

All About Air Sealing: Residential Retrofits and Remodeling for Efficient & Healthy Homes

Colin McCullough

BPI Certified Energy Auditor

All-Around Home Performance

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The importance of air sealing

- Up to 40% of the heat loss in the average home is due to air leaks

Under pressure!



The importance of air sealing

- Air leaks move a massive amount of moisture through exterior walls

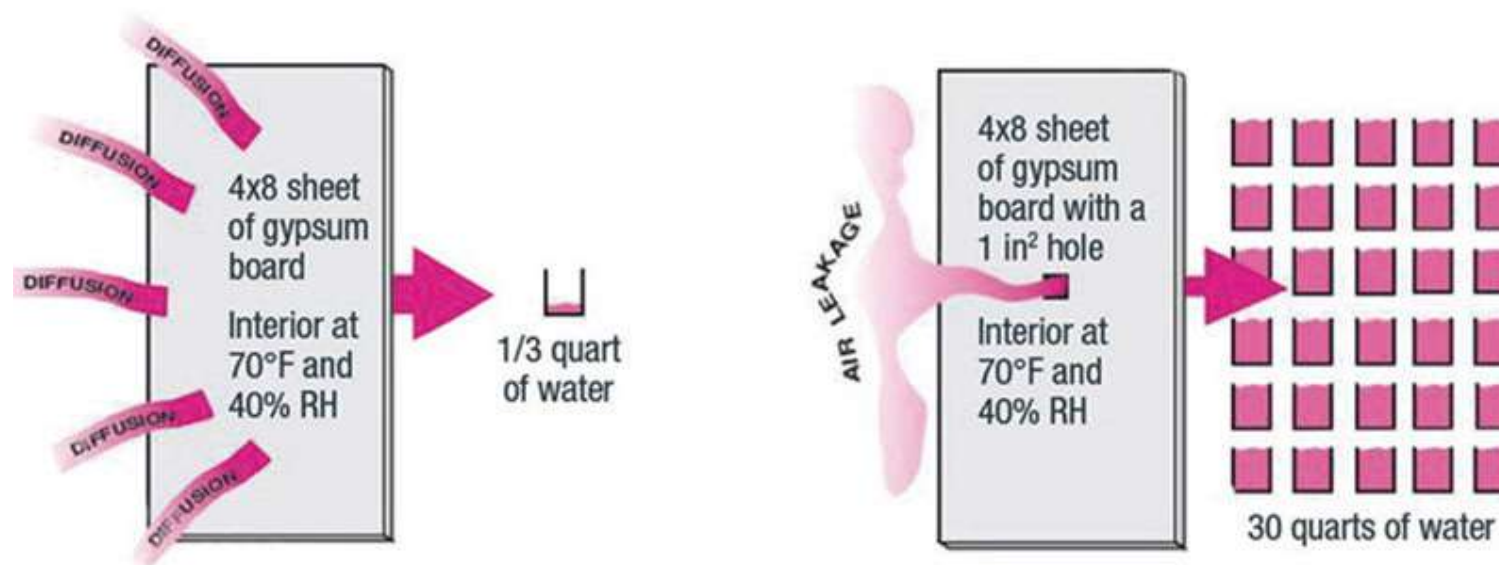


Photo: Buildingscience.com

The importance of air sealing

- Air leaks are a primary cause of frozen pipes



The importance of air sealing

- Critical for whole-house electrification
- What is your energy roadmap?



Air infiltration / exfiltration in buildings

Holes in the envelope



Pressure difference

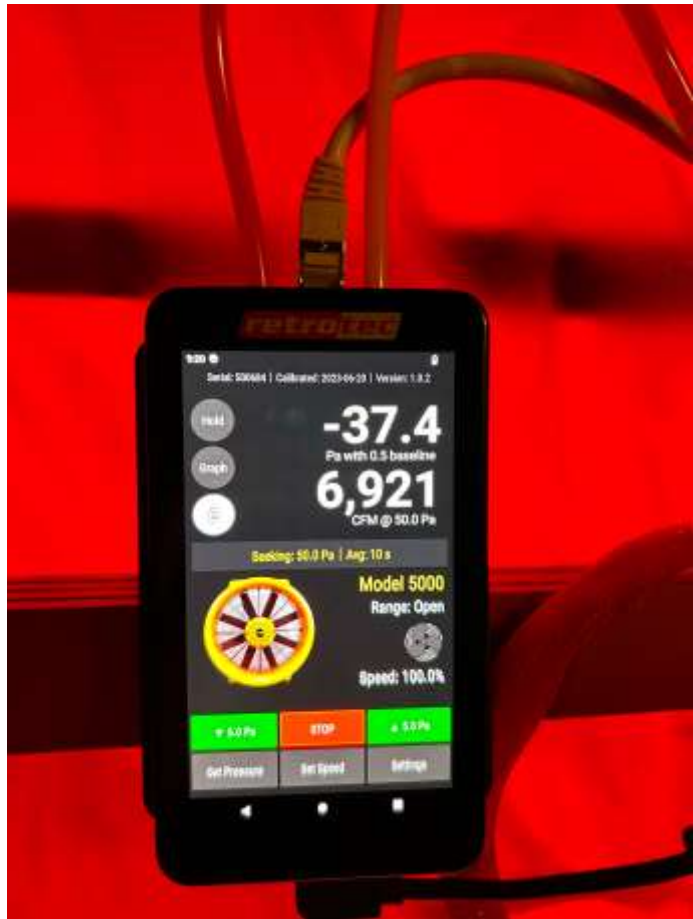


- Bath fans
- Heating systems
- Clothes dryer
- Kitchen exhaust fan

Where “fresh air” comes from



How to measure and find air leaks



1,150 ft²
10,350 ft³

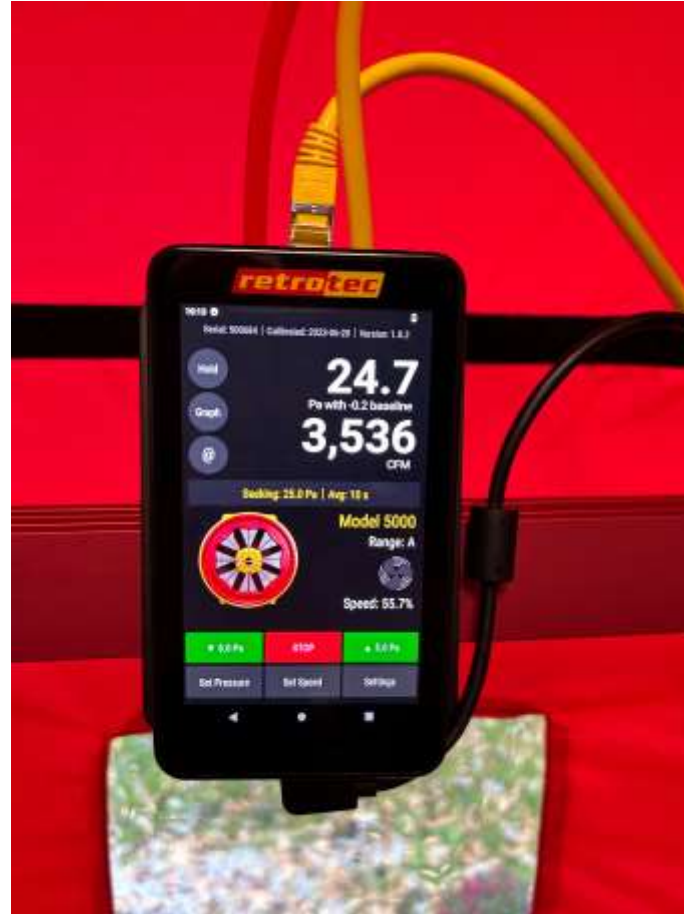
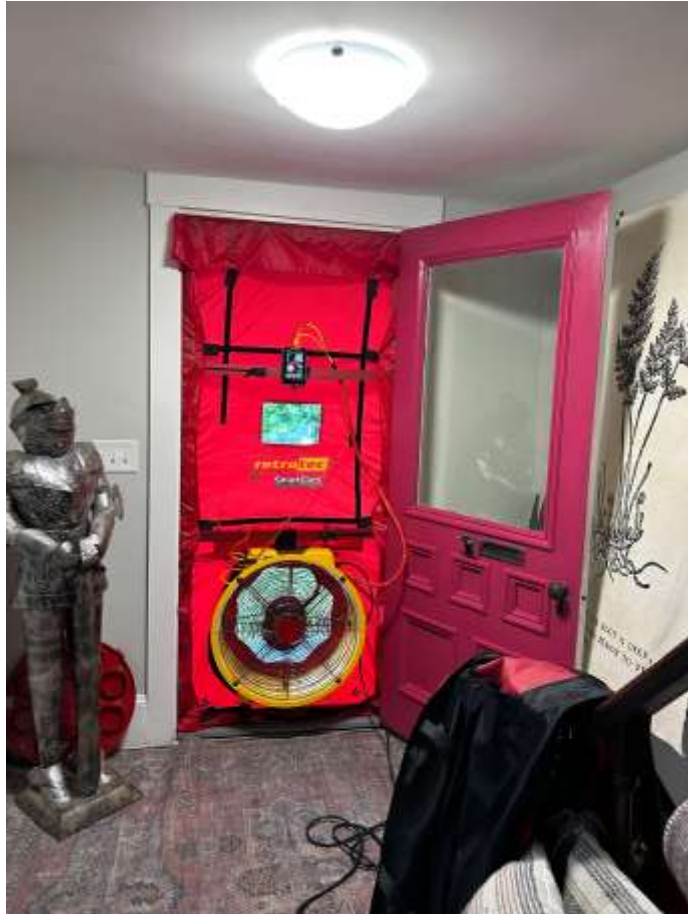
Interpreting blower door results

