. Since heat transfers in varying degrees by all three means of transfer: conduction, convection, and radiation – its inability to restrict air flow is its fatal flaw as an effective insulation material – See above “windwashing” of cold outside air literally cooling the interior ceiling surfaces. Yes, I know that’s what is used most often. Not the first time we’ve ended up with a product of Good marketing and bad science!

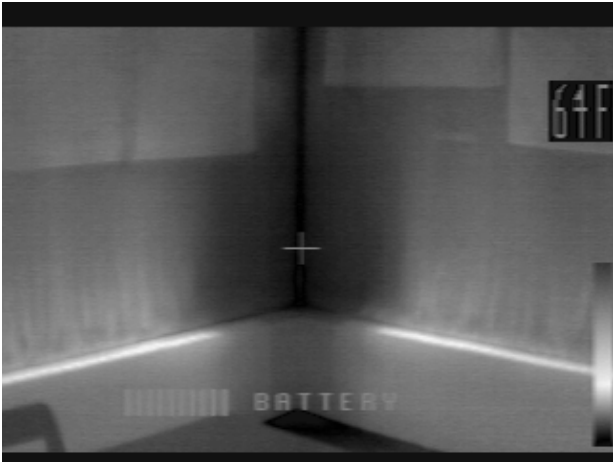


Classic example of a fiberglass batt not working.

These IR images are as they come from the camera without colorization – dark still means colder – light means warmer.



Cold areas such as these exist throughout the newest addition because missing or ineffective insulation.





Infra red images of masonry walls are not as informative as the walls are of one conductive material and therefore do not show anomalies. On the other hand, dealing with a single wall material (type), makes it easier to conduct heat load calculations.



Air infiltration, even in a masonry building, can still be a very significant piece of the heat loss puzzle.



Water's ability to move mountains, shape landscapes, not to mention foster all life on the planet, makes it a powerful force to manage if you want a building not to change over time.



The two primary aspects of a long term needs assessment for this building will involve both the ongoing challenge of managing water and the increasing costs of supplying energy for heating and cooling within a context with limited potential for decreasing energy demand.

