



Most Common Corrective Actions of 2026

2026 Portland Trade Ally Forum

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Agenda

- Introduction
- Energy Trust Specifications Manual
- QA Process Overview
- HVAC Common Corrective Actions
- Weatherization Common Corrective Actions
- Honorable Mentions
- Resources and Contacts



Learning Objectives

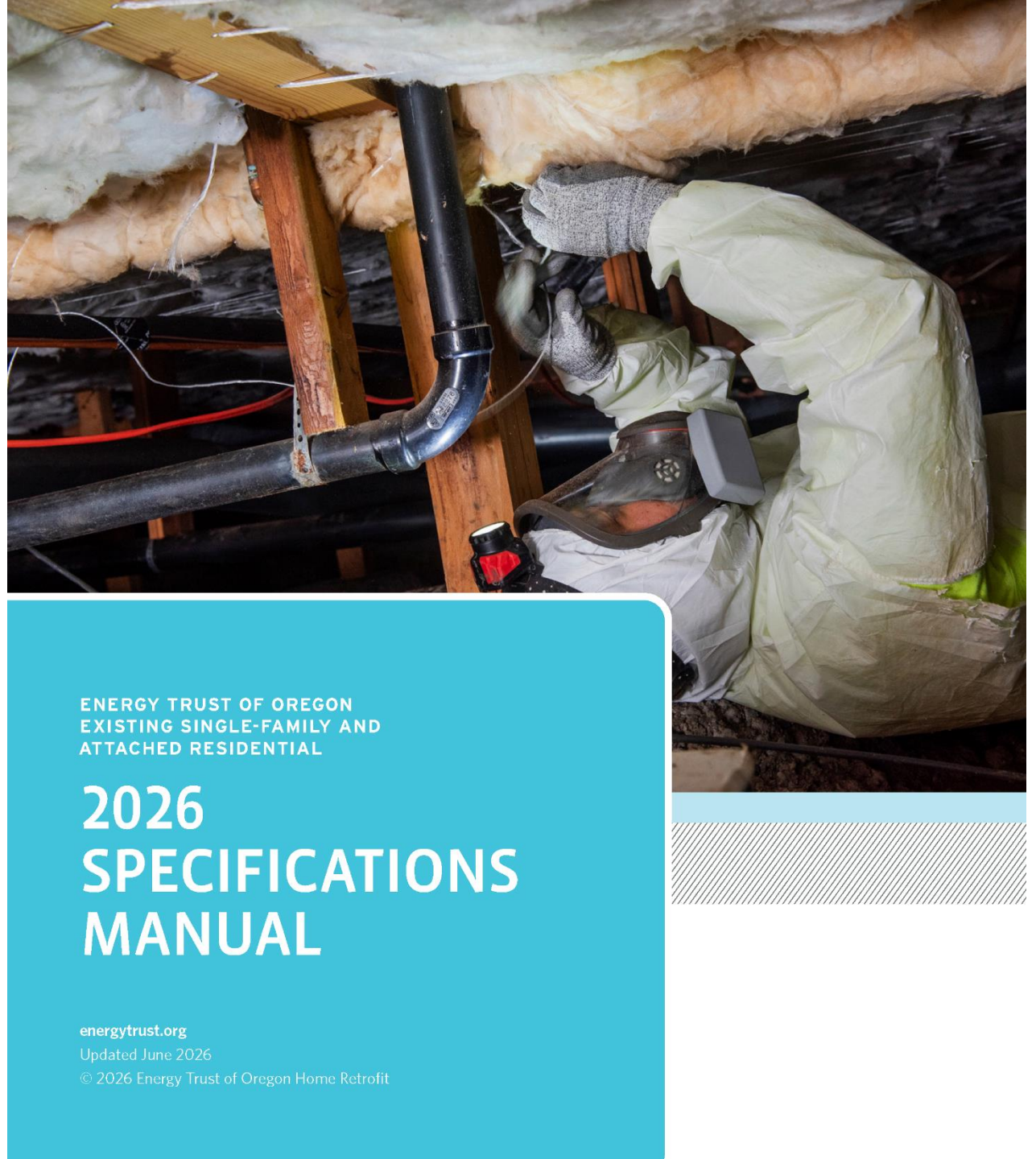
By the end of this session, participants will be able to:

