Certified Building Analysis LLC
Residential performance testing

Methods and techniques for testing envelope air tightness, Duct testing and ventilation .

Setting up home for testing

- Things to consider:

Location and status of heating system(s).

Windows and doors need to be closed and locked.

Attic access location, needs positive seal at access point.

Basement access, if unconditioned, needs door and gaskets.

Walk through of home to account for any materials that could be disturbed by testing.

You should look for items in the following pictures on next slides.

After walk through of house

For blower door test

- Windows confirmed closed and latched
- All interior doors open
- All exterior vented appliances dampers left unsealed
- Fireplace dampers closed
- HRV’s(ERV’s) air intake sealed for test

Possibility of mold caused by water damage?

Oil fired heating system that has back drafted and/ or major malfunction.

Improper venting of hot water heater.

Blower door testing

- Blower door testing is done at a pressure of 50 Pa.
- Select an exterior door to install blower door and frame into. Should have unobstructed path to outside.
- There are several manufactures of this test equipment.
- Next slide shows two manufacturers types of blower doors.

Blower doors and components

On the left is the Retrotec 5000 series ,

On the right is the Minneapolis Model 3

dual channel Micro Menometers

Exhaust Fan Flow meter

This is used for testing exhaust fans for flow . The CFM readings are used in conjunction with blower door results for computing ASHREA 62.2-2013-16 compliance.

Thermal imaging with blower door testing

FLIR

Inspection Report

Report Date	5/27/2010

Company	Joshua Jacobs	Customer	Paul Giorgio
Address	31 Randall St, N. Easton ,MA 0356	Site Address	18 Greenfield St, S. Easton, MA 02375
Thermographer	Joshua Jacobs	Contact Person	

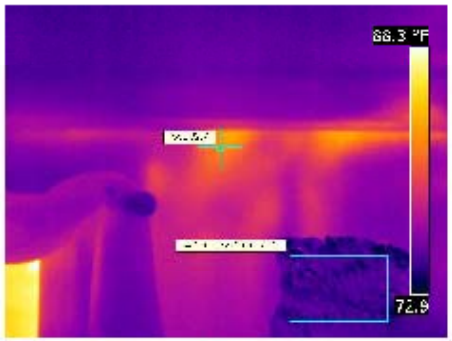


Image and Object Parameters

Camera Model	FLIR B200	AR1 T-ref	75.4
Image Date	5/26/2010 2:48:31 PM		
Image Name	IR_0039.jpg		
Emissivity	0.93		
Reflected apparent temperature	75.4 °F		
Object Distance	3.3 ft		

