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Recommendations for the Weatherization of
The SAMPLE Residence
STREET – CITY, STATE ZIP

Observations and Recommendations

The general approach to weatherization is to air-seal the building's thermal envelope, then insulate. Proper weatherization prevents warm air from leaking out of the home in winter (and in during summer). Breaks in the thermal envelope that are highest and lowest in the conditioned space should be given sealing priority. This sealing provides resistance against the pressure driven air-filtration caused by the stack effect of hot air rising. A blower door test and infrared thermography were used to evaluate the thermal envelope of this residence.

Observations (Air Infiltration)
The blower door was set up in front exterior door facing north. The air infiltration rate demonstrated during the blower door test was 0.42 air changes per hour (one complete air charge every 2.4 hours). The minimum recommended air change per hour value is 0.35 (one complete change about every 2.8 hours).

This residence demonstrated a natural air infiltration rate of 1.2 times the recommended rate and can benefit from improved air sealing.

Utilizing the infrared camera and the blower door we have identified sites of air infiltration and can focus sealing efforts on those areas.

Zone pressure differentials were collected to identify "leakiest" zones; all zones were investigated further with an infrared camera.

Zone Pressure Data: for zones that can be isolated (*higher numbers indicate more air-infiltration)

Item	Zone	Pressure Value *	Observation
1	**Basement**	+12.0	Connection to furnace room, bypasses and rim penetrations
2	Furnace room	+2.9	Low number indicates good connection to bulk of basement. Suggest blocking bypasses at top of walls.
3	**1st Floor** Laundry Room	+15.8	Two exterior doors, garage door and penetrations for washer dryer are sources of air infiltration
4	Powder Room	+1.9	Very little air infiltration
5	**2nd Floor** Bedroom Northwest	+5.3	Little air infiltration
6	Bedroom Southwest	+4.0	Little air infiltration
7	Bedroom South	+4.8	Little air infiltration
	Bath Hall	+12.9	Shower room +3.2 Gap under vanity cabinet leaking lots of air during blower door testing.
8	Master Bedroom	+18.7	Connection to bath (his), and recessed lights penetrating ceiling
9	Office	+7.7	
10	Master Closet	+3.0	Very little air infiltration
11	Master Shower	+3.0	Very little air infiltration
12	Bath Hers	+3.5	Very little air infiltration
13	Bath His	+13.5	Gap under vanity cabinet leaking lots of air during blower door testing.

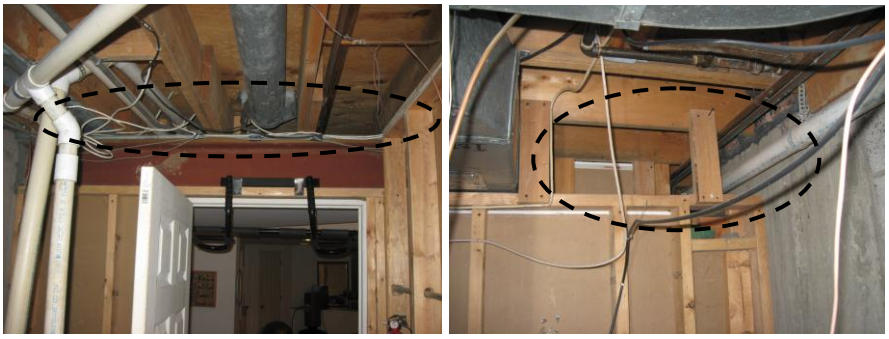
Recommendations

Basement

- Exposed rim joist, perimeter of space under laundry room and south wall of furnace room

  - Remove fiberglass batt insulation from box sill spaces and set aside, air seal penetrations and insulate box sill spaces with spray foam insulation, replace fiberglass batts.

- Open bypasses where walls meet ceiling of furnace room

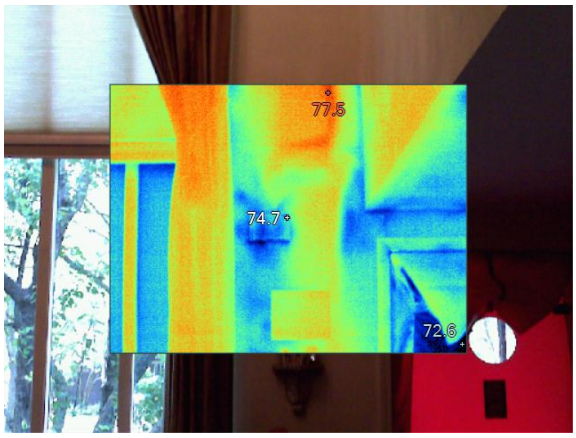


  - Block and seal bypasses at tops of furnace room walls using fiberglass batt insulation and spray foam.