- 
- 1 Identify the specification requirements most commonly cited in quality assurance visits
 - 2 Explain the building science and program purpose behind these specifications
 - 3 Describe the steps involved in work quality verifications, including corrective action types and response timelines
 - 4 Recognize the most common installation errors seen in the field and apply the correct specification to prevent

Energy Trust Home Retrofit Specifications Manual

Specifications Manual

- Outlines requirements for work in Energy Trust Home Retrofit Program
- Can be found on the Insider Page
- Updated annually - most recent update from July 2026



Specifications Manual Layout

AT

Attic Insulation

MH

Manufactured Homes

MV

Mechanical Ventilation

UN

Underfloor Insulation

WA

Wall Insulation

WI

Windows

FP

Gas Fireplaces/Furnaces

HP

Heat Pumps

HC

Heat Pump Controls

DP

Ductless Heat Pumps

AC

Central Air Conditioners

WH

Water Heaters

Program Resources

- Specifications Manual
- Training and Events Calendar
- Energy Trust Insider
 - Program descriptions
 - Forms
 - Per measure checklists
 - Resource Library

The screenshot displays the 'INSIDER' website, which provides exclusive news for trade and program allies. The header includes a navigation bar with categories: Residential, Commercial, Lighting, Industry + Ag, Solar, and Resources. A search bar is located on the right. The main content area features several articles under the 'HOME RETROFIT' section. One article, dated January 16, 2026, is titled 'Roundup of 2026 incentive updates available' and discusses Energy Trust's annual updates to incentives. Another article, dated January 13, 2026, is titled 'Radon: a silent killer with an easy solution' and mentions that radon kills nearly two Oregonians each day. A third article, also dated January 13, 2026, is titled 'Connecting smart thermostats to the internet is critical to energy-efficient operation of heat pumps'. A 'FEATURED' section highlights the '2026 Residential Business Development Fund (BDF) budget refreshed'. On the right side, there is a sidebar with a 'HOME RETROFIT' section containing links to Overview, Forms, Business Development Fund Guidelines, Real Estate Resources, Training and Resources, On-Bill Loan Repayment, Community Partner Funding, and In-Home Energy Services. Below this is an 'ENROLL IN THIS PROGRAM' button. Further down is a 'TRAININGS + EVENTS' section with a 'See All' link and a list of upcoming events: 'Measure Overview HVAC' on February 17, 'Redmond Existing Buildings Trade Ally Round Table' on February 17, and 'Home Retrofit Trade Ally Orientation - Part 1' on February 18.

INSIDER EXCLUSIVE NEWS FOR TRADE AND PROGRAM ALLIES

Newsletter Signup

Residential Commercial Lighting Industry + Ag Solar Resources Search

HOME RETROFIT

January 16, 2026
Roundup of 2026 incentive updates available
Energy Trust updates incentives and requirements throughout each year to ensure we provide cost effective offers...

Commercial, Commercial SW Washington, EPS New Homes, Existing Buildings, Existing Multifamily, Home Retrofit, Incentive Updates, Industry + Ag, Lighting, Network News, New Buildings, Residential, Residential SW Washington, Solar

January 13, 2026
Radon: a silent killer with an easy solution
Radon, an odorless and colorless radioactive gas, kills nearly two Oregonians each day and is the...

Commercial SW Washington, Existing Buildings, Existing Multifamily, Home Retrofit, Residential SW Washington

January 13, 2026
Connecting smart thermostats to the internet is critical to energy-efficient operation of heat pumps
Technological innovations have delivered heat pump control systems that rely on a Wi-Fi connection to operate...

January 13, 2026
2026 Residential Business Development Fund (BDF) budget refreshed
Energy Trust has refreshed its annual Residential Business Development Fund (BDF) and Program Cost Assistance Fund...