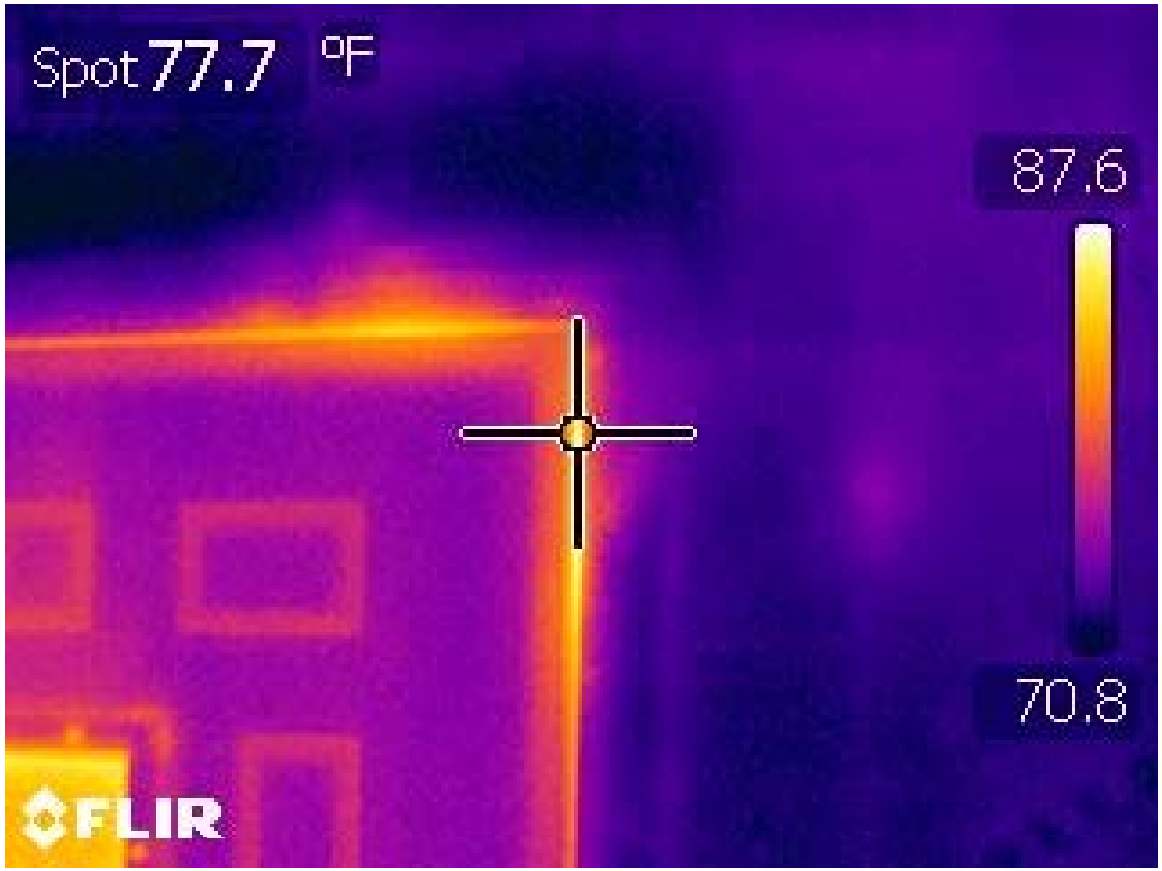
Text Comments

Description

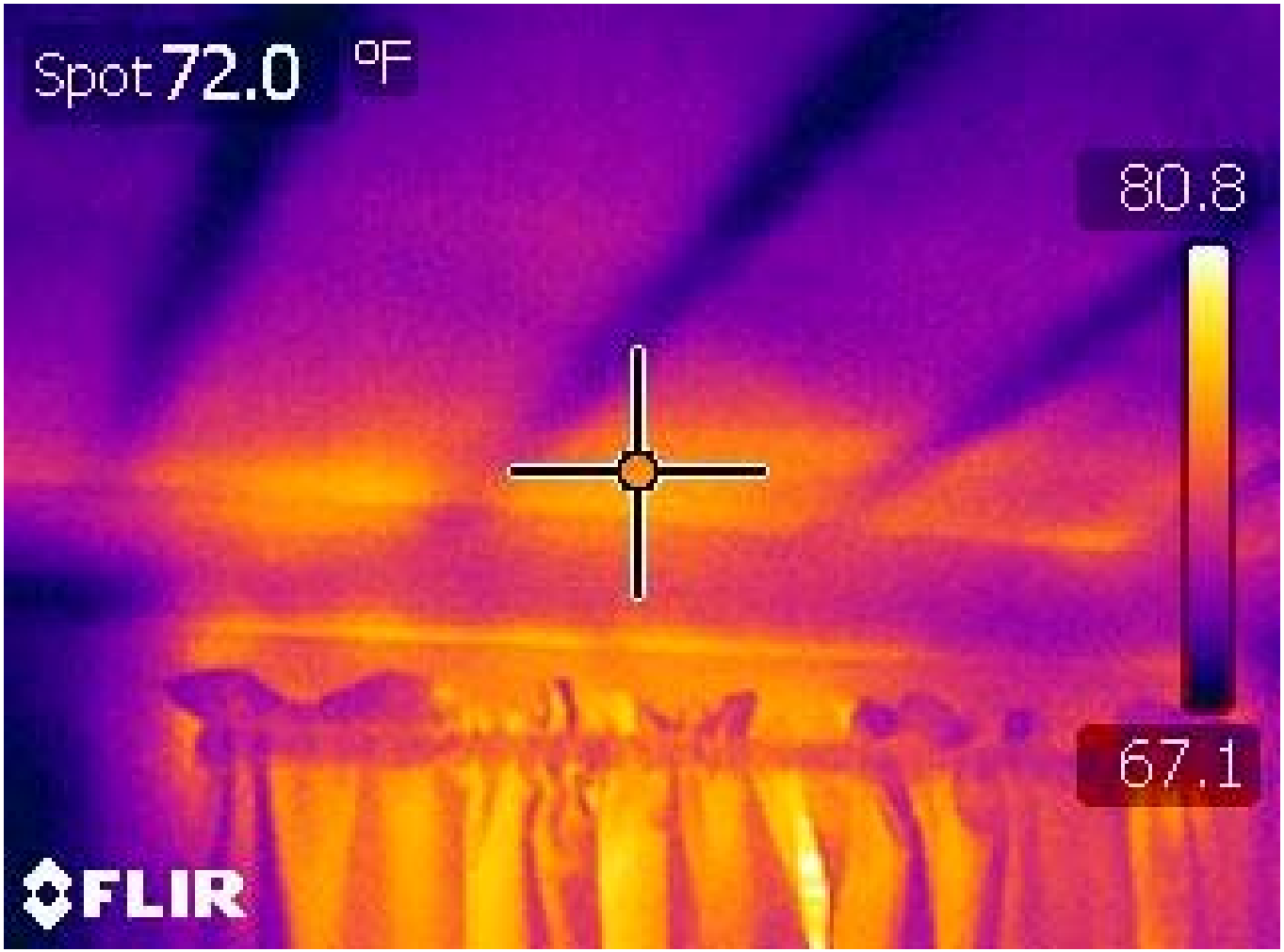
North facing exterion wall at intersection of ceiling and wall , 18 Greenfield St,South Easton, Ma 02375.
Interior conditions consisted of blower door operation at 50 pa, CFM 50 @1474.
Volume of dwelling 15337 cubic feet. ext. temp 88F /RH 64

