

# Seattle Permits

— part of a multi-departmental City of Seattle series on getting a permit

## Common Seattle Residential Code Requirements

Updated Sept. 23, 2011

The scope of CAM 303A and the Seattle Residential Code (SRC) is limited to detached one- and two-family dwellings and multiple single-family dwellings not more than three stories in height with a separate means of egress and their accessory structures. All other structures are subject to the Seattle Building Code (SBC).

This CAM outlines pertinent code items required on plans for projects. Additional items may be required depending on the specific project. Remember that these guidelines are not substitutes for codes and regulations. You are responsible for ensuring that your project complies with the specific requirements of all relevant codes and regulations. SRC interpretations are online at [www.seattle.gov/DPD/Codes/Technical\\_Codes/Related\\_Links/DPDS016101.asp](http://www.seattle.gov/DPD/Codes/Technical_Codes/Related_Links/DPDS016101.asp).

- SRC refers to the Seattle Residential Code (International Residential Code with Seattle Amendments)
- SBC refers to the Seattle Building Code (International Building Code with Seattle Amendments)
- SEC refers to the Seattle Energy Code (Washington State Energy Code).

### 1. REQUIREMENTS ON PLANS

**NOTE:** *On your plans, do not list just code references; put all specific items on plans in the appropriate locations.*

Reference: SRC R105.5.2; CAM 303; *Screening and Submittal Checklists*

- Professional stamp required – see: SRC R105.5.2.2, exceptions for one- and two-family detached dwellings and accessory structures, subject to building official authorization.
- Microfilmable Quality – legible lettering, minimum refer to CAM 106
- 18" x 18" minimum plan size SRC R105.54
- Electronic format submittals SRC R105.5.4, exc. 2
- Site Plan
- DPD Temporary Erosion and Sedimentation Control (TESC) standard plan
- Foundation plan
- Floor plans including labeled use of all rooms.
- Elevations
- Roof and floor framing plans including existing framing affected by additions and alterations
- Building cross-section(s)
- Architectural/structural notes
- Truss specifications and shop drawings
- Elimination of all options and alternates

### 2. BUILDING SEPARATION REQUIREMENTS

#### Proximity to property line

Reference: SRC R302

- One-hour wall is required if less than 5' to property line. (Carport posts define an exterior wall and the space between posts is considered an unprotected opening.) See SBC Table 720.1(2) for one-hour construction.
- No openings (doors and windows) in walls less than 3' to property line.
- 25 percent maximum openings between 3' and 5' to property line.



**Eave overhangs**

Reference: SRC R302.1 and SBC 704.2.3

- Eaves can extend no closer than 2' to property line.
- Eaves at 5' or less to property line must be finished on the underside with at least 5/8" Type X gypsum sheathing or equivalent (see exceptions SRC Table R302.1, footnotes).
- Eave/soffit vents not allowed at 5' or less from property line.

**3. GARAGE AND CARPORT REQUIREMENTS**

Reference: SRC R302.5 and Table R302.6

- 1/2" regular gypsum board (garage side) required at walls separating garage and dwelling.
- Garage ceilings where dwelling above requires 5/8" Type "X" gypsum board. Supporting structure requires 1/2" regular gypsum board.
- 1-3/8" thick (minimum) solid core or 20 minute door required between garage and dwelling (R302.5.1).
- No separation required at carports (two sides open).

**4. SOUND TRANSMISSION CONTROL**

Reference: SRC Section R330

- Applies to two-family dwellings or multiple one-family dwellings; for party wall or floor-ceiling assemblies.
- Floor-ceiling requires airborne sound insulation w/STC = 45 or more and impact sound insulation w/IIC = 50 or more.
- Party walls require airborne sound insulation w/STC = 45 or more.

**5. LIFE SAFETY REQUIREMENTS****Stairs**

Reference SRC R311.7

- Minimum width is 36"
- Maximum 7¾" rise
- Minimum 10" run
- Minimum 6'8" head room
- Handrail 34"-38" above tread nosing

- Handrail grasping dimension 1-1/4" minimum – 2" maximum

- For winding stairs provide a minimum 10" tread at 12" from the narrowest point and a minimum 6" tread at the narrowest point

**Decks/Guardrails**

Reference: SRC R312

- Guard (guardrail) required for walking surfaces 30" above adjacent grade or floor below
- 36" high required minimum
- 4" maximum clear space between intermediate rails

**Carbon Monoxide Alarms**

Reference: SRC R315

- New construction: Carbon monoxide alarm must be installed.
- Existing dwelling units: Carbon monoxide alarm installed by July 1, 2013, unless unit is owner-occupied.

