



MASON COUNTY COMMUNITY SERVICES

Building, Planning, Environmental Health, Community Health

INSTRUCTIONS FOR COMPLIANCE TO THE 2021 IECC, as amended by WSEC- WAC 51-11 (IECC)

Effective March 15, 2024

*Ventilation code provisions are in the 2021 International Residential Code (IRC),
2021 International Mechanical Code (IMC), & 2021 International Building Code*

A complete energy code application form will include information that clearly identifies compliance methods for heating and cooling, thermal envelope, energy credits, manufactures specifications and whole-house ventilation. Energy code compliance information, forms, worksheets, and educational information is also available on the Washington State University Extension Energy Program (WSU-EP) website. To access the website, go to <http://www.energy.wsu.edu/BuildingEfficiency/EnergyCode.aspx> .

INSTRUCTIONS: The most common and simplest approach is the prescriptive method for energy code compliance. See prescriptive table R402.1.2 located in the instructions. The Total Building Performance approach referenced in IECC Section R405 may also be used for energy code compliance. For more information contact Mason County Building Department staff at (360) 427-9670 ext. 352 or WSU Energy Program at (360) 956-2042.

Compliance details must be shown on your construction drawing.

1. Identify the whole-house ventilation compliance method. Whole-house mechanical ventilation system. Each dwelling unit shall be equipped with a ventilation system. The whole-house mechanical ventilation systems shall be designed in accordance with Sections M1505.4.1.1 through M1505.4.1.4. A ventilation system must be installed in accordance with The International Residential Code, Section M1505. The most common ventilation methods include a whole-house ventilation system using exhaust fans and a whole-house ventilation system integrated with a forced-air system. If you need additional information, we recommend that you discuss it with your heating and ventilation system professional.
2. Identify the Additional Energy Efficiency Requirements listed in Table R406.2. The drawings included with the building permit application must show and identify which options have been selected and the point value of each option on the plan detail pages. Construction drawings must include all construction details and specification for all WSEC requirement and options chosen. All new one and two-family dwelling unit and townhouses are required to achieve the following minimum number of credit requirements:

Small Dwelling Unit: Dwelling units less than 1,500 sf in conditioned floor area with less than 300 sf of fenestration area. Additions to existing building that are greater than 500 sf of heated floor area but less than 1,500 sf. **5 Credits.**

Medium Dwelling Unit: All dwelling units that are not included in #1, #3 or 4. **8 Credits.**

Large Dwelling Unit: Dwelling units exceeding 5,000 sf of conditioned floor area **9 Credits.**

Additions 150 SF- 500 square feet. 2 credits

The drawings included with the building permit application shall identify which options have been selected and the point value of each option, regardless of whether separate mechanical, plumbing, electrical, or other permits are utilized for the project.

3. Must meet the prescriptive option for all fenestration products. Products shall comply with the required U-factor listed in Table R402.1.3. Windows, doors, and glazed doors shall have a tested and labeled U-factor in accordance with table R402.1.3. Details must be shown on the plan pages.
4. When using the small dwelling option for energy credits (a) or Total Building approach you must provide a fenestration schedule that identifies the square feet and U-factor of each item. *Fenestration is defined as skylights, windows (fixed or operable), glazed doors, glazed block and combination opaque/glazed doors composed of glass or other transparent or translucent glazing materials and installed at a slope of not less than 60 degrees from horizontal. Opaque areas such as spandrel panels are not considered vertical fenestration.*
5. Identify on the construction drawings the location and fuel type of the heating system, water heater, location, and CFMs of exhaust fans (bathroom and kitchen) and R-factor of proposed insulation for walls, floors, ceilings, and concrete slab floors on the building plans.
6. Must attach/provide copies of specifications sheets for HVAC and WSEC components providing details for compliance.
7. Lighting equipment. All permanently installed lighting fixtures, excluding kitchen appliance lighting fixtures, shall contain only high-efficacy lighting sources.