Left side of bay window upper corner location of interior thermogram

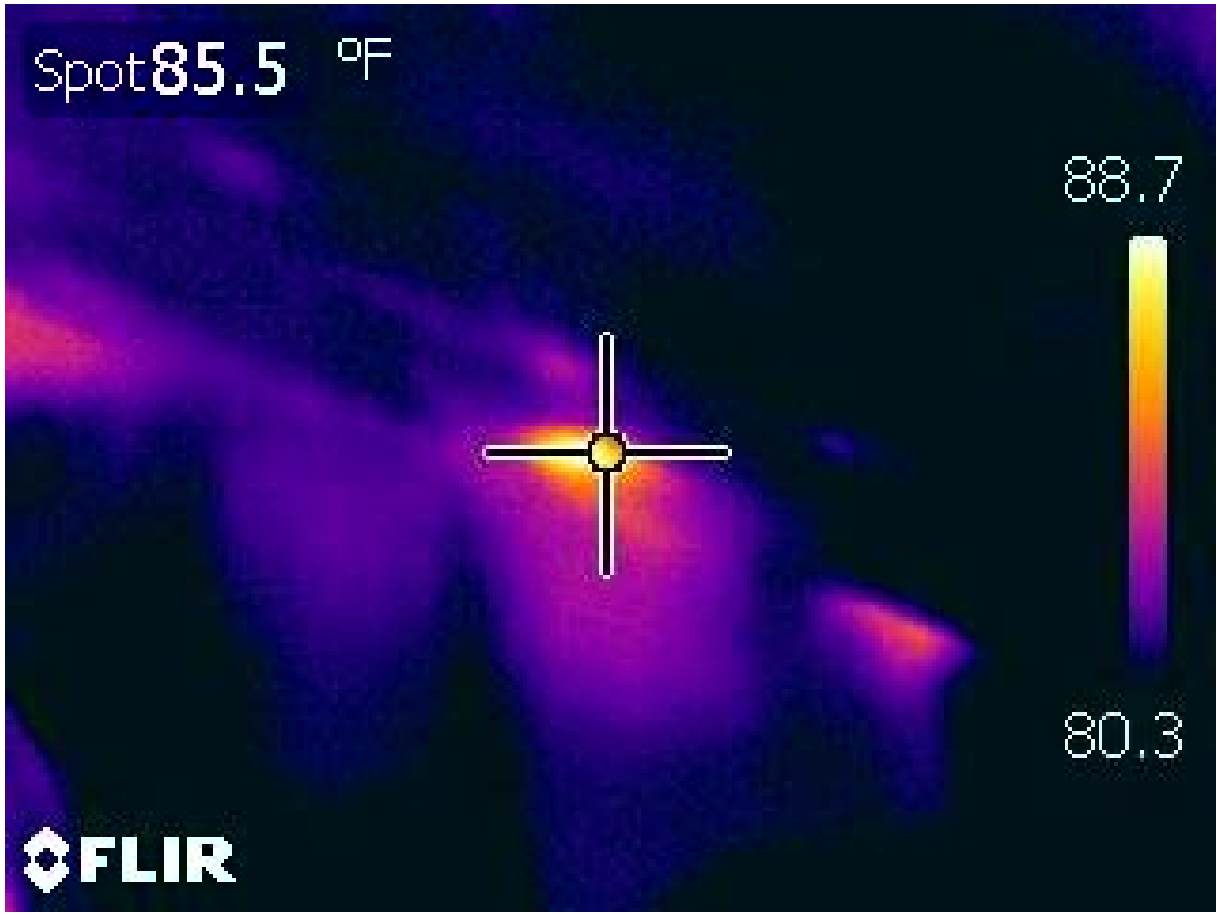
Air infiltration at door during Blower door test



