



SIGNIFICANT CHANGES TO THE 2009 INTERNATIONAL RESIDENTIAL CODE PRESCRIPTIVE ENERGY PROVISIONS and 2009 INTERNATIONAL ENERGY CONSERVATION CODE RESIDENTIAL PROVISIONS

Either Code may be used for dwellings built within the scope of the 2009 International Residential Code. Please also review Kootenai County Building Code Ordinance 450. If you have questions please contact the Building Division staff at 446-1040. Below are the more significant changes in the 2009 International Residential Code energy requirements. These are not intended to be all of the changes in the text of the Code. Following the list is the relevant portion of Table N1102.1, Table N1102.4.2, and a visual aid to help in understanding the air seal requirements of the Code. Please note that at the time of this writing, a free download of the 2009 International Energy Conservation Code is available in the International Code Council website:

<http://www.iccsafe.org/store/pages/doeregistration.aspx?r=FreeIECC>

Copies of both Codes have also been donated to all of the area libraries for public use by North Idaho Code Enforcers (N.I.C.E.).

- Table N1102.1 Minimum prescriptive wall insulation has been increased from R-19 to R-20.
- N1102.4.1 Add attic access openings and rim joist junctions to the list of other nine conditions where air seal is required.
- N1102.4.2 Building envelope air tightness and insulation installation is required to be demonstrated by either a blower door test or visual inspection per Table N1102.4.2 criteria.
- N1103.1.1 If a forced air heating system is involved, at least one programmable thermostat is required. It must be capable of controlling the heating and cooling system on a daily schedule to maintain different temperature set points at different times of the day.
- N1103.2.2 If the air handler and all ducts are not located within conditioned space, duct leakage testing must be performed and approved.

- N1103.2.3 Building framing cavities are no longer allowed as air supply ducts.
- N1104.1 A minimum of 50% of the bulbs in permanently installed lighting fixtures are required to be *High Efficacy* bulbs.
 - *HIGH EFFICACY* – Compact fluorescent lamps, T-8 or smaller diameter linear fluorescent lamps or lamps with a minimum efficacy of:
 - 60 lumens per watt for lamps over 40 watts.
 - 50 lumens per watt for lamps over 15 watts to 40 watts.
 - 40 lumens per watt for lamps 15 watts or less.
- M2103.2 Thermal barriers (insulation) are required for all radiant floor heating systems

From Table N1102.1:

Table 402.1.1
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT^a

Climate Zone	Fenestration U-Factor ^b	Skylight ^b U-Factor	Glazed Fenestration SHGC ^{b,e}	Ceiling R-Value	Wood Frame Wall R-Value ⁱ	Mass wall R-Value	Floor R-Value	Basement ^c Wall R-Value	Slab ^d R-Value & Depth	Crawl Space ^c Wall R-Value
5	0.35	0.60	NR	38	20 or 13+5 ^h	13/17	30 ^g	10/13	10.2 ft	10/13

a. R -values are minimums. U -factors and solar heat gain coefficient (SHGC) are maximums. R-19 batts compressed in to nominal 2 x 6 framing cavity such that the R -value is reduced by R-1 or more shall be marked with the compressed batt R -value in addition to the full thickness R -value.

b. The fenestration U -factor column excludes skylights. The SHGC column applies to all glazed fenestration.

c. The first R -value applies to continuous insulation, the second to framing cavity insulation; either insulation meets the requirement.

d. R-5 shall be added to the required slab edge R -values for heated slabs. Insulation depth shall be the depth of the footing or 2 feet, whichever is less, in zones 1 through 3 for heated slabs.

e. There are no SHGC requirements in the Marine Zone.

f. Basement wall insulation is not required in warm-humid locations as defined by Figure N1101.2 and Table N1101.2.

g. Or insulation sufficient to fill the framing cavity, R-19 minimum.

h. "13+5" means R-13 cavity insulation plus R-5 insulated sheathing. If structural sheathing covers 25% or less of the exterior, R-5 sheathing is not required where structural sheathing is used. If structural sheathing covers more than 25% of exterior, structural sheathing shall be supplemented with insulated sheathing of at least R-2.

i. For impact-rated fenestration complying with Section R301.2.1.2, the maximum U -factor shall be 0.75 in zone 2 and 0.65 in zone 3.

j. For impact-resistant fenestration complying with Section R301.2.1.2 of the International Residential Code , the maximum SHGC shall be 0.40.

