

# The Value of Energy Efficiency

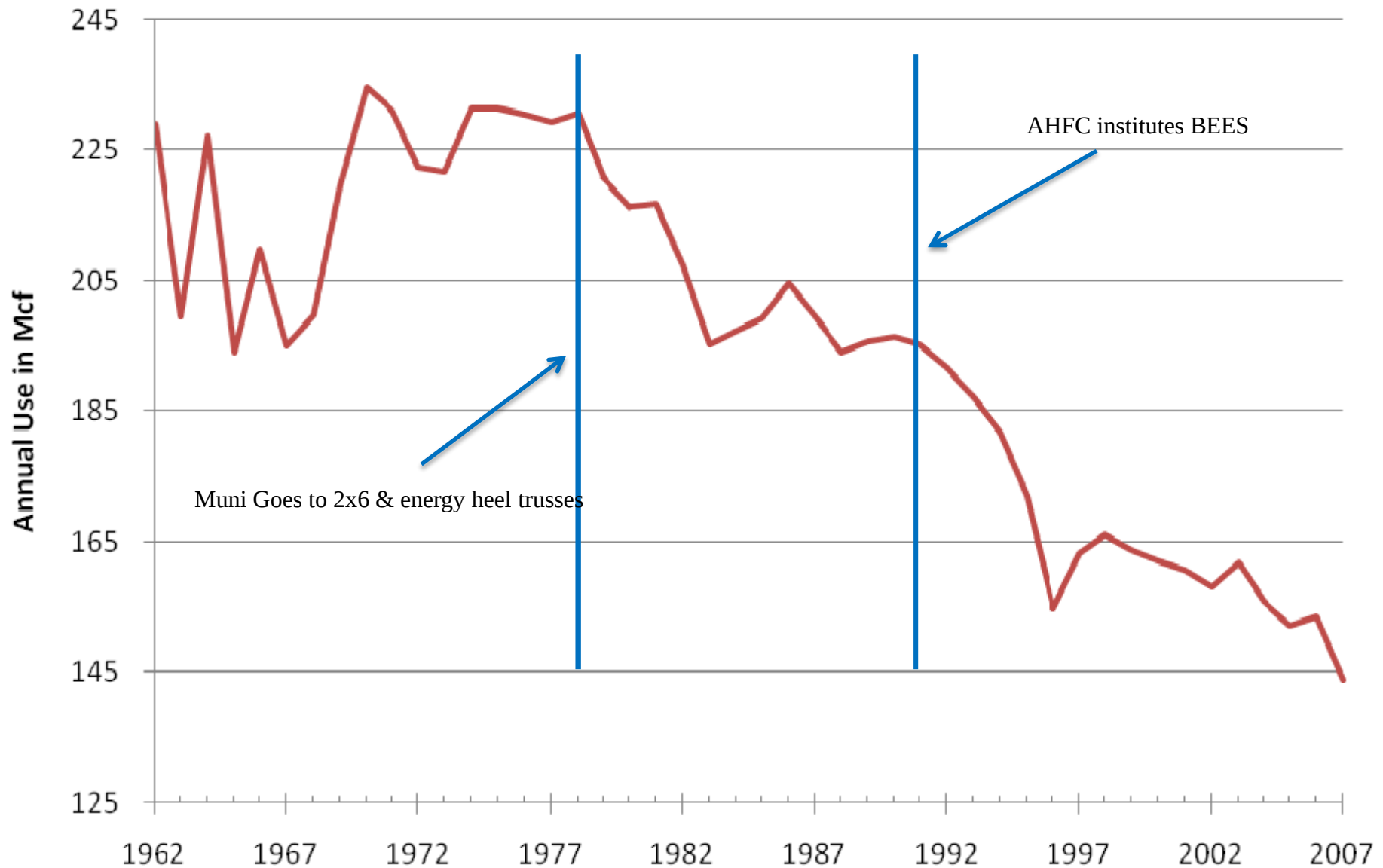
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# Energy Efficiency is important to Alaska

- Over \$700 million invested in residential retrofit by the state and homeowners since 2008
- Oil prices may be down, but electricity is up and gas is slowly rising

# Chart 3 - 2008 Residential Customer Average Annual Usage By Year Service Was Initiated



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# Financing

- Inspections required for buyer financing
- AHFC offers Energy Efficiency Interest rate reductions with 5★+ and 6★ ratings
- Liability – What if I don't meet AHFC standards?