HOME RETROFIT

Overview
Forms
Business Development Fund Guidelines
Real Estate Resources
Training and Resources
On-Bill Loan Repayment
Community Partner Funding
In-Home Energy Services

ENROLL IN THIS PROGRAM

TRAININGS + EVENTS

See All

- 17 FEB Measure Overview HVAC
- 17 FEB Redmond Existing Buildings Trade Ally Round Table
- 18 FEB Home Retrofit Trade Ally Orientation - Part 1

Measure Checklist

- Each Measure has a specific checklist
- Handy to have available
 - Work faster, reduce redundancy
 - Avoid corrective actions
- References location in the manual

HOME RETROFIT SPECIFICATIONS MANUAL ATTIC INSULATION COMPLETE MEASURE CHECKLIST

HOME RETROFIT SPECIFICATIONS MANUAL FLOOR INSULATION COMPLETE MEASURE CHECKLIST

HOME RETROFIT SPECIFICATIONS MANUAL DUCTLESS HEAT PUMP COMPLETE MEASURE CHECKLIST

HOME RETROFIT SPECIFICATIONS MANUAL HEAT PUMP COMPLETE MEASURE CHECKLIST

All work must meet Energy Trust specifications. **This checklist serves as a reference guide only.** Please refer to the current Specifications Manual for additional information and clarification. Specific reference sections are noted in italics.

- | | |
|--------------------------|--|
| ☐ | Heat pump is clearly labeled and permanently affixed without compromising the structural integrity of the building. <i>IN 1.14</i> |
| ☐ | Condensate produced by the system is removed via an adequately sloped drainage system and flows to a suitable termination point. <i>IN 1.16</i> |
| ☐ | Line set penetrations into the building shell are sealed with caulk, foam or other compatible UV-resistant sealant rated for exterior use. <i>HP 1.2</i> |
| ☐ | Outdoor sections of line set are covered with a rigid UV-resistant covering where possible or a flexible UV-resistant covering where rigid ones are impractical. <i>HP 1.2</i> |
| ☐ | Outdoor unit rests on a permanent, stable, level surface and is not covered by debris or obstacles that restrict airflow. If horizontally discharged, unit is bolted directly to risers and risers are mechanically or adhesively attached to the pad. <i>HP 1.3</i> |
| ☐ | Programmable thermostat is installed with temperature setback capabilities. If programmed, the temperature setback is no greater than 3°F. <i>HP 1.1</i> |
| ☐ | Auxiliary heat lockout is set at 35°F or lower. Compressor lockout, if engaged, is set no higher than 5°F. <i>HP 1.1</i> |
| ☐ | Evaporators and condensers have been verified as compatible with one another according to AHRI specifications. <i>HP 1.0</i> |
| ☐ | System is installed in accordance with the manufacturer's specifications and jurisdictional codes. <i>IN 1.14</i> |
| ☐ | If system is an extended capacity heat pump, ensure the thermostat is variable speed compatible and programmed to lockout auxiliary heat. Lockout temperature shall be set at 25°F maximum and be informed by balance point. <i>HP 1.4</i> |

Print Name:

Signature:

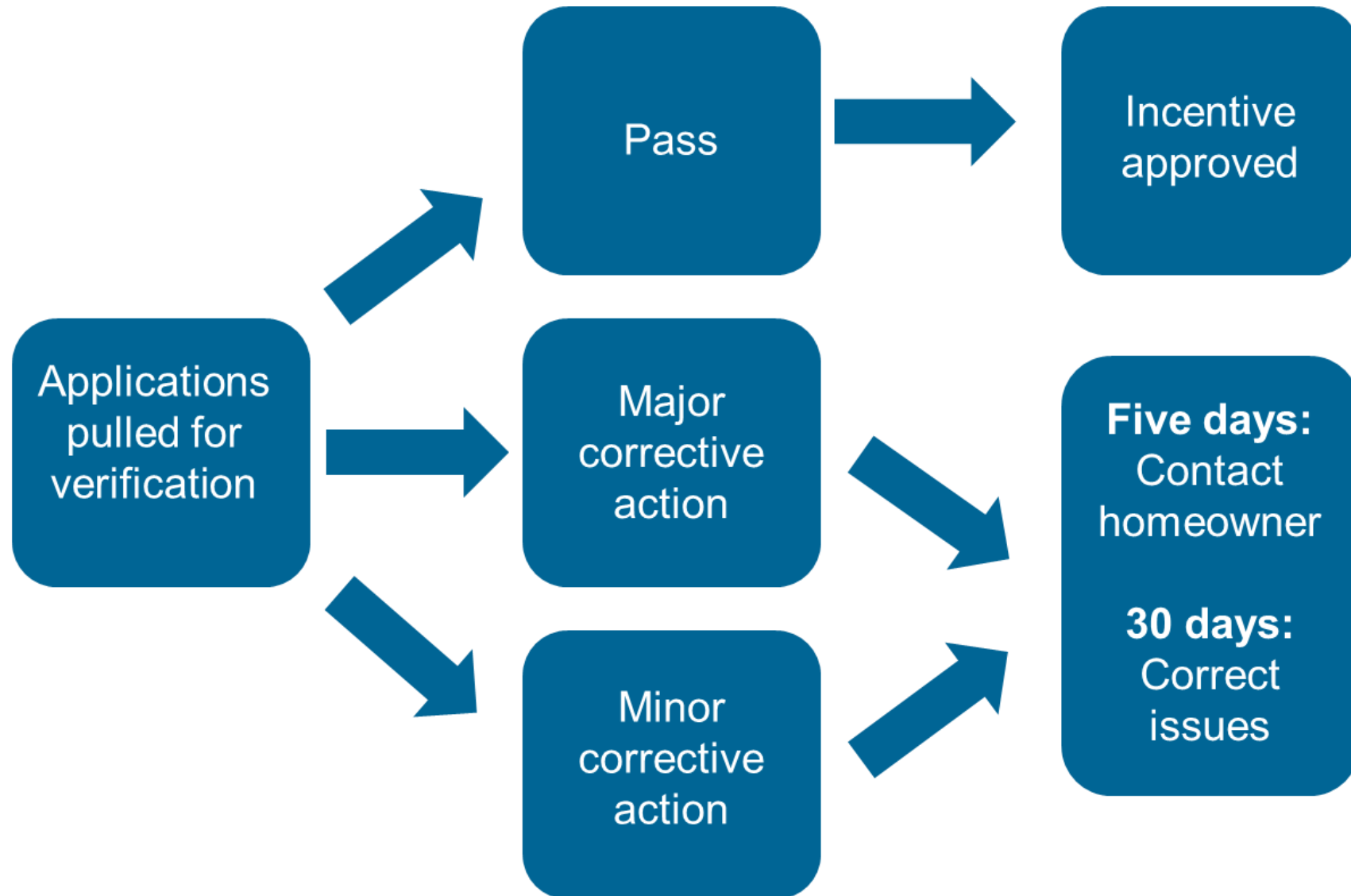
Date:

Energy Trust Work Quality Verification Process

Who here has received a corrective action?



IN 1.6 - Work quality verification



What is a corrective action?



Negative result of a work quality verification where there is a lack of compliance with the Home Retrofit Specifications Manual or program requirements



Minor: One instance of unsatisfactory work or problems associated with energy savings, health and safety or building durability.



Major: Three or more problems with work completed or a potentially significant or serious problem

Most Common Corrective Actions: HVAC

Top 3 HVAC corrective actions?



HVAC Ranks

2025

1. Lockouts
2. Model Mismatch
3. Linesets
4. Condensate Drain
5. Outdoor Unit Install
6. CO Alarm
7. System Replace

2026

1. - Lockout Controls
2. - Model Mismatch
3. ^ CO Alarm
4. v Linesets
5. - Outdoor Unit
6. ^ Indoor Unit
7. v Condensate Drain

Lockout Controls

- Maintain comfort for the homeowner
- Maximize energy savings for the homeowner
- Allow heat pump to operate in peak efficiency as designed



Lockout Controls

- Extended Capacity Heat Pumps: 25F (only if variable speed compatible thermostat)
- Other Heat Pumps: 35F
- Setbacks at no more than 3F
- **Must be connected to wi-fi and connected to local weather data for lockouts to be compliant**
- Keep internal records with photos documenting completing of settings
- Educate homeowner on temperature settings