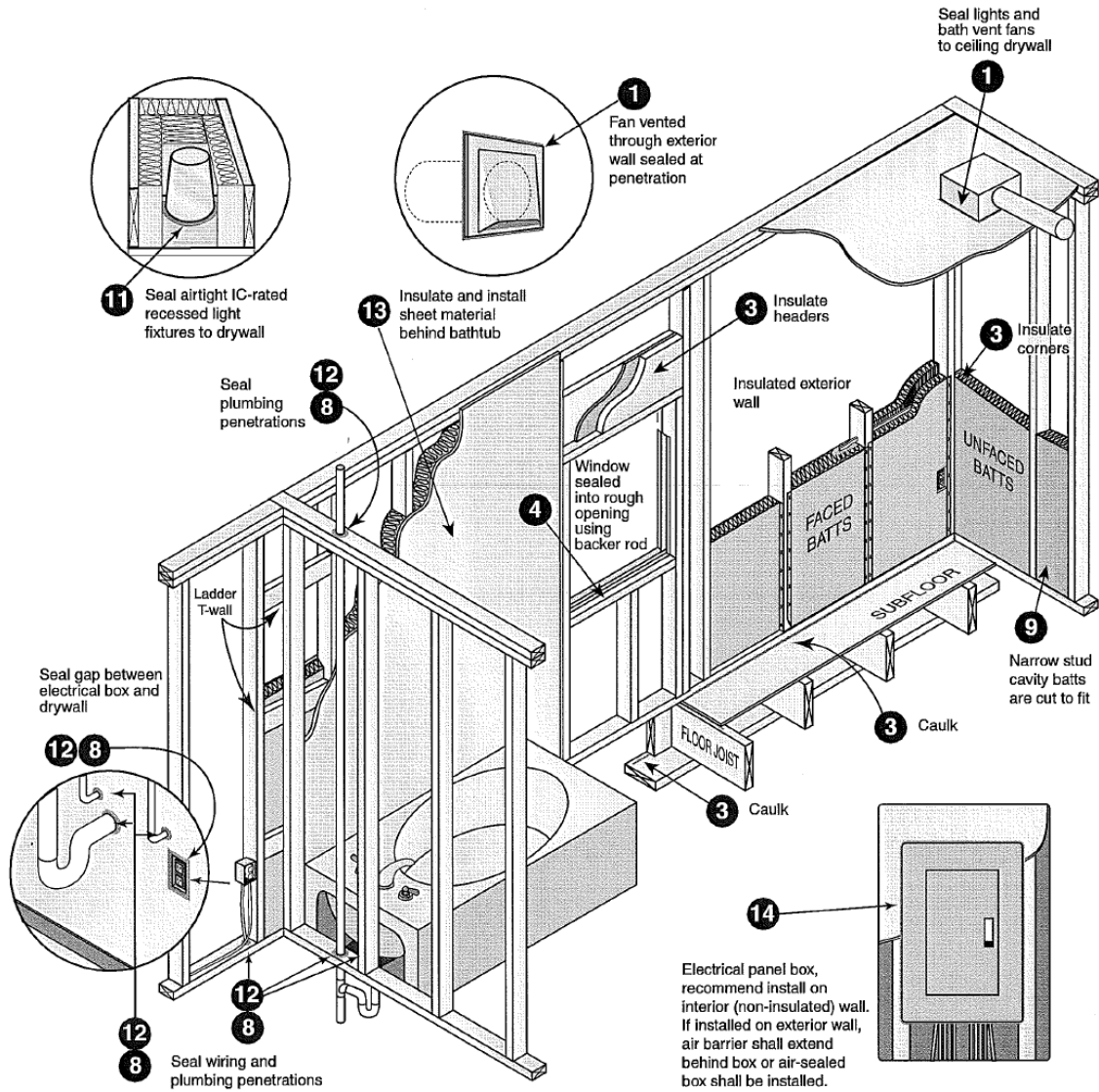
k. The second R -value applies when more than half the insulation is on the interior.

