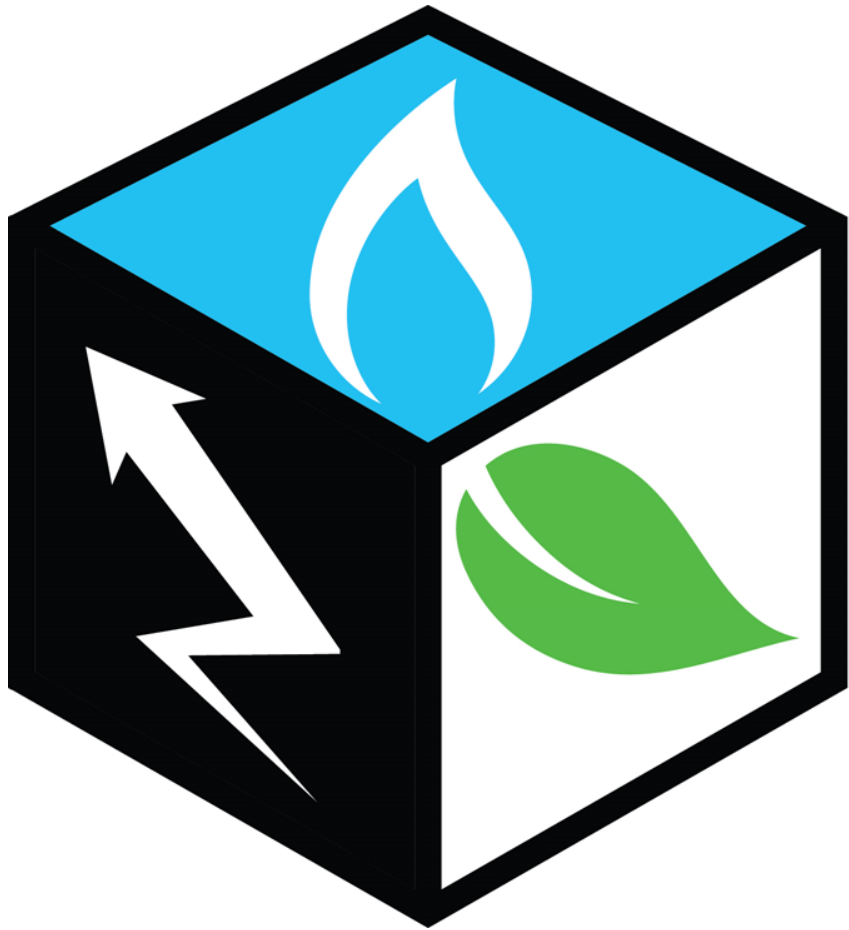


Areas of Energy Code Compliance Verification



**Southern Valley
Services LLC**

IMPROVE HEALTH
INCREASE COMFORT
SAVE MONEY

ERI (HERS)

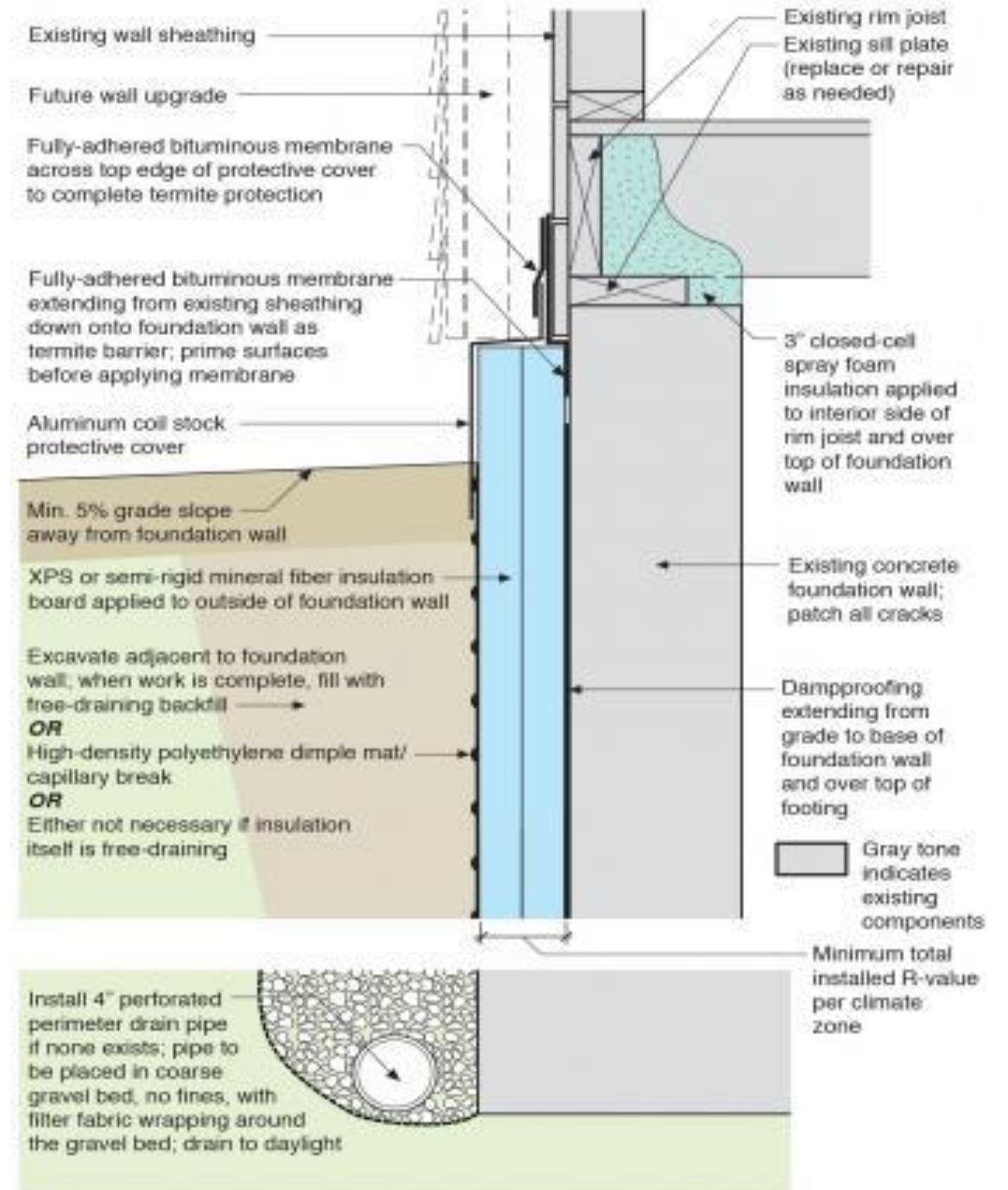
Compliance based on an ERI analysis requires that the rated design be shown to have an ERI (HERS Index) less than or equal to a score of 70

Compliance with this section requires that the provisions identified in Sections R401 through R404 labeled as “mandatory” and Section R403.5.3 be met. The building thermal envelope shall be greater than or equal to levels of efficiency and Solar Heat Gain Coefficient in Table 402.1.1 or 402.1.3 of the 2009 International Energy Conservation Code.



INSULATION

BASEMENT CZ3:Continuous: R-5



Vented crawlspace – R19 under floor

No insulation under floor



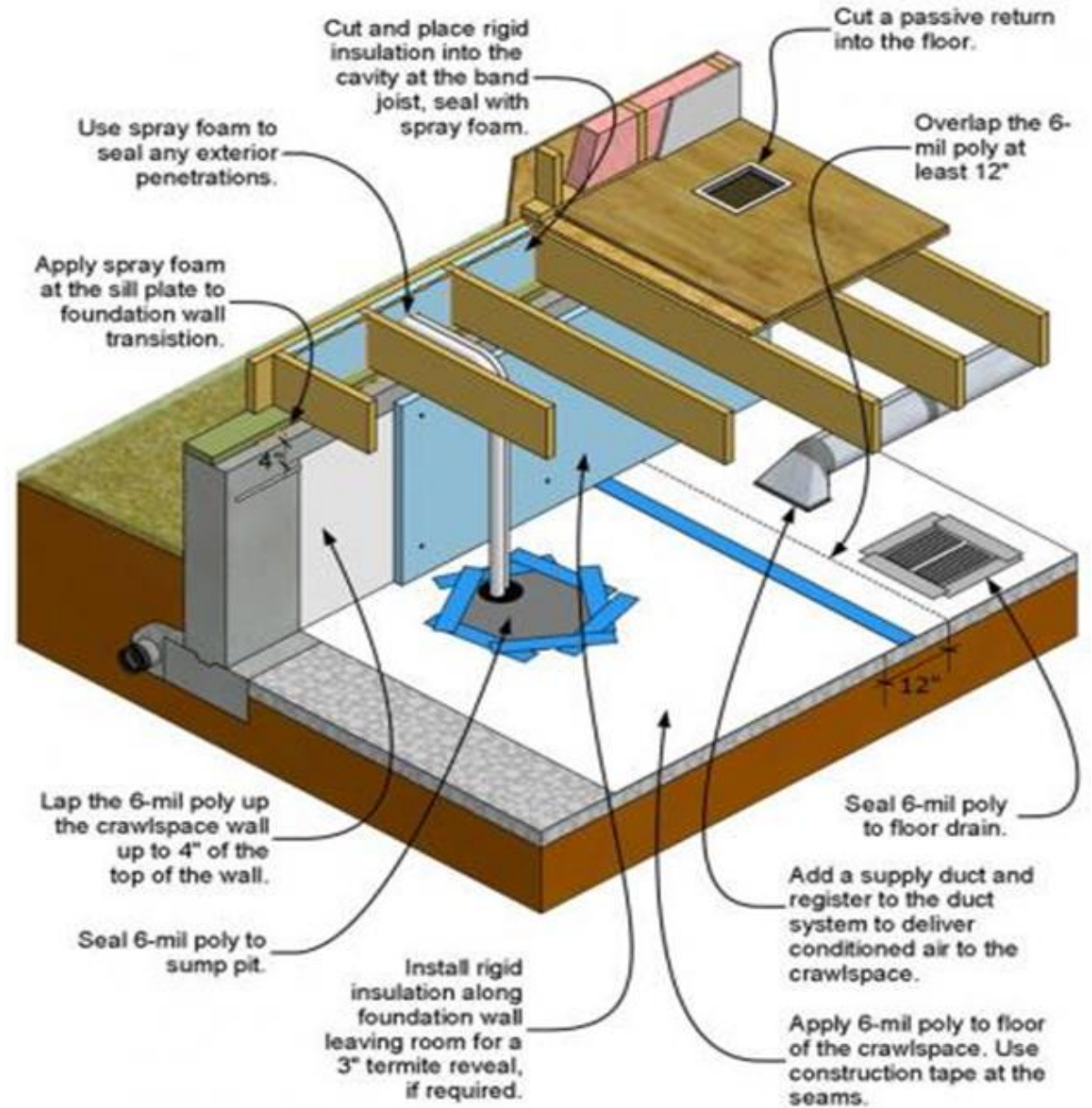
Sub-floor insulation has gaps, compression, and misalignment



Sub-floor insulation is properly installed and supported



Unvented Crawlspace R 5 - Insulation crawl space walls




Window &
Doors –
U-Factor

≤0.35

 <p>National Fenestration Rating Council® CERTIFIED</p>	<p>World's Best Window Co. Series "2000" Casement Vinyl Clad Wood Frame Double Glazing • Argon Fill • Low E ABC-X-1-00001-00001</p>
ENERGY PERFORMANCE RATINGS	
U-Factor (U.S. / I-P)	Solar Heat Gain Coefficient
0.35	0.27
ADDITIONAL PERFORMANCE RATINGS	
Visible Transmittance	Air Leakage (U.S. / I-P)
0.51	0.2
<p>Manufacturer stipulates that these ratings conform to applicable NFRC procedures for determining whole product performance. NFRC ratings are determined for a fixed set of environmental conditions and a specific product size. NFRC does not recommend any product and does not warrant the suitability of any product for any specific use. Consult manufacturer's literature for other product performance information. www.nfrc.org</p>	

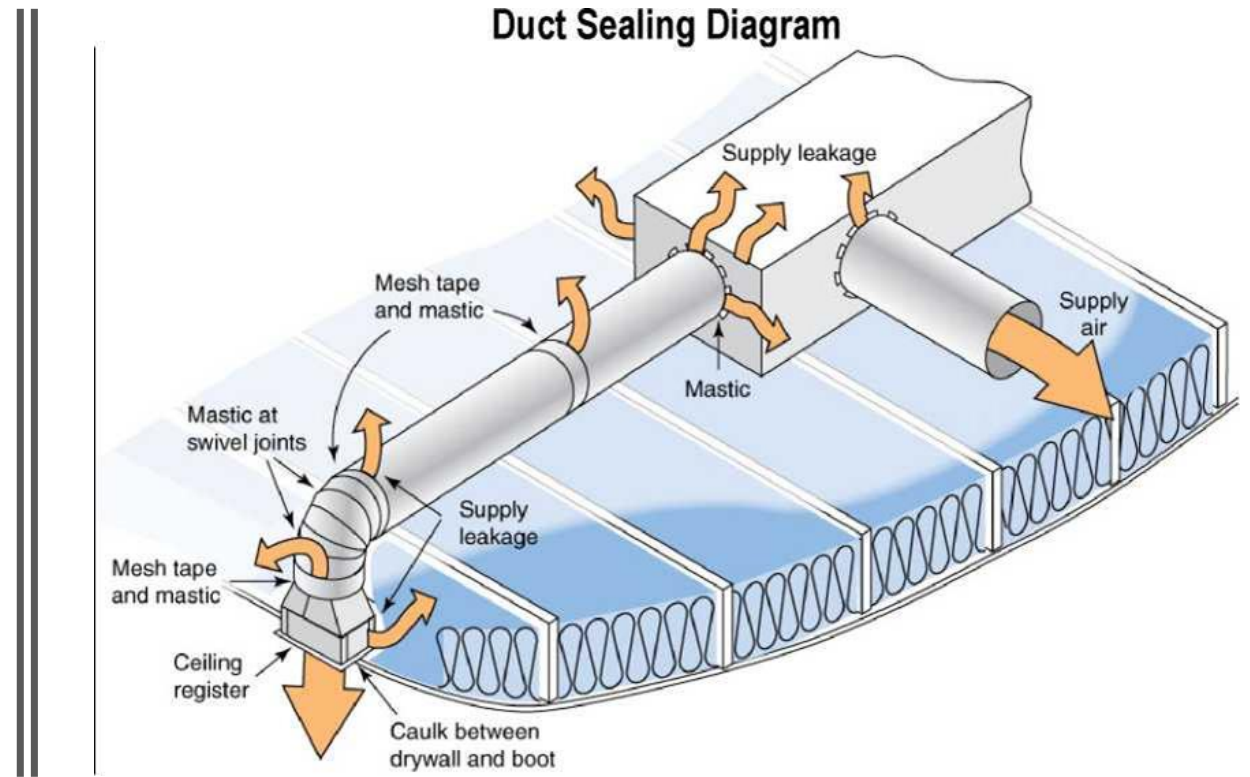
Window &
Doors
Solar Heat Gain
Coefficient

≤ 0.27

 National Fenestration Rating Council® CERTIFIED	World's Best Window Co. Series "2000" Casement Vinyl Clad Wood Frame Double Glazing • Argon Fill • Low E ABC-X-1-00001-00001
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U-Factor (U.S. / I-P) 0.35	Solar Heat Gain Coefficient 0.27
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Duct Insulation – In Attic R-8 Other R-6



Duct Sealing

The joints and seams of all ducts, air handler must be sealed with UL-181 tape or Mastic or mastic tape.