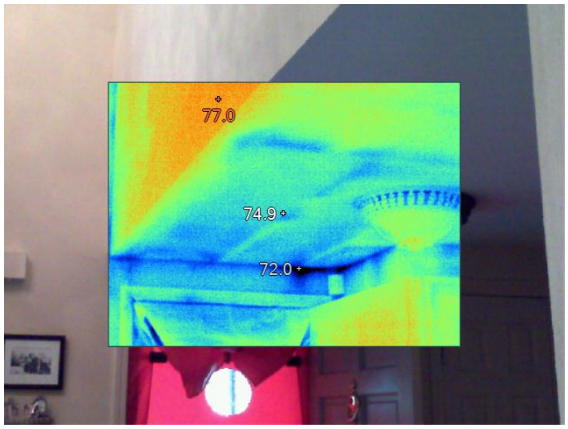
- Door to utility room
  - Door was found open. Suggest keeping this door closed to isolate non-finished basement from finished portion. Add weather strip to door frame.

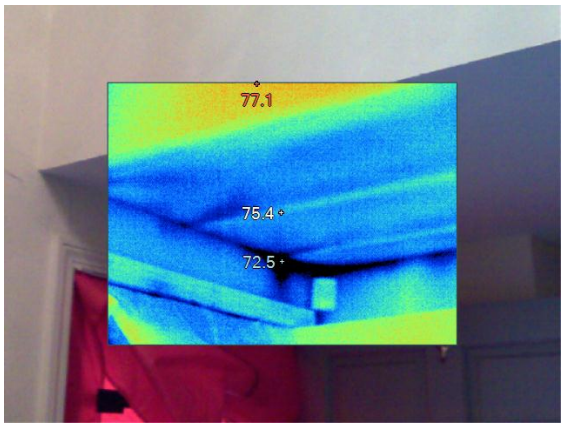
1st Floor

- Front Entry



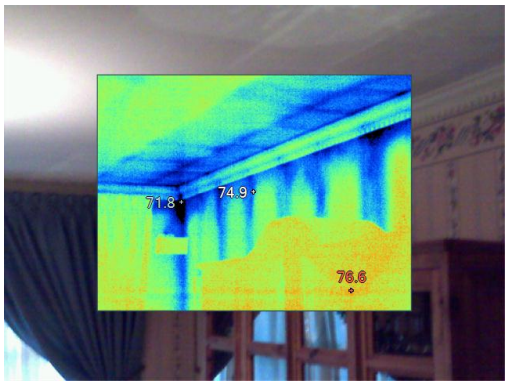
- Adjust strike plate on front door jamb to seat door against weather strip
- Air seal penetrations in north wall





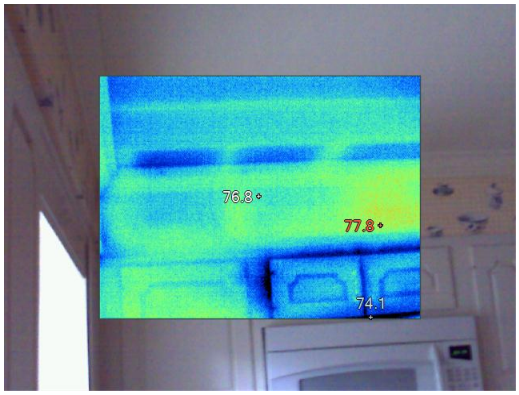
- Ceiling at entry shows air infiltration under blower door testing. Cut access through ceiling and dense pack area (30 ft^3) above entry with cellulose insulation, close ceiling and prep for paint.

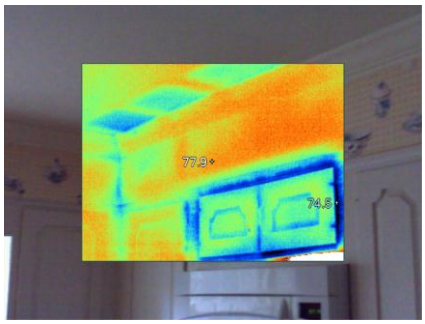
- Dining Room



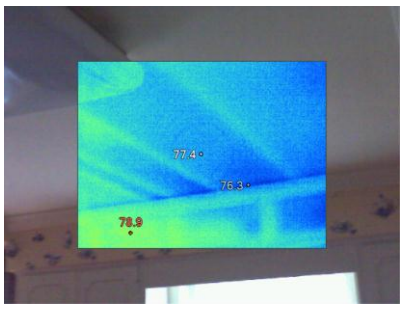
  - Air infiltration in dining room ceiling/floor of bedroom above.
    Ceiling (along west wall), air infiltration under blower door test indicates need for air sealing. Recommend gaining access to joist cavity by cutting ceiling, dense packing ceiling joist space with cellulose insulation, closing ceiling and prepping for paint.