2,484 ft sq
16,636 cu ft volume

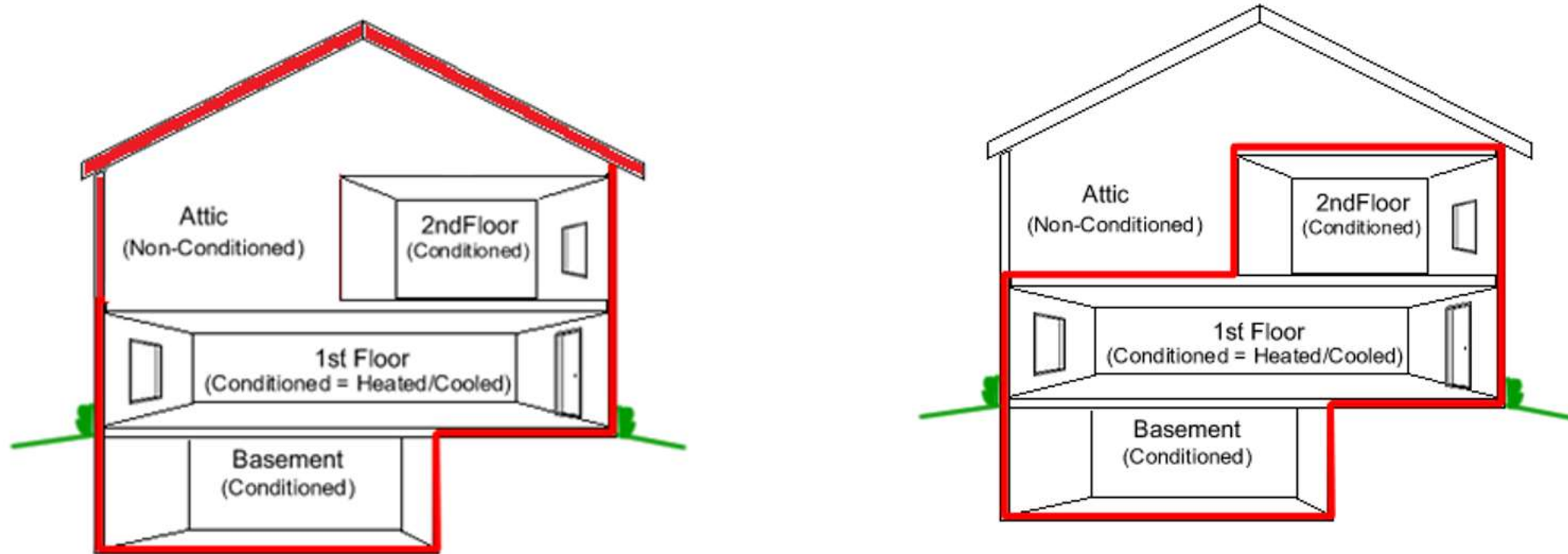
- Rough equivalent: sq ft = CFM50
- Air changes per hour: $\text{CFM50} \times 60 / \text{volume} = 17 \text{ ACH50}$
- Equivalent leakage area: $\text{CFM50} / 10 = 471 \text{ sq inches}$ or a standard window open 15"
- Enclosure Leakage Ratio: $\text{CFM50} / \text{surface area}$
- RedCalc – ASHRAE standards



