

**Are You Retrofit Ready?**

# JR Babineau

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## Research Manager, Building Sciences

- 26 years at JM
- Based in Denver, CO
- Prior experience in Building and Mechanical Insulation, Building Science, Acoustics, Solar, and Testing of Materials and Systems
- P.E in Colorado
- Industry involvement:
  - ASTM
  - ASHRAE
  - US DOE
  - NAIMA
  - SFC



# Topics

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- Retrofit projects
- Areas of concern – repairs or disqualifiers
- Other items to look for – could impact scope
- Air Sealing

# Retrofit Projects

- Fix comfort issues
- Reduce energy bills
- Retrofit Process
  - Audit
  - Scoping
  - Install





# Items of Concern



# Moisture

- Water leaks
- Mold



Must be corrected/repared

# Electrical

- Knob & tube



Must be corrected/repared

# Vents

- Bathroom fans
- Dryers



Must be corrected/repared



# Vermiculite

- Potentially contains asbestos
- Must be removed by asbestos abatement contractor

Disqualifying condition



# Critters

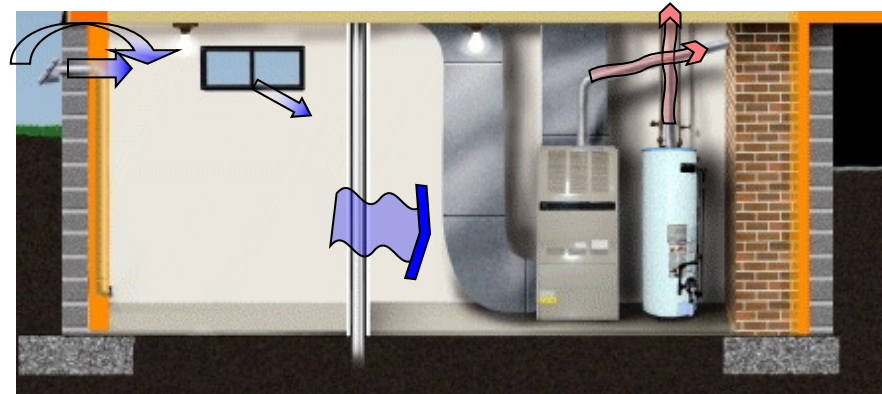
- Insects
- Birds
- Rodents



Must be corrected

# Combustion Appliances

- Naturally vented appliances get combustion air from the home.
- Air leaving the flue must be “made-up”. (air out = air in)

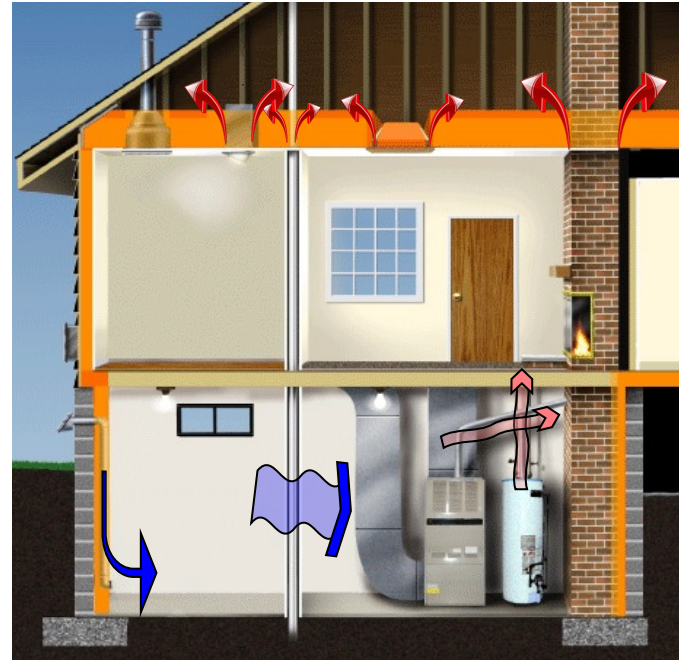


Not enough make-up air → Problems

# Combustion Appliances

- Typically, air leaks through walls, basements & crawlspaces provide enough make-up air.