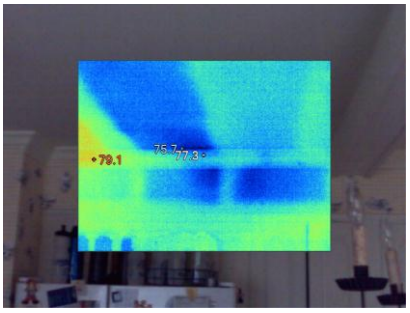
- Kitchen





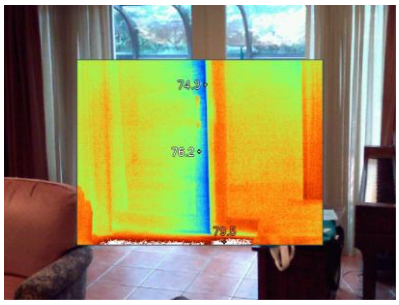
  - Soffit above stove and stove hood duct need air sealing. Suggest opening ceiling adjacent to soffit, dense pack joist spaces with cellulose, close ceiling and prep for paint.





- Two to three joist spaces above kitchen showed air infiltration under blower door testing. Suggest gaining access, dense packing with cellulose insulation, closing ceiling and prepping for paint.

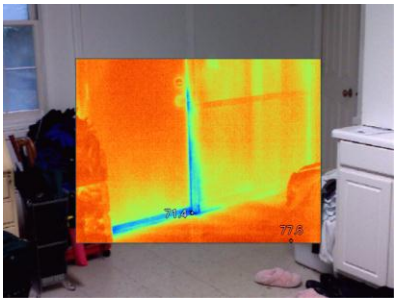
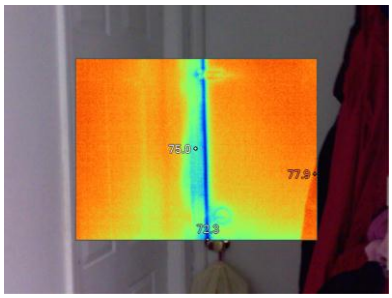
- Sitting room

- Sliding door lacks weather strip and leaks lots of air during blower door test.
  - Add weather strip to vertical mating edge of sliding doors

- Sunroom
  - Seal penetrations through exterior wall with spray foam (northeast corner) to reduce air-infiltration and to keep pests out.

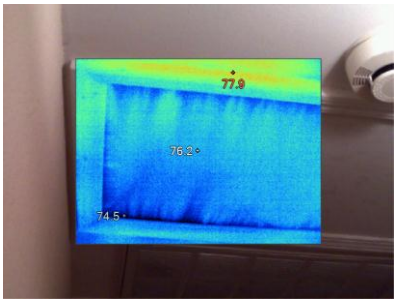
- Laundry Room

  - Adjust strike plates on south and east exterior doors to seat doors against weather strip.

2nd Floor

- Attic access hatch leaking air under blower door test conditions

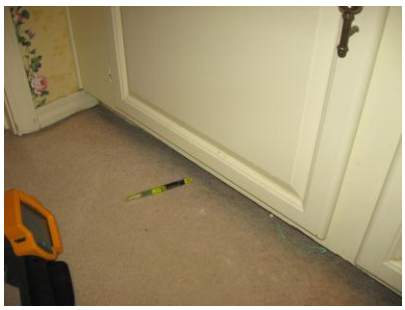


  - Air seal perimeter with weather strip and insulate panel with rigid foam.
  - Air seal trim with caulk

- Hall bath

  - Block and air seal base of vanity cabinet with fiberglass batt insulation
  - Air seal plumbing penetrations beneath sink

- Master baths (his and hers)




  - Block and air seal overhung base of vanity cabinets with fiberglass batt insulation.

  - Air seal plumbing penetrations beneath sinks

Attic



- Ventilation/Moisture Control
  - Signs of poor ventilation include mold on underside of roof deck due to excess moisture. Recommendation is to contact a mold remediation company. Our recommendation is to contact Evan Kane at RGC, 312-953-5205 to schedule an inspection.
    Our sales manager Tom Decker knows Evan and is confident he can help.

- Two shower exhaust fans are not vented through roof. Recommend extending vents through roof with insulated duct.

- Penetrations through ceiling for recessed lights and conduit drops and HVAC ducts. Air seal those from attic side to reduce air exfiltration to attic.


