# Interpreting Infrared

Weatherization Energy Auditor Single Family

Learning Objectives

By attending this session, participants will be able to:

* Explain the strengths and limitations of infrared (IR) thermography.
* Interpret IR images as they relate to weatherization opportunities.
* Demonstrate how to assess the quality of installed weatherization measures using IR images.
* Use IR imaging in conjunction with blower door to track infiltration and direct air sealing activities.

Key Terminology

Infrared (IR)

Supplemental Materials

Handouts & Resources

Collins, Maureen. “IR – Worth a Thousand Words.” *Home Energy* Sept./Oct. 2008. <www.homeenergy.org>.

Interpreting Infrared Quiz.

Interpreting Infrared Quiz Answer Key.

“IR Basics.” *WxTV*. Montana Weatherization Training Center. <www.wxtvonline.org>.

Snell, John. “Breakthroughs in Infrared Cameras.” *Home Energy* Jan./Feb. 2006. <www.homeenergy.org>.

Snell, John. “Infrared Thermography: (Nearly) A Daily Tool.” *Home Energy* Mar./Apr. 2008. <www.homeenergy.org>.

Snell, John. “Infrared Thermography: What Works, What Doesn’t Work.” *Home Energy* May/Jun. 2010. <www.homeenergy.org>.

Classroom Props & Activities

Infrared camera set up with live feed to a monitor or projector.

**Classroom Activity**

Run an infrared camera and blower door together to demonstrate how the blower door affects the IR pattern on exterior walls and the ceiling of the classroom. Then allow as many students as possible to use the imagers.

Encourage students to adjust control settings, switch from black and white to color images, and offer interpretations about what they are seeing.

Dark streaks evident in the wall cavities or ceiling on a cold winter day (light streaks in summer) are indirect evidence of cool air circulating in those cavities. Offer possible explanations about what is seen along with guidance to resolve any erroneous interpretations.

Class Overview

* Field staff members can grow restless in a lecture setting. Make the class as interactive as possible by soliciting relevant experiences from the class. Note the question and answer prompts italicized in the speaker’s notes of the PowerPoint presentation and use them to keep the class lively and interesting.
* Remind students that high-tech tools like infrared cameras are only as good as the auditor interpreting the data.
* If possible, show a live demonstration of IR in the classroom. If not, allow students to use IR during the break.
* Demonstrate the use of as many IR imagers as possible. If technical capacity is present, show a real-time IR scan of the classroom on screen. Pass imagers around so students can handle and use them. If feasible, set up a blower door in the classroom and get CFM50. Show smoke and IR scans and how they reveal the air leakage.