



SAN JUAN COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT

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2015 RESIDENTIAL ENERGY COMPLIANCE PACKET

APPLICANT IS TO COMPLETE PAGES 1-4 - INCOMPLETE ENERGY FORMS WILL NOT BE ACCEPTED

Applicant/Owner Name(s) _____

Project Location: _____

Parcel #	Permit #	Staff Use
Heating Fuel Source: <input type="checkbox"/> Electric <input type="checkbox"/> Oil <input type="checkbox"/> Propane (LPG) <input type="checkbox"/> Other:		
Heating System: <input type="checkbox"/> Forced Air <input type="checkbox"/> Room heaters <input type="checkbox"/> Radiant/hydronic <input type="checkbox"/> Heat pump <input type="checkbox"/> Existing <input type="checkbox"/> Wood/Pellet stove <input type="checkbox"/> Other:		

**This packet is for Prescriptive Energy Code Compliance Only.
Other compliance methods use WSU forms (link provided below).**

Carefully review all of the included forms and fill them out completely, unless otherwise exempted. All information showing energy code compliance must clearly be shown on the submitted construction documents. These forms are provided as a compliance tool. They are not a substitute for the actual full text of the energy code. This can be found at <http://www.energy.wsu.edu/code>. The WSU website also has available similar compliance forms in an excel format for completion and would be accepted.

The following is a list of the pages in this packet and a brief description. Please read all forms and complete as required.

- 1) Cover Page. Fill out and sign
- 2) Prescriptive building envelope insulation requirements. Review, provide details on submitted plans.
- 3) **Energy Credit Options:** select option for compliance with Ch. 4 credit requirement and provide necessary construction details on submitted plans
- 4) Heat sizing compliance page. Select the box that applies to your project and provide (if required) the necessary additional heat sizing calculations and documentation.

By signing below, you are acknowledging that:

- 1) You have read and completed the attached forms to demonstrate compliance with the current Washington State Energy Codes & Ventilation and Indoor Air Quality provisions of the IRC.
- 2) You are complying with the WSEC using prescriptive methods as provided in the code.
- 3) You have included all necessary details demonstrating compliance with these codes on your submitted construction drawings.
- 4) These forms are provided as a compliance tool but do not represent all the intricacies of the codes.
- 5) You are aware that a complete copy of the energy code is available at www.energy.wsu/code
- 6) You are aware that the 2015 International Residential Code contains requirements and provisions for insulation and ventilation and copies of the Washington St. Amendments to this code are available at <https://fortress.wa.gov/ga/apps/sbcc/Default.aspx>
- 7) San Juan County is not responsible for any errors or omissions on these forms.
- 8) All elements of construction are subject to field inspection and correction.

Signature _____
(Owner or other authorized agent – signature required.)

Date _____

2015 WSEC **PRESCRIPTIVE ENERGY CODE COMPLIANCE** FOR SINGLE FAMILY RESIDENCES IN SAN JUAN COUNTY

The insulation values and construction details are required to be shown on the submitted construction drawings.

TABLE 402.1.1 PRESCRIPTIVE INSULATION REQUIREMENTS^a

Building Insulation Component	U- Factor Windows and glass doors	U-Factor Skylights	Glazed Fenestration SHGC ^b	Ceiling ^j	Wall ^{k, l} above grade	Wall-int ^k below grade Wall-ext ^c below grade	Floor	Slab ^d on grade
U-Value or R-Value	U= 0.30	U= 0.50	NR	R-49	R-21 Int.	10/15/21 int +TB R-10	R-30	R-10 (2ft. perimeter)

FOOTNOTES: (Footnotes e, g, h, and i have been omitted. For complete text refer to WSEC complete text.)

- 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.
- f. Basement wall insulation is not required in warm-humid locations as defined by Figure R301.1 and Table R301.1.
- j. For single rafter- or joist-vaulted ceilings, the insulation may be reduced to R-38
- k. Int. (intermediate framing) denotes standard framing 16 inches on center with headers insulated with a minimum of R-10 insulation
- l. Log and solid timber walls with a minimum average thickness of 3.5" are exempt from this insulation requirement.

