



2015 Washington State Energy Code ~ Residential & Multi-Family Compliance Check

Revised 8-1-2018

For Required Calculations & Summary Information to provide with this check sheet, please refer to the links provided and include the required worksheets as outlined in the WSEC.

<http://www.energy.wsu.edu/BuildingEfficiency/EnergyCode.aspx>

Primary Link to WSEC, required attachments, and self help data

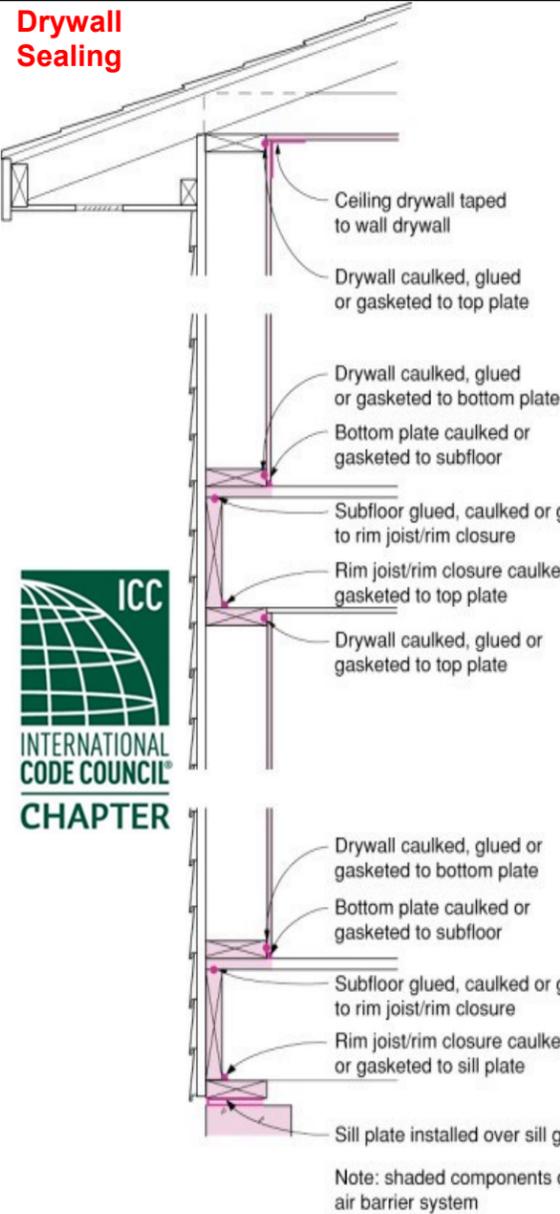


Check off, Circle, or Complete Information Credits & Selections where noted

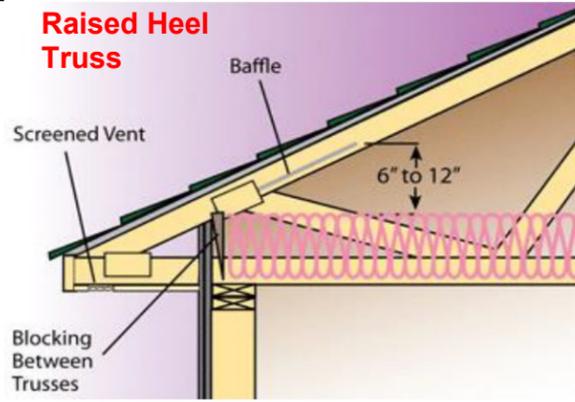
Table 406.2 Credit Summary - (Circle All That Apply) NOTE: No more than 1 selection in Credit Divisions 1 thru 3			Selection for Required Energy Efficiency Credits based upon Dwelling Size (From Table 406.2 in WSEC) - Circle Appropriate Credit					Prescriptive Energy Code Compliance for Adjusted Credits as Selected Credit Selections from Table 406.2 Categories 1a - 1d are represented here																																																																																																																											
Option	Description	Credits	Credit Selection Based Upon Size of Dwelling or Addition					Component:		Vertical Glazing	Overhead Glazing	Ceiling w/ Attic	Exterior & Interior Party Walls	Framed Floor	Mass Wall (Below Grade)	Slab R-Value & Depth																																																																																																																			
1a	Efficient Building Envelope Glazing: U-0.28 / Floor: R-38 / Entire Slab on grade: R-10 OR Component Analysis for 5% Total UA Reduction	0.5	Small Dwelling Unit Dwelling less than 1,500 Sq. Ft. and less than 300 Sq. Ft. Glazing / Additions Between 500 & 1,500 Sq. Ft.					1.5	Prescriptive Value		U 0.30	U 0.50	R-49 (Min.)	R-21 (Min.)	R-30 (Min.)	R-10/15/21 Interior +TB	R-10 (Min. 2 ft. Extension beneath slab)																																																																																																																		
1b	Efficient Building Envelope Glazing: U-0.25 / Floor: R-38 / R-21 Walls + R-4 / Entire Slab on grade: R-10 / Basement Walls: R-21 + R-5 ci OR Component Analysis for 15% Total UA Reduction NOTE: PER IRC R702.7 This uses Class III Vapor Retarder	1.0	R-2 Occupancies in Multi-Family Buildings All dwelling units within an apartment or condominium (WSEC Commercial) Medium Dwelling Unit All dwelling units not classified as small, large, or an addition. Generally between 1,500 Sq. Ft. & 5,000 Sq. Ft.					2.5	Adjusted for Selected Credits																																																																																																																										
1c	Efficient Building Envelope Glazing: U-0.22 / Floor: R-38 / R-21 Walls + R-12 ci / Entire Slab on grade: R-10 / Basement Walls: R-21 + R-12 ci / Vaulted Rafter: R-49 Advanced OR Component Analysis for 30% Total UA Reduction NOTE: PER IRC R702.7 This uses Class III Vapor Retarder	2.0	Large Dwelling Unit Dwellings greater than 5,000 Sq. Ft. Additions Less than 500 Square Ft.					4.5	HVAC Summary Per WSEC Heating Size Worksheet & Mandatory Equipment Sizing with Efficiency Rating in Accordance with ACCA Manuals S & J / Duct Sizing in Accordance with Manual D to Achieve Required CFM Heating System Sizing Worksheet is also Applicable for Required Information Credit Selections from Table 406.2 Categories 2 - 4 are represented here																																																																																																																										
1d	Efficient Building Envelope Glazing: U-0.24	0.5	<input checked="" type="checkbox"/> Please check the appropriate box to describe which type of prescriptive Whole House Ventilation System being utilized per IRC M1507					0.5	CFM									NOTE: No HVAC Duct size to be less than 6" unless engineered																																																																																																																	
2a	Air Leakage Control & Efficient Ventilation Reduce air leakage to 3 ACH; Whole House Ventilation w/ high efficiency fan	0.5	<table border="1"> <tr><th colspan="7">Whole House Ventilation (Prescriptive WHV)</th></tr> <tr><td>1</td><td>Intermittent WHV Using Exhaust Fans & Fresh Air Inlets (Inlet is into HVAC or Wall)</td></tr> <tr><td>2</td><td>Intermittent WHV Using Integrated w/ a Forced Air System</td></tr> <tr><td>3</td><td>Intermittent WHV Using a Supply Fan</td></tr> <tr><td>4</td><td>Intermittent WHV Using a Heat Recovery Ventilation System</td></tr> <tr><td>5</td><td>Continuous WHV HVAC System Airflow Rate</td></tr> </table>					Whole House Ventilation (Prescriptive WHV)							1	Intermittent WHV Using Exhaust Fans & Fresh Air Inlets (Inlet is into HVAC or Wall)	2	Intermittent WHV Using Integrated w/ a Forced Air System	3	Intermittent WHV Using a Supply Fan	4	Intermittent WHV Using a Heat Recovery Ventilation System	5	Continuous WHV HVAC System Airflow Rate		Mechanical Ventilation System / Source Specific Fan Efficiency / Minimum Source Specific Exhaust Refer to IBC Section 717 for Duct Draft Stops and Fire Safety on Multi-Family Construction		Required in each Kitchen, Bathroom, Water Closet, Laundry room, & other rooms where water vapor or cooking odor is produced (IRC M 1507.4) Fan Efficacy from WSEC Table R403.6.1. Fans with 400 CFM or greater require make-up air. Refer to Table M1506.2 in IRC and WAC 51-52-0403 Table 403.8.4.2 for exhaust duct size. NOTE: Fans above 50 CFM require Efficacy of 2.8 CFM/watt																																																																																																							
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WSEC Design & Detail Representative Examples

Drywall Sealing



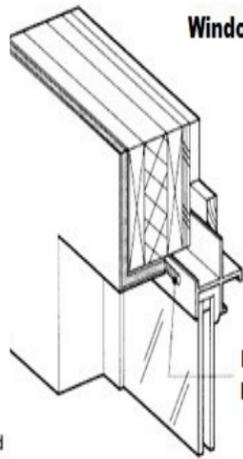
Raised Heel Truss



R402.2.1 Ceilings with Attic Spaces

You can reduce ceiling insulation R-value to 38 if you have R-38 extending to the exterior wall line.