**Table 402.4.2
Air Barrier and Insulation Inspection Component Criteria**

NUMBER	COMPONENT	CRITERIA
1	Air barrier and thermal barrier	Exterior thermal envelope insulation for framed walls is installed in substantial contact and continuous alignment with building envelope air barrier. Breaks or joints in the air barrier are filled or repaired. Air-permeable insulation is not used as a sealing material. Air-permeable insulation is inside of an air barrier.
2	Ceiling/attic	Air barrier in any dropped ceiling/soffit is substantially aligned with insulation and any gaps are sealed. Attic access (except unvented attic), knee wall door, or drop down stair is sealed.
3	Walls	Corners and headers are insulated. Junction of foundation and sill plate is sealed.
4	Windows and doors	Space between window/door jambs and framing is sealed.
5	Rim joists	Rim joists are insulated and include an air barrier.
6	Floors (including above-garage and cantilevered floors)	Insulation is installed to maintain permanent contact with underside of subfloor decking. Air barrier is installed at any exposed edge of insulation.
7	Crawl space walls	Insulation is permanently attached to walls. Exposed earth in unvented crawl spaces is covered with Class I vapor retarder with overlapping joints taped.
8	Shafts, penetrations	Duct shafts, utility penetrations, knee walls and flue shafts opening to exterior or unconditioned space are sealed.
9	Narrow cavities	Batts in narrow cavities are cut to fit, or narrow cavities are filled by sprayed/blown insulation.
10	Garage separation	Air sealing is provided between the garage and conditioned spaces.
11	Recessed lighting	Recessed light fixtures are air tight, IC rated, and sealed to drywall. Exception—fixtures in conditioned space.
12	Plumbing and wiring	Insulation is placed between outside and pipes. Batt insulation is cut to fit around wiring and plumbing, or sprayed/blown insulation extends behind piping and wiring.
13	Shower/tub on exterior wall	Showers and tubs on exterior walls have insulation and an air barrier separating them from the exterior wall.
14	Electrical/phone box on exterior walls	Air barrier extends behind boxes or air sealed-type boxes are installed.
15	Common wall	Air barrier is installed in common wall between dwelling units.
16	HVAC register boots	HVAC register boots that penetrate building envelope are sealed to subfloor or drywall.
17	Fireplace	Fireplace walls include an air barrier.

Disclaimer:
This document is intended solely to help graphically demonstrate the air leakage provisions of section 402.4 of the 2009 IECC. It does not cover all airsealing locations or techniques. Other code provisions may be applicable as well.

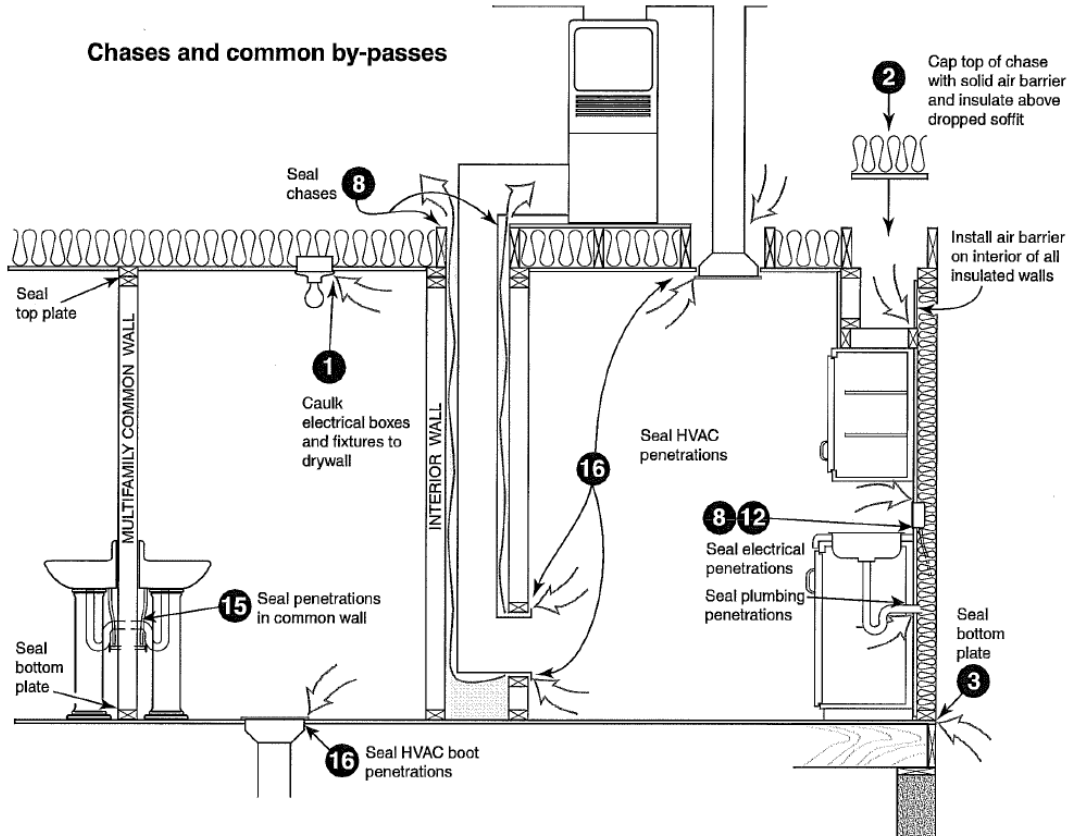
Air sealing key points



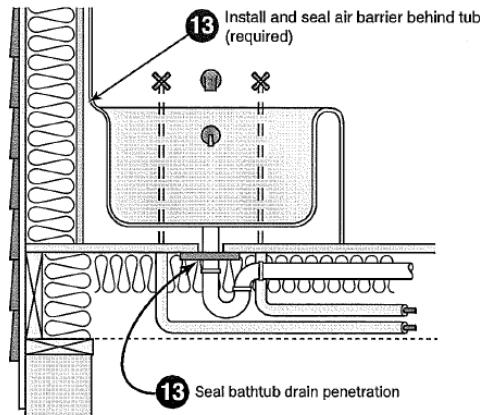
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Air sealing key points *continued*

Chases and common by-passes

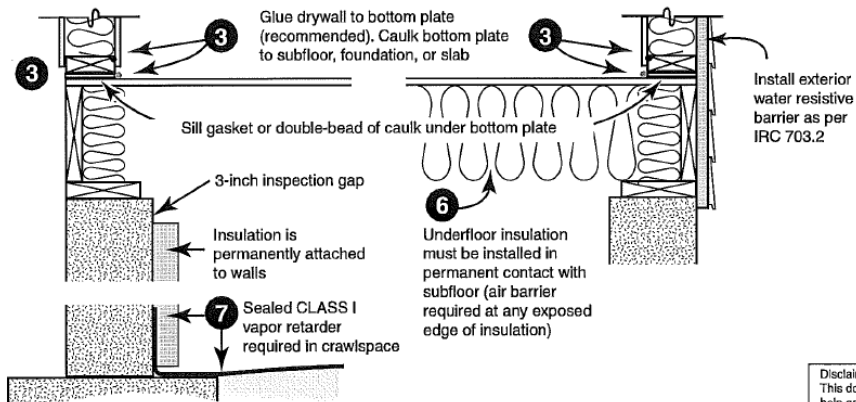
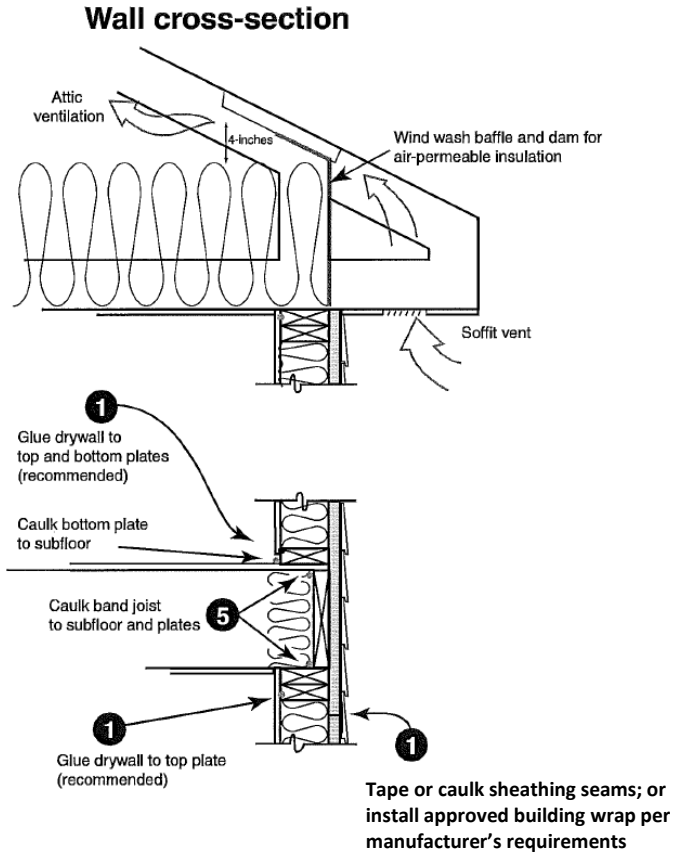
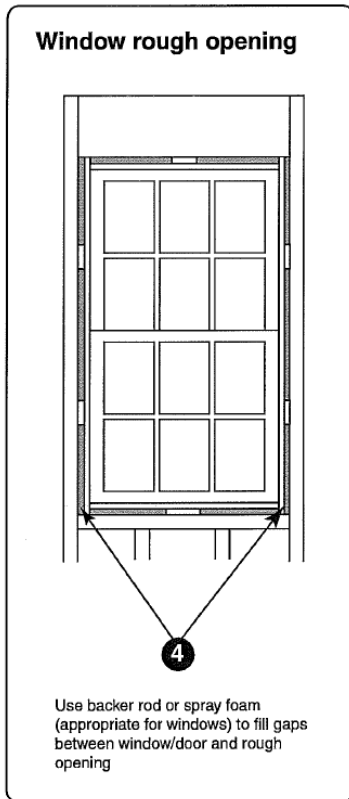


Shower/tub drain rough opening



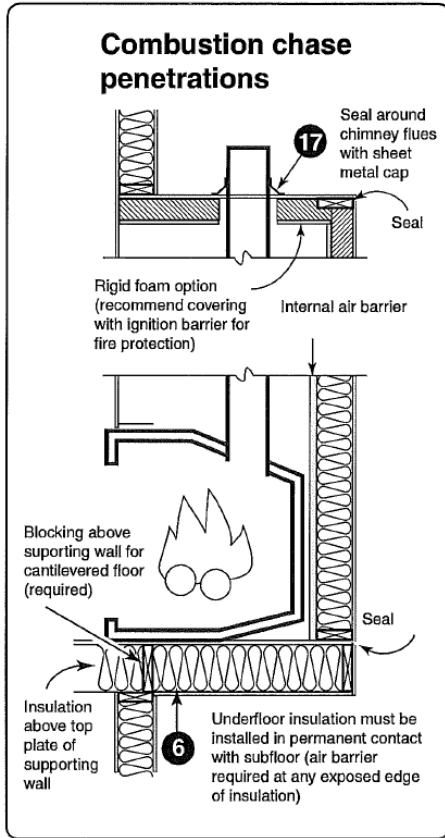
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Air sealing key points *continued*



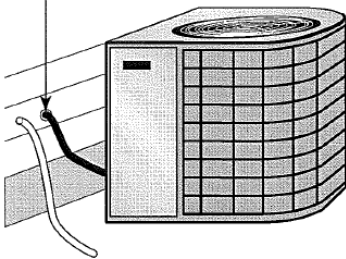
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Air sealing key points *continued*