Exterior lighting. Connected exterior lighting for residential buildings shall comply with Section C405.5. *Exceptions: Solar-powered lamps not connected to any electrical service.*

Fuel gas lighting equipment. Fuel gas lighting systems shall not have continuously burning pilot lights.

Interior lighting controls. Permanently installed interior lighting fixtures shall be controlled with either a dimmer, an occupant sensor control or other control that is installed or built into the fixture.

Exception: Lighting controls shall not be required for the following: 1. Bathrooms. 2. Hallways. 3. Lighting designed for safety or security.

Exterior lighting controls. Where the total permanently installed exterior lighting power is greater than 30 watts, the permanently installed exterior lighting shall comply with the following: 1. Lighting shall be controlled by a manual on and off switch which permits automatic shut-off actions.

Exception: Lighting serving multiple dwelling units. 2. Lighting shall be automatically shut off when daylight is present and satisfies the lighting needs. 3. Controls that override automatic shut-off actions shall not be allowed unless the override automatically returns automatic control to its normal operation within 24 hours.

If you need assistance, please contact Mason County Community Development at (360) 427-9670 ext. 352 or WSEC compliance information and code text is also available on the WSU-Energy Program website at:

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





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These requirements apply to all IRC building types, including detached one- and two-family dwellings and multiple single-family dwellings (townhouses).

Contact Information	Project Information
Owners Name:	Site Address:
Mailing Address:	Parcel Number:
Square Feet (total):	Project Description:
Ventilations Compliance: <input type="checkbox"/> Whole House Ventilation system using exhaust fans	<input type="checkbox"/> Whole House Ventilation Integrated with a Forced Air System
Other, describe: _____	

Instructions: This single-family project will use the requirements of the Prescriptive Path below and incorporate the minimum values listed. Based on the size of the structure, the appropriate number of additional credits are checked as chosen by the permit applicant.

Provide all information from the following tables as building permit drawings: Table R402.1 - Insulation and Fenestration Requirements by Component, Table R406.2 - Fuel Normalization Credits and 406.3 - Energy Credits.

Marine 4 (Table R402.1.3)		
Fenestration U-Factor ^{b,j}		0.30
Skylight U-Factor ^b		0.50
Ceiling R-Value ^e		60
Wood Frame Wall R-Value ^{g,i}		20+5 or 13+10
Floor R-Value		30
Below Grade Wall ^{c,h}		10/15/21 int + TB
Slab ^{d,f} R-Value & Depth		10, 4ft
^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 A Table A101.4 of chapter 51-11C WAC shall not be less than the R-value specified in the table.	
^b	The fenestration U-factor column excludes skylights.	
^c	"10/15/21 +5TB" means R-10 continuous insulation on the exterior of the wall, or R-15 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 +5TB" 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. "5TB" means R-5 thermal break between floor slab and basement wall.	
^d	R-10 continuous insulation is required under heated slab on grade floors. See Section R402.2.9.1.	
^e	For single rafter or joist vaulted ceilings, the insulation may be reduced to R-38 if the full insulation depth extends over the top plate of the exterior wall.	
^f	R-7.5 continuous insulation installed over an existing slab is deemed to be equivalent to the required perimeter slab insulation when applied to existing slabs complying with Section R503.1.1. If foam plastic is used, it shall meet the requirements for thermal barriers protecting foam plastics	
^g	For log structures developed in compliance with Standard ICC 400, log walls shall meet the requirements for climate zone 5 of ICC 400.	

h	Int. (intermediate framing) denotes framing and insulation as described in Section A103.2.2 including standard framing 16 inches on center, 78% of the wall cavity insulated and headers insulated with a minimum of R-10 insulation.
i	The first value is cavity insulation, the second value is continuous insulation. Therefore, as an example, "R13+10" means R-13 cavity insulation plus R-10 continuous insulation.
j	A maximum U-factor of 0.32 shall apply to vertical fenestration products installed in buildings located above 4000 feet in elevation above sea level, or in windborne debris regions where protection of openings is required under Section R301.2.1.2 of the International Residential Code.

Each dwelling unit *in a residential building* shall comply with sufficient options from Table R406.2 (Energy Equalization credits) and Table 406.3 (energy credits) to achieve the following minimum number of credits. To claim this credit, the building permit drawings shall specify the option selected and the maximum tested building air leakage and show the qualifying ventilation system and its control sequence of operation.

1. **Small Dwelling Unit: 5 credits**
Dwelling units less than 1,500 sf in conditioned floor area with less than 300 sf of fenestration area. Additions to existing building that are greater than 500 sf of heated floor area but less than 1,500 sf.
2. **Medium Dwelling Unit: 8 credits**
All dwelling units that are not included in #1 or #3
3. **Large Dwelling Unit: 9 credits**
Dwelling units exceeding 5,000 sf of conditioned floor area
4. **Additions less than 500 square feet: 2 credits**
All other additions shall meet 1-3 above.

Summary of Table R406.2			
System Type	Energy Equalization Credits	Credits Single Family	Select-ONE System Type
1	For combustion heating equipment meeting minimum federal efficiency standards for the equipment listed in Table C403.3.2(5) or C403.3.2(6)	0.0	<input type="checkbox"/>
2	For an initial heating system using a heat pump that meets federal standards for the equipment listed in Table C403.3.2(2) and supplemental heating provided by electric resistance or a combustion furnace meeting minimum standards listed in Table C403.3.2(5) ^b	1.5	<input type="checkbox"/>
3	For heating system based on electric resistance only (either forced air or Zonal)	0.5	<input type="checkbox"/>
4 ^c	For heating system using a heat pump that meets federal standards for the equipment listed in Table C403.3.2(2) or C403.3.2(9) or Air to water heat pump units that are configured to provide both heating and cooling and are rated in accordance with AHRI 550/590	3.0	<input type="checkbox"/>
5	For heating system based on electric resistance with 1. Inverter-driven ductless mini-split heat pump system installed in the largest zone in the dwelling, or 2. With 2kW or less total installed heating capacity per dwelling	2.0	<input type="checkbox"/>

b. The gas back-up furnace will operate as fan-only when the heat pump is operating. The heat pump shall operate at all temperatures above 38°F (3.3°C) (or lower). Below that "changeover" temperature, the heat pump would not operate to provide space heating. The gas furnace provides heating below 38°F (3.3°C) (or lower).

c. Additional points for the HVAC system are included in Table R406.3.

Energy Options	Energy Credit Option Descriptions	Please indicate chosen credit		Details
1.1	Efficient Building Envelope	0.5		
1.2	Efficient Building Envelope	1.0		
1.3	Efficient Building Envelope	1.5		
1.4	Efficient Building Envelope	2.5		
2.1	Air Leakage Control and Efficient Ventilation	1.0		
2.2	Air Leakage Control and Efficient Ventilation	1.5		
2.3	Air Leakage Control and Efficient Ventilation	2.0		
3.1 ^a	High Efficiency HVAC	1.0		
3.2 ^a	High Efficiency HVAC	0.5		
3.3 ^{a,c,d}	High Efficiency HVAC	0.5		
3.4 ^{a,d}	High Efficiency HVAC	1.5		
3.5 ^d	High Efficiency HVAC	1.5		
3.6 ^a	High Efficiency HVAC	1.0		
3.7 ^{a,d,e}	High Efficiency HVAC	2.0		
3.8 ^{a,d}	High Efficiency HVAC	1.0		
3.9	High Efficiency HVAC	1.5		
3.10 ^f	High Efficiency HVAC	2.5		
3.11 ^c	High Efficiency HVAC	0.5		
4.1	High Efficiency HVAC Distribution System	0.5		
5.1 ^d	Efficient Water Heating	0.5		
5.2	Efficient Water Heating	0.5		
5.3	Efficient Water Heating	0.5		
5.4	Efficient Water Heating	1.0		
5.5	Efficient Water Heating	1.5		
5.6	Efficient Water Heating	2.0		
5.7	Efficient Water Heating	2.5		
5.8	Efficient Water Heating	2.5		
6.1	Renewable Electric Energy (3 credits max)	1.0		
7.1	Appliance Package	0.5		
Total Credits				

- a. An alternative heating source sized at a maximum of 0.5 Watts/ft² (equivalent) of heated floor area or 500 Watts, whichever is bigger, may be installed in the dwelling unit.
- b. See Section R401.1 and residential building in Section R202 for Group R-2 scope.
- c. Option 3.11 can only be taken with Options 3.1 and 3.3. To qualify to claim Option 3.11 with 3.3, the system shall be a 1-2 speed heat pump system. Variable capacity heat pumps are ineligible from claiming this option.
- d. This option may only be claimed if serving System Type 4 or 5 from Table R406.2.
- e. Primary living areas include living, dining, kitchen, family rooms, and similar areas.
- f. Option 3.10 may one be taken with Efficient Water Heating Option 5.1 or 5.2. Equipment sizing for space heating shall be calculated as provided in Section R403.7 with increased capacity to provide a minimum of 75 percent of peak hot water demand or shall be sized in accordance with approved manufacturer's specifications or guidance. Supplementary heat for water heating shall be in accordance with Section R403.5.7



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Table 406.3 – Energy Credits (Single Family)		
Option	Description	Credits
1. EFFICIENT BUILDING ENVELOPE OPTIONS- Only one option from Items 1.1 through 1.4 may be selected in this category. Compliance with the conductive UA targets is demonstrated using Section R402.1.5, Total UA alternative, where $[1-(\text{Proposed UA}/\text{Target UA})] >$ the required %UA reduction.		
1.1	Prescriptive compliance is based on Table R402.1.3 with the following modifications: <ul style="list-style-type: none"> Vertical fenestration U = 0.22 	0.5
1.2	Prescriptive compliance is based on Table R402.1.3 with the following modifications: <ul style="list-style-type: none"> Vertical fenestration U = 0.25 FloorR-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 R402.1.5: Reduce the Total conductive UA by 15%.	1.0
1.3	Prescriptive compliance is based on Table R402.1.3 with the following modifications: <ul style="list-style-type: none"> Vertical fenestration U = 0.18 Ceiling and single-rafter or joist-vaulted R-60 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 R402.1.5: Reduce the Total conductive UA by 22.5%.	1.5
1.4	Prescriptive compliance is based on Table R402.1.3 with the following modifications: <ul style="list-style-type: none"> Vertical fenestration U = 0.18 Ceiling and single-rafter or joist-vaulted R-60 advanced Wood frame wall R-21 int plus R-16 ci Floor R-48 Basement wall R-21 int plus R-16 ci Slab on grade R-20 perimeter and under entire slab. Below grade slab R-20 perimeter and under entire slab OR Compliance based on Section R402.1.5: Reduce the Total conductive UA by 30%.	2.5
2. AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION OPTIONS- Only one option from Items 2.1 through 2.3 may be selected in this category.		
2.1	Compliance based on Section R402.4.1.2: Reduce the tested air leakage to 2.0 air changes per hour maximum at 50 Pascals, or for R-2 Occupancies, optional compliance based on Section R402.4.1.2: Reduce the tested air leakage to 0.25 cfm/ft2 maximum at 50 Pascals AND All whole house ventilation requirements as determined by Section M1505.3 of the International Residential Code or Section 403.8 of the International Mechanical Code shall be met with a heat recovery ventilation system with minimum sensible heat recovery efficiency of 0.65. <i>To qualify to claim this credit, the building permit drawings shall specify the option being selected, the maximum tested building air leakage, and shall show the qualifying ventilation system and its control sequence of operation.</i>	1.0