Test to ANSI/BPI-1100-T-2023





# What to Look For



People Passion Perform Protect • **The JM Experience**

Insulation Intel®

# Items that Impact Scope

- **Knee walls**
  - Insulate
  - Air barrier
- **Balloon framing**
  - Air barrier
- Platforms/Floors
- Soffits
- Chase/Flue
- Recessed lights



# Items that Impact Scope

- Knee walls
- Balloon framing
- **Platforms/Floors**
  - Insulate
- Soffits
- Chase/Flue
- Recessed lights



# Items that Impact Scope

- Knee walls
- Balloon framing
- Platforms/Floors
- **Soffits**
  - Need solid, sealed air barrier
- Chase/Flue
- Recessed lights





# Items that Impact Scope

- Knee walls
- Balloon framing
- Platforms/Floors
- Soffits
- **Chase/Flue**
  - Need air barrier
  - Non-combustible materials
- Recessed lights



# Items that Impact Scope

- Knee walls
- Balloon framing
- Platforms/Floors
- Soffits
- Chase/Flue
- **Recessed lights**
  - Non-IC vs. IC?





# Attic Air Sealing



People Passion Perform Protect • **The JM Experience**

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# Attic Air Sealing

## Why Air-seal Attics?

- Existing homes have 100 to >400 in<sup>2</sup> of air leaks
- 20%-40% are at the ceiling



# Attic Air Sealing

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Why Air-seal Attics?



Like leaving a window open year-round

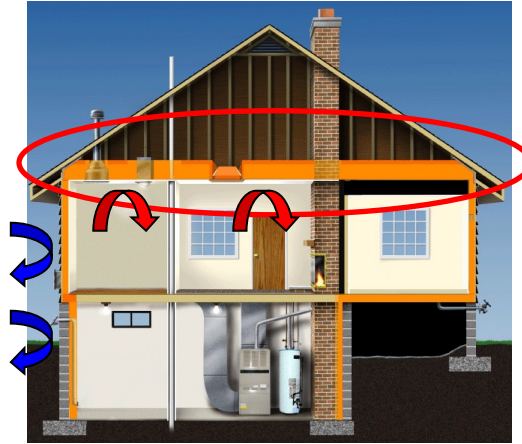
# Attic Air Sealing

## Winter Benefits

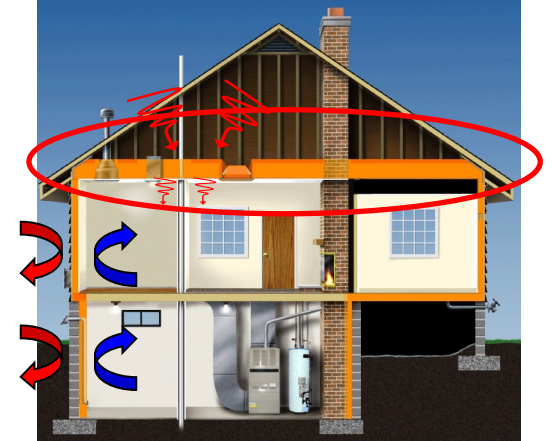
- Keeps heated air in
- Reduces drafts
- Reduces risk of moisture issues & ice dams

## Summer Benefits

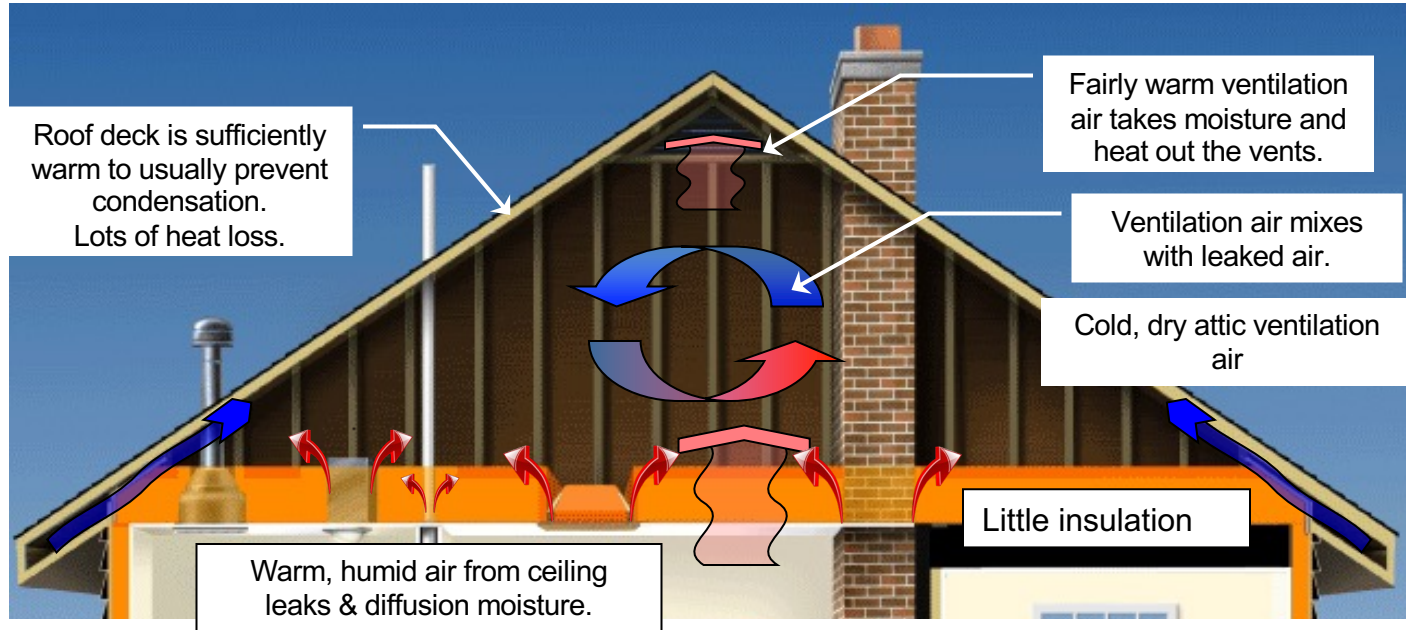
- Keeps hot attic air out of the house



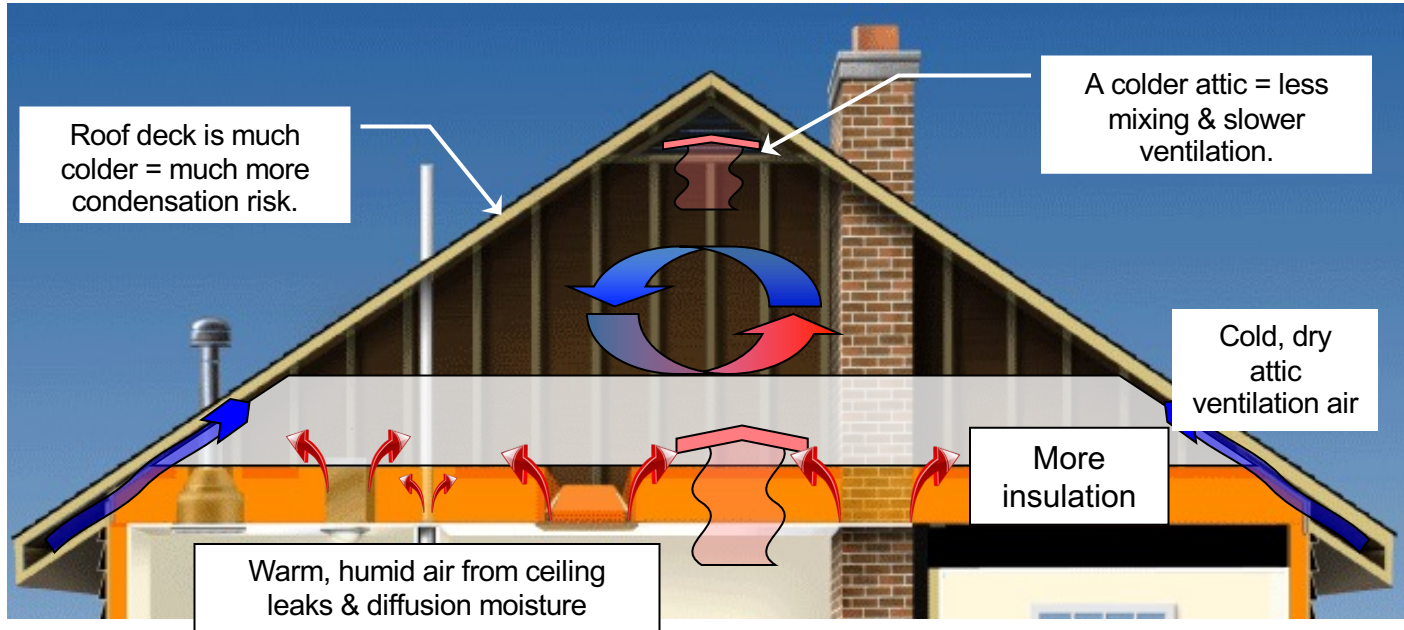