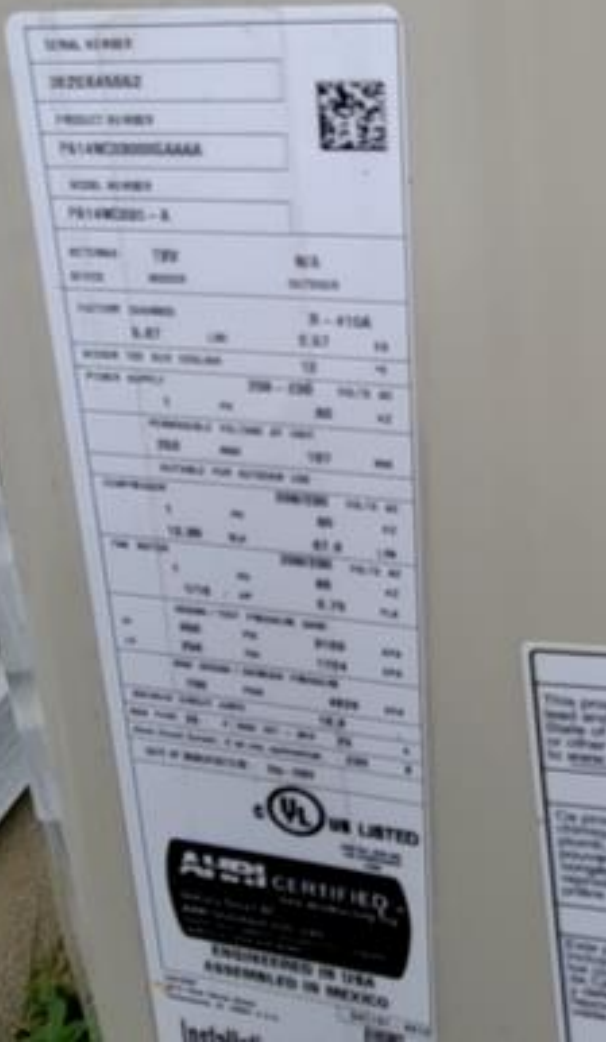


Model & Serial Number Mismatch

- Unit sizing should be consistent to the home and not interchangeable for other sizes
- Verify minimum efficiency requirements are met
- One HVAC one incentive
- Maintaining consistent records and inventory

Model & Serial Number Mismatch

- Appliances shall have a clearly visible, permanent, factory-affixed label identifying the serial number, make and model number of the unit
- Information on the unit must match information on the application
- Do not complete application prior to install
- Ensure accurate unit sizing and current access to inventory



IN 1.2 – Carbon Monoxide Alarm

- Required when:
 1. A gas heating system or gas water heater is installed in the home, an attached garage or another attached space.
 2. Hybrid (Heat pump) water heater is installed in a home where a combustion appliance takes in air from inside the building and exhausts air through the ducting to the exterior is present in the home, an attached garage or other attached space.
 3. A combustion appliance is present when duct sealing is performed.



Linesets

- UV protection
- Protection from weathering and degrading
- Protection from pests
- Maintain efficiency of the unit and limit heat loss/gain
- More visually appealing (rigid cover)



Linesets

- Line set penetrations shall be sealed
- Line set should be protected with mechanically secured rigid covering
- **The line set shall be insulated over its entire length**
- Limit gaps in pre-sized insulation wrap
- Measure appropriately and leave no gaps even as you approach the outdoor unit
- Maximize length of rigid covering were possible





Outdoor Unit Install

- Required for proper equipment operation
 - Drainage
 - Air Flow
- Ensure no additional damage to structure or other parts of the home (sealing penetrations)



Outdoor Unit Install

- Unit shall rest on a permanent pad
 - Must be stable and level
- If horizontally discharged, shall be bolted to risers
 - Risers should be mechanically or adhesively attached to pad
- Must be clear of debris and obstacles





Indoor Unit Install

- Unsecured, not level
- Gaps in air sealing
- Filter bypass
- Penetrations at indoor unit

HP 1.4 – Indoor Unit Install

- Installed as a permanent fixture
 - Level and plumb to ensure proper condensate system operation
 - Connections to supply and return ducts airtight and mechanically fastened
- Have adequate service access
 - Ability to easily change filters
- Penetrations
 - All electrical, condensate, and others sealed with approved material
- Fully insulated linesets



Condensate Drain

- Avoid drainage lines filling with water
- Prevent health and safety hazards for the homeowner or occupant
- Maintain proper system function



Condensate Drain

- Condensate drains shall slope downhill and flow to a suitable termination point
- Condensate and defrost drainage shall not drain onto any outside walking surface



Most Common Corrective Actions: Weatherization

Top 3 Weatherization corrective actions?