Each dwelling in 1 & 2 family dwellings and townhouses as defined in Section 101.2 of the IRC shall comply with sufficient options from Table R406.2 (provided on next page) so as to achieve the following minimum number of credits. Indicate which option applies and list the option that will be used for compliance

	Small Additions: 0.5 credits Additions less than 500 square feet.
	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.
	Medium Dwelling Unit: 3.5 credits All dwelling units that are not included in #1 or #3.
	Large Dwelling Unit: 4.5 credits Dwelling units exceeding 5000 square feet of conditioned floor area.
	List credit(s) used from table R406.2 (found on next page):

Table 406.2 Energy Credits

Cr.	Option	DESCRIPTION OF CREDIT <i>(Supporting details must be on construction drawings.)</i>
+0.5	<input type="checkbox"/> 1A	EFFICIENT BUILDING ENVELOPE 1a: Prescriptive compliance using Table R402.1.1 with the following modifications: Glazing U . = 0.28; Floor R-38; Slab on grade & below grade slab R-10 perimeter & under entire slab
+1.0	<input type="checkbox"/> 1B	EFFICIENT BUILDING ENVELOPE 1b: Prescriptive compliance using Table R402.1.1 with the following modifications: Glazing U . = 0.25; Wall R-21 plus R-4; Floor R-38; Basement wall R-21 int. plus R-5 ci; SOG & below grade slab =R-10 perimeter and under entire slab
+2.0	<input type="checkbox"/> 1C	EFFICIENT BUILDING ENVELOPE 1c: Prescriptive compliance using Table R402.1.1 with the following modifications: Glazing U . = 0.22; Ceiling and single-rafter or joist-vaulted R-49 advanced; Wall R-21 int. plus R-12 ci; Floor R-38; Basement wall R-21 int plus R-12 ci; SOG & below grade slab =R-10 perimeter and under entire slab
+0.5	<input type="checkbox"/> 1D	EFFICIENT BUILDING ENVELOPE 1d: Prescriptive compliance is based on Table 402.1.1 with the following modifications: Vertical fenestration U =0.24. Projects using this option cannot use Option 1A, 1B, or 1C.
+0.5	<input type="checkbox"/> 2A	AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION 2a: Compliance based on R402.4.1.2: Reduce the tested air leakage to 3.0 ACPH max and all whole house ventilation requirements per M1507.3 of the IRC shall be met with a HE 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 for this credit the permit drawings shall specify the option selected and the maximum tested leakage and show the qualifying ventilation system.
+1.0	<input type="checkbox"/> 2B	AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION 2b: Compliance based on Section R402.4.1.2: Reduce the tested air leakage to 2.0 ACPH max and all whole house ventilation requirements as determined by M1507.3 of the IRC shall be met with HRV system with minimum sensible heat recovery efficiency of 0.70. To qualify for this credit the permit drawings shall specify the option selected and the maximum tested leakage and show the qualifying HRV system.
+1.5	<input type="checkbox"/> 2C	AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION 2c: Compliance based on Section R402.4.1.2: Reduce the tested air leakage to 1.5 ACPH max and All whole house ventilation requirements as determined by M1507.3 of the IRC shall be met with a HRV system with minimum sensible heat recovery efficiency of 0.85. To qualify for this credit the permit drawings shall specify the option selected and the maximum tested leakage and show the qualifying HRV system.
+1.0	<input type="checkbox"/> 3A	HIGH EFFICIENCY HVAC EQUIPMENT 3a: Gas, propane or oil-fired furnace with minimum AFUE of 94% or Gas, propane or oil-fired boiler with minimum AFUE of 92%. To qualify for this credit the permit drawings shall specify the option selected, the heating equipment type and minimum equipment efficiency.
+1.0	<input type="checkbox"/> 3B	HIGH EFFICIENCY HVAC EQUIPMENT 3b: Air-source heat pump with minimum HSPF of 9.0. To qualify for this credit the permit drawings shall specify the option selected, the heating equipment type and minimum equipment efficiency.
+1.5	<input type="checkbox"/> 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 for this credit the permit drawings shall specify the option selected, the heating equipment type and minimum equipment efficiency.
+1.0	<input type="checkbox"/> 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 the largest zone of the housing unit. To qualify for this credit the permit drawings shall specify the option selected, the heating equipment type and minimum equipment efficiency.
+1.0	<input type="checkbox"/> 4	HIGH EFFICIENCY HVAC DISTRIBUTION SYSTEM 4^a: All heating & cooling system components installed inside the conditioned space. This includes all equipment and distribution system components such as forced air ducts and hydronic piping. All combustion equipment shall be direct vent or sealed combustion. Locating system components in conditioned crawl spaces not permitted with this option. Electric resistance heat not permitted with this option. Direct combustion heating equipment w/ AFUE less than 80% is not permitted under this option. To qualify for this credit the permit drawings shall specify the option selected, the heating equipment type and show location of the equipment and all duct work.
+0.5	<input type="checkbox"/> 5A	EFFICIENT WATER HEATING 5a: 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 maximum flow rates for all showerheads, kitchen sink faucets, and other lavatory faucets.

