CHANGES
MUST Be Approved Prior
To Performing Work

Reviewed for code compliance
with IRC 2015
Kitsap County Building Department
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Residential Energy Code Worksheet

KITSAP COUNTY

Department of Community Development

The Residential Energy Code Worksheet is a tool to help you plan your energy code needs for new or remodeled homes to ensure compliance with code requirements. More resources and a copy of the energy code, optional worksheets and glazing forms can be found here.

This document will cover the following features:

- **Heating, Ventilation and Air Conditioning (HVAC):** Requirements for efficiency of heating and cooling equipment for your house.
- **Building Envelope:** Requirements and options for roofs, walls, windows - these control heat loss and leakage.
- **Water Heating:** Equipment efficiency and controls

NOTE: All of the details of your energy efficiency plan selected in this document must be clearly shown on your construction plans in order for application to be approved.

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Is this an addition to an existing structure?
No

Heating Ventilation and Air Conditioning Requirements

All options for whole house ventilation shall provide outdoor air at a continuous rate of not less than the Airflow Rate shown below. This is automatically calculated in accordance with Tables M1507.3.3(1) & 1507.3.3(2) based on square footage of structure and number of bedrooms.

Select Proposed Heating Sytem, be sure to show on plans.
Forced Air System with Heat Pump: The same as forced air, but absorbs heat from an outdoor source, heats it, and releases it as warmer air.

Select Prescriptive Whole House Ventilation	Select Square Footage of Structure	Number of Bedrooms
Continuous Exhaust Fan	1,501 - 3,000	2-3

Required Airflow CFM (Label on Plans):
60

Exception: The whole house mechanical ventilation system is permitted to operate intermittently where the system has control that enables operation for not less than 25% of each 4 hour segment. The ventilation rate below is multiplied by the run time factor in accordance with Table 1507.3.3(2) to determine required fan size.

Please note:

Exhaust fans are required in any room where water vapor, or cooking odor is produced, i.e. kitchen, bathroom, powder room, laundry room, indoor swimming pool, spa, etc. See Table M1507.4 for the minimum exhaust fan sizes. Minimum source specific ventilation - your proposed system shall not be less.

Table M1507.4

CFM=Cubic Feet per min.	Laundry rooms or Bathrooms	Kitchens
Intermittently Operating	50 cfm	100 cfm
Continuous Operation	20 cfm	25 cfm

Required Energy Credits

Conditioned Floor Area
1,500 - 5,000 Square Feet

Minimum Required Energy Credits
3.5

Total Energy Credits Selected Below
3.5

Select Options to Meet Minimum Required Energy Credits

There are five categories below, select credits to meet the calculated minimum required energy credits. **As the number of credits increase, your home becomes more energy efficient! You may elect to exceed the required number of credits.**

All selected options must be shown on the construction plans.

Key Terms:

R-Value = Thermal Resistance, time rate of heat flow through a body.
U-Factor = Thermal Transmittance, heat transmission (air to air) through a building component, equal to the time rate of heat flow per unit area and unit temperature.
Fenestration = Fenestration windows and other products with glass and non-glass glazing materials.
Glazing = Glass part of windows

Water Heating Options

1. Use the dropdown to review credits available and read description to see if you qualify.
2. **Click Select Credit -Yes** next to the option you would like to add credits to your total credits selected. A list of your selected credits selected will automatically populate a summary on the next page.

To See Details and Select Credit Choose from Options Below
Efficient Water Heating 5c -- Gas, propane, solar, heat pump

Select Credit?	Credits	EFFICIENT WATER HEATING 5a:
Yes	.5	**Verify you can meet all requirements below and then click Select Credit - Yes to update total Energy Credits Selected.** ***This credit may be used in addition to other Water Heating Options in this category.***

Qualified Lowflow Fixtures:
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.*

To qualify to claim this credit, the building permit drawings shall:

- Show all fixtures: showerheads, kitchen sink faucets and other lavatory faucets.
- Label the maximum flow rates for all showerheads, kitchen sink faucets and other lavatory faucets.

***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

Select Credit?	Credits	EFFICIENT WATER HEATING 5c:
Yes	1.5	**Verify you can meet all requirements below and then click Select**

Credit - Yes to update total Energy Credits Selected.

Select one of the following qualified water heating systems:
Electric heat pump water heater with a minimum EF of 2.0 and meeting the standards of NEES's Northern Climate Specifications for Heat Pump Water Heaters.

To qualify to claim this credit, the building permit drawings shall:

- Show water heating system in the applicable location
- Label water heater equipment type
- Label with the minimum equipment efficiency #, (example EF 0.91)

To qualify to claim this credit, the building permit drawings shall:

- Show a plumbing diagram in the applicable location
- Specify the drain water heat recovery units and the plumbing layout needed to install
- Labels or other documentation shall be provided demonstrating that the unit complies with the standard.

HVAC Equipment Options

1. Use the dropdown to review credits available and read description to see if you qualify.
2. **Click Select Credit -Yes** next to the option you would like to add credits to your total credits selected. A list of your selected credits selected will automatically populate a summary on the next page.

***Projects may only include credit from one space heating option, 3a, 3b, 3c or 3d. When a housing unit has two pieces of equipment (i.e., two furnaces) both must meet the standard to receive the credit.**

To See Details and Select Credit Choose from Options Below
High Efficiency HVAC Equipment 3b -- Air source heat pump

Select This Option	Credits	HIGH EFFICIENCY HVAC EQUIPMENT 3b:*
Yes	1	Air-source heat pump with a minimum HSPF of 9.0

To qualify to claim this credit, the building permit drawings shall:

- Show location of HVAC equipment in the applicable location
- Label the HSPF on/near equipment

***Since you have selected 3b YOU MAY NOT CHOOSE 3a, 3c or 3d.**

When a housing unit has two pieces of equipment (i.e., two furnaces) both must meet the standard to receive the credit.

Whole House Air Leakage Control and Efficiency

These credits set a standard for a structure's air tightness using a Blower Door Test. This reduces energy consumption due to air leaks. If a credit from this section is selected, Blower Door Test results are required to be on site for final inspection. Each credit contains requirements for the maximum air leakage and whole house ventilation requirements.

1. Use the dropdown to review credits available and read description to see if you qualify.
2. **Click Select Credit -Yes** next to the option you would like to add credits to your total credits selected. A list of your selected credits selected will automatically populate a summary on the next page.

To See Details and Select Credit Choose from Options Below
Air Leakage Control and Efficiency 2a

Select This Option	Credits	AIR LEAKAGE CONTROL AND EFFICIENCY VENTILATION 2a:
Yes	.5	• Compliance is based on Table R402.4.1.2; Reduce the tested air leakage to 3.0 air changes per hour maximum

AND All whole house ventilation requirements as determined by IRC

Section M1507.3 shall be met with a high efficiency fan (max 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:

- Fan Specifics (If Fan is not labeled)
- Documentation of Blower Door test results from qualified third party must be on site at Final Inspection WSU Air Leakage Test (Blower Door Test) Results

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Building Envelope (Windows, Walls, and Floors etc.)

These credits relate to whole house energy efficiency. Each credit contains requirements for insulation (R-Values) and energy efficient windows (U-Factor).

R-value: An insulating material's resistance to conductive heat flow is rated using an R-value -- *the higher the R-value, the more effective the insulation.*

U-factor: Indicates how much energy will be lost from a building through its windows -- *the lower the U-value, the more efficient.*

1. Use the dropdown to review credits available and read description to see if you can qualify.
2. **Click Select Credit -Yes** next to the option you would like to add credits to your total credits selected. A list of your selected credits selected will automatically populate a summary on the next page.

***All options in this category require that you :**

- **Label R-Values and U-Factors on building permit drawing in the applicable location**
- **Submit completed Glazing Schedule Form or add to construction plans for review with this worksheet.**

To See Details and Select Credit Choose from Options Below

***Would you like to see table displaying prescriptive requirements to meet Washington State Energy Code for building envelope?**
No

Would you like to see Renewable Energy credits for on-site wind or solar?
No

Summary of Total Energy Credits

Minimum must match selected

Minimum Required Energy Credits	Total Energy Credits Selected
3.5	3.5

Energy Credit Options Selected

AIR LEAKAGE CONTROL AND EFFICIENCY VENTILATION 2a

HIGH EFFICIENCY HVAC EQUIPMENT 3b

EFFICIENT WATER HEATING 5a

EFFICIENT WATER HEATING 5c

Qualified Water Heating Option Selected:

Electric heat pump water heater with a minimum EF of 2.0 and meeting the standards of NEES's Northern Climate Specifications for Heat Pump Water Heaters.

Clicking the "Create PDF of Complete Energy Code Worksheet" will allow to download a completed PDF copy of your worksheet. If you are not finished, click the "Save" button to receive a link for you to finish later.

Clicking this button does not submit your completed worksheet for review!