Place rafter vent baffles in between the rafters (DOE photo)

- Existing roof and soffit vents are inadequate. Insulation should be moved from soffits, baffles should be added to rafters to direct vent air to roof deck. Number of soffit vents should increase to meet ventilation requirements.

- Insulation
  - Six (6) to eight (8) inches of blown-in fiberglass is below the R-38 level recommended by the U.S. Department of Energy for our climate.
    Recommend additional six (6) inches of blown fiberglass over existing insulation.

Observations and Recommended Actions

#	Zone	Photo/Description	Recommendation	Price Quote
Recommendations				
	Basement			
1		Exposed rim joist, perimeter of space under laundry room and south wall of furnace room	62 sq. ft. at perimeter Remove fiberglass batt insulation from box sill spaces and set aside, air seal penetrations and insulate box sill spaces with spray foam insulation, replace fiberglass batts.	$150.00
2		Open bypasses above furnace room walls	Block and seal bypasses at tops of furnace room walls using fiberglass batt insulation and spray foam.	$75.00
3		Door to utility room	Suggest keeping this door closed to isolate non-finished basement from finished portion. Add weather strip to door frame.	$60.00
	First Floor			
4		Front Entry door and north wall	Adjust strike plate on front door to seat door against weather strip. Air seal penetration in north wall (door bell/security connections).	$45.00
5		Front entry ceiling	(30 sq.ft.) requires dense packing with cellulose insulation. Cut access, dense pack, repair access and prep for paint	$50 + drywall & prep work
6		Dining Room	(50 sq.ft.) Ceiling (along west wall), air infiltration under blower door test indicates need for air sealing. Recommend gaining access to joist cavity by cutting ceiling, dense packing ceiling joist space with cellulose insulation, closing ceiling and prepping for paint.	$75 + drywall & prep work
7		Kitchen, soffit and stove hood vent	Soffit above stove and stove hood duct need air sealing. Suggest opening ceiling (25 sq. ft.) adjacent to soffit, dense pack joist spaces with cellulose, close ceiling and prep for paint.	$50 + drywall & prep work

8		Kitchen ceiling	(50 sq.ft) Two to three joist spaces above kitchen showed air infiltration under blower door testing. Suggest gaining access, dense packing with cellulose insulation, closing ceiling and prepping for paint.	$75 + drywall & prep work
9		Sitting Room – sliding door to sun room	Add weather strip to vertical mating edge of sliding doors	$45.00
10		Sun Room	Seal penetrations through exterior wall with spray foam (northeast corner) to reduce air-infiltration and to keep pests out.	N/C
11		Laundry Room	Adjust strike plates on south and east exterior doors to seat doors against weather strip.	$60.00
	Second Floor			
12		Attic Access	Air seal perimeter with weather strip and insulate panel with rigid foam. Air seal trim with caulk	$75.00
13		Hall Bath	Block and air seal base of vanity cabinet with fiberglass batt insulation Air seal plumbing penetrations beneath sink	$60.00
14		Master baths	Block and air seal base of vanity cabinets with fiberglass batt insulation Air seal plumbing penetrations beneath sink	$100.00
	Attic			
15		Shower exhaust fans	Two shower exhaust fans are not vented through roof. Recommend extending vents through roof with insulated duct.	$450.00
16		Penetrations and air sealing	Penetrations through ceiling for recessed lights and conduit drops and HVAC ducts. Air seal gaps between wall top plates and drywall. Air seal those from attic side to reduce air exfiltration to attic.	$300.00
17		Ventilation	Existing roof and soffit vents are inadequate. Insulation should be moved from soffits, baffles should be added to rafters to direct vent air to roof deck. Number of soffit vents should increase to meet ventilation requirements. Add 3 (51 sq.in.) mushroom vents to roof deck. Add 10 (21 sq.in.) soffit vents.	$1088.00

18		Insulation	1,288 square feet, Six (6) to eight (8) inches of blown-in fiberglass is below the R-38 level recommended by the U.S. Department of Energy for our climate. Recommend additional six (6) inches of blown fiberglass over existing insulation.	$1,480.00
	Signs of poor ventilation include mold on underside of roof deck due to excess moisture. Recommendation is to contact a mold remediation company. Our recommendation is to contact Evan Kane at RGC, 312-953-5205 to schedule an inspection. Our sales manager Tom Decker knows Evan and is confident he can help.			
19			**Drywall repair and prep for paint**	$600.00
20	Crew Deployment, worksite set-up, clean-up and outgoing blower door test			$150.00
21			**Sub-Total**	**$4,988.00**
22			**Audit Credit (10% of sub-total up to cost of energy audit)**	**($400.00)**
23			**Final Total**	**$4,588.00**

Please feel free to contact myself or Tom Decker if you have any questions regarding this report.

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