+1.0	<input type="checkbox"/> 5B	EFFICIENT WATER HEATING 5b: H2O heating system shall include one of the following: Gas, propane or oil water heater with a minimum EF of 0.74 <u>or</u> water heater heated by a ground source heat pump meeting the requirements of Option 3C, <u>or</u> for R-2, a central heat pump water heater with an EF greater than 2.0 that would supply DHW to all units through a central water loop insulated with R-8 minimum pipe insulation. To qualify for this credit the permit drawings shall specify the option selected, the equipment type and minimum efficiency.
+1.5	<input type="checkbox"/> 5C	EFFICIENT WATER HEATING 5c: Water heating system shall include one of the following: Gas, propane or oil water heater with a minimum EF of 0.91 <u>or</u> 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 (SRCC) Annual Performance of OG-300 Certified Solar Water Heating Systems <u>or</u> 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. To qualify for this credit the permit drawings shall specify the option selected, the equipment type and minimum efficiency, and for solar systems, the calculation of the minimum energy savings.
+0.5	<input type="checkbox"/> 5D	EFFICIENT WATER HEATING 5d: A drain water heat recovery unit(s) shall be installed which captures wastewater heat from all showers, and has a minimum efficiency of 40% if installed for equal flow or a minimum efficiency of 52% if installed for unequal flow. Such units shall be rated in accordance with CSA B55.1 and be so labeled. To qualify for this credit, the permit drawings shall include a plumbing diagram that specified the drain water heat recovery units and the plumbing layout needed to install it and labels or other documentation shall be provided that demonstrates that the unit complies with the standard.
+0.5	<input type="checkbox"/> 6	RENEWABLE ELECTRIC ENERGY 6: See text of WSEC For complete details on this credit.
FOOTNOTES: <ol style="list-style-type: none"> 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 a maximum of 10 linear feet of return ducts and 5 linear feet of supply ducts located outside conditioned space. Ducts located outside conditioned space must have transverse and longitudinal joints sealed with mastic. If flex ducts are used, they cannot contain splices. Flex duct connections must be made with nylon straps and installed using plastic strapping as a tensioning tool. Ducts located outside the conditioned space must be insulated to a minimum of R-8. Space heating options. 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. Plumbing Fixtures Flow Ratings: Low flow plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following: <ol style="list-style-type: none"> Residential bath lavatory sinks faucets: Max. flow rate 1.0 gal/min (tested in accordance with ASME 112.18.1/CSA B125.1) Residential kitchen faucets: Max. flow rate 1.75 gal/min (tested in accordance with ASME 112.18.1/CSA B125.1) Residential shower heads: Max. flow rate 1.75 gal/min (tested in accordance with ASME 112.18.1/CSA B125.1) 		

HEAT SIZING REQUIREMENTS	
PLEASE READ AND CHECK THE APPLICABLE BOX	
<input type="checkbox"/> A	This project uses a <u>forced air or radiant (hydronic) heating and/or cooling system</u> and shall be sized using ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies. Calculations and results have been provided as an attachment to this form. Details on the equipment used shall be included on the construction drawings.
<input type="checkbox"/> B	This project is heated with one of the following: <u>Propane fireplace, wood or pellet fireplace, individual room electric baseboard heaters, oil heaters, or ductless mini-split heat systems</u> , or combination thereof, and does not use any equipment listed in item "A" (above). <u>A heat sizing calculation is not required.</u>
ADDITIONAL ENERGY CODE COMPLIANCE INFORMATION	
<ol style="list-style-type: none"> A blower door test complying with WSEC R402.4.1.2 is required for all new construction. High Efficacy lighting: A minimum of 75% of all bulbs used in lighting fixtures shall be high-efficacy lamps in accordance with the WSEC. R404.1 	