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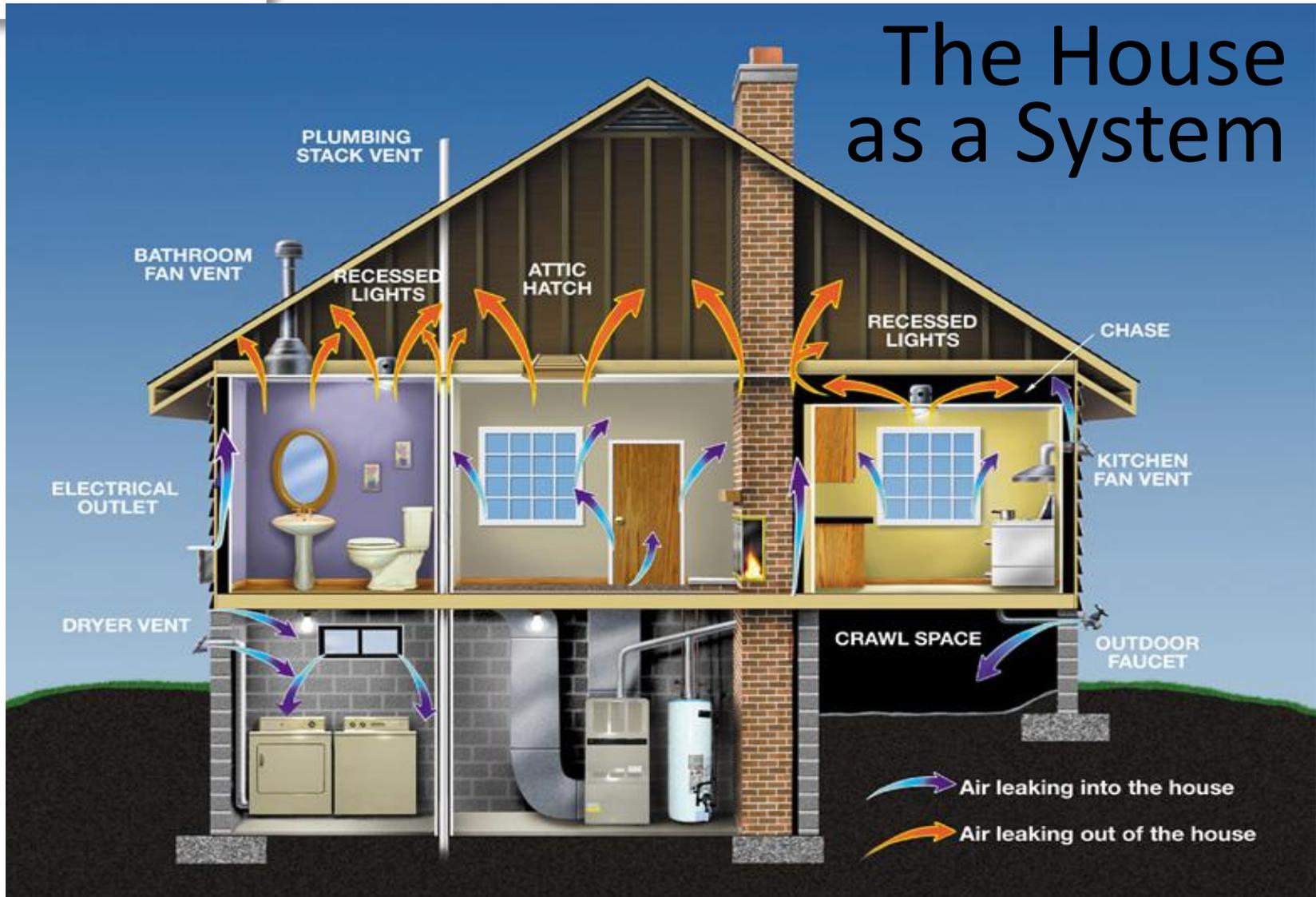
Residential Energy Auditing



An Energy Audit generally consists of:

- A thorough inspection of the interior and exterior of the home using a holistic approach**
- Client education and being educated by the homeowner**
- Diagnostic/health and safety tests**
- Creating a computer model (TIPS, TREAT, EmpCALC)**
- Development of a comprehensive work scope**

The House as a System





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Exterior Inspection



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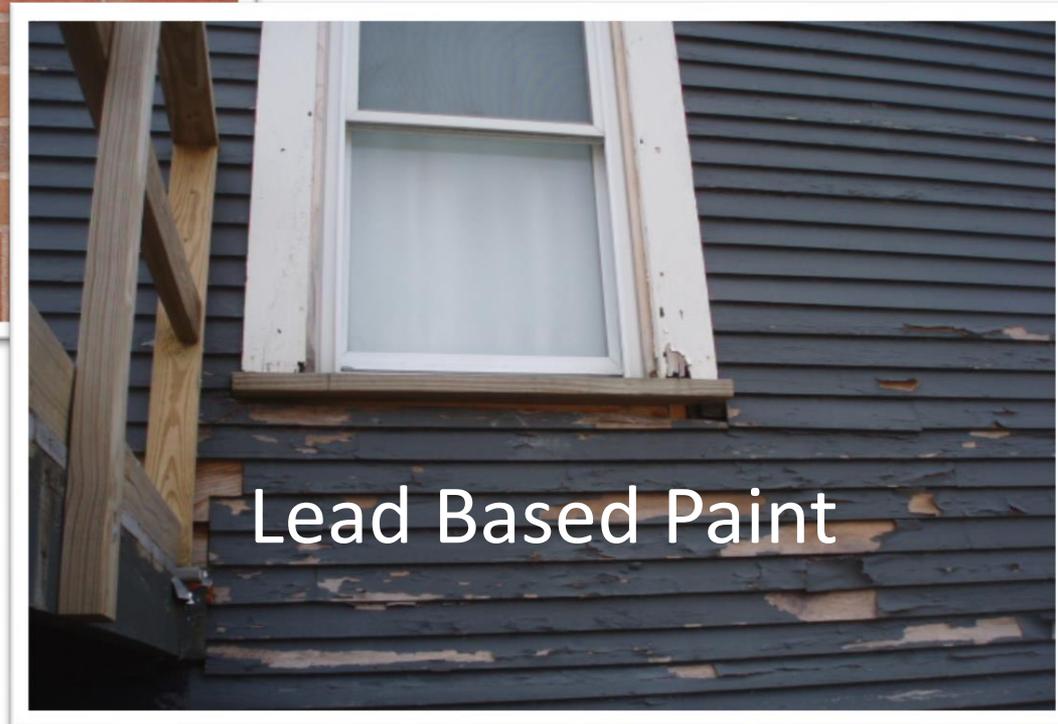
Siding Types