Air infiltration at rear soffit



Air infiltration through rough wiring holes drilled in top of wall



Duct testing

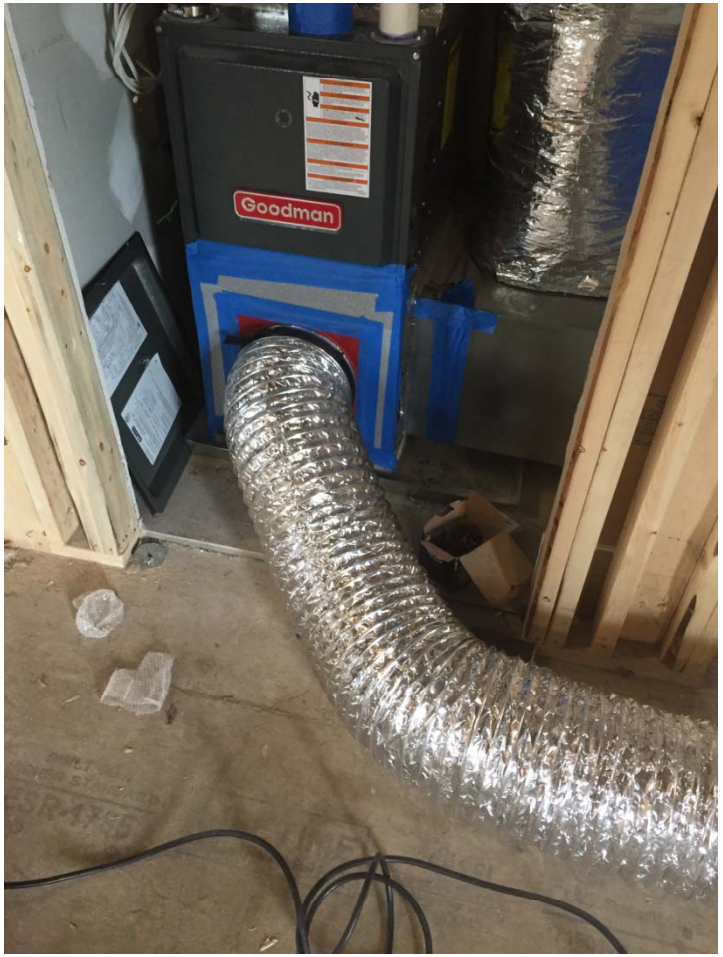
- Set up for duct testing

- For total leakage at least one exterior door or window must be left open.
- For leakage to outside all doors and windows must be closed except for door that blower door is installed in. Duct tester and blower door are run at same time.
- This test is done at 25 Pa

Duct testing set up limits

- Remove filter
- Seal all vent and return grills
- Attach duct tester to air handler if possible
- Insert pressure probe in to a supply nearest to air handler
- Allowable total leakage is based on CFA X .04
- Leakage to outside will be lower to outside, this measure shows how much leakage is occurring in unconditioned spaces.

Duct tester installed



Pressure probe on right Results on left

Do you think that this home may have a moisture problem?

Thank you for your time

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