



2009 Energy Code Information

Residential Application Submittal

- ☀ Completed Prescriptive or Component Performance forms are required at time of residential application submittal
- ☀ Forms are available in electronic format (Excel spreadsheet) at: <http://www.energy.wsu.edu/BuildingEfficiency/EnergyCode.aspx>
- ☀ Paper copies of the forms will be available at each jurisdiction
- ☀ Jurisdictions will provide assistance for completing forms as resources are available
 - Some jurisdictions lack staffing to provide personal assistance
 - Consultants are commercially available to provide professional assistance and should be used as a primary resource.
- ☀ Alternate prescriptive paths are available for Climate Zone 2:

**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 ¹² Above Grade	Wall- int ⁴ Below Grade	Wall- ext ⁴ Below Grade	Floor ⁵	Slab ⁶ on Grade
		Vertical	Overhead ¹¹								
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'
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'
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'
Alt 1	15%	0.30	0.50	0.20	R-49 or R-38 Adv.	R-38	R-21 Int	R-21, TB	R-12	R-30	R-10, 2'
Alt 2	18%	0.28	0.50	0.20	R-60 Adv.	R-60 Adv.	R-21 Int	R-21, TB	R-12	R-38	R-10, 2'
Alt 3	18%	0.28	0.50	0.20	R-49 Adv.	R-49 Adv.	R-35 (2 pound foam in cavity)	R-21, TB	R-12	R-38	R-10, 2'

* Reference Case

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.

- ☀ Check with the jurisdiction to determine if they accept electronic submittal of completed Prescriptive or Component Performance forms
- ☀ Check with the jurisdiction to determine what Outdoor Temperature is acceptable for the purpose of sizing equipment
- ☀ All jurisdictions will accept forms from a third party reviewer. Initially most jurisdictions will spot check submitted forms to assure that current code values are being properly applied.
- ☀ Blank duct testing affidavits and Compliance Certificates will be provided by each jurisdiction in the residential permit packet materials.
- ☀ All jurisdictions will require a copy of the completed Compliance Certificate at the time of final and before a Certificate of Occupancy will be issued.
- ☀ Contractors may use Compliance Certificates with their logo or other imagery in lieu of the State form as long as they contain the same information fields as the Washington State form
- ☀ Equipment sizing calculations must be submitted with permit application materials.

Residential Inspection Process

Duct Leakage Testing:

- ☀ Duct testing must be completed and the completed **affidavit provided to the inspector** before approval to “cover” will be issued. **Testing at mechanical rough-in is highly recommended** but in no case can this test be conducted later than when the insulation inspection is approved and GWB can be installed. Results must be recorded on Compliance Certificate
- ☀ Duct testing affidavit must be prepared by a certified individual
- ☀ The WSEC has some exceptions to the requirement for duct testing. See WSEC section 503.10
- ☀ Conditioned air ducts may not be installed in the exterior building envelope
- ☀ Building cavities may not be used as conditioned air ducts
- ☀ Environmental ducts may displace the minimum amount of insulation required to extend the duct to the exterior of the building envelope as required by code

Building Air Leakage Testing:

- ☀ Blower door testing must be completed and results recorded on the Compliance Certificate no later than the time of final and prior to issuance of a Certificate of Occupancy.
- ☀ Jurisdictions will conduct some 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 jurisdiction staff.
- ☀ Be especially aware of sealing around tub/shower traps
- ☀ **Important!!! The Building Air Leakage test must pass with the code specified rate - there are no exceptions or remedies in the WSEC!!!**

Interior Lighting:

- ☀ A minimum of 50% of all luminaries shall be “high efficacy luminaries” as defined in the WSEC. Examples of “high efficacy luminaries” include: pin based compact fluorescent bulbs (CFL), LED. Linear fluorescent fixtures must be fitted with T-8 or smaller lamps.

Training videos/presentations available at WSU Energy Program Office website