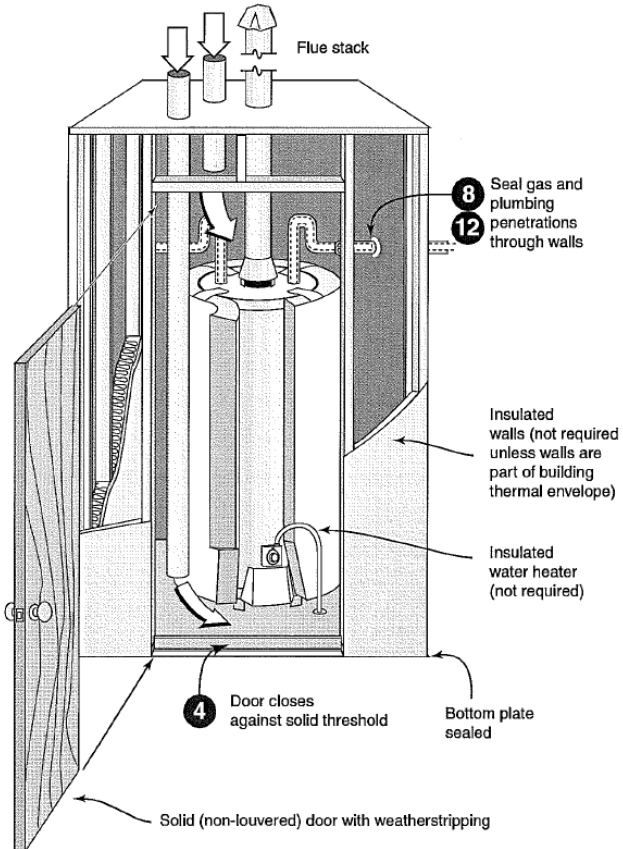
Exterior penetrations

8 12 Caulk exterior wall penetrations for refrigeration lines, condensate line, etc.