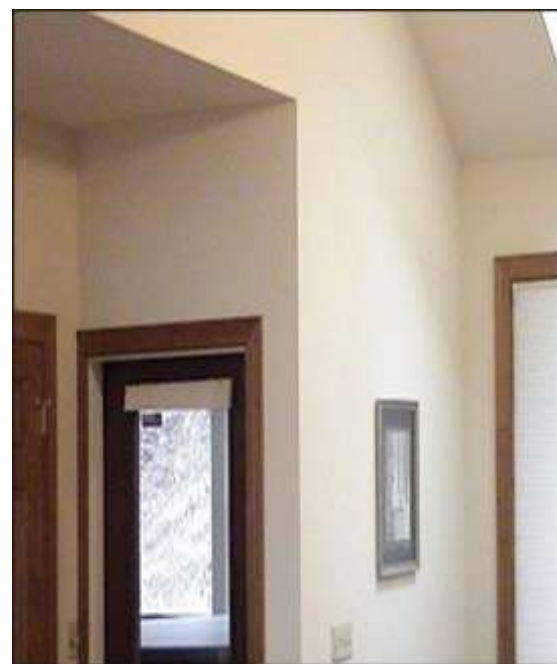
Depressurization vs. Pressurization



Where is the building envelope? Thermal & pressure boundaries?