**Smoke Alarm**

Reference: SRC R314

- Smoke detectors are required when a permit is required, or when one or more bedrooms added.
- Must be powered by interconnected building wiring, and have battery back-up in new construction and additions.
- May be battery-powered in alterations or repairs except when wiring can be installed without removal of interior finishes.
- Required in sleeping rooms, outside sleeping areas, and on other floors (including basements). Any alarm must be clearly audible in all bedrooms. Locate on plans per code.
- Battery-powered smoke detectors are ok in buildings that undergo alterations, repairs, or additions.

**Emergency Escape and Rescue**

Reference: SRC R310

One window (or door) in the basement and in each bedroom must meet these requirements:

- 5.7 sq. ft. minimum net clear open area (grade floor openings may have a minimum net clear open area of 5 sq. ft.)
- 20" minimum clear open width
- 24" minimum clear open height

- 44" maximum sill height
- Window wells require minimum 3' x 3' but must permit window to fully open. Ladder escape is ok.

### Security Requirements

Reference: SRC R329

- Minimum 1/2" throw on dead bolt or dead latch for doors.
- Visitor observation port for exterior doors.
- Windows within 10' of grade (or accessible deck) capable of being locked.
- On building entrance doors, locks must be able to be opened without the use of a key or any special knowledge or effort.

### Skylights

Reference: SRC R308.6

### Safety Glazing

Reference: SRC R308.4

- Glazing in or adjacent to doors (24") and glazing close to the floor – see code for other hazardous locations.
- Glazing adjacent to stairs and stair landings.

## 6. NATURAL LIGHT REQUIREMENTS

Reference: SRC R303

- Window area for natural light must be 8 percent of floor area (exception for artificially lighted rooms).

## 7. VENTILATION REQUIREMENTS

### Roof Ventilation

Reference: SRC R806

- 1 sq. ft. of venting per 150 sq. ft. of area to be vented – this can be reduced to 1/300 if ventilators are provided in the upper portion of this area to be vented.
- 1" air space minimum required above roof insulation.
- Cross-ventilation required.

### Crawl Space Ventilation

Reference: SRC R408

- 1 sq. ft. per 150 sq. ft. of under floor area.
- Cross-ventilation also required. (See also SRC R319.1 for crawl space clear heights, 18" minimum for joists, 12" minimum for wood girders without pressure treating).

### Mechanical Ventilation/Outside Air Supply

Reference: SRC M1507 & M1508

- Habitable rooms must have outside air supply.
- Kitchens, bathrooms, laundry rooms must be vented mechanically per SRC Table M1507.3.

### Room Dimension Requirements

Reference: SRC R304 and R305

- General 7'0" minimum habitable space ceiling height.
- 7'0" minimum ceiling height in bathroom, laundry room, basement and hallway.
- Sloped ceiling (min. 5'0") must meet minimum height over 1/2 of the area. Minimum 6'8" height at bathroom fixtures.
- For exceptions to headroom in existing spaces, See Director's Rule (DR) 3-2005.
- Minimum floor area for sleeping room is 70 sq. ft.
- 7' minimum width for habitable room.

## 8. TOWNHOUSES

- SRC R105.5.2.2 – Townhouses will require preparation by a licensed design professional.
- SRC R302.2 – Townhouses shall be separated by two one-hour fire-resistive walls or a common two-hour fire-resistive wall that contains no plumbing or mechanical equipment.
- SRC R320 – Townhouse structures having four or more dwelling units are subject to barrier-free provisions of Chapter 11 of the IBC.

## 9. MISCELLANEOUS REQUIREMENTS

### Attic Access

Reference: SRC R807

- Opening to be 22" x 30" minimum.
- Attic headroom to be 30" at access.

### Crawl Space

Reference: SRC R408.4

- 24" x 18" minimum opening

### Fire and Draftstops

Reference: SRC R302.11 and R302.12

- Install draft stops in floor-ceiling assemblies so that concealed space does not exceed 1,000 sq. ft.
- Fire blocks per R302.11

**Weather Protection**

Reference: SRC R703, R903

- Exterior wall protection, flashing and deck protection (see: Chapter R905, Roofs)

**Non-combustible Surface on Garage Floors**

Reference: SRC R309.1

**Drainage**

Reference: SMC 22.802, Stormwater, Grading and Drainage Control Code

- Specify method of drainage control per Section 802.015 C and D
- Attach "Temporary Erosion and Sedimentation Control (TESC) Standard Plan" to submitted plan sets
- Disturbance of 5,000 sq. ft. or more requires engineered design
- Additional requirements, including a soils report prepared by a licensed soils engineer, may apply to sites designated as environmentally critical areas (ECA)
- See also DR 15-2009, 16-2009, 17-2009 and 18-2009

**10. BUILDING CONSTRUCTION REQUIREMENTS**

Alternate design with calