



KITTITAS COUNTY COMMUNITY DEVELOPMENT SERVICES

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R-003
BULLETIN

2009 Energy Code Information

FOR MORE INFORMATION VISIT THE CDS WEBSITE AT: WWW.CO.KITTITAS.WA.US/CDS

1. Residential Permit Application Submittal Requirements

- Completed Prescriptive or Component Performance forms are required at the time of residential permit submittal.
- Forms are available in electronic format with embedded formulas (Excel spreadsheet) at: <http://www.energy.wsu.edu/BuildingEfficiency/EnergyCode.aspx>
- Paper copies of the required forms are available at the CDS office located at the above address.
- The plans and specifications shall show in sufficient detail all pertinent data and features of the building and the equipment systems.
- Alternative prescriptive paths are available for Climate Zone 2 (see below Options IV, V and VI).
- Kittitas County outdoor design temperature is 2° F.
- Equipment sizing calculations must be submitted with the residential permit application materials.
- CDS will provide limited assistance. Consultants are commercially available to provide professional assistance and should be used as a primary resource to complete the required forms.

**TABLE 6-2
PRESCRIPTIVE REQUIREMENTS^{0,1} FOR SINGLE-FAMILY RESIDENTIAL
CLIMATE ZONE 2**

Option	Glazing Area ¹⁰ % of floor	Glazing U - Factor		Door ⁹ U- Factor	Ceiling ²	Vaulted Ceiling ³	Wall Above Grade ¹²	Wall int ⁴ Below Grade	Wall ext ⁴ Below Grade	Floor ⁵	Slab ⁶ on Grade
		Vertical	Overhead ¹¹								
<input type="checkbox"/> I	12 %	0.32	0.50	0.20	R-49 or R-38 adv	R-38	R-21 Int. ⁷	R-21 TB	R-12	R-30	R-10 2'
<input type="checkbox"/> II*	15 %	0.32	0.50	0.20	R-49 or R-38 adv	R-38	R-19 + R-5	R-21 TB	R-12	R-30	R-10 2'
<input type="checkbox"/> III	Unlimited	0.30	0.50	0.20	R-49 or R-38 adv	R-38	R-19 + R-5	R-21 TB	R-12	R-30	R-10 2'
OPTIONS IV, V AND VI have been developed by WSU Energy Program using the Component Performance Approach and are equivalent paths and allowed as an alternate method. Option VII is allowed per WSEC Chapter 4 for Systems Analysis and WSEC Chapter 5 for Component Performance Approach.											
<input type="checkbox"/> IV	15%	0.30 (weighted average)	0.50	0.20	R-49	R-49	R-21 Int. ⁷	R-21 TB	R-12	R-30	R-10 2'
<input type="checkbox"/> V	18%	0.28 (weighted average)	0.50	0.20	R-60 adv	R-60 adv	R-21 Int. ⁷	R-21 TB	R-12	R-38	R-10 2'
<input type="checkbox"/> VI	20%	0.28 (weighted average)	0.50	0.20	R-49 adv	R-49 adv	R35 (2 lb. foam in cavity)	R-21 TB	R-12	R-38	R-10 2'
<input type="checkbox"/> VII	Calculated	Complete a "Systems Analysis" or "Component Performance Approach" per WSEC 2009.									

*Reference Case

FOOTNOTES:

0. Nominal R-values are for wood frame assemblies only or assemblies built in accordance with Section 601.1.
1. Minimum requirements for each option listed. For example, if a proposed design has a glazing ratio to the conditioned floor area of 13%, it shall comply with all of the requirements of the 15% glazing option (or higher). Proposed designs which cannot meet the specific requirements of a listed option above may calculate compliance by Chapters 4 or 5 of this Code.
2. Requirement applies to all ceilings except single rafter or joist vaulted ceilings complying with note 3. 'Adv' denotes Advanced Framed Ceiling.
3. Requirement applicable only to single rafter or joist vaulted ceilings.
4. Below grade walls shall be insulated either on the exterior to a minimum level of R-12 continuous, or on the interior as a framed wall. Exterior insulation installed on below grade walls shall be a water resistant material, manufactured for its intended use, and installed according to the manufacturer's specifications. See Section 602.2.
5. Floors over crawl spaces or exposed to ambient air conditions.
6. Required slab perimeter insulation shall be a water resistant material, manufactured for its intended use, and installed according to manufacturer's specifications. See Section 602.4. For slabs inside a foundation wall, the insulation shall be installed to provide a thermal break (TB) between the slab edge and the foundation. Monolithic slabs shall include insulation, installed outside the foundation wall, and shall extend downward from the top of the slab for a minimum distance of 24 inches or downward and then horizontally for a minimum combined distance of 24 inches. Monolithic slabs shall also include R-10 insulation under the non-load-bearing portions of the slab.
7. Int. denotes standard framing 16 inches on center with headers insulated with a minimum of R-10 insulation.
8. Reserved.
9. Doors, including all fire doors, shall be assigned default U-factors from Table 10-6C.
10. Where a maximum glazing area is listed, the total glazing area (combined vertical plus overhead) as a percent of gross conditioned floor area shall be less than or equal to that value. Overhead glazing with U-factor of U=0.35 or less is not included in glazing area limitations.
11. Overhead glazing shall have U-factors determined in accordance with NFRC 100 or as specified in Section 502.1.5.
12. Log and solid timber walls with a minimum average thickness of 3.5" are exempt from this insulation requirement.

2. Residential Inspection Process

Compliance Certificate:

- Per Section 105.4 WSEC, the permanent Compliance Certificate shall be completed and located within three feet of the electrical distribution panel at the time of final inspection and before a Certificate of Occupancy will be issued.
- The Compliance Certificate shall be completed by the builder or registered design professional.
- A blank Compliance Certificate will be provided by Kittitas County when the residential permit is issued.
- Contractors may use Compliance Certificates with their logo or other imagery in lieu of the Washington State form provided it contains the same information fields as the Washington State form.

Duct Leakage Testing:

- Duct tightness testing shall be conducted to verify that the ducts are sealed per Section 503.10 WSEC.
- A signed affidavit documenting the test results shall be provided to Kittitas County.
- A blank duct testing affidavit will be provided in the residential permit package at time of permit issuance.
- Duct testing results must also be recorded on the Compliance Certificate.
- Duct tightness testing shall be verified by either 1) post construction test or, 2) rough-in test. **Testing at mechanical rough-in is highly recommended.**
- The duct testing and the affidavit must be completed by a certified individual; and the ducts shall be tested in accordance with RS-33 (Washington State University publication # WSUEEP 09-008).
- The WSEC has some exceptions to the requirements for duct testing. See WSEC Section 503.10.

NOTE: Building cavities may not be used as ducts. Installation of ducts in exterior walls, floors or ceilings shall not displace required envelope insulation; full depth insulation is required behind ducts. However, penetrations of floor insulation for supply registers and plenum penetrations between a garage and the house is an acceptable practice.

Building Air Leakage Testing:

- Building air leakage testing is required per Section 502.4.5 WSEC. Testing shall occur at any time after rough-in and after installation of all penetrations of the building envelope.
- Blower door testing must be completed and the results recorded on the Compliance Certificate no later than the time of final inspection and prior to issuance of a Certificate of Occupancy.
- Kittitas County may conduct spot checking of blower door tests. Builders will be notified initially at the time of permit issuance, and as time progresses, randomly by the inspector during the construction process if a required blower door test for a permitted residential structure is to be witnessed by CDS staff.
- Be especially aware of proper sealing around tub/shower traps.
- **IMPORTANT!!! The building Air Leakage test must pass according to the code specified rate – there are no exceptions or remedies in the WSEC.**