



2021 WSEC-R Plan Sheet

R-3 Units that comply with the International Residential Code.

- This sheet must be incorporated into the plan set. This sheet is only for prescriptive options.
- If utilizing the Total UA compliance path and using the WSU C3 calculator or equivalent, results must be incorporated into plan set.

1. (5 credits) Small less than 1500 sq ft conditioned floor area, less than 300 sq ft of glazing area. greater than 500 sq ft but less than 1500 sq ft.
2. (8 credits) Medium - All dwellings not included in 1 or 3
3. (9 credits) Large- Dwelling units exceeding 5,000 sq ft of conditioned floor area
4. (2 credits) Additions - 150 sq ft - 500 sq ft. Credits are not required if less than 150 sq ft, but WSEC-R compliance is.

TABLE 5.1 INSULATION MINIMUM R-VALUES AND PENETRATION REQUIREMENTS BY EQUIPMENT	
Climate Zone 5 and Marine 4	
Roof/ceiling U-factor	0.05
Walls U-factor	0.09
Floor U-factor	0.09
Wood frame wall U-factor	0.09 (15/10)
Floor U-factor	0.09
Window U-factor	0.15 (15/10)
Door U-factor	0.15 (15/10)
Glazing U-factor and SHGC	0.45

For footnotes, please see the WSEC-R

ENERGY EQUALIZATION CREDITS - SELECT ONE

<input type="checkbox"/>	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
<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 – Additional points for the HVAC system included in Table R406.3	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

EFFICIENT BUILDING ENVELOPE - SELECT ONE

PRESCRIPTIVE COMPLIANCE IS BASED ON TABLE R402.1.3 WITH THE FOLLOWING MODIFICATIONS

<input type="checkbox"/>	1.1	Vertical fenestration U = 0.22.	0.5
<input type="checkbox"/>	1.2	Vertical fenestration U = 0.25 Floor R-38 Slab on grade R-10 perimeter and under entire slab Below grade slab R-10 perimeter and under entire slab	1.0
<input type="checkbox"/>	1.3	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	1.5
<input type="checkbox"/>	1.4	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	2.5

AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION - SELECT ONE

PRESCRIPTIVE COMPLIANCE IS BASED ON TABLE R402.1.3 WITH THE FOLLOWING MODIFICATIONS

<input type="checkbox"/>	2.1	Reduce the tested air leakage to 2.0 air changes per hour maximum at 50 Pascals. ¹ AND All whole house ventilation requirements as determined by Section M1505.3 of the IRC or Section 403.8 of the IMC shall be met with a heat recovery ventilation system with minimum sensible heat recovery efficiency of 0.65.	1.0
<input type="checkbox"/>	2.2	Reduce the tested air leakage to 1.5 air changes per hour maximum at 50 Pascals. ² AND All whole house ventilation requirements as determined by Section M1505.3 of the IRC or Section 403.8 of the IMC shall be met with a heat recovery ventilation system with minimum sensible heat recovery efficiency of 0.75.	1.5
<input type="checkbox"/>	2.3	Reduce the tested air leakage to 0.6 air changes per hour maximum at 50 Pascals. AND All whole house ventilation requirements as determined by Section M1505.3 of the IRC or Section 403.8 of the IMC 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.	2.0

1. 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.
2. 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.

HIGH EFFICIENCY HVAC EQUIPMENT OPTIONS

Only one option from Items 3.1 - 3.10 may be selected in this category. 3.11 may be taken with 3.1 or 3.3 only.

<input type="checkbox"/>	3.1 ^{a,1}	For a System Type 1 in Table R406.2: Energy Star rated (U.S. North) Gas or propane furnace with minimum AFUE of 95% or Energy Star rated (U.S. North) Gas or propane boiler with minimum AFUE of 90%.	1.0
<input type="checkbox"/>	3.2 ^{a,1}	For secondary heating system serving System Type 2 in Table R406.2: Air-source centrally ducted heat pump with minimum HSPF of 9.5 or Energy Star rated (U.S. North) Gas or propane boiler with minimum AFUE of 90%.	0.5
<input type="checkbox"/>	3.3 ^{a,c,d,1}	Air-source, centrally ducted heat pump with minimum HSPF 2 of 8.1 (HSPF of 9.5). In areas where the winter design temperature as specified in Appendix RC is 23°F or below, a cold climate heat pump found on the NEEP cc ASHP qualified product list shall be used.	0.5
<input type="checkbox"/>	3.4 ^{a,d,1}	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.	1.5
<input type="checkbox"/>	3.5 ^{d,1}	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.	1.5
<input type="checkbox"/>	3.6 ^{a,1}	Air-source, centrally ducted heat pump with minimum HSPF 2 of 9.4 (HSPF of 11.0). 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. In areas where the winter design temperature as specified in Appendix RC is 23°F or below, an air source centrally ducted heat pump shall be a cold climate variable capacity heat pump as listed on the NEEP qualified product list.	1.0
<input type="checkbox"/>	3.7 ^{a,d,e,2}	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 entire dwelling unit at the design outdoor air temperature. 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).	2.0
<input type="checkbox"/>	3.8 ^{a,2}	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.	1.0
<input type="checkbox"/>	3.9	Gas-fired heat pump(s) meeting ANSI Z21.40.2 and Z21.40.4 or CSA, with a minimum UEF of 1.15.	1.5
<input type="checkbox"/>	3.10 ^{1,3}	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.	2.5
<input type="checkbox"/>	3.11 ^{c,4}	Connected thermostat meeting ENERGY STAR Certified Smart Thermostats/EPA ENERGY STAR specifications.	0.5

1. 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. 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).
3. 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.
4. To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the thermostat model.
 - 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.

HIGH EFFICIENCY HVAC DISTRIBUTION SYSTEM OPTION

<input type="checkbox"/>	4.1	HVAC equipment and associated duct system(s) installation shall comply with the requirements of Section R403.3.2. Electric resistance heat, hydronic heating and ductless heat pumps are 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.	0.5
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EFFICIENT WATER HEATING OPTIONS

Items 5.1 and 5.2 may be combined with any option. Only one option from 5.3 - 5.8 may be selected.

<input type="checkbox"/>	5.1 ¹	A drain water heat recovery unit(s) shall be installed, which captures waste water 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.	0.5
<input type="checkbox"/>	5.2 ²	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 where 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.	0.5
<input type="checkbox"/>	5.3 ³	Water heating system shall include the following: Energy Star rated gas or propane water heater with a minimum UEF of 0.80.	0.5
<input type="checkbox"/>	5.4 ³	Water heating system shall include one of the following: Energy Star rated gas or propane water heater with a minimum UEF of 0.91 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 System or Water heater heated by ground source heat pump meeting the requirements of Option 3.4.	1.0
<input type="checkbox"/>	5.5 ³	Water 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.	1.5
<input type="checkbox"/>	5.6 ³	Water heating system shall include one of the following: Electric heat pump water heater meeting the standards for Tier III of NEEA's advanced water heating specification	2.0
<input type="checkbox"/>	5.7 ³	Water heating system shall include one of the following: 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	2.5
<input type="checkbox"/>	5.8	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.	2.5

1. 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.
2. To qualify for this credit, the dwelling must have a minimum of 1.5 bathrooms.
3. 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. (Option 5.4 & 5.5 & 5.8 - For solar water heating systems, the calculation of the minimum energy savings).

RENEWABLE ELECTRIC ENERGY OPTION

<input type="checkbox"/>	6.1	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: <ul style="list-style-type: none"> • 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. • 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 – 4.5
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APPLIANCE PACKAGE OPTION

<input type="checkbox"/>	7.1	All of the following appliances shall be new and installed in the dwelling unit and shall meet the following standards: <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 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.	0.5
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