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2.2	<p>Compliance based on Section R402.4.1.2:</p> <p>Reduce the tested air leakage to 1.5 air changes per hour maximum at 50 Pascals, or for R-2 Occupancies, optional compliance based on Section R402.4.1.2: Reduce the tested air leakage to 0.20 cfm/ft² maximum at 50 Pascals.</p> <p>AND</p> <p>All whole house ventilation requirements as determined by Section M1505.3 of the International Residential Code or Section 403.8 of the International Mechanical Code shall be met with a heat recovery ventilation system with minimum sensible heat recovery efficiency of 0.75.</p> <p>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.</p>	1.5
2.3	<p>Compliance based on Section R402.4.1.2:</p> <p>Reduce the tested air leakage to 0.6 air changes per hour maximum at 50 Pascals, or for R-2 Occupancies, optional compliance based on Section R402.4.1.2: Reduce the tested air leakage to 0.15 cfm/ft² maximum at 50 Pascals</p> <p>AND</p> <p>All whole house ventilation requirements as determined by Section M1505.3 of the International Residential Code or Section 403.8 of the International Mechanical Code shall be met with a heat recovery ventilation system with minimum sensible heat recovery efficiency of 0.80. Duct insulation shall comply with Section R403.3.2.</p> <p>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.</p>	2.0
<p>3. HIGH EFFICIENCY HVAC EQUIPMENT OPTIONS- Only one option from Items 3.1 through 3.10 may be selected in this category. Item 3.11 may be taken with Items 3.1 or 3.3^c only.</p>		
3.1 ^a	<p>For a System Type 1 in Table R406.2:</p> <p>Energy Star rated (U.S. North) Gas or propane furnace with minimum AFUE of 95%</p> <p>OR</p> <p>Energy Star rated (U.S. North) Gas or propane boiler with minimum AFUE of 90%.</p> <p>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.</p>	1.0
3.2 ^a	<p>For secondary heating system serving System Type 2 in Table R406.2:</p> <p>Air-source centrally ducted heat pump with minimum HSPF of 9.5</p> <p>OR</p> <p>Energy Star rated (U.S. North) Gas or propane boiler with minimum AFUE of 90%.</p> <p>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</p>	0.5

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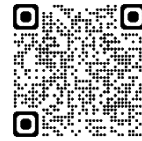
3.3 ^{a,c,d}	<p>Air-source, centrally ducted heat pump with minimum HSPF 2 of 8.1 (HSPF of 9.5). In accordance with Appendix RC, all air-source, centrally ducted heat pumps in Mason County require a cold climate heat pump found on the NEEP cc ASHP qualified product list shall be used.</p> <p><i>To qualify 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</i></p>	 <p style="text-align: right;">0.5</p>
3.4 ^{a,d}	<p>Closed-loop ground source heat pump; with a minimum COP of 3.3</p> <p>OR</p> <p>Open loop water source heat pump with a maximum pumping hydraulic head of 150 feet and minimum COP of 3.6.</p> <p><i>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.</i></p>	<p style="text-align: right;">1.5</p>
3.5 ^d	<p>Ductless mini-split heat pump system, zonal control: In homes where the primary space heating system is zonal electric heating, a ductless mini-split heat pump system with a minimum HSPF 2 of 9 (HSPF of 10.0) shall be installed and provide heating to the largest zone of the housing unit.</p> <p><i>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.</i></p>	<p style="text-align: right;">1.5</p>
3.6 ^a	<p>Air-source, centrally ducted heat pump with minimum HSPF 2 of 9.4 (HSPF of 11.0).</p> <p>A centrally ducted air source cold climate variable capacity heat pump (cc VCHP) found on the NEEP cc VCHP qualified product list with a minimum of 9 HSPF 2 (10 HSPF) may be used to satisfy this requirement.</p> <p>In accordance with Appendix RC, all air source centrally ducted heat pumps in Mason County shall be a cold climate variable capacity heat pump as listed on the NEEP qualified product list.</p> <p><i>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.</i></p>	 <p style="text-align: right;">1.0</p>
3.7 ^{a,d,e}	<p>Ductless split system heat pumps with no electric resistance heating in the primary living areas. A ductless heat pump system with a minimum HSPF 2 of 9 (HSPF of 10) shall be sized and installed to provide heat to the entire dwelling unit at the design outdoor air temperature.</p> <p>Exception: In homes with total heating loads of 24,000 or less using multi-zone mini-split systems with nominal ratings of 24,000 or less, the minimum HSPF s to claim this credit shall be 8.19 HSPF 2 (or 9 HSPF).</p> <p><i>To qualify to claim this credit, the building permit drawings shall specify the option being selected, the heated floor area calculation, the heating equipment type(s), the minimum equipment efficiency, and total installed heat capacity (by equipment type).</i></p>	<p style="text-align: right;">2.0</p>
3.8 ^{a,d}	<p>Air-to-water heat pump with minimum COP of 3.2 at 47°F, rated in accordance with AHRI 550/590 by an accredited or certified testing lab.</p> <p><i>To qualify to claim this credit, the building permit drawings shall specify the option being selected, the heated floor area calculation, the heating equipment type(s), the minimum equipment efficiency, and total installed heat capacity (by equipment type)</i></p>	<p style="text-align: right;">1.0</p>

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3.9	<p>Gas-fired heat pump(s) meeting ANSI Z21.40.2 and Z21.40.4 or CSA, with a minimum UEF of 1.15.</p> <p>For R-2 Occupancy, gas-fired heat pump(s) meeting ANSI Z21.40.2 and Z21.40.4 or CSA, with a minimum UEF of 1.15, shall serve all units.</p>	1.5
3.10 ^f	<p>Combination water heating and space heating system shall include one of the following: Gas-fired heat pump water heater(s) meeting Tier 2 of the NEEA Advanced Water Heating Specification for Gas-Fueled Residential Storage Water Heaters Version 1.0.</p> <p><i>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.</i></p>	2.5
3.11 ^c	<p>Connected thermostat meeting ENERGY STAR Certified Smart Thermostats/EPA ENERGY STAR specifications.</p> <p><i>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the thermostat model.</i></p>	0.5
4. HIGH EFFICIENCY HVAC DISTRIBUTION SYSTEM OPTIONS		
4.1	<p>HVAC equipment and associated duct system(s) installation shall comply with the requirements of Section R403.3.2.</p> <p>Electric resistance heat, hydronic heating and ductless heat pumps are not permitted under this option.</p> <p>Direct combustion heating equipment with AFUE less than 80% is not permitted under this option.</p> <p><i>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</i></p>	0.5
5. EFFICIENT WATER HEATING OPTIONS- Only one option from Items 5.3 through 5.8 may be selected in this category. Items 5.1 and 5.2 may be combined with any option.		
5.1	<p>A drain water heat recovery unit(s) shall be installed, which captures wastewater heat from at least two showers, including tub/shower combinations. It is acceptable, but not required, for sink water to be connected. Unit shall have a minimum efficiency of 40% if installed for equal flow or a minimum efficiency of 54% if installed for unequal flow. Such units shall be rated in accordance with CSA B55.1 or IAPMO IGC 346-2017 and be so labeled.</p> <p><i>To qualify to claim this credit, the building permit drawings shall include a plumbing diagram that specifies the drain water heat recovery units and the plumbing layout needed to install it. Labels or other documentation shall be provided that demonstrates that the unit complies with the standard.</i></p>	0.5
5.2	<p>For Compact Hot Water Distribution system credit, the volume shall store not more than 16 ounces of water between the nearest source of heated water and the termination of the fixture supply pipe were calculated using Section R403.5.2. Construction documents shall indicate the ounces of water in piping between the hot water source and the termination of the fixture supply. When the hot water source is the nearest primed plumbing loop or trunk, this must be primed with an On Demand recirculation pump and must run a dedicated ambient return line from the furthest fixture or end of loop to the water heater.</p> <p><i>To qualify for this credit, the dwelling must have a minimum of 1.5 bathrooms.</i></p>	0.5
5.3	<p>Water heating system shall include the following:</p> <p>Energy Star rated gas or propane water heater with a minimum UEF of 0.80.</p> <p><i>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</i></p>	0.5

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5.4	<p>Water heating system shall include one of the following:</p> <p>Energy Star rated gas or propane water heater with a minimum UEF of 0.91</p> <p>OR</p> <p>Solar water heating supplements 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 System</p> <p>OR</p> <p>Water heater heated by ground source heat pump meeting the requirements of Option 3.4.</p> <p><i>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.</i></p>	1.0
5.5	<p>Water heating system shall include one of the following:</p> <p>Gas-fired heat pump water heater(s) meeting Tier 2 of the NEEA Advanced Water Heating Specification for Gas-Fueled Residential Storage Water Heaters Version 1.0.</p> <p><i>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.</i></p>	1.5
5.6	<p>Water heating system shall include one of the following:</p> <p>Electric heat pump water heater meeting the standards for Tier III of NEEA's advanced water heating specification.</p> <p><i>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.</i></p>	2.0
5.7	<p>Water heating system shall include one of the following:</p> <p>Electric heat pump water heater with a minimum UEF of 2.9 and utilizing a split system configuration with the air-to-refrigerant heat exchanger located outdoors. Equipment shall meet Section 4, requirements for all units, of the NEEA standard Advanced Water Heating Specification with the UEF noted above</p> <p><i>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</i></p>	2.5
5.8	<p>Combination water heating and space heating system shall include one of the following:</p> <p>Gas-fired heat pump water heater(s) meeting Tier 2 of the NEEA Advanced Water Heating Specification for Gas-Fueled Residential Storage Water Heaters Version 1.0.</p> <p><i>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.</i></p>	2.5



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Single Family – New & Additions

6. RENEWABLE ELECTRIC ENERGY OPTION		
6.1	<p>For each 600 kWh of electrical generation per housing unit provided annually by on-site wind or solar equipment a 0.5 credit shall be allowed, up to 4.5 credits. Generation shall be calculated as follows:</p> <p>For solar electric systems, the design shall be demonstrated to meet this requirement using the National Renewable Energy Laboratory calculator PVWATTS or alternative approved by the code official. Documentation noting solar access shall be included on the plans.</p> <p>For wind generation projects designs shall document annual power generation based on the following factors:</p> <p>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.</p> <p><i>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.</i></p>	0.5-4.5
7. APPLIANCE PACKAGE OPTION		
7.1	<p>All the following appliances shall be new and installed in the dwelling unit and shall meet the following standards:</p> <ol style="list-style-type: none"> 1. Dishwasher, standard – Energy Star rated, Most Efficient 2021 or Dishwasher, compact – Energy Star rated (Version 6.0) 2. Refrigerator (if provided) – Energy Star rated (Version 5.1) 3. Washing machine (Residential) – Energy Star rated (Version 8.1) 4. Dryer – Energy Star rated, Most Efficient 2022 <p><i>To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall show the appliance type and provide documentation of Energy Star compliance. At the time of inspection, all appliances shall be installed and connected to utilities. Dryer ducts and exterior dryer vent caps are not permitted to be installed in the dwelling unit.</i></p>	0.5

- a. An alternative heating source sized at a maximum of 0.5 Watts/ft² (equivalent) of heated floor area or 500 Watts, whichever is bigger, may be installed in the dwelling unit.
- b. See Section R401.1 and residential building in Section R202 for Group R-2 scope.
- c. Option 3.11 can only be taken with Options 3.1 and 3.3. To qualify to claim Option 3.11 with 3.3, the system shall be a 1-2 speed heat pump system. Variable capacity heat pumps are ineligible from claiming this option.
- d. This option may only be claimed if serving System Type 4 or 5 from Table R406.2.
- e. Primary living areas include living, dining, kitchen, family rooms, and similar areas.
- a. Option 3.10 may one be taken with Efficient Water Heating Option 5.1 or 5.2. Equipment sizing for space heating shall be calculated as provided in Section R403.7 with increased capacity to provide a minimum of 75 percent of peak hot water demand or shall be sized in accordance with approved manufacturer's specifications or guidance.
- f. Supplementary heat for water heating shall be in accordance with Section R403.5.7