Special Considerations

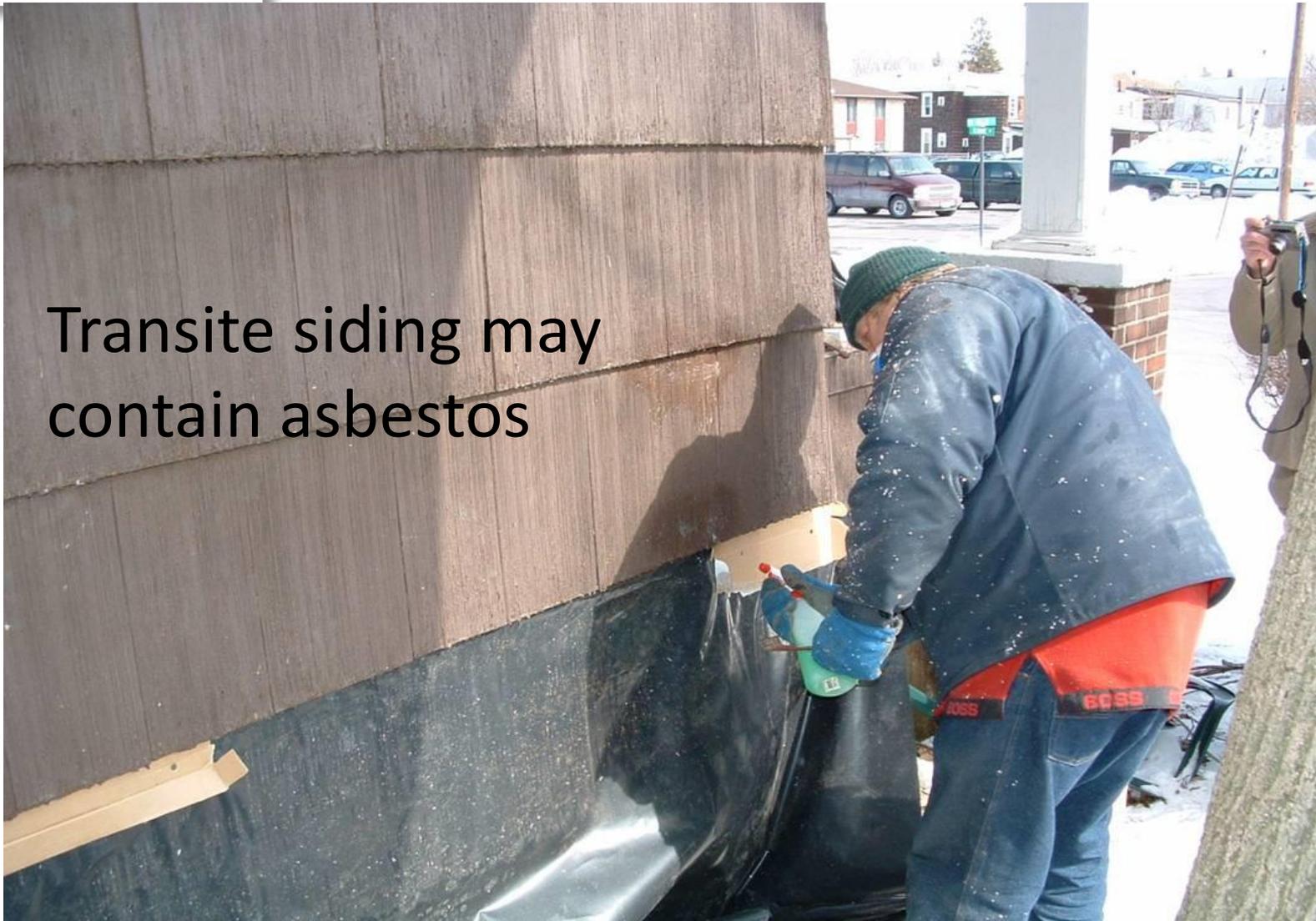


Brick



Lead Based Paint

Transite siding may
contain asbestos



























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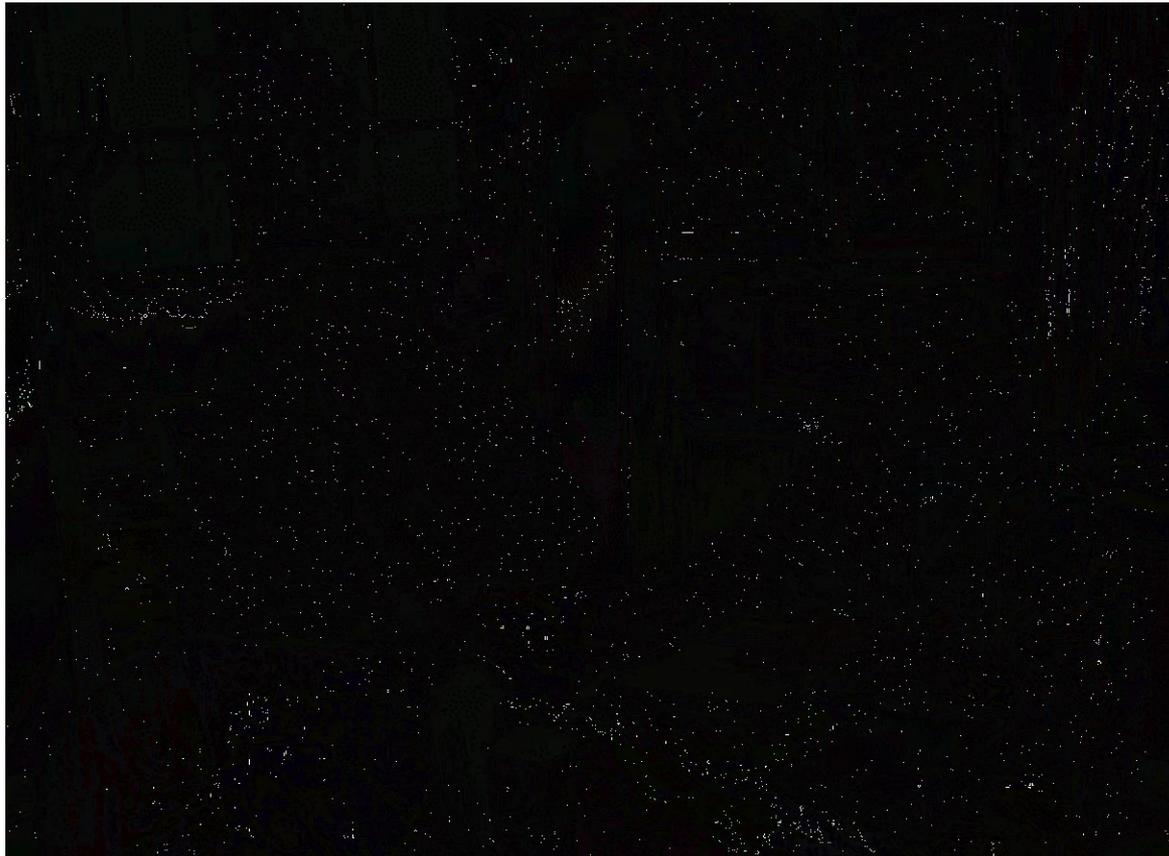




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Interior Inspection

Customer Interview





Client Questionnaire

NYS DIVISION OF HOUSING AND COMMUNITY RENEWAL
WEATHERIZATION ASSISTANCE PROGRAM
DHCR # 11

CLIENT QUESTIONNAIRE

Unit # _____ Building Address _____

HEATING, HOT WATER

- How long have you lived here? _____
- Was the heating system operating last winter? Yes No
- Has any work been done to your heating system in the past 2-3 years? Yes No
- Do you use a separate space heater during the winter months? Yes No
What fuel? Electric Kerosene Other
- Do you have a working fireplace? Yes No
How often is it used?
- When was the last time the chimney was cleaned?
- Do you use a wood stove? Yes No
How much wood did you use during the last heating season?
- Did you use your cookstove for heat during the past winter? Yes No
What type of fuel is your cookstove?
- Does your home or certain rooms ever get too warm? Yes No
If yes, explain where
- Does your home or certain rooms ever get too cold? Yes No
If yes, explain where
- Do you have any noticeably drafty areas? Yes No
If yes, explain where
- When was the last time your heating system was cleaned and tuned?
- Do you change your furnace filter regularly? Yes No
If yes, when was it done last?
- Do you have a setback thermostat? Yes No
What is the highest setting
°F
- What is the lowest setting °F
- Where is the thermostat located?
- Do you close off any rooms? Yes No
If yes, which rooms?
- Do you have an air conditioner? Yes No
If yes, what type?

HEALTH & SAFETY

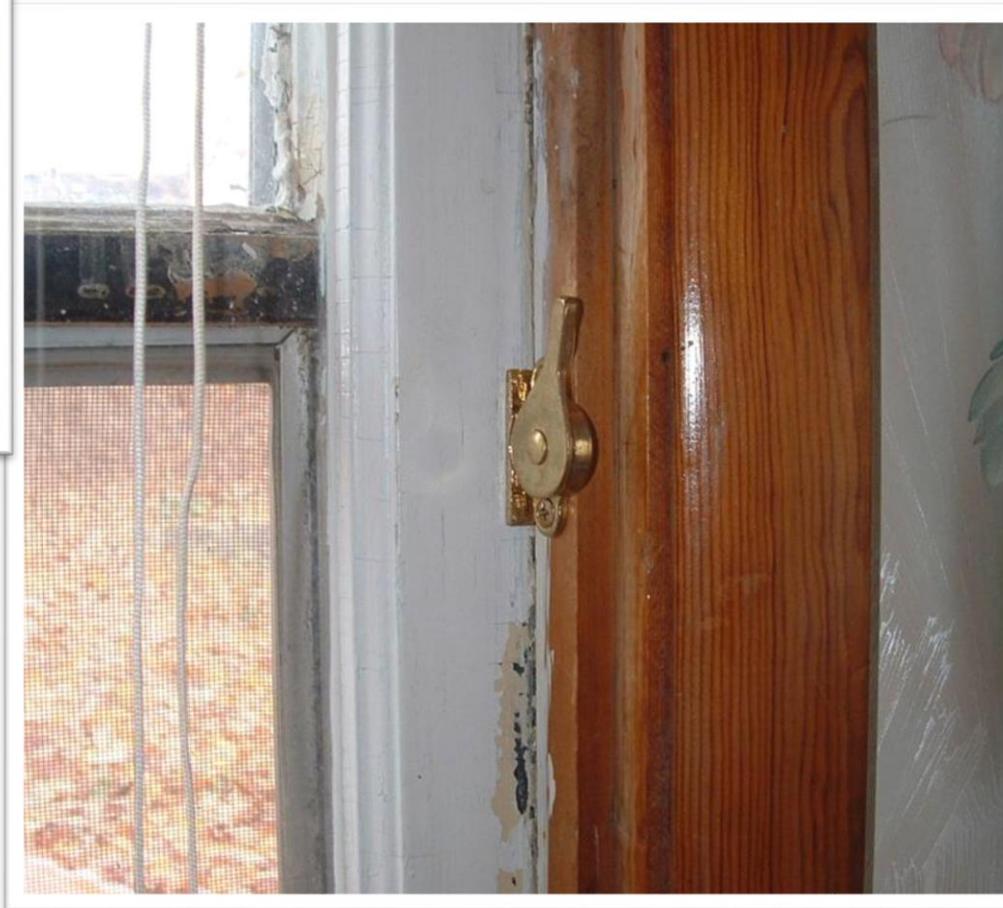
- Do you or any member of your household suffer from frequent headaches, flu, colds or nausea during the heating season? Yes No
- Do you or any member of your household have medical problems that are irritated by high heat? Yes No
If yes, is the affected person presently receiving doctor's care for the problem? Yes No
- Is there any condensation build-up in your home? Yes No
If yes, where?
- Is there mold or mildew in your home? Yes No
- Does your basement get wet during certain times of the year? Yes No
If yes, when and where?
- Does ice form in your attic during the winter? Yes No
- Is there ice build-up on your roof during the winter? Yes No
- Does your roof leak? Yes No
- Has your home been certified as free from lead-based paint? Yes No
- Has any member of your household been tested for lead exposure? Yes No
If yes, what were the results?
- Did you receive the lead booklet entitled "....."? Yes No

