



2012 Energy Code Information

Residential Application Submittal

- ☼ Completed Prescriptive, Total U-A Alternative or Performance method 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.
- ☼ Spokane County is located in Climate Zone 5B.

TABLE R402.1.1 INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT^a		
CLIMATE ZONE	5 AND MARINE 4	6
FENESTRATION U-FACTOR ^b	0.30	0.30
SKYLIGHT ^b U-FACTOR	0.50	0.50
GLAZED FENESTRATION SHG C ^{b,e}	NR	NR
CEILING R-VALUE ^f	49	49
WOOD FRAME WALL ^{g,k,i} R-VALUE	21 int	21+5ci
MASS WALL R-VALUE ⁱ	21/21 ^h	21+5 ^h
FLOOR R-VALUE	30 ^g	30 ^g
BELOW-GRADE ^{c,k} WALL VALUE	10/15/21 int + TB	10/15/21 int + TB
SLAB ^d R-VALUE & DEPTH	10, 2 ft	10, 4 ft

For SI: 1 foot = 304.8 mm, ci = continuous insulation, int = intermediate framing.

- ^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. Exception: Skylights may be excluded from glazed fenestration SHGC requirements in Climate Zones 1 through 3 where the SHGC for such skylights does not exceed 0.30.
- ^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.
- ^e There are no SHGC requirements in the Marine Zone.
- ^f Basement wall insulation is not required in warm-humid locations as defined by Figure R301.1 and Table R301.1.
- ^g Reserved.
- ^h First value is cavity insulation, second is continuous insulation or insulated siding, so "13.+5" means R-13 cavity insulation plus R-5 continuous insulation or insulated siding. If structural sheathing covers 40 percent or less of the exterior, continuous insulation R-value shall be permitted to be reduced by no more than R-3 in the locations where structural sheathing is used to maintain a consistent total sheathing thickness.
- ⁱ The second R-value applies when more than half the insulation is on the interior of the mass wall.
- ^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 inches are exempt from this insulation requirement.

- ☀ Check with the jurisdiction to determine if they accept electronic submittal of completed Energy Code Compliance 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 and Insulation 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 R403.2.2
- ☀ 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!!!**

Lighting:

- ☀ A minimum of 75% of all permanently installed lighting fixtures shall be “high efficacy lamps” as defined in the WSEC. Examples of “high efficacy lamps” include: compact fluorescent bulbs (CFL), LED. Linear fluorescent fixtures must be fitted with T-8 or smaller lamps. Permanently installed outdoor lighting fixtures may be included in the 75%.

Training videos/presentations available at WSU Energy Program Office website

Please note that while every effort is made to assure the accuracy of the information contained in this brochure it is not warranted for accuracy. This document is not intended to address all aspects or regulatory requirements for a project and should serve as a starting point for your investigation. For detailed information on a particular project, permit, or code requirement refer directly to applicable file and/or code/regulatory documents or contact the appropriate division or staff.