Weatherization Ranks

2025

1. Dams
2. Baffles
3. Voids
4. Exhaust Fans
5. Attic Access
6. Baffles HPF
7. Vertical Walls

2026

1. ^ Attic Access
2. ^ Floor Penetrations
3. ^ Exhaust Fans
4. v Dams
5. v Voids
6. ^ Vertical Walls
7. ^ Water Lines



Attic Access & Weatherstripping

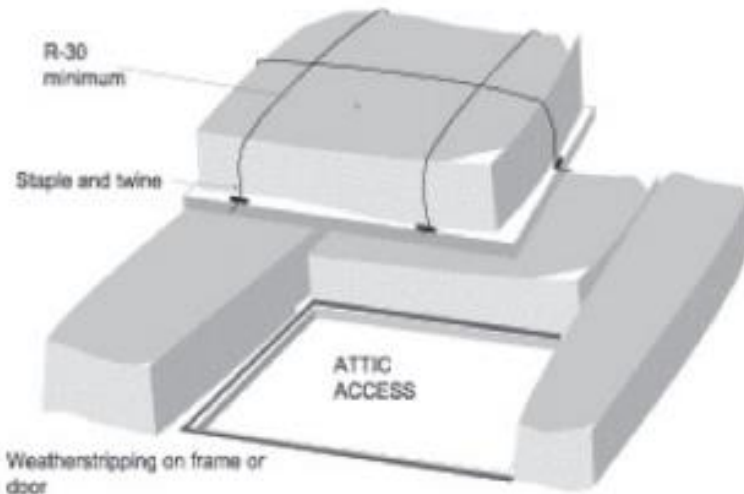
- Maintain consistent R-Value in the home
- Prevent drafts
- Maintain moisture consistency
- Maintain air quality
- Prevent insulation from falling out of access door





Attic Access & Weatherstripping

- Interior attic access
 - Insulated and weather stripped
 - Ceiling access R-30
 - Knee wall access R-15
- Pull down stairs
 - Weather stripped and insulated to R-10
 - Shall not prevent operation of the stairs
- Exterior attic access
 - Weatherproof and vermin proof only
- Weatherstripping on all accesses



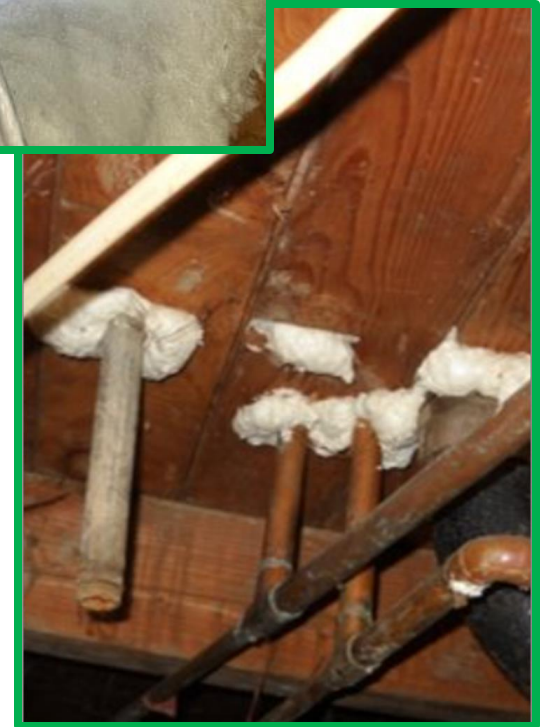
Sealing Floor Penetrations

- Reduces impact and savings of floor insulation
 - Reduces effective R Value
 - Convection and Conduction heat transfer
- Limit movement of moisture



Sealing Floor Penetrations

- All floor penetrations shall be sealed
 - Plumbing
 - Wiring
 - Duct penetrations
 - Floor transitions
- Acceptable Materials
 - Caulk
 - Foam Insulation
 - Foam board
 - Fire rated materials for open chases around chimneys



Exhaust Fans

- Not vented to outside
- No dedicated boot
- Excessive turns or sagging

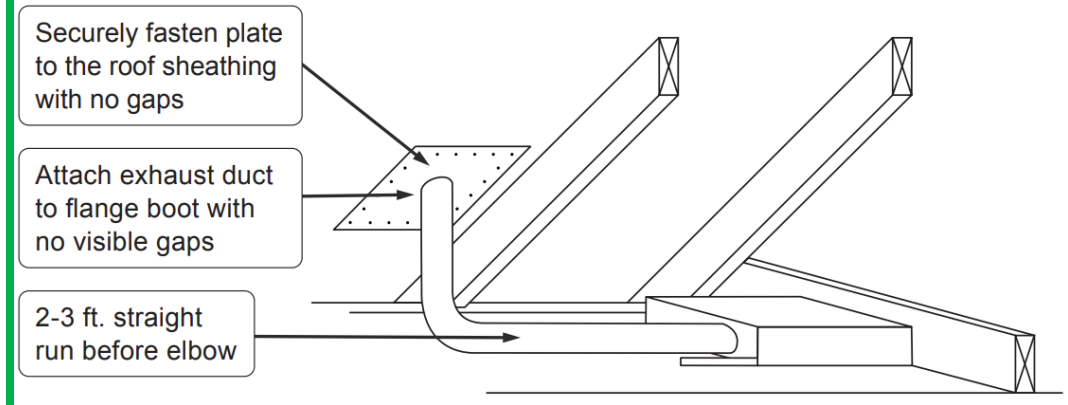


Exhaust Fans

- Vented to outside
- Mechanically fastened to joints and boots
- Shortest run feasible
- Existing ducts may be used
- Recommended to insulate
- Kitchen Fans
 - Metal
 - If replaced, must meet specifications



ILLUSTRATION AT 1.6-EXHAUST BOOT CONNECTED TO SHEATHING



Dams

- Install dams between insulation areas and non-insulation areas
- Dams around access points
- Install dams between different insulation areas (drop ceilings)
- Dams for heat producing fixtures



Dams

- A durable rigid material should be used such as plywood, foam board, moisture treated cardboard etc.
- An insulation batt must be at least 14.5" wide if used, with an R value equal or greater than is specified for the attic.



Voids in Insulation

- Insulation levels should be even throughout the space to prevent varying temperatures and drafts
- Gaps between batts may cause lowering of the overall R-Value and cause moisture issues in the attic space



Voids in Insulation

- Loose-fill insulation shall be level and smooth with uniform R-Value
- Insulation batts used as a dam shall be installed so that no gaps or voids exist
- Batts shall be cut to fit and placed tightly together with no gaps





Vertical Walls

- Any wall in the attic that separates conditioned and unconditioned spaces
- Maintain consistent R-Value in the home
- Prevent drafts
- Prevent condensation



Vertical Walls

- Shall be sealed for air leaks
- Insulated to fill the cavity
- Covered with a vapor permeable air barrier
- Includes:
 - Side walls of vaults
 - Skylights
 - Transitions in ceiling height
 - Etc.
- In cases where no wall exists, a wall shall be constructed

Insulating Water Lines

- Insulating the underfloor moves the thermal boundary and leaves water pipes outside of it
- Water lines are filled with water and held at pressure
- Changes in temperature can impact the water temperature for the homeowner
- Freezing temperatures cause water to expand and can burst pipes



Insulating Water Lines

- All water pipes not enclosed within the thermal boundary shall be insulated to R-3
 - Any leaks shall be repaired before insulating
- Tape is not allowed to secure insulation
- Preformed insulation shall be properly sized with no gaps
 - Must be supported every 24 inches and 3 inches from ends



Most Common Corrective Actions: Honorable Mentions

DHP & Heat Pump Conversion Qualification (Complete DNQ)

Ductless Heat Pump

- Must replace electric zonal heat as the single-family home's primary heating source
- Must be located in primary living space

Heat Pump Conversion form Electric Furnace

- Must replace electric forced air furnace as the single-family home's primary heating source
- Cannot "cut in" new duct system (ex. conversion from zonal electric)

Wrapping Up

Key Takeaways



Quality installs benefit everyone



Preparation helps to avoid the most common mistakes in the field



Check the Specifications Manual



Energy Trust is here to help



Questions?

Thank You

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