VISUAL INSPECTION COMMENTS OR CONCERNS NOTED BY AUDITOR







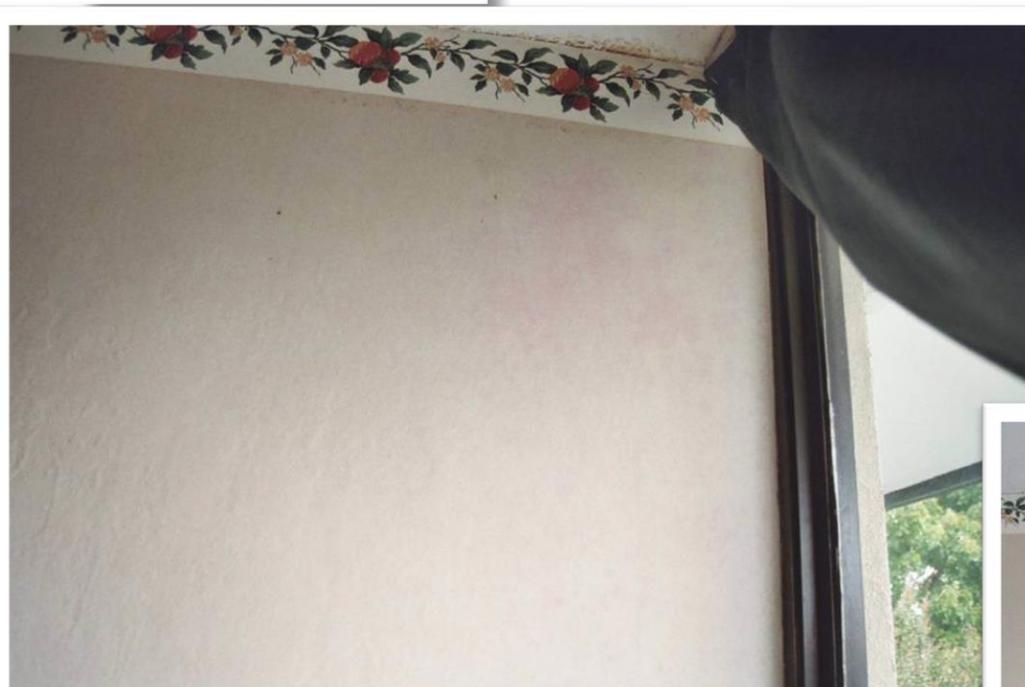














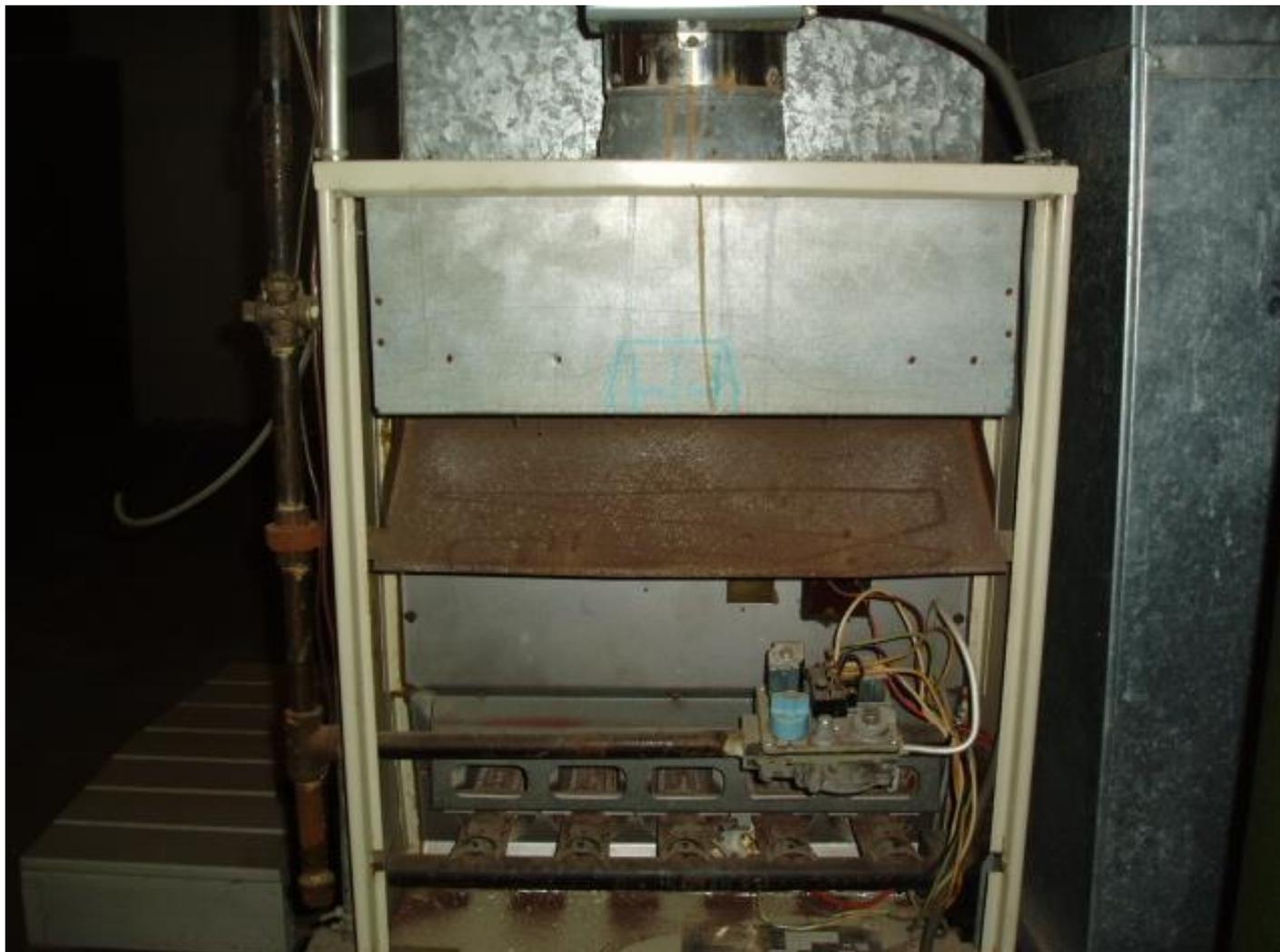




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The Basement







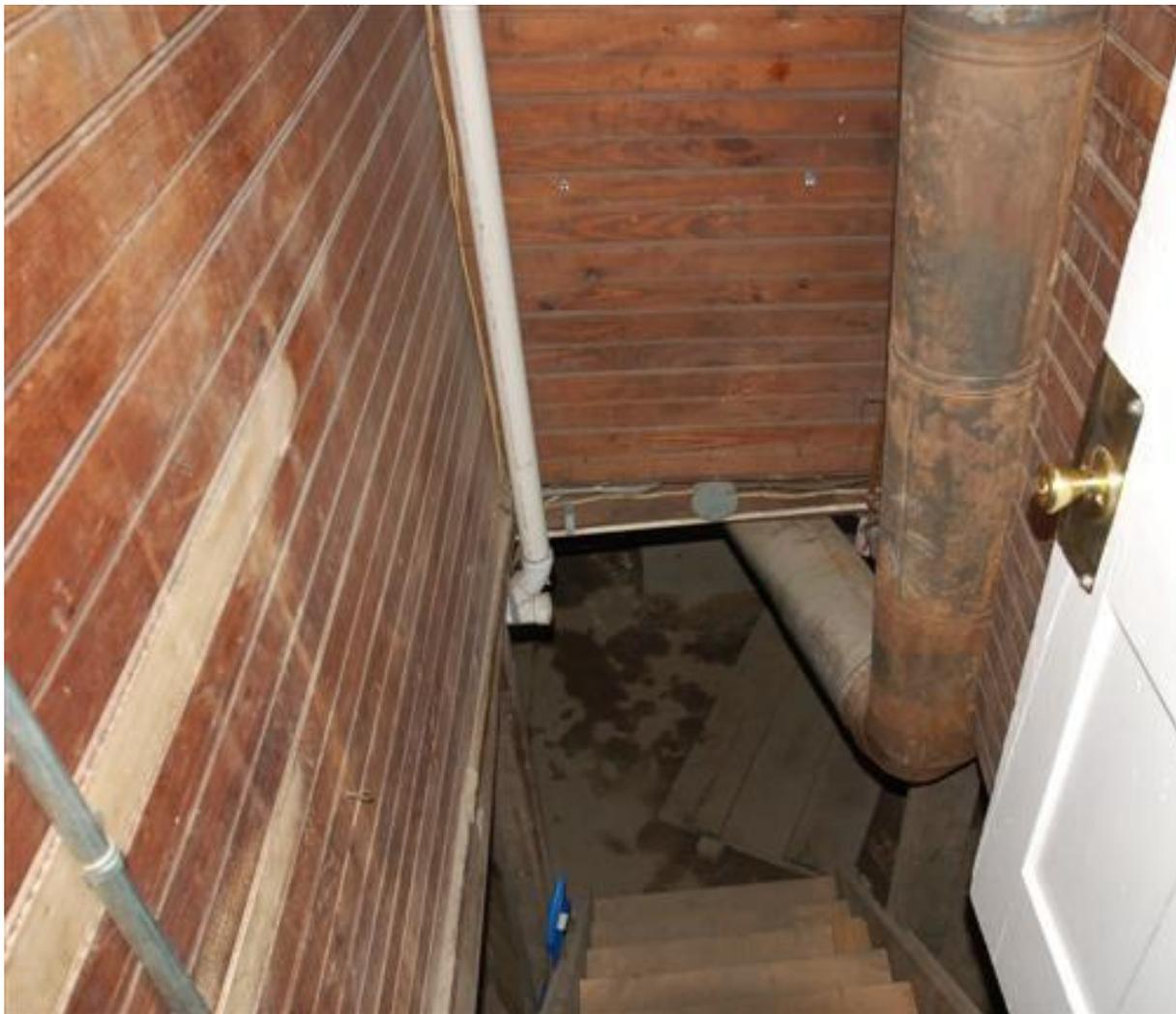


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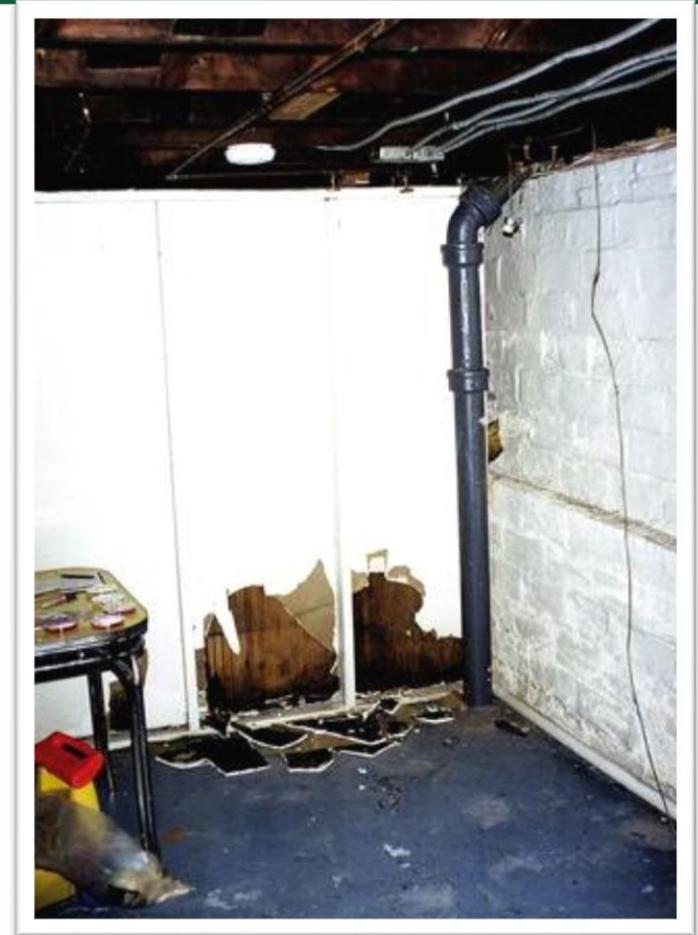
Venting Disconnects are common





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Dryer fire caused by plugged lint trap





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The Attic





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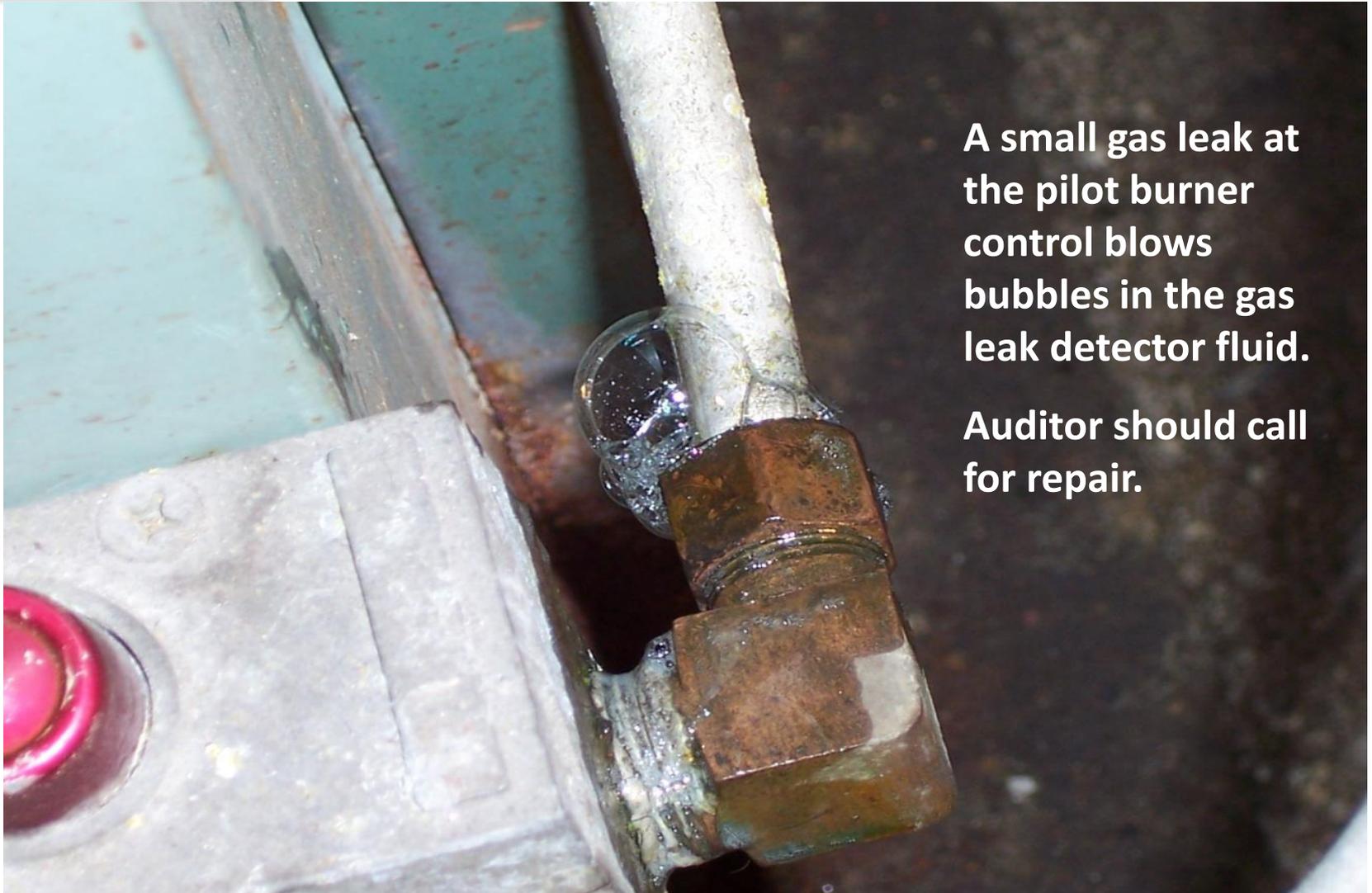
Diagnostic/Health and Safety Tests

Carbon Monoxide Testing- Ambient and in Oven



Gas Leak Detection





A small gas leak at the pilot burner control blows bubbles in the gas leak detector fluid.

Auditor should call for repair.

CAZ Zone Depressurization

Make sure the fumes are going up the chimney not dumping back into the house



Steady State Efficiency Tests



Combustion Analyzer



Drilling the Draft Test Hole



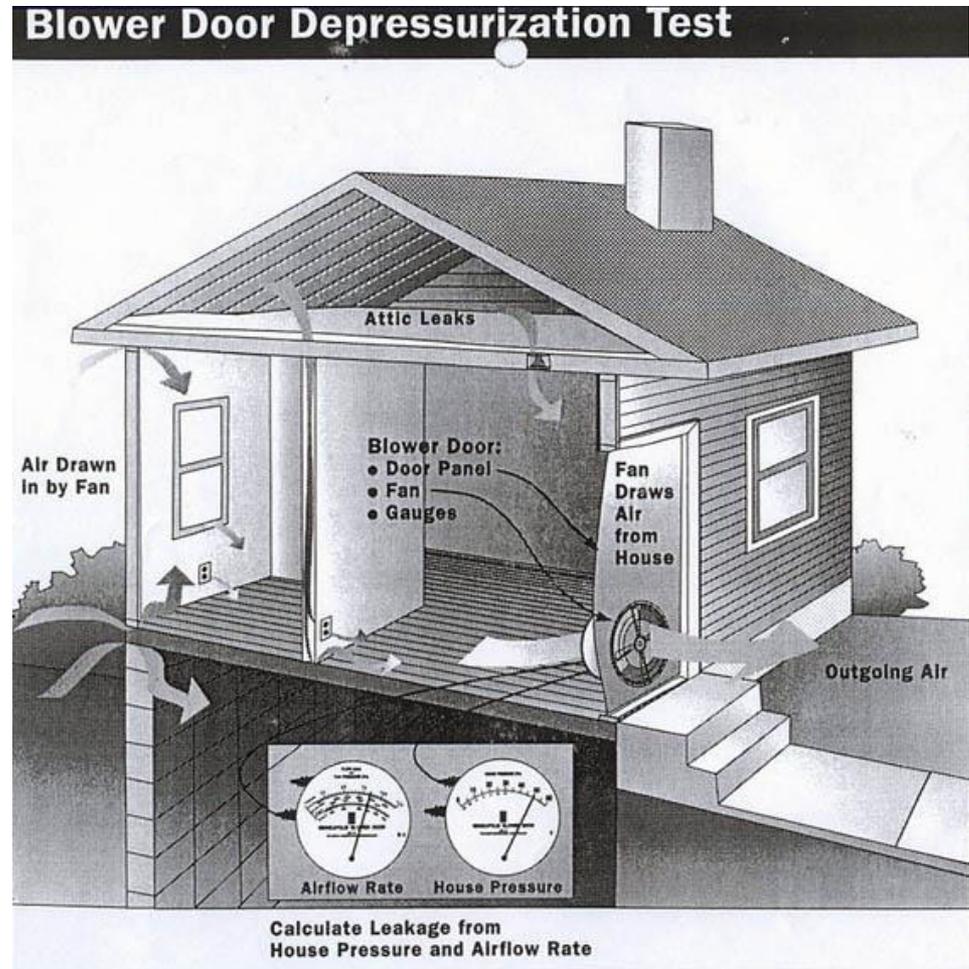
Measuring chimney draft



Worst Case Draft



Blower Door

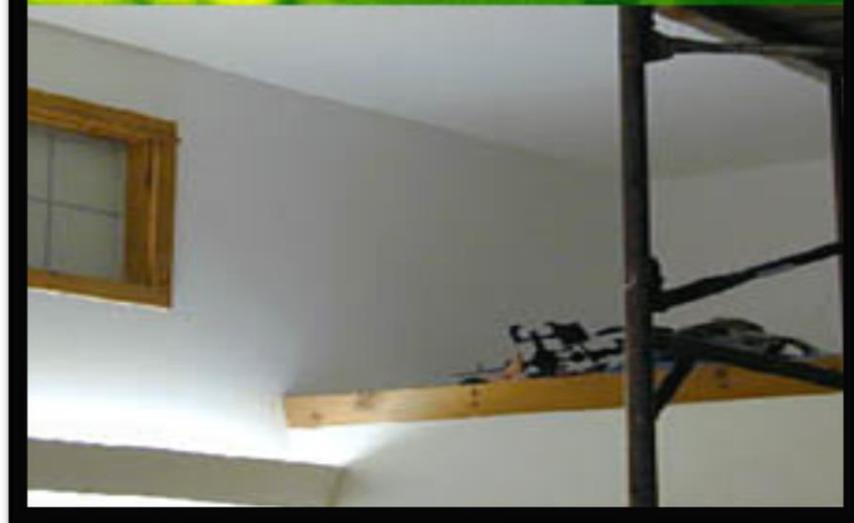
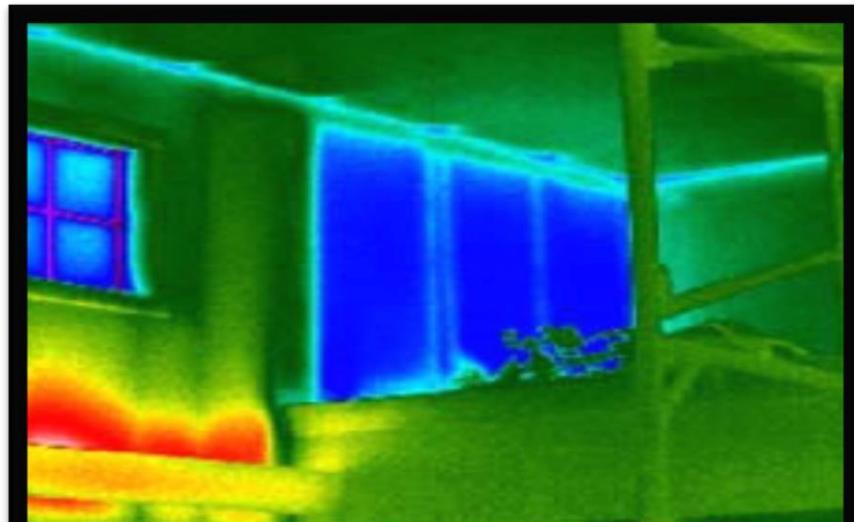


Digital Manometer



Infrared Camera





Computer Modeling



Modeling and the Savings to Investment Ratio (SIR)

ESB Subgrantee System - Current Contract/Amend = C090049 / 0 For Agency ONON

File Edit Tools ESB Reports Window Help

Agency Contract Bldgs Exit Print Insert Delete Save Close

Building Data Entry Window

Contract No/Prog Year: C090049 / 2007 Start Date: 04/01/2007 End Date: 03/31/2008 Agency: ONON Building Search

Building No: 1 Address: 123 Energy LN, Syracuse, NY 132040000

Bldg Project Client/Unit/Demo Cost Measures Audit TIPS Model TIPS WkScope Other WkScope

Model EF: 11.53 Proposed EF: 9.0 TOTAL TIPS Investment: \$2,883

Building Model				Proposed Measures						