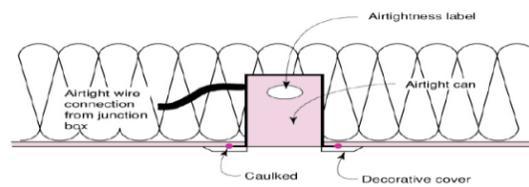
Window Sealing



R402.2.3 Eave Baffle

Baffle at eave vent. Minimum 1" unobstructed air space required.

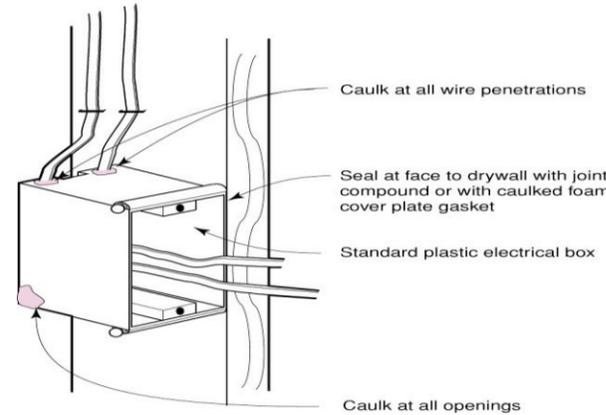
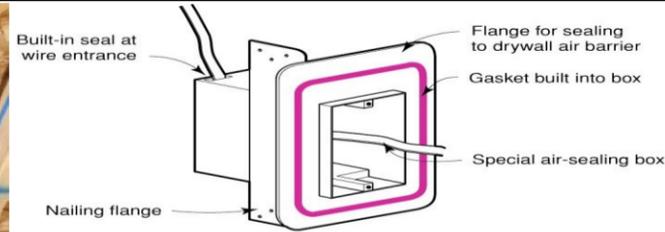
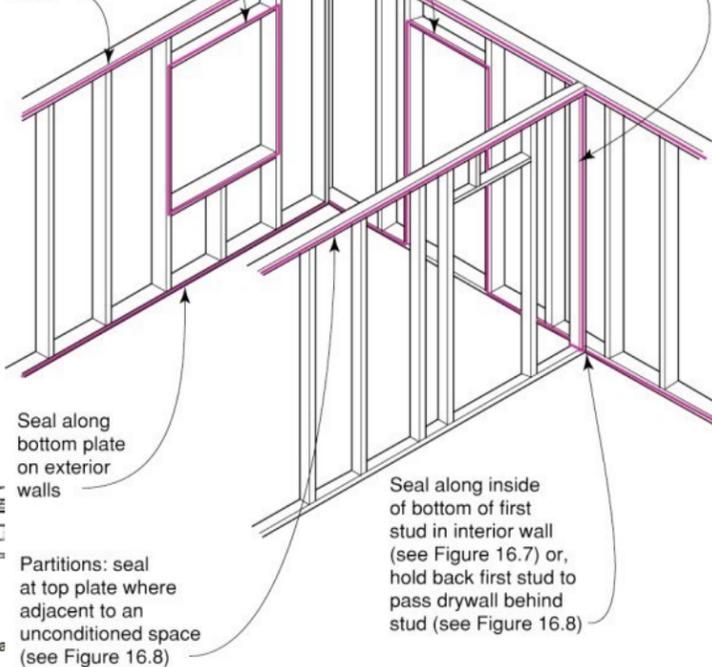
Recessed Fixture in Insulated Ceiling



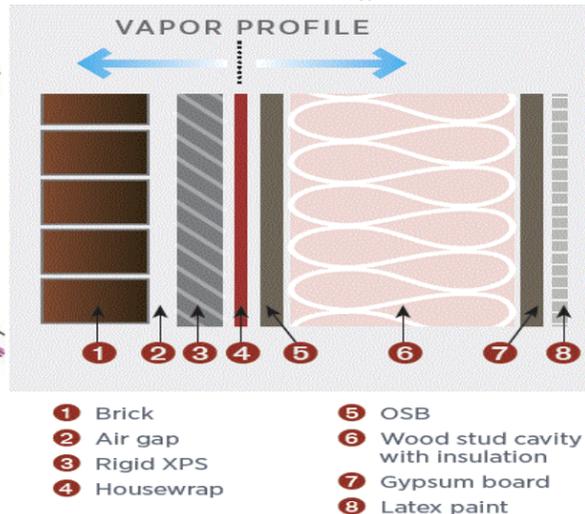
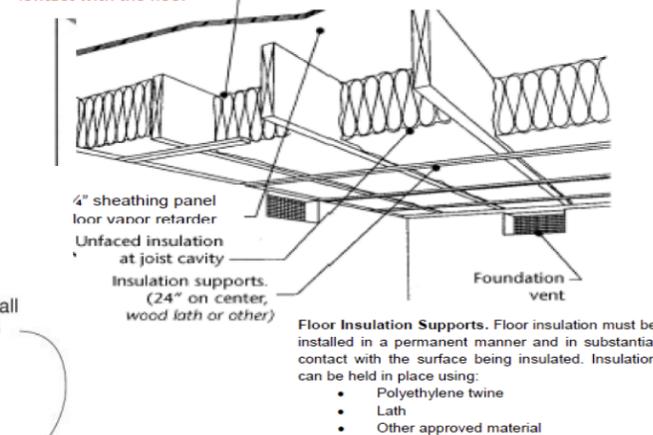
- Fixture labeled IC-rated and airtight as determined by ASTM E-283 air leakage test
- Housing (not decorative trim piece) sealed to ceiling with caulk or gasket

- Seal around rough openings of windows and doors
- Seal along top plates on exterior walls

Seal drywall to first stud in the wall (see Figure 16.7)



Floor Insulation Supports



Since 2006 the IRC has permitted Class III vapor retarders like latex paint (see list above) in all climate zones under certain conditions

Blower Door Building Air Leakage Testing

The 2015 WSEC section R402.4.1.2 requires air leakage testing for ALL new houses and additions. The requirement is met if the structure has a leakage rate of 5 air changes per hour (5 ACH) when depressurized with a blower to 50 Pascals or less. Pascal is a measurement of pressure. 249 Pascals are equal to 1" of water column.

The test must be performed using a Blower Door device which consists of a large fan, a frame and panel. A manometer (pressure gauge) is used to read house and fan pressures.

WSEC states that the test may be performed at any time after rough in. NOTE: It is advised to conduct the test shortly thereafter in order that duct sealing and leaks may be addressed prior to full enclosure and finish. All penetrations in the building envelope must be sealed, including those for utilities, plumbing, electrical, ventilation, and combustion appliances. The code also states that when required by the building official, the test shall be conducted by an approved third party.



POST WSEC Compliance Process / Links

Total Duct Leakage Test

Testing Procedure Application:

This test is appropriate in new construction when ducts are to be tested at the rough-in stage before the house envelope is intact and can also be done post construction. The test measures the total collected leaks in the system at an induced pressure of 25 Pascals (PA). Compared to the leakage to exterior test, the total leakage test is simpler, but does not discriminate between leakage to inside and outside the heated space; as such, this test is not recommended for homes with complete house envelopes and HVAC systems. In such cases, the leakage to outside test is recommended.

Standard:

- For certification, the measured duct leakage must not exceed 0.04 CFM₂₅ x floor area (in square feet) served by the system at rough-in when the air handler is installed.
- The measured duct leakage at rough-in must not exceed 0.03 CFM₂₅ x floor area (in square feet) served by the system when the air handler is not installed.
- If testing post construction, the total leakage must not exceed 0.04 CFM₂₅ x floor area (in square feet) served by the system. *Preferable if test is conducted prior to interior drywall in order that corrections may be made.*

WAC) M1507.3 WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM
Whole-house mechanical ventilation systems shall be designed in accordance with Sections M1507.3.1 through M1507.3.3.

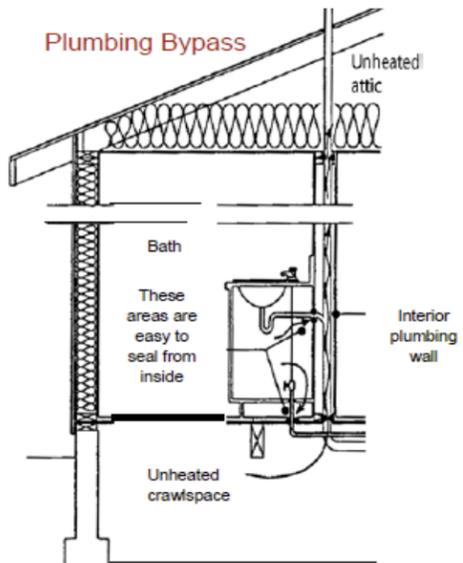
M1507.3.2 Control and operation. OR
M1507.3.4 Whole-house ventilation using exhaust fans. OR
M1507.3.5 Whole-house ventilation integrated with a forced-air system. OR
M1507.3.6 Whole-house ventilation using a supply fan. OR
M1507.3.7 Whole-house ventilation using a heat recovery ventilation system.

Required Residential Building Air Leakage Test Results:
<http://www.energy.wsu.edu/Documents/Blower%20door%20results%20form%202015.pdf>

Required Duct Testing Affidavit (New Construction)
http://www.energy.wsu.edu/Documents/Duct%20Leakage%20affidavit%20new%20construction%2012_29_12.pdf



Plumbing Bypass



Gasket @ tub penetrations