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# Alaska Statewide Building Code

- IBC 2009 (3 & 4 family and structures 3 story & taller)
  - IRC 2009 (except Plumbing & Electrical issues) (1 & 2 family residences)
  - IFC 2009 with 2012 adoption process beginning soon
  - IMC 2009 with 2012 adoption process beginning soon
  - IAPMO UPC 2009 with 2012 adoption process beginning soon
  - NEC 2011
  - Alaska Building Energy Efficiency Standard (IECC 2012 with Alaska Specific Amendments)
  - Carbon Monoxide Alarms required January 1, 2005 (Anchorage requirements more stringent)
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**A House built strictly to code, is  
the worst house one is legally  
allowed to build.**

**It's a baseline, not a target**

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# Make our Homes

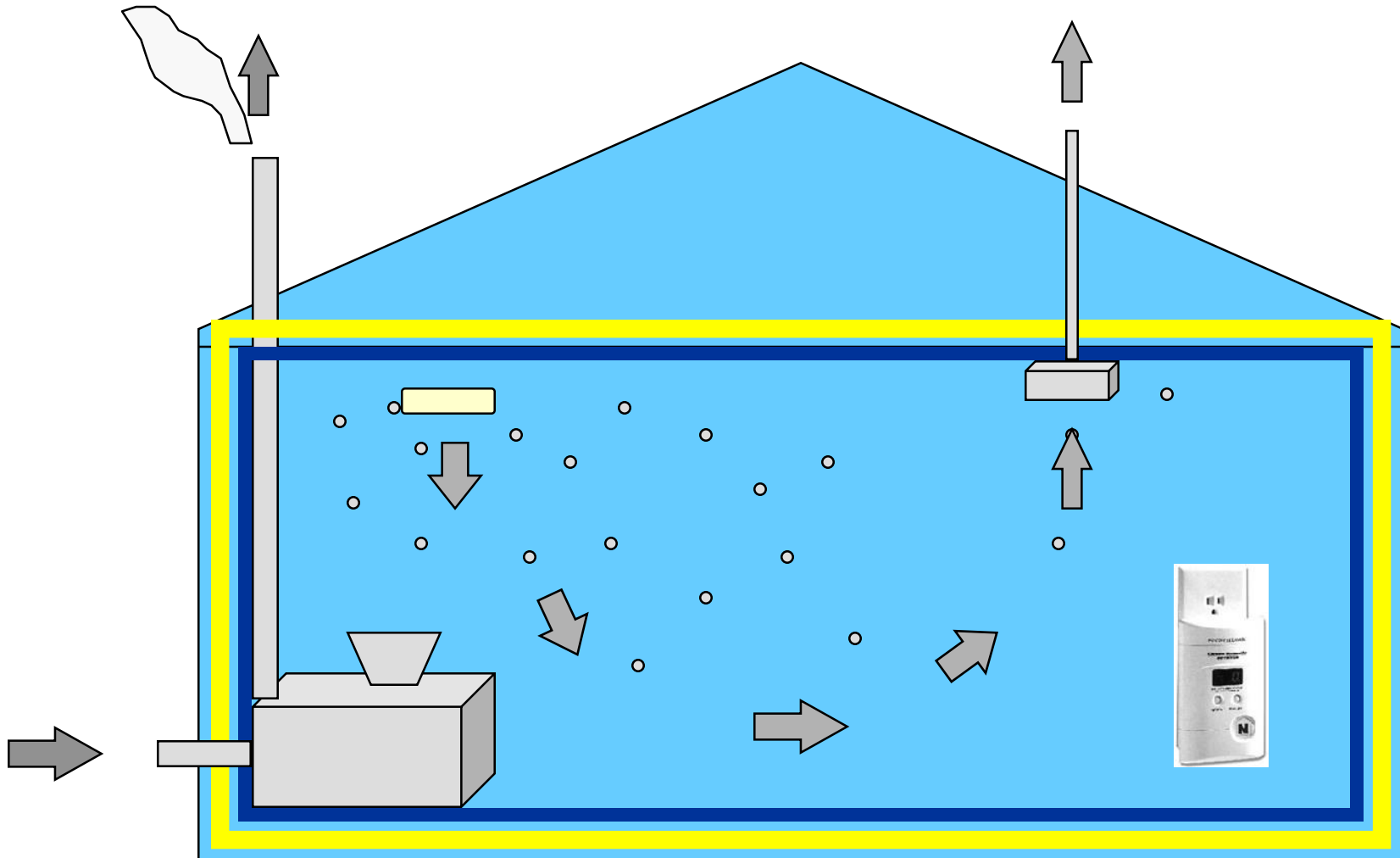
- Safe and Healthy
  - Comfortable
  - Durable
  - Affordable
  - Environmentally responsible
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# Energy Efficient Homes Are:

- Socially beneficial
    - Decreased resource extraction
    - Lower emissions of CO<sub>2</sub> (greenhouse gases) carbon credits may be worth up to \$2 million per year
    - Often uses more sustainable materials for construction (greenbuilding)
    - Use less oil here, allow exports to continue to provide for local economic growth
    - Re-invest energy dollars in the local community
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**A House is a System**  
*...which requires proper operation & maintenance*



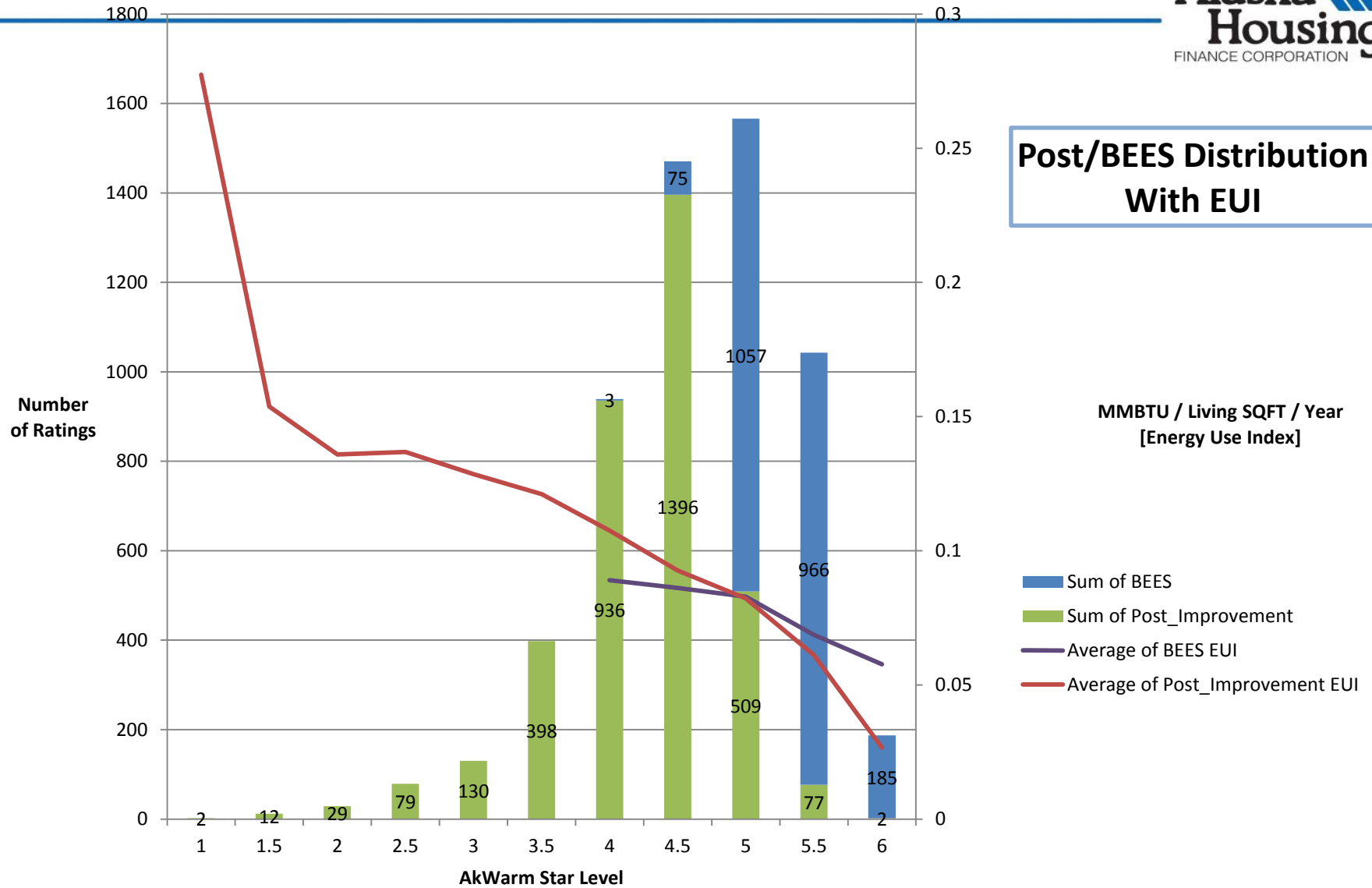
# Valuing Energy Efficiency on Appraisals

- Energy rating index created
- Value calculator online  
<https://akrebate.ahfc.us/akappraisals.aspx>
- More efficient homes have value in the marketplace ~> 5%

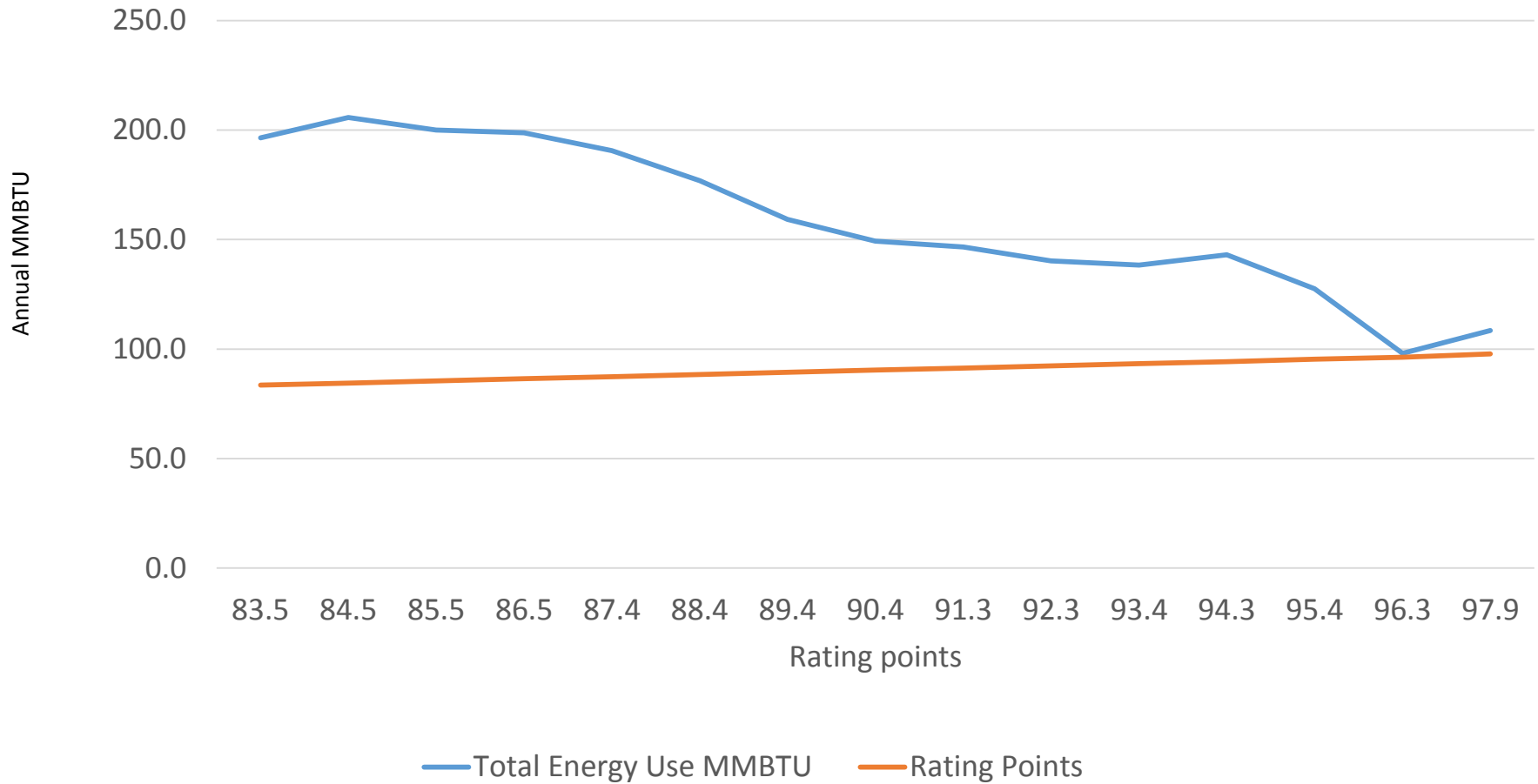
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# Performance Approach – Energy Rating Method