Item	Area	Prevalue	HNAC (%)	Area	Postvalue	Cost	Life	HNAC (%)	SIR	
Wind1	107	0.48	5.87 8%	107	0.48	0	0	5.87 11%	0.0	
Wind2	0	0.0	0.00 0%	0	0.0	0	0	0 0%	0.0	
Wind3	0	0.0	0.00 0%	0	0.0	0	0	0 0%	0.0	
Other1	0	0.0	0.00 0%	0	0.0	0	0	0 0%	0.0	
Door1	35	0.3	1.20 2%	35	0.3	0	0	1.2 2%	0.0	
Door2	0	0.0	0.00 0%	0	0.0	0	0	0 0%	0.0	
Wall1	1,218	0.08	11.14 16%	1218	0.08	0	0	11.14 21%	0.0	
Wall2	0	0.0	0.00 0%	0	0.0	0	0	0 0%	0.0	
Wall3	0	0.0	0.00 0%	0	0.0	0	0	0 0%	0.0	
Wall4	0	0.0	0.00 0%	0	0.0	0	0	0 0%	0.0	
Ceil1	886	0.08	8.10 12%	886	0.02	800	25	2.03 4%	1.3	
Ceil2	0	0.0	0.00 0%	0	0.0	0	0	0 0%	0.0	
Ceil3	0	0.0	0.00 0%	0	0.0	0	0	0 0%	0.0	
Floor1	886	0.06	6.08 9%	886	0.06	0	0	6.08 11%	0.0	
Floor2	0	0.0	0.00 0%	0	0.0	0	0	0 0%	0.0	
ALeak		1,603	9.89 14%		1,500	80	15	9.26 17%	1.0	
HDist		78	11.93 17%		80	100	15	8.9 16%	1.4	
HAppl		78	15.29 22%		82	60	2	9.76 18%	1.0	
TOTAL			69.50 100%					54.24 100%		

Rec. Appl. Size: 32,100 To 38,520 BTU/Hr *Not to be used for steam Proposed MAT.LAB\$: \$1,040

Enter the post-weatherization area if the workscope calls for the area to change. 09/06/2007 12:48

start ESB Subgrantee Syst... Microsoft PowerPoint ... 12:48 PM

The End Game is:

Work scope development that will
provide the most benefit to the
customer