How to measure and find air leaks



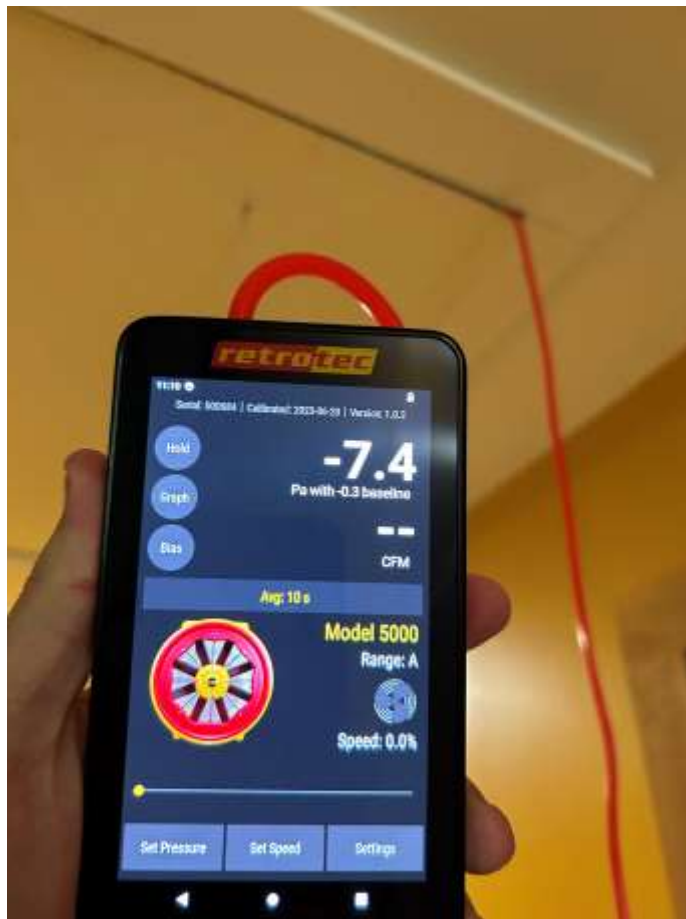
How to measure and find air leaks



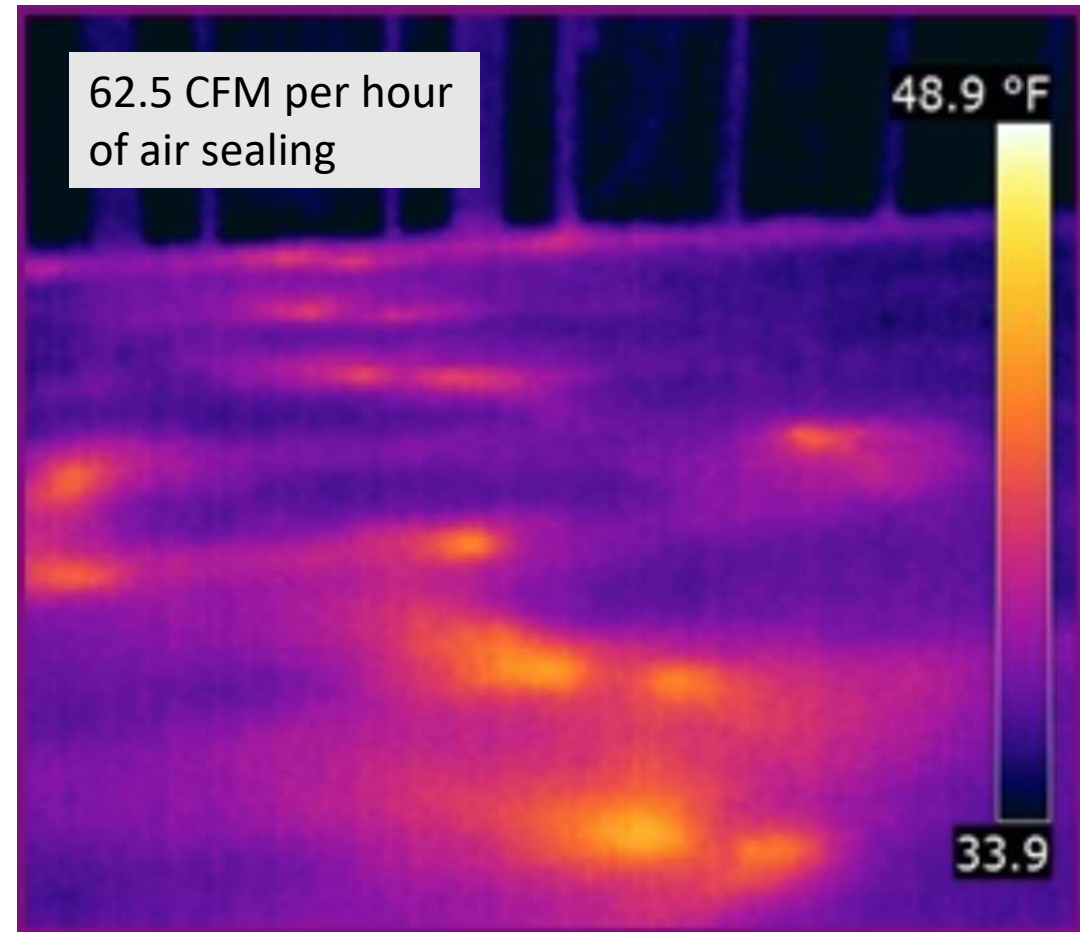
Zone Pressure Diagnostics



Testing spray foam



Using a blower door for quality assurance



Air Sealing in New Construction Caulking, Taping, Spray Foam, etc.



**3 air changes per hour @50 pascals
2015 International Energy
Conservation Code**





Pre-insulation air sealing (attic)

Air sealing attic accesses



Air sealing attic accesses (not so much)





Pre-insulation air sealing (basement)

Comprehensive air sealing: windows



Comprehensive air sealing: recessed lights



Incentives for air sealing

Efficiency Maine rebates



Weatherization rebate includes
Air sealing and insulation

- 40% up to \$4,000 – standard
- 60% up to \$6,000 – moderate income
- 80% up to \$8,000 – low income

www.EfficiencyMaine.com

Federal tax credits



- Income-dependent

www.energymaine.com/federal-funding/
www.rewiringamerica.org



Go forth and air seal!

Colin McCullough
All-Around Home Performance
www.allaroundhp.com
Email: info@allaroundhp.com
207-624-2347