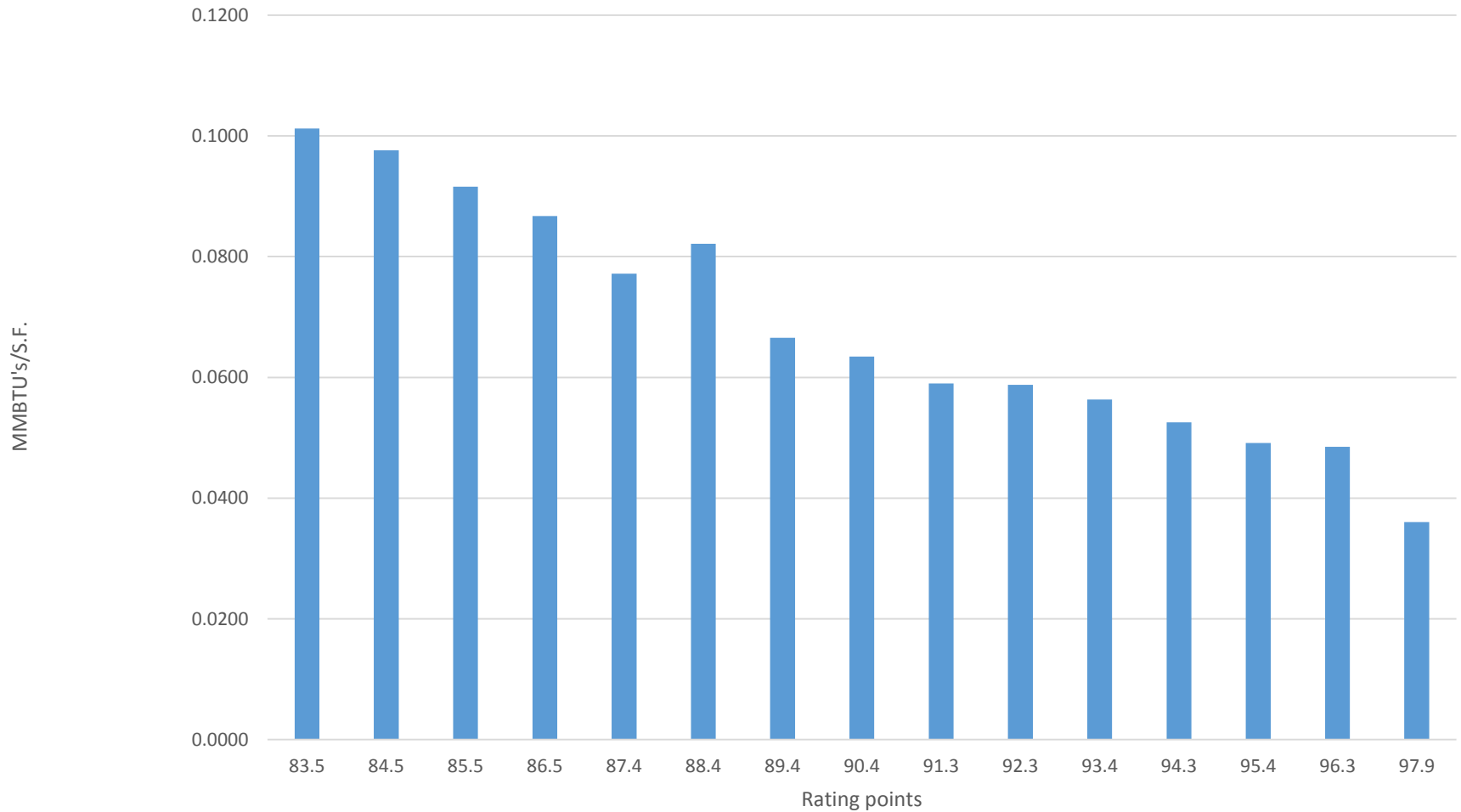
- Mix and match to get the highest score at the lowest cost
- Mandatory measures must be met
- Ventilation standard must be met (ASHRAE 62.2, 2010)