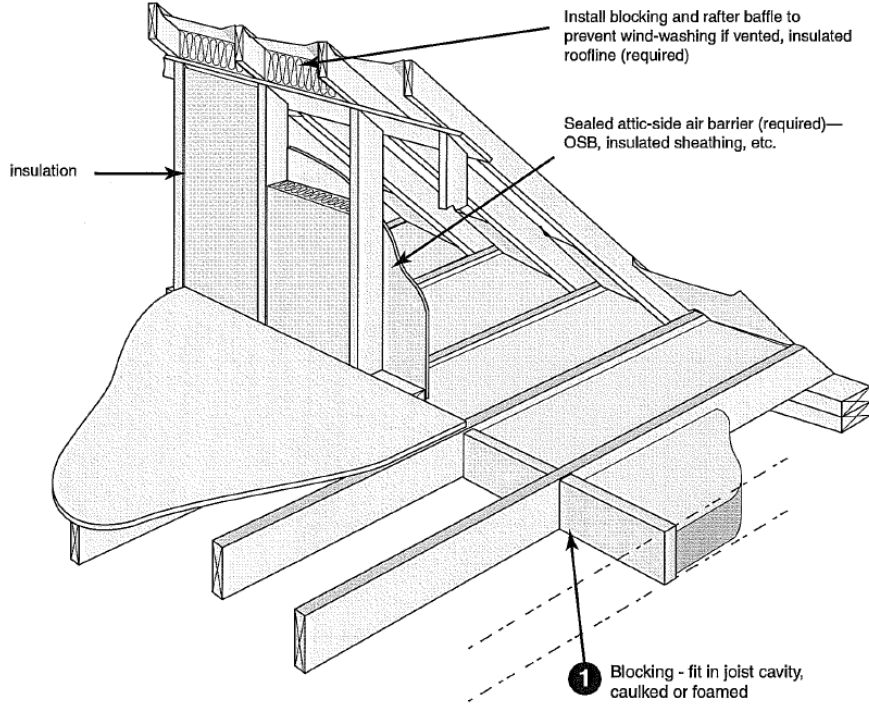
Combustion closet

Combustion air inlets
as per mechanical and/or fuel gas code

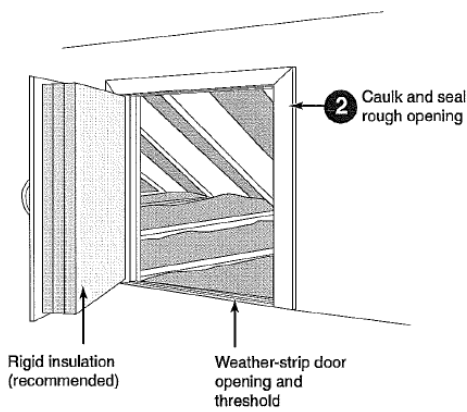


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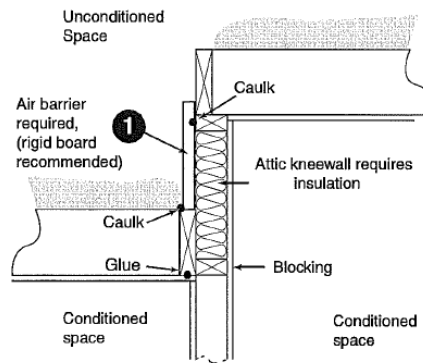
Air sealing key points *continued*



Attic knee-walls



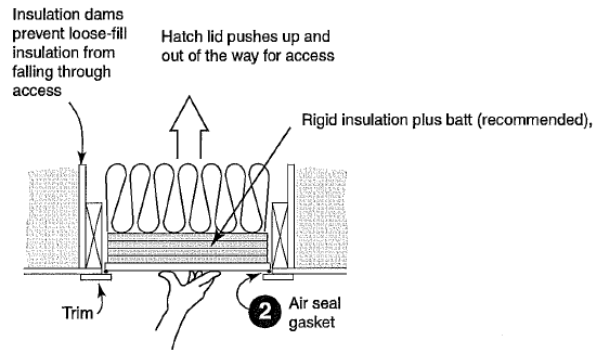
Two-level attic



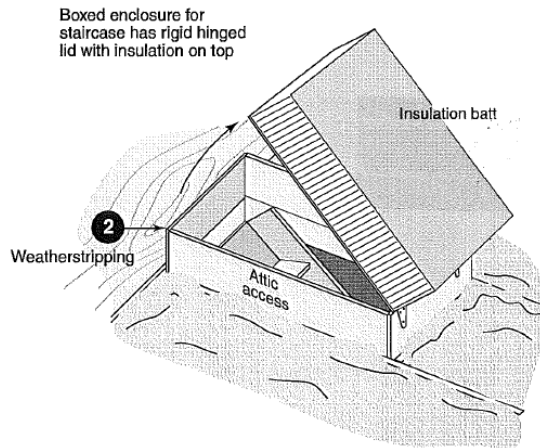
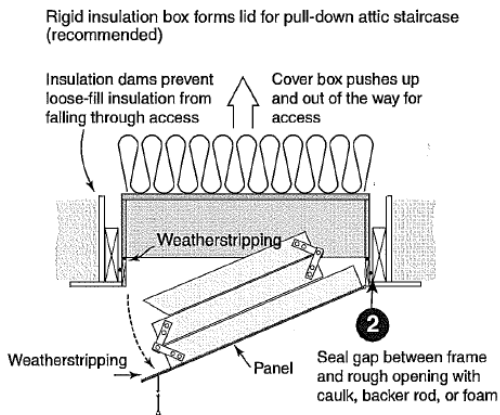
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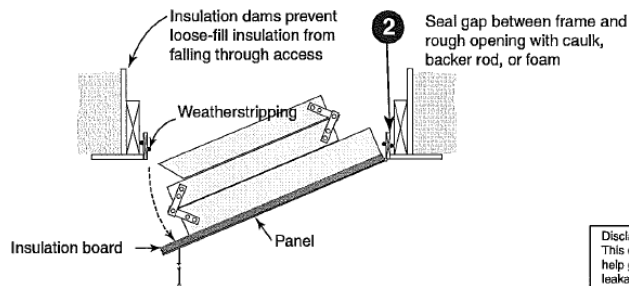
Attic scuttle



Attic pull-down stairs



Attic pull-down stairs



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