Prescriptive Energy Code Compliance for All Climate Zones in Washington

Project Information

Contact Information

This project will use the requirements of the Prescriptive Path below and incorporate the the minimum values listed. In addition, based on the size of the structure, the appropriate number of additional credits are checked as chosen by the permit applicant.

Authorized Representative _____ Date _____

All Climate Zones		
	R-Value[a]	U-Factor[a]
Fenestration U-Factor[b]	n/a	0.30
Skylight U-Factor	n/a	0.50
Glazed Fenestration SHGC[b,e]	n/a	n/a
Ceiling[k]	49[j]	0.026
Wood Frame Wall[g,m,n]	21 int	0.056
Mass Wall R-Value[i]	21/21[h]	0.056
Floor	30[g]	0.029
Below Grade Wall[c,m]	10/15/21 int + TB	0.042
Slab[d] R-Value & Depth	10, 2 ft	n/a

*Table R402.1.1 and Table R402.1.3 Footnotes included on Page 2.

Each dwelling unit <u>in a residential building</u> shall comply with sufficient options from Table R406.2 so as to achieve the following minimum number of credits:

☐ **1. Small Dwelling Unit: 1.5 credits**
Dwelling units less than 1500 square feet in conditioned floor area with less than 300 square feet of fenestration area. Additions to existing building that are greater than 500 square feet of heated floor area but less than 1500 square feet.

☐ **2. Medium Dwelling Unit: 3.5 credits**
All dwelling units that are not included in #1 or #3. **Exception:** Dwelling units serving R-2 occupancies shall require 2.5 credits.

☐ **3. Large Dwelling Unit: 4.5 credits**
Dwelling units exceeding 5000 square feet of conditioned floor area.

☐ **4. Additions less than 500 square feet: .5 credits**

Table R406.2 Summary

Option	Description	Credit(s)			
1a	Efficient Building Envelope 1a	0.5			☐
1b	Efficient Building Envelope 1b	1.0			☐
1c	Efficient Building Envelope 1c	2.0			☐
1d	Efficient Building Envelope 1d	0.5			☐
2a	Air Leakage Control and Efficient Ventilation 2a	0.5			☐
2b	Air Leakage Control and Efficient Ventilation 2b	1.0			☐
2c	Air Leakage Control and Efficient Ventilation 2c	1.5			☐
3a	High Efficiency HVAC 3a	1.0			☐
3b	High Efficiency HVAC 3b	1.0			☐
3c	High Efficiency HVAC 3c	1.5			☐
3d	High Efficiency HVAC 3d	1.0			☐
4	High Efficiency HVAC Distribution System	1.0			☐
5a	Efficient Water Heating 5a	0.5			☐
5b	Efficient Water Heating 5b	1.0			☐
5c	Efficient Water Heating 5c	1.5			☐
5d	Efficient Water Heating 5d	0.5			☐
6	Renewable Electric Energy	0.5	0	*1200 kwh	0

Total Credits 0

*Please refer to Table R406.2 for complete option descriptions

Table R402.1.1 Footnotes

For SI: 1 foot .= 304.8 mm, ci .= continuous insulation, int .= intermediate framing.

[a] R-values are minimums. U-factors and SHGC are maximums. When insulation is installed in a cavity which is less than the label or design thickness of the insulation, the compressed R-value of the insulation from Appendix Table A101.4 shall not be less than the R-value specified in the table.

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

[c] "10/15/21.+TB" means R-10 continuous insulation on the exterior of the wall, or R-15 on the continuous insulation on the interior of the wall, or R-21 cavity insulation plus a thermal break between the slab and the basement wall at the interior of the basement wall. "10/15/21.+TB" shall be permitted to be met with R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulation on the interior or exterior of the wall. "10/13" means R-10 continuous insulation on the interior or exterior of the home or R-13 cavity insulation at the interior of the basement wall. "TB" means thermal break between floor slab and basement wall.

[d] R-10 continuous insulation is required under heated slab on grade floors. See R402.2.9.1.

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

[f] Reserved.

[g] Reserved.

[h] Reserved.

[i] The second R-value applies when more than half the insulation is on the interior of the mass wall.

[j] Reserved.

[k] For single rafter- or joist-vaulted ceilings, the insulation may be reduced to R-38.

[l] Reserved.

[m] Int. (intermediate framing) denotes standard framing 16 inches on center with headers insulated with a minimum of R-10 insulation.

Table R402.1.3 Footnote

[a] Nonfenestration U-factors shall be obtained from measurement, calculation or an approved source or as specified in Section R402.1.3.

TABLE 406.2
ENERGY CREDITS (DEBITS)

OPTION	DESCRIPTION	CREDIT(S)
1a	EFFICIENT BUILDING ENVELOPE 1a: Prescriptive compliance is based on Table R402.1.1 with the following modifications: Fenestration U .= 0.28 Floor R-38 Slab on grade R-10 perimeter and under entire slab Below grade slab R-10 perimeter and under entire slab **or** Compliance based on Section R402.1.4: Reduce the Total UA by 5%.	0.5
1b	EFFICIENT BUILDING ENVELOPE 1b: Prescriptive compliance is based on Table R402.1.1 with the following modifications: Fenestration U .= 0.25 Wall R-21 plus R-4 Floor R-38 Basement wall R-21 int plus R-5 ci Slab on grade R-10 perimeter and under entire slab Below grade slab R-10 perimeter and under entire slab **or** Compliance based on Section R402.1.4: Reduce the Total UA by 15%.	1.0
1c	EFFICIENT BUILDING ENVELOPE 1c: Prescriptive compliance is based on Table R402.1.1 with the following modifications: Fenestration U .= 0.22 Ceiling and single-rafter or joist-vaulted R-49 advanced Wood frame wall R-21 int plus R-12 ci Floor R-38 Basement wall R-21 int plus R-12 ci Slab on grade R-10 perimeter and under entire slab Below grade slab R-10 perimeter and under entire slab **or** Compliance based on Section R402.1.4: Reduce the Total UA by 30%.	2.0
2a	AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION 2a: Compliance based on R402.4.1.2: Reduce the tested air leakage to 4.0 air changes per hour maximum **and** All whole house ventilation requirements as determined by Section M1507.3 of the *International Residential Code* shall be met with a high efficiency fan (maximum 0.35 watts/cfm), not interlocked with the furnace fan ventilation systems using a furnace including an ECM motor are allowed, provided that they are controlled to operate at low speed in ventilation only mode. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the option being selected and shall specify the maximum tested building air leakage and shall show the heat recovery ventilation system.	0.5

2b	AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION 2b: Compliance based on Section R402.4.1.2: Reduce the tested air leakage to 2.0 air changes per hour maximum **and** All whole house ventilation requirements as determined by Section M1507.3 of the *International Residential Code* shall be met with a heat recovery ventilation system with minimum sensible heat recovery efficiency of 0.70. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the maximum tested building air leakage and shall show the heat recovery ventilation system.	1.0
2c	AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION 2c: Compliance based on Section R402.4.1.2: Reduce the tested air leakage to 1.5 air changes per hour maximum **and** All whole house ventilation requirements as determined by Section M1507.3 of the *International Residential Code* shall be met with a heat recovery ventilation system with minimum sensible heat recovery efficiency of 0.85. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the maximum tested building air leakage and shall show the heat recovery ventilation system.	1.5
3a	HIGH EFFICIENCY HVAC EQUIPMENT 3a: Gas, propane or oil-fired furnace with minimum AFUE of 95% To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.	0.5
3b	HIGH EFFICIENCY HVAC EQUIPMENT 3b: Air-source heat pump with minimum HSPF of 8.5 To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.	1.0
3c	HIGH EFFICIENCY HVAC EQUIPMENT 3c: Closed-loop ground source heat pump; with a minimum COP of 3.3 **or** Open loop water source heat pump with a maximum pumping hydraulic head of 150 feet and minimum COP of 3.6 To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.	2.0
3d	HIGH EFFICIENCY HVAC EQUIPMENT 3d: DUCTLESS SPLIT SYSTEM HEAT PUMPS, ZONAL CONTROL: In homes where the primary space heating system is zonal electric heating, a ductless heat pump system shall be installed and provide heating to at least one zone of the housing unit. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.	1.0
4	HIGH EFFICIENCY HVAC DISTRIBUTION SYSTEM:[a] All heating and cooling system components installed inside the conditioned space. All combustion equipment shall be direct vent or sealed combustion. Locating system components in conditioned crawl spaces is not permitted under this option. Electric resistance heat is not permitted under this option. Direct combustion heating equipment with AFUE less than 80% is not permitted under this option. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and shall show the location of the heating and cooling equipment and all the ductwork.	1.0

5a	EFFICIENT WATER HEATING 5a: Water heating system shall include one of the following: Gas, propane or oil water heater with a minimum EF of 0.62 **or** Electric water heater with a minimum EF of 0.93. **and for both cases** All showerhead and kitchen sink faucets installed in the house shall be rated at 1.75 GPM or less. All other lavatory faucets shall be rated at 1.0 GPM or less.[b] To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the water heater equipment type and the minimum equipment efficiency and shall specify the maximum flow rates for all showerheads, kitchen sink faucets, and other lavatory faucets.	0.5
5b	EFFICIENT WATER HEATING 5b: Water heating system shall include one of the following: Gas, propane or oil water heater with a minimum EF of 0.82 **or** Solar water heating supplementing a minimum standard water heater. Solar water heating will provide a rated minimum savings of 85 therms or 2000 kWh based on the Solar Rating and Certification Corporation (SRCC) Annual Performance of OG-300 Certified Solar Water Heating Systems **or** Electric heat pump water heater with a minimum EF of 2.0 and meeting the standards of NEEA's Northern Climate Specifications for Heat Pump Water Heaters **or** Water heater heated by ground source heat pump meeting the requirements of Option 3c. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the water heater equipment type and the minimum equipment efficiency and, for solar water heating systems, the calculation of the minimum energy savings.	1.5
6	RENEWABLE ELECTRIC ENERGY: For each 1200 kWh of electrical generation provided annually by on-site wind or solar equipment a 0.5 credit shall be allowed, up to 3 credits. Generation shall be calculated as follows: For solar electric systems, the design shall be demonstrated to meet this requirement using the National Renewable Energy Laboratory calculator PVWATTs. Documentation noting solar access shall be included on the plans. For wind generation projects designs shall document annual power generation based on the following factors: The wind turbine power curve; average annual wind speed at the site; frequency distribution of the wind speed at the site and height of the tower. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall show the photovoltaic or wind turbine equipment type, provide documentation of solar and wind access, and include a calculation of the minimum annual energy power production.	0.5

a. **Interior Duct Placement.** Ducts included as Option 4 of Table R406.2 shall be placed wholly within the heated envelope of the housing unit. The placement shall be inspected and certified to receive the credits associated with this option.

Exception: Ducts complying with this section may have up to 5% of the total linear feet of ducts located in the exterior cavities or buffer spaces of the dwelling. If this exception is used the ducts will be tested to the following standards:

Post-construction test: Leakage to outdoors shall be less than or equal to 1 CFM per 100 ft^2 of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test.

b. **Plumbing Fixtures Flow Ratings.** Low flow plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following requirements:

1. Residential bathroom lavatory sink faucets: Maximum flow rate - 3.8 L/min (1.0 gal/min) when tested in accordance with ASME A112.18.1/CSA B125.1.
2. Residential kitchen faucets: Maximum flow rate - 6.6 L/min (1.75 gal/min) when tested in accordance with ASME A112.18.1/CSA B125.1.
3. Residential showerheads: Maximum flow rate - 6.6 L/min (1.75 gal/min) when tested in accordance with ASME A112.18.1/CSA B125.1.