### Energy Use/ rating point

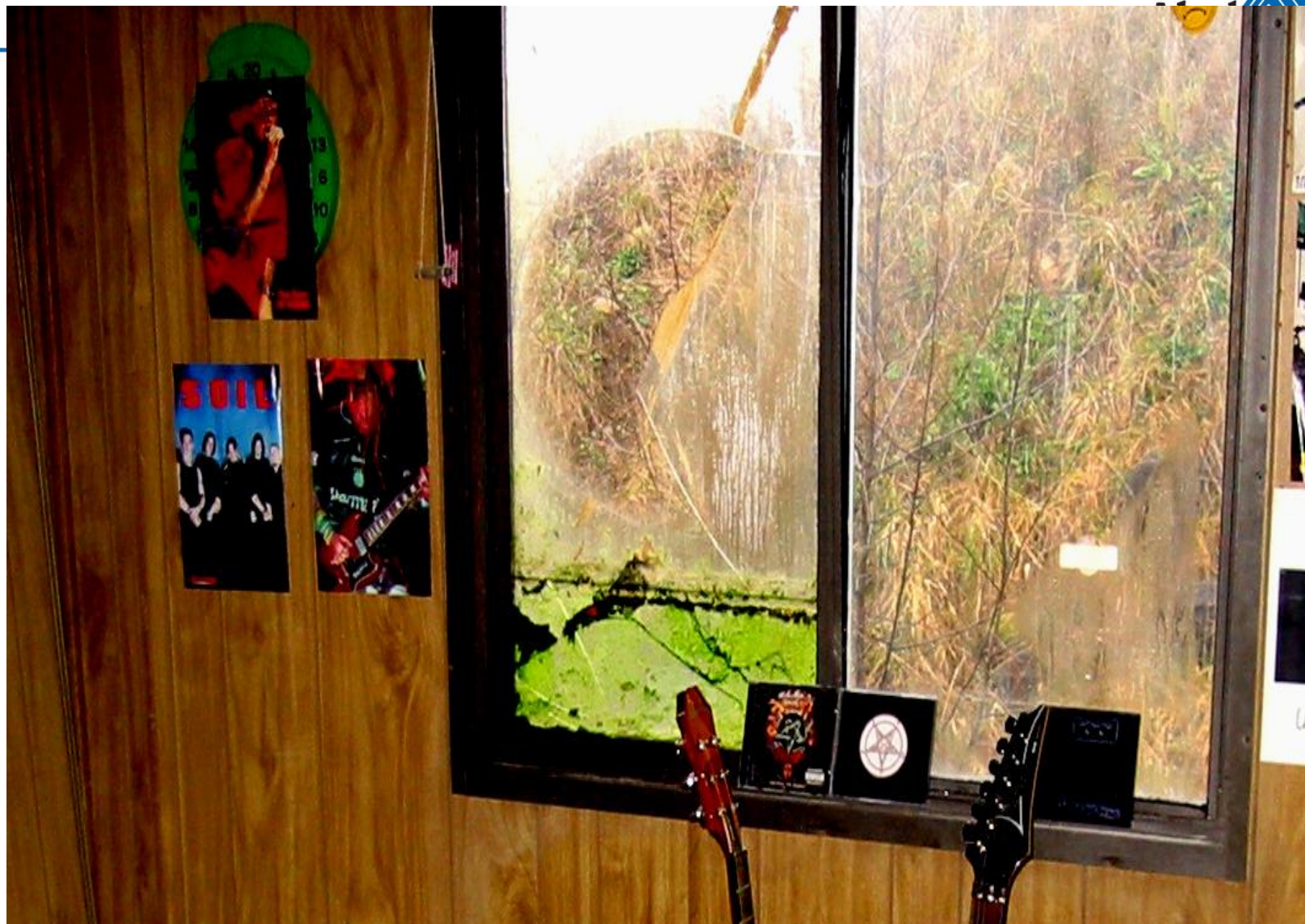


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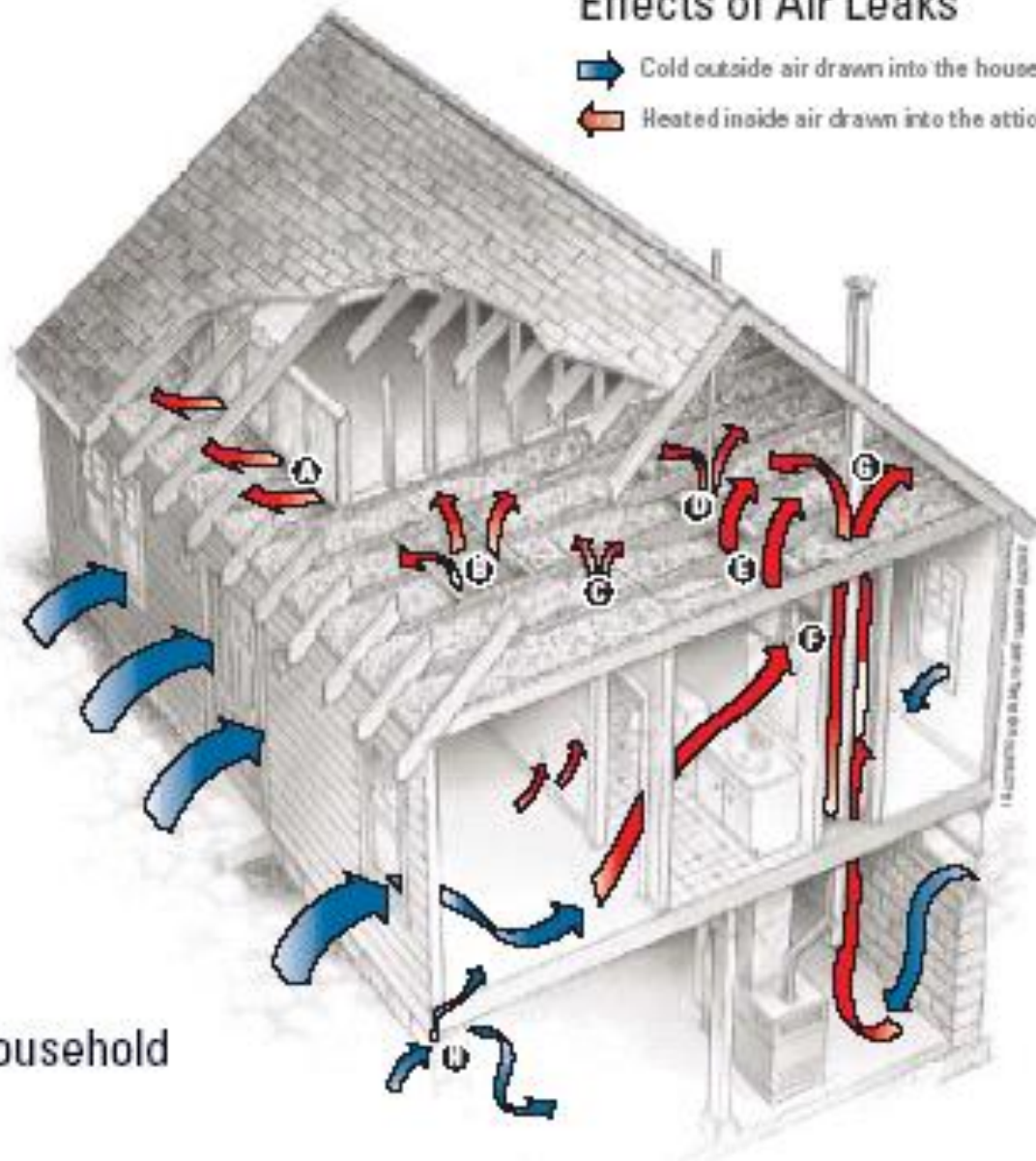






## Effects of Air Leaks

- ➡ Cold outside air drawn into the house
- ➡ Heated inside air drawn into the attic



Common Household  
Air Leaks

# Air Leaks to Attic





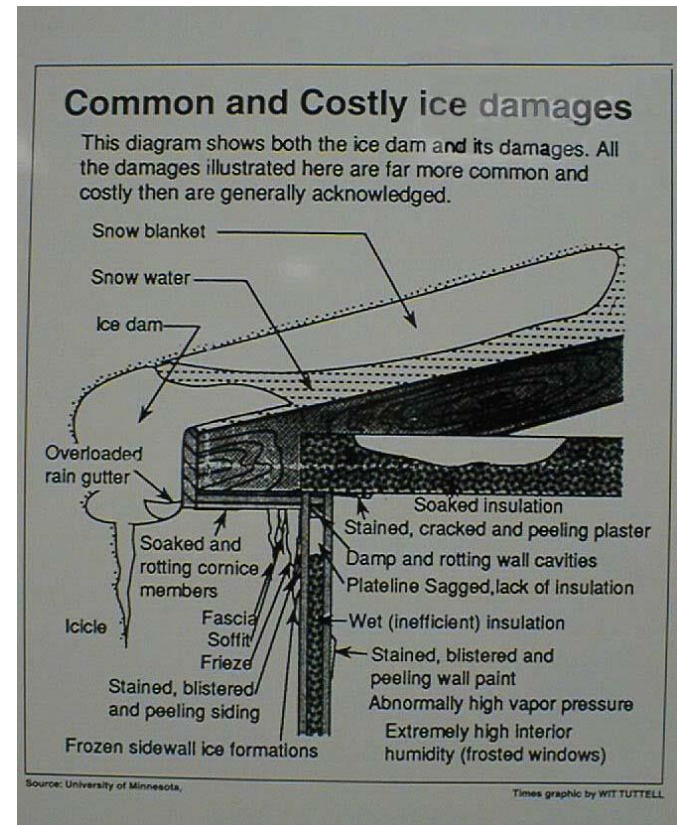
# Air Leaks to Attic



# Air Leaks to Attic



# Anatomy of an Ice Dam



# Heat Cables





## **We can do crawlspaces right, but should we?**

- Shallow Frost protected foundations work well in many areas, and are more cost effective
- Higher energy ratings, lower energy use, lower construction cost, what's not to like?

# Vapor Retarder



# Doing it Right



# Indoor Air Quality Problems

- Moisture
  - Combustion appliances
  - Building materials and furnishings
  - Soil gasses
  - Occupant induced - cleaners, furniture
  - Attached garages
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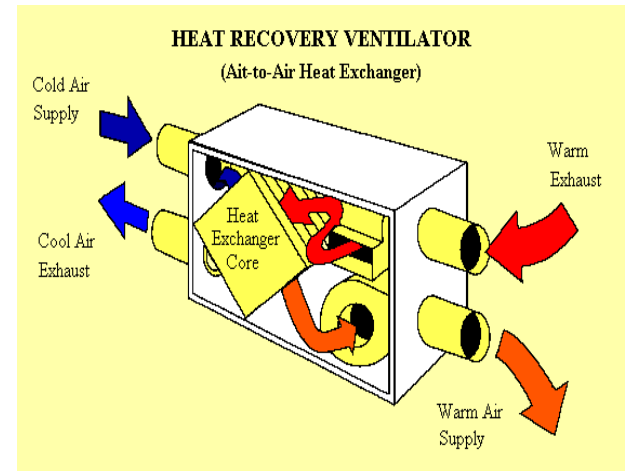
# Healthy Ventilation System



Use an exhaust fan  
and air inlets,  
scuttle, etc. or...



“mixing” box  
with inside  
and outside  
air, or



...or HRV

# Proper Ventilation

- Build Tight – Ventilate Right
  - Removes odors
  - Provides Fresh air for occupants
  - Removes pollutants
  - Helps dry the building
-

## Efficiency has value

- Safer and healthier homes
- Reduced maintenance
- Increased durability
- More comfortable
- Less dust and fewer insects
- More affordable and worth more

**Questions????**