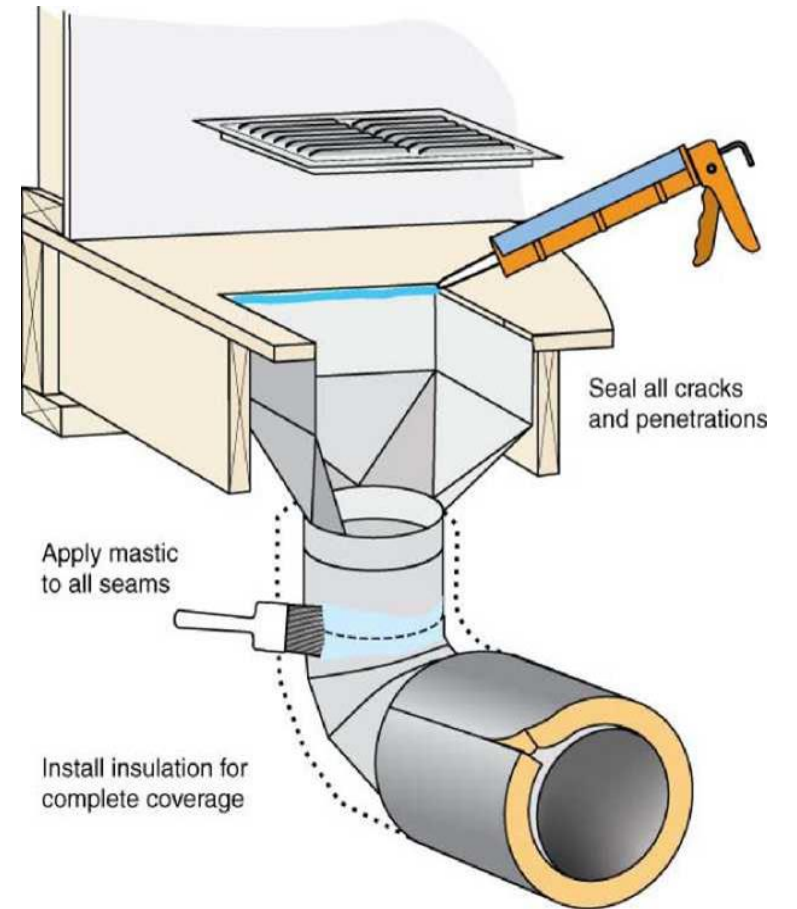
INCORRECT: NOT SEALED



CORRECT: MASTIC SEALED JOINT



SEAL ALL JOINTS & AT FLOOR OR CEILING



INCORRECT: Unlined Cavity as Supply or Return

Building cavities may not be used as ducts – supply or return.



IC-Rated Air Tight Recessed Lighting Fixtures

INCORRECT: Standard Fixture



CORRECT: IC-Rated and Air-Tight

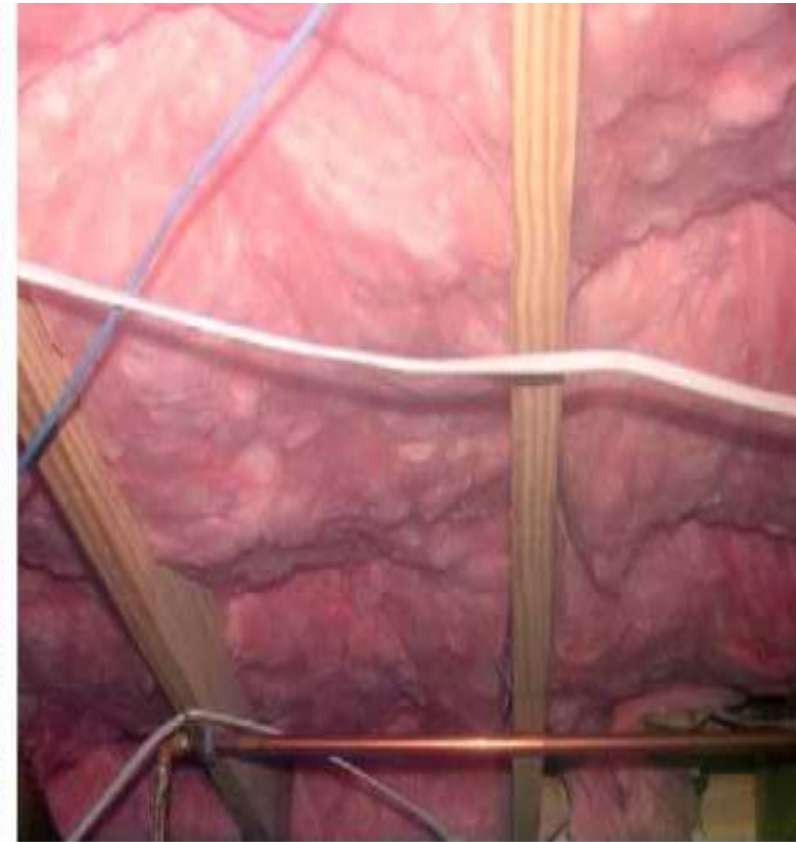
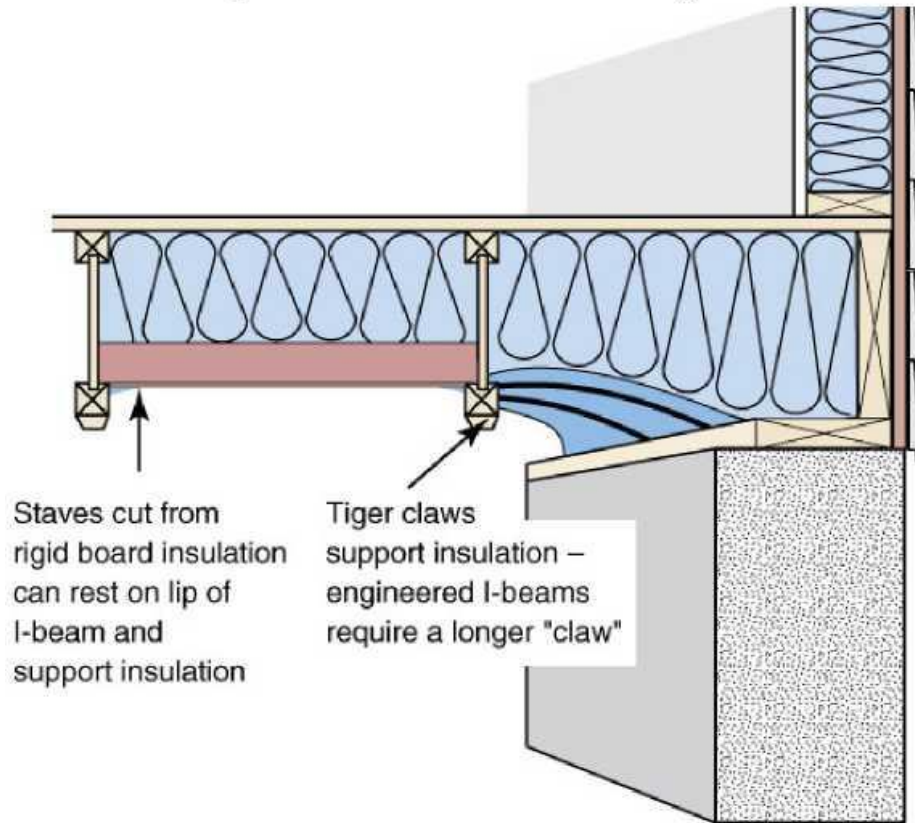


Source: DOE

Floor Insulation - R-19

in permanent contact with the underside of the subfloor decking

Proper Floor Insulation Diagram



Wall insulation

Wood: Interior R-13; Exterior or integral R-5

CORRECT: Batt in Wood-framed Cavity



CORRECT: Full Coverage and No Compression



Wall insulation

INCORRECT: no insulation in advanced framed corner



INCORRECT: no insulation or air barrier on exterior wall behind fireplace



Exterior Walls behind fireplace must be insulated and have seal air barrier

Insulation behind fireplace

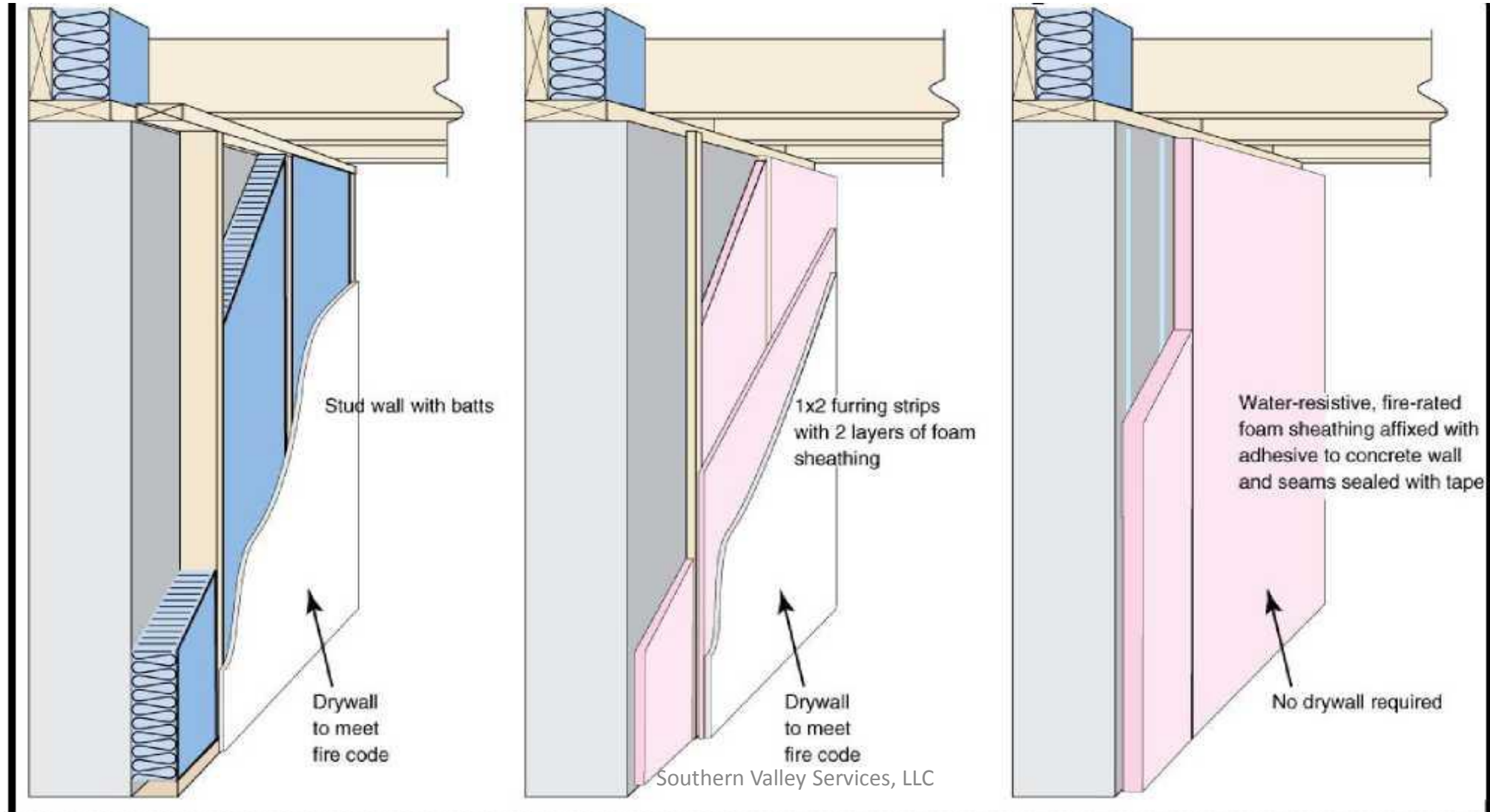


Rigid air barrier over insulation behind fireplace



Basement Wall Interior Insulation

Continuous: R-5; Cavity: R-13



BASEMENT INSULATION

CORRECT: Insulation Installed in Full Contact with Wall

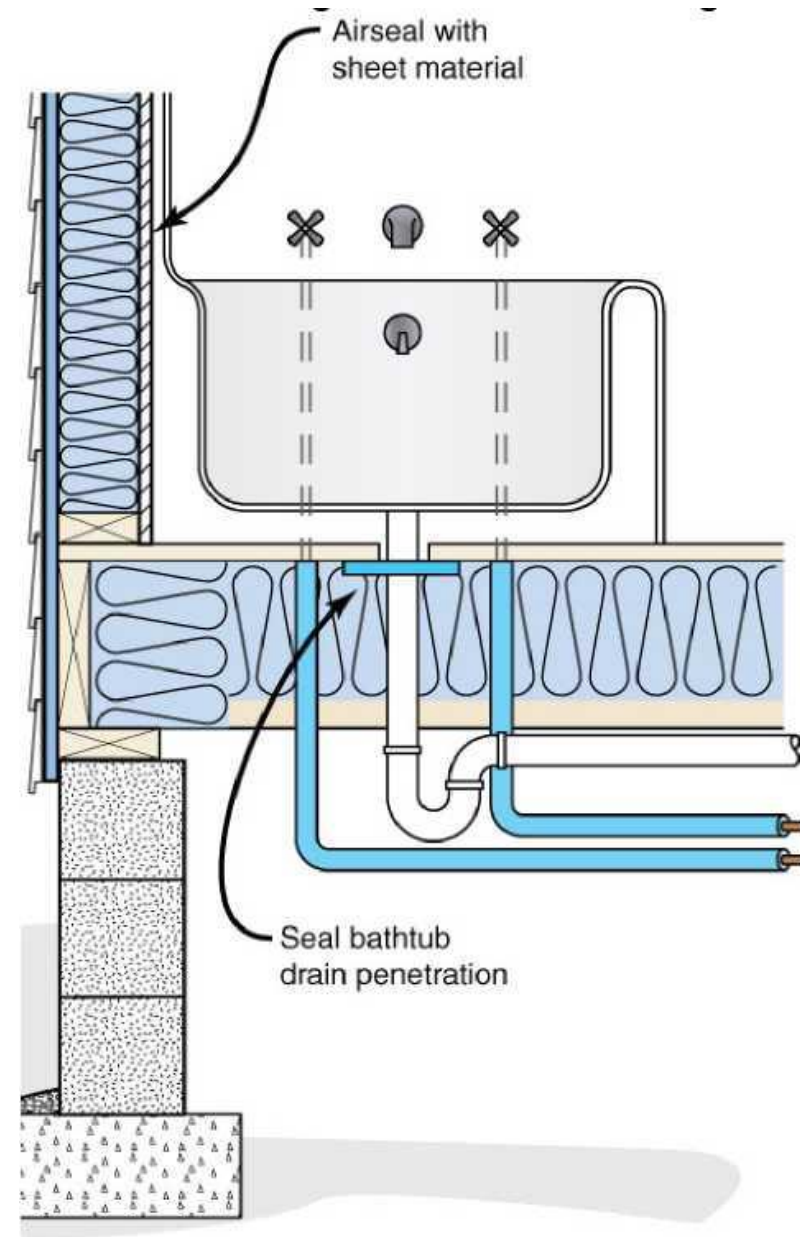


INCORRECT (CZ3): Insulation not on Concrete Portion of Basement Wall



Air-seal and Insulate Tubs and Showers

Insulation and a sealed air barrier must be installed behind all tubs and showers located on exterior walls. In addition, all plumbing penetrations must be appropriately air-sealed.



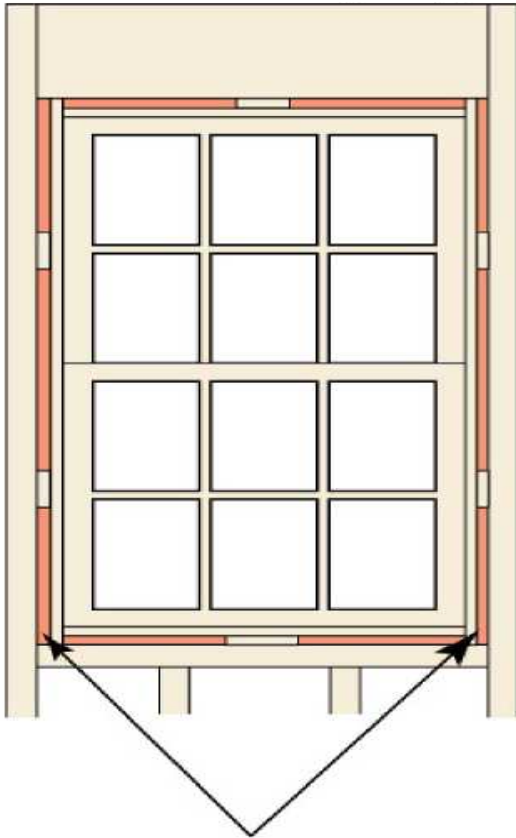
PROPERLY INSTALLED INSULATION & AIR BARRIER

CORRECT: Insulation and Significantly Sealed Air Barrier Behind Tubshower



CORRECT: Insulation and Significantly Sealed Air Barrier Behind Tub



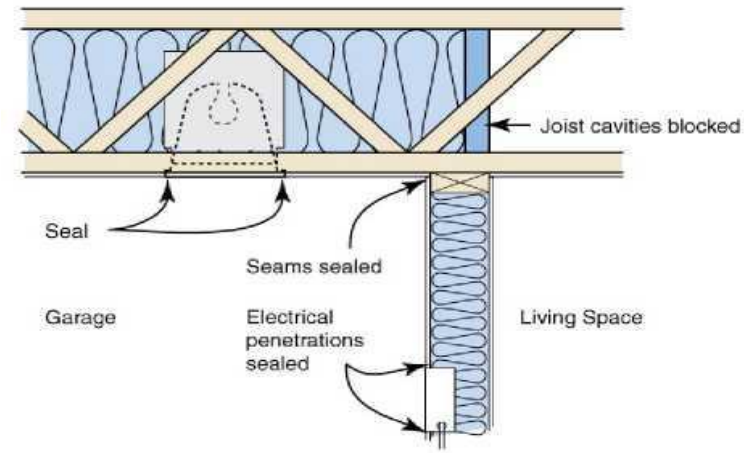


Air Seal Windows and Doors

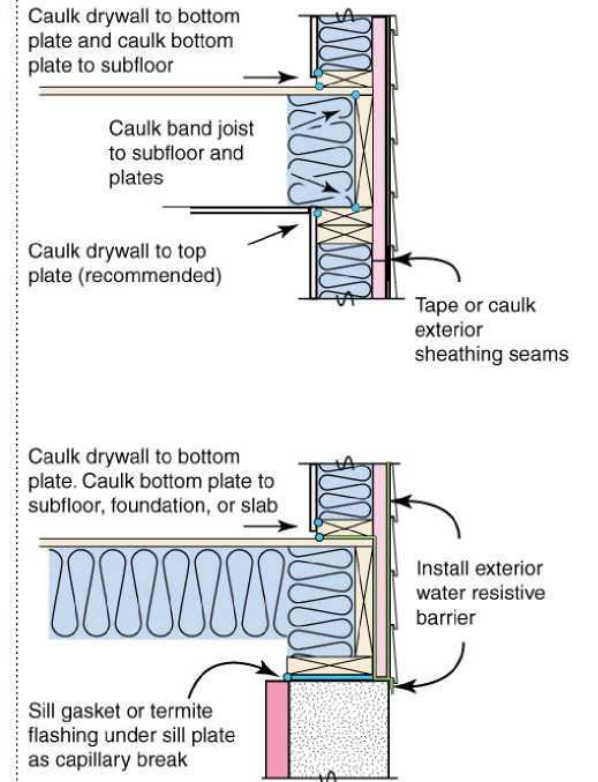
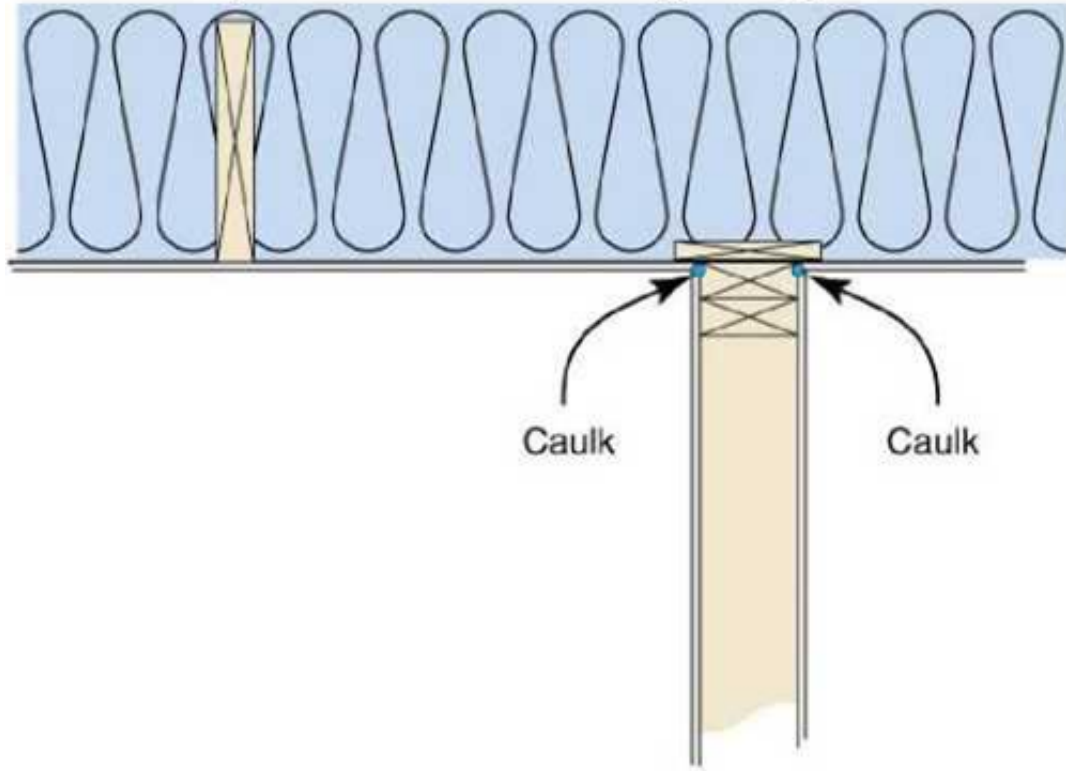
Use backer rod or low expanding spray foam between window/door and rough openings

Air-seal Assemblies Separating Garage

Walls and ceilings separating garage from conditioned space must be air-sealed. For example, all floor joists above attached garages must be blocked and sealed



Top Plate Air-sealing Diagram



Air-seal Bottom Plate and Top Plate
All joints, seams, and penetrations must be sealed.

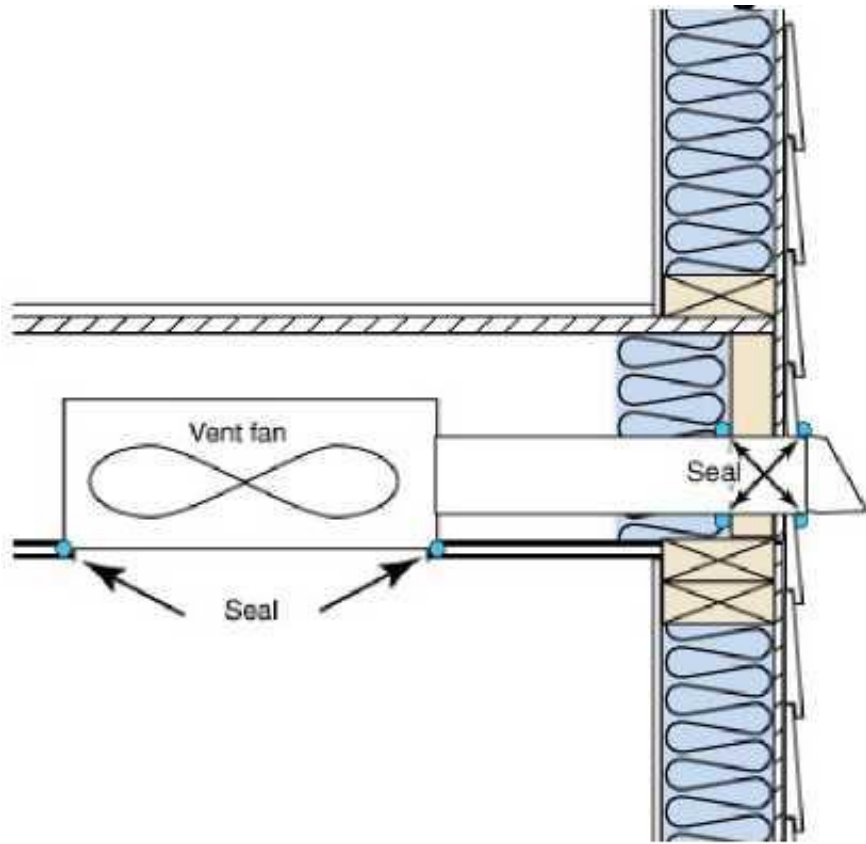
Air-seal Seams in Exterior Sheathing

INCORRECT: Gaps in Sheathing



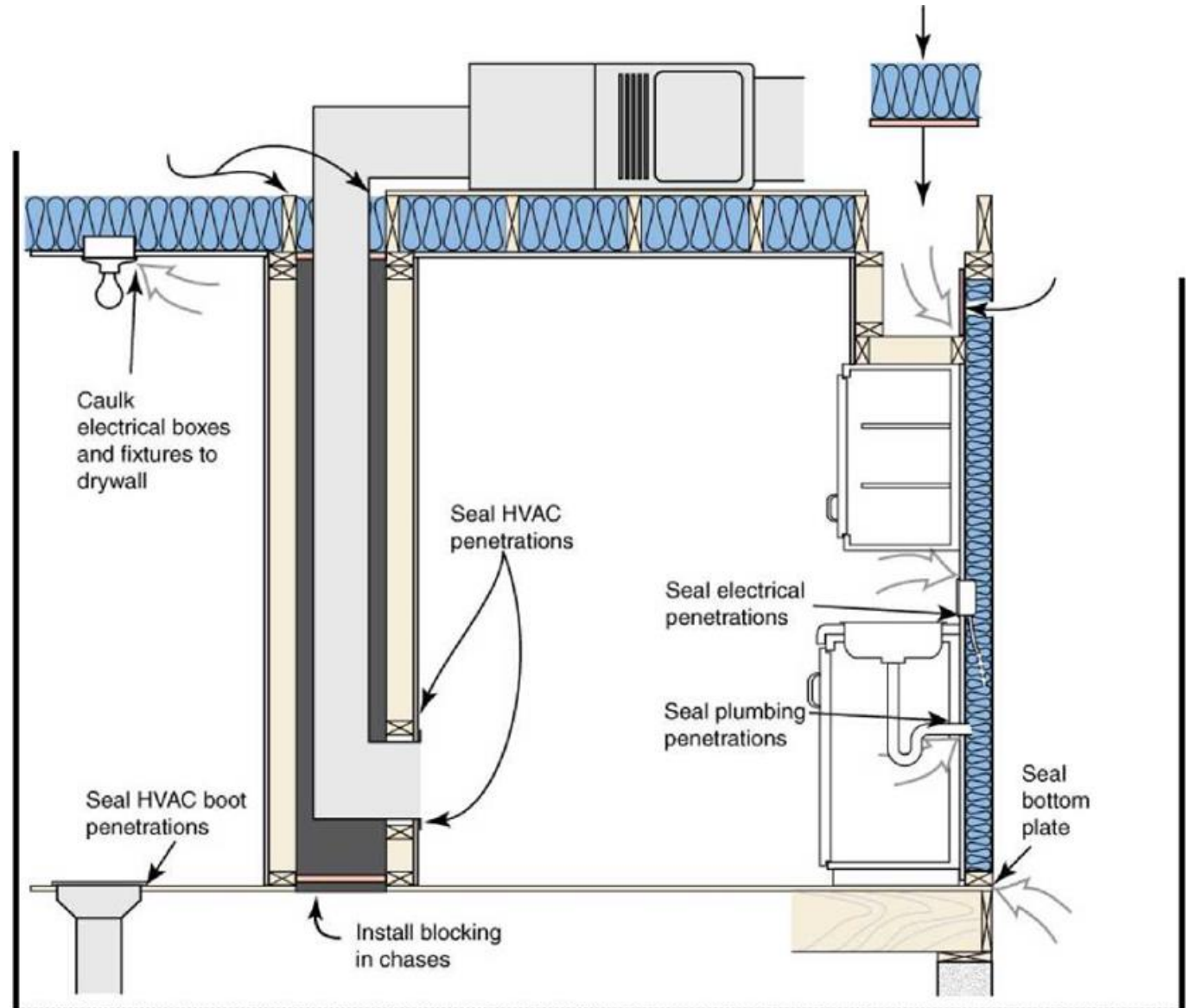
CORRECT: Sealing Exterior Sheathing





Air-seal Utility Penetrations

Air sealing and insulate chases, dropped sealings from attic and at sheet rock.

