Reviewed for code compliance
with IRC 2015
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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.

KITSAP COUNTY
DEPARTMENT OF
COMMUNITY
DEVELOPMENT

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

Approved Building Permit #s:
19-02320
19-03256
19-03257

NOTE: All of the details of your energy plan 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: Use air as the heat transfer medium, relying on ductwork and vents to distribute.

Select Prescriptive Whole House Ventilation	Select Square Footage of Structure	Number of Bedrooms
Intermittent Exhaust Fan (See Exception Below)	<1,500	2-3

Permit Number: 20-01252

Basic
Permit Number: 18-05976

Run-Time Percentage in Each 4 Hour Segment (Applicable to Intermittent Exhaust Fan Only)
66%

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.

Required Airflow CFM (Label on Plans):

Required Airflow CFM (Label on Plans)
45

Required Fan Size (Applicable to Intermittent Exhaust Fan Only):

Fan Size (Applicable to Intermittent Exhaust Fan Only)
68

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 Square Feet

Minimum Required Energy Credits
1.5

Total Energy Credits Selected Below
1.5

Options to Meet Minimum Required Energy Credits

There are five categories below, you may select any combination to reach the minimum credit amount.

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

Would you like to see options for water heating?
No

Would you like to see options for HVAC?
Yes

HVAC Equipment

HIGH EFFICIENCY HVAC EQUIPMENT 3a:*	Select This Option	Credits
Gas, propane or oil-fired furnace with a minimum AFUE of 94%	Yes	1

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

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

***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.**

HIGH EFFICIENCY HVAC EQUIPMENT 3b:*	Select This Option	Credits
Air-source heat pump with a minimum HSPF of 9.0	No	1

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

HIGH EFFICIENCY HVAC EQUIPMENT 3c:*

Select This Option	Credits
No	1.5

- 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 a minimum COP of 3.6.

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

- Show location of HVAC equipment in the applicable location
- Label the COP on/near equipment
- Include on site plan

HIGH EFFICIENCY HVAC EQUIPMENT 3d:*

Select This Option	Credits
No	1

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:

- Show location of HVAC equipment in the applicable location

HIGH EFFICIENCY HVAC DISTRIBUTION SYSTEM 4a:

Select This Option	Credits
No	1

- All heating and cooling system components shall be 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 resistant heat and ductless heat pumps are not permitted under this option, direct combustion heating equipment with AFUE less than 80% is not permitted with this option.

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

- Show location of HVAC equipment in the applicable location

Would you like to see options for whole house air leakage control and efficiency?
Yes

Whole House Air Leakage Control and Efficiency

AIR LEAKAGE CONTROL AND EFFICIENCY VENTILATION 2a:	Select This Option	Credits
	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

AIR LEAKAGE CONTROL AND EFFICIENCY VENTILATION 2b:	Select This Option	Credits
	No	1

- Compliance is based on Table 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 IRC Section M1507.3 shall be met with a heat recovery ventilation system with a minimum sensible heat recovery efficiency of 0.70.

To qualify to claim this credit:

- Specifics for heat recovery system
- 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

AIR LEAKAGE CONTROL AND EFFICIENCY	Select This Option	Credits

VENTILATION 2c:

No 1.5

- Compliance is based on Table 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 IRC Section M1507.3 shall be met with a heat recovery ventilation system with a minimum sensible heat recovery efficiency of 0.85.

To qualify to claim this credit:

- Specifics for heat recovery system
- 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

Would you like to see options for Building Envelope (windows, walls, and floors) energy credits?
No

Would you like to see Renewable Energy credits?
No

Summary of Energy Credit Options

Minimum Required Energy Credits	Total Energy Credits Selected
1.5	1.5