Helps insulation do its job



# How an Old Attic Works

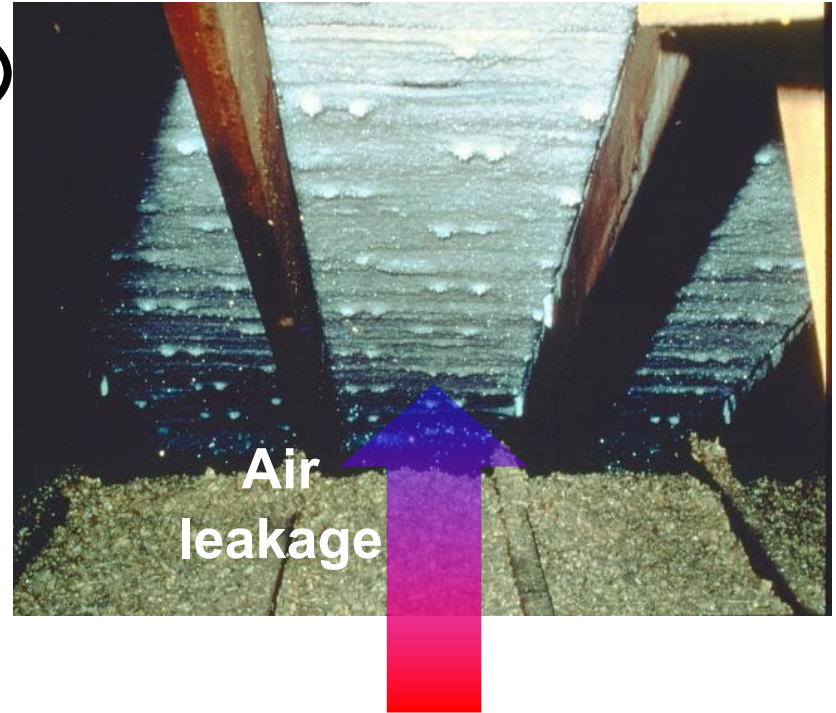
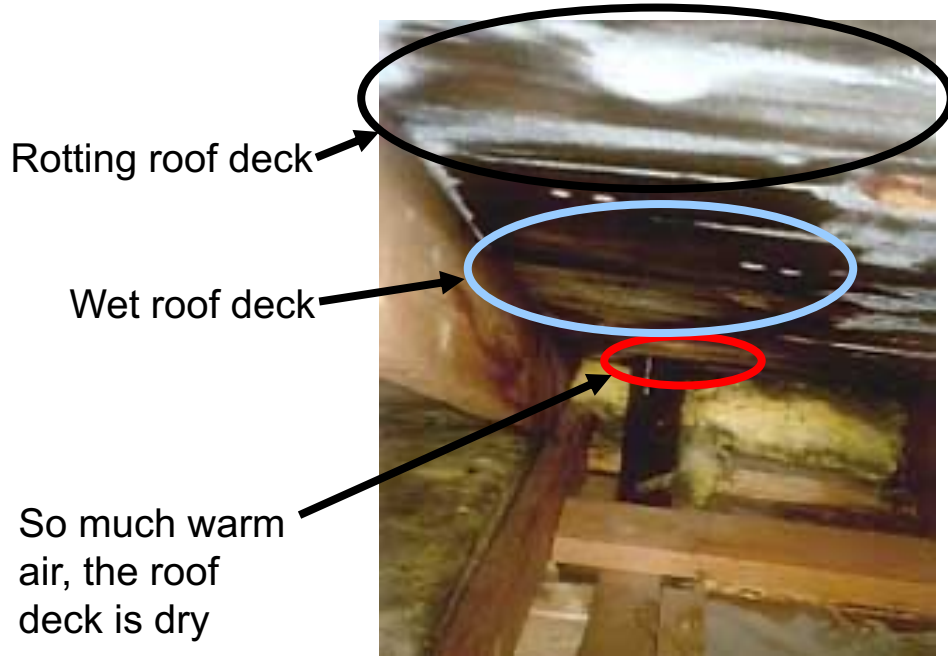


# What if we Only Insulate?

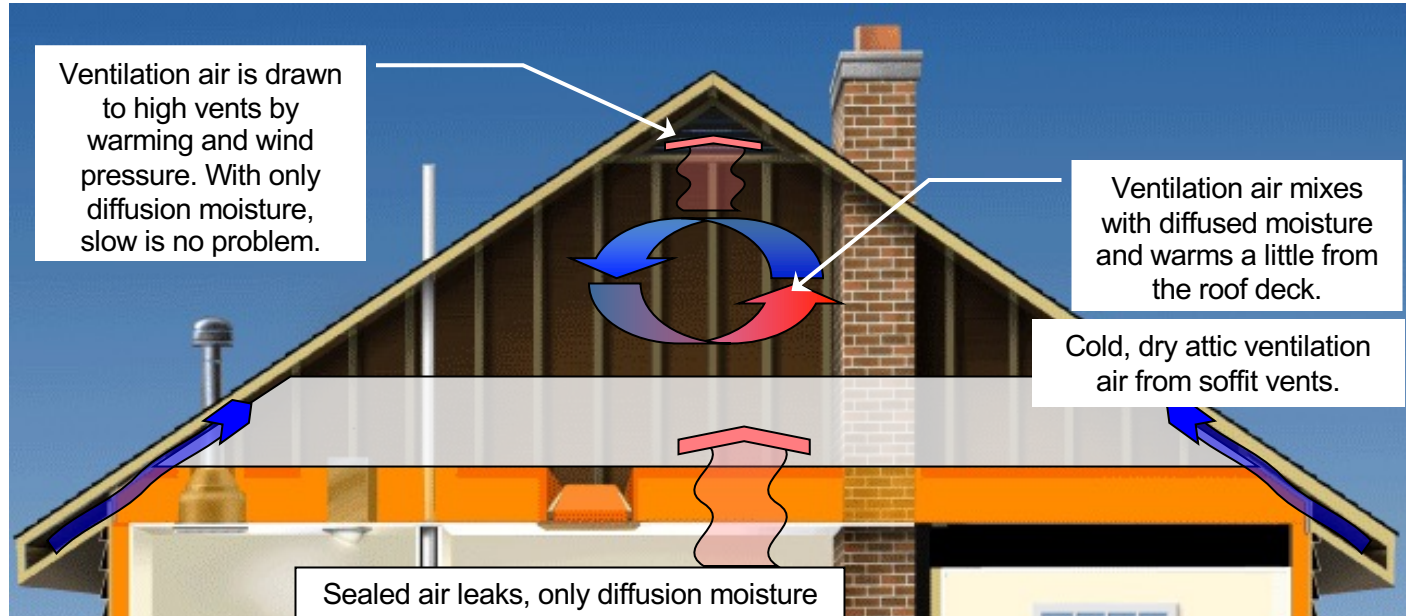




# What if we Only Insulate?

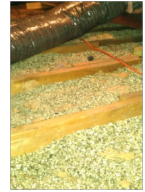
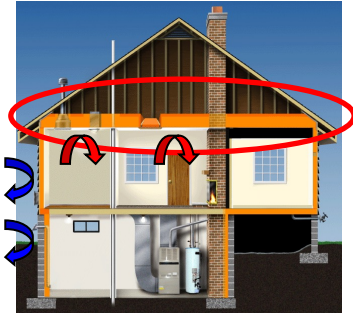


# How it Should Work



# Take-aways

- Retrofit for comfort and energy savings
- Repairs or Disqualifiers should be caught by Sales or Energy Auditor
- Important to capture scope items
- Air Sealing is important!

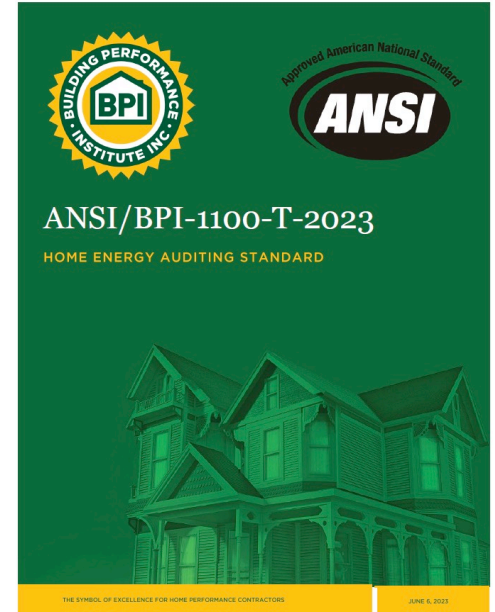


# Resources

- ANSI/BPI-1100-T-2023 Home Energy Auditing Standard
- NREL Standard Work Specifications
- DOE Weatherization Job Aids



[https://www.flickr.com/groups/sws\\_field\\_guide/](https://www.flickr.com/groups/sws_field_guide/)





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