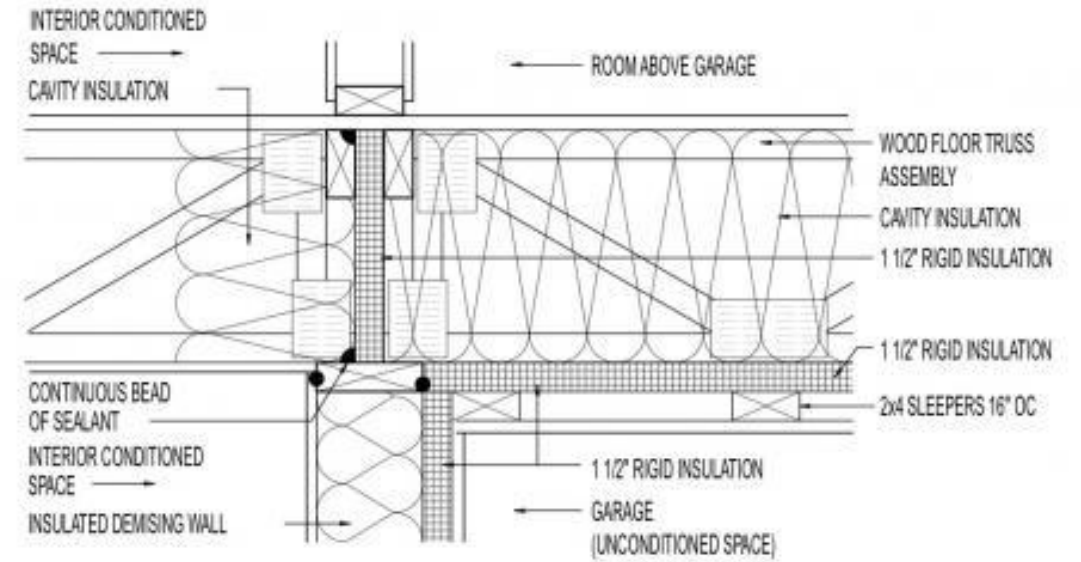




Air-seal Dropped Ceilings and Chases



Air-seal Dropped Ceilings and Chases



Air-seal Rim Joist Junctions

Seal all penetrations through rim joist



Air barrier and insulate rim joists between garage

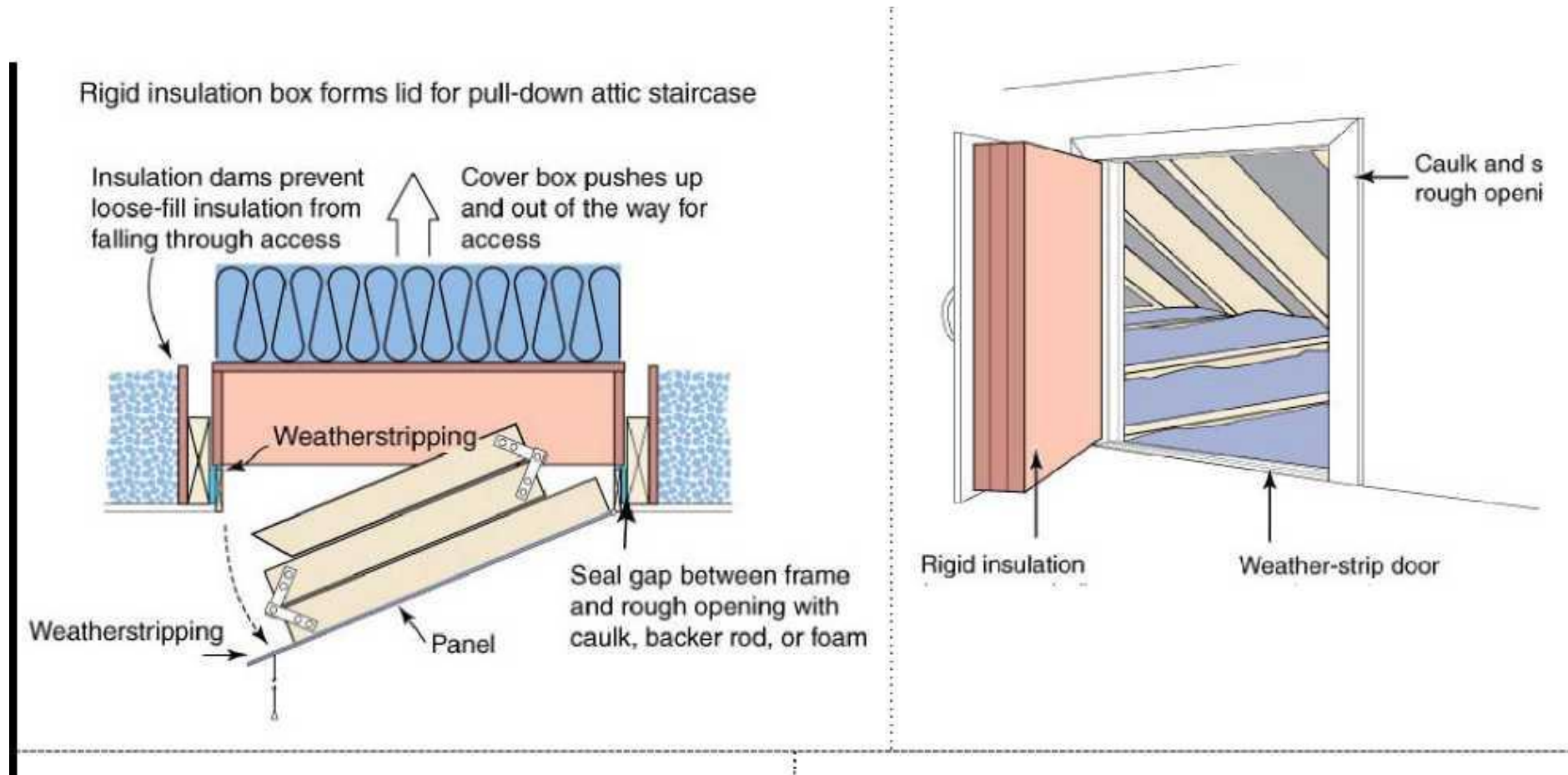


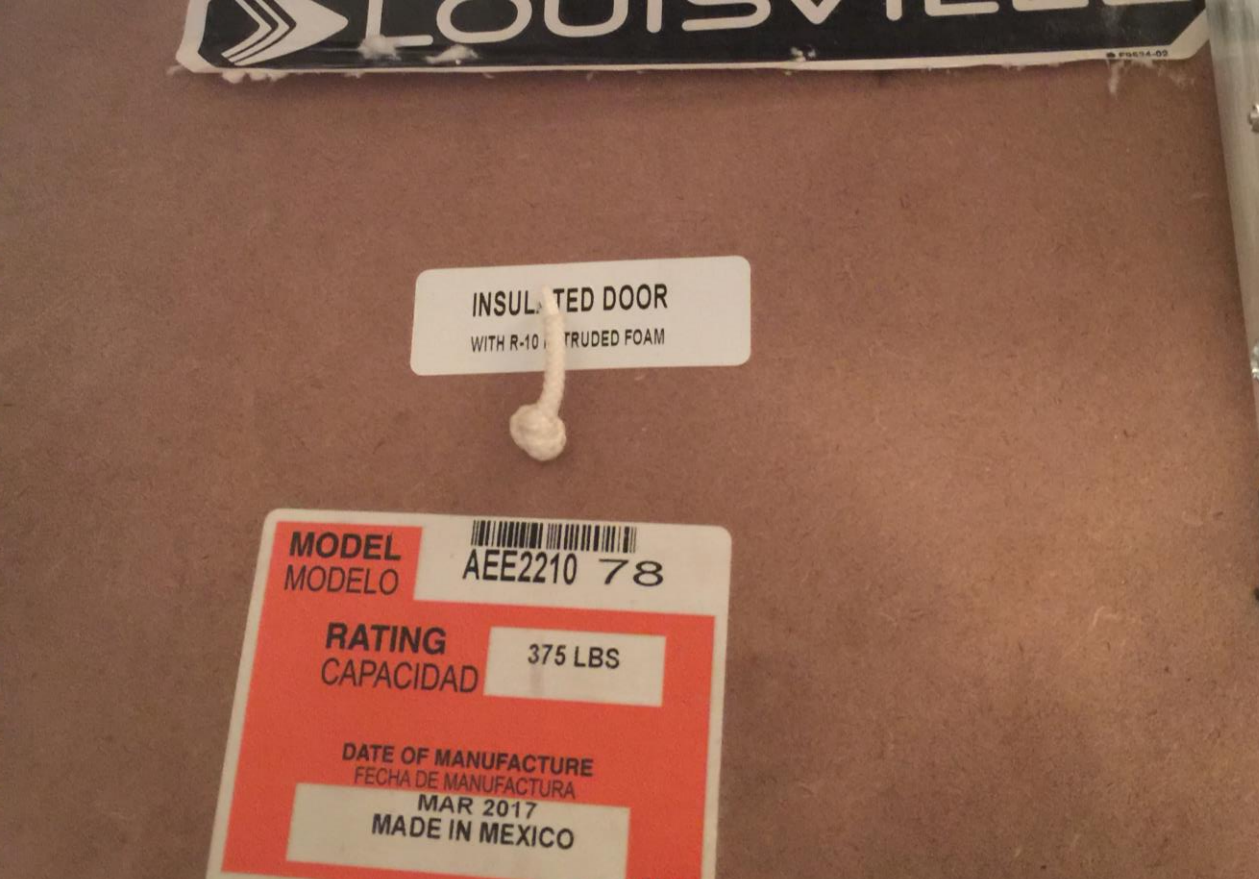
Air Seal Rim Joists

Ceiling
Insulation –
R30
Rulers ever
300 sq ft



INSULATE AND WEATHER STRIP ATTIC ACCESS

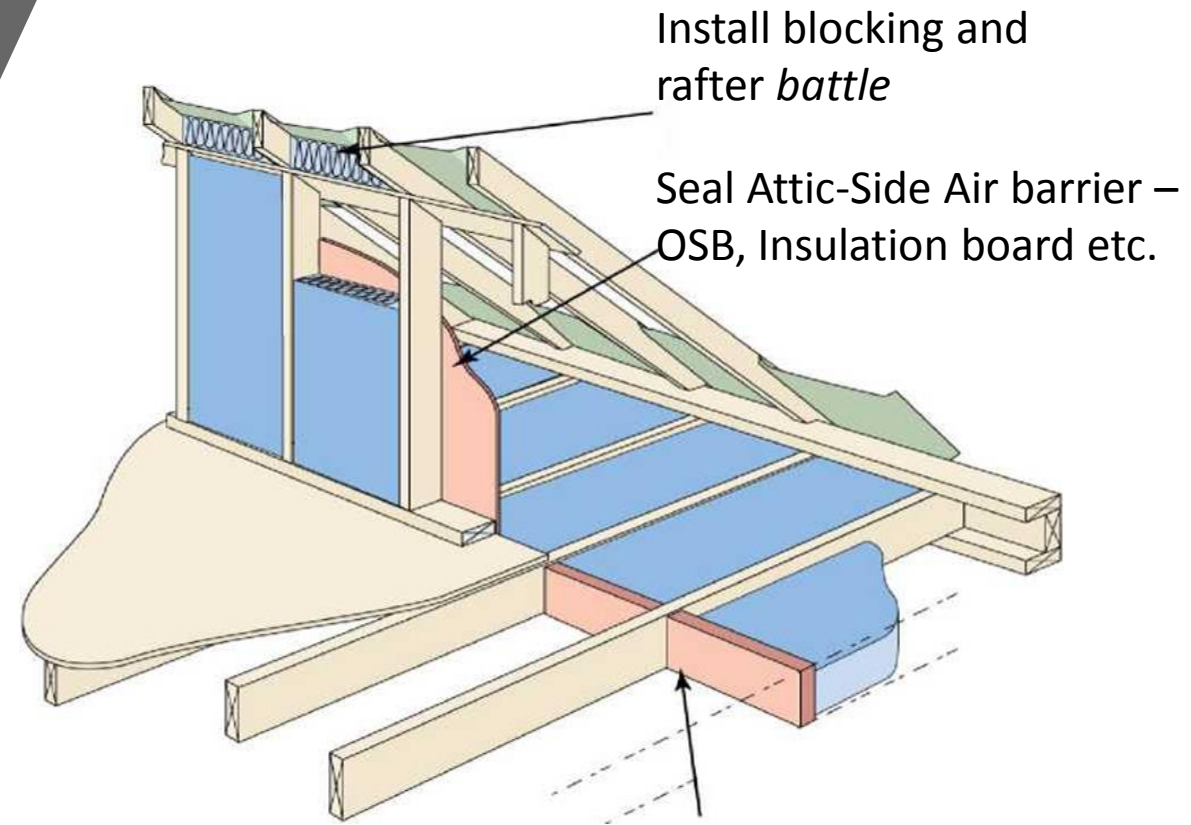




Insulated Attic Access – sealed, weather stripped, Damed
R5 - Pull down stairs – 75% coverage
R5 – vertical Hinged Doors
R19 – Scuttle Holes

ATTIC KNEE WALL

- An attic kneewall is defined as any vertical or near vertical wall in the building envelope that has conditioned space on one side and attic space on the other side.
- All attic kneewalls must be insulated and air-sealed. For example, the top and bottom of the kneewall stud cavity must be blocked and sealed to encapsulate insulation.



Extend Knee Wall Air Barrier to ceiling Below

INCORRECT: Unblocked Joist Cavity

Inspector reaching through the unblocked joist cavity revealing a significant pathway for unconditioned attic air between ceiling of 1st floor room and floor of 2nd



Extend Knee Wall Air Barrier to Ceiling Below

**CORRECT: Blocked Joist
Cavity/Sealed**

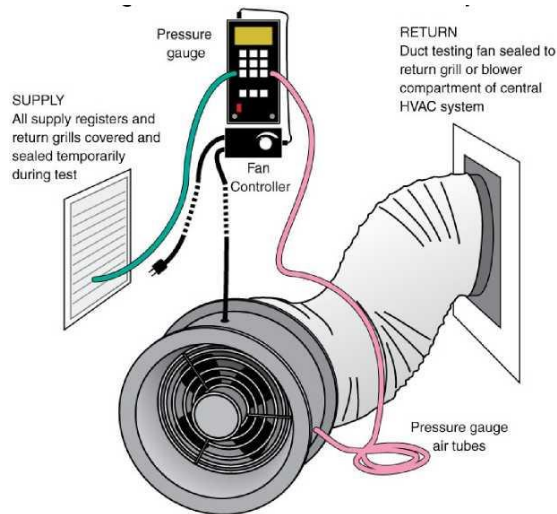
- **Attic-side Air Barrier**





Duct Tightness Testing

- Total leakage w/o air handler: $\leq 3\%$;
- Rough-in total leakage air handler: $\leq 4\%$;
- Post-construction leakage to outdoors: $\leq 4\%$;
- Post-construction total leakage: $\leq 4\%$





Envelope Tightness Verification

- $ACH50 < 5$

The building or dwelling unit shall be tested and verified as having an air leakage rate not exceeding 5 air changes per hour.

Lighting – 75 interior light
must be high efficiency, excluding closets





Heat Pump Thermostat

Heat pumps must have a thermostat that will prevent supplemental electric resistance heat from operating when the heating load can be satisfied by the heat pump

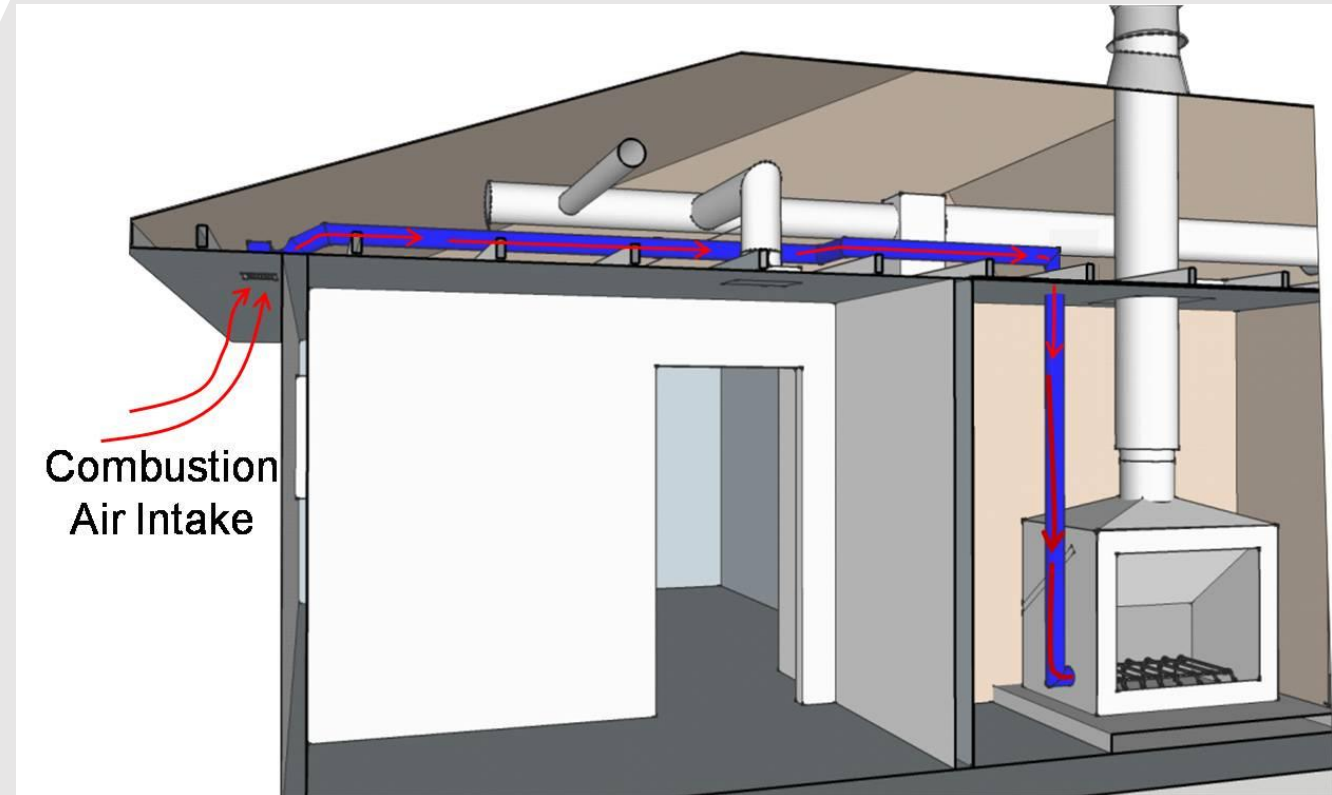
IECC 2015 Label <i>125 Towhee Way</i>
Building Envelope Specs
Ceiling: R-30
Above Grade Walls: R-14
Foundation Walls: N/A
Exposed Floor: R-19
Slab: R-0
Infiltration: 2654 CFM50 (4.03 ACH50)
Duct Insulation: R-8
Duct Leakage: 28 CFM25
Window & Door Specs
Window: U = 0.320, SHGC = 0.260
Door: R-2
Mechanical Equipment Specs
Heating: Air Source Heat Pump • Electric • 8.2 HSPF
Cooling: Air Source Heat Pump • Electric • 14 SEER
Hot Water: Water Heater • Natural Gas • 0.96 Energy Factor
Builder or Design Professional
Signature: _____

Mandatory Energy Code Certificate / Label Posting

- R401.3 Certificate (Mandatory). A permanent certificate shall be completed by the builder or registered design professional and posted on a wall in the space where the furnace is located, a utility room or an approved location inside the building.
- Where located on an electrical panel, the certificate shall not cover or obstruct the visibility of the circuit directory label, service disconnect label or other required labels.

Masonry Wood Burning Fireplaces

All site-built masonry wood burning fireplaces must have outside combustion air and gasketed doors.



Mechanical ventilation (Mandatory) - 2015

- The building shall be provided with ventilation that meets the requirements of the International Residential Code or International Mechanical Code, as applicable, or with other approved means of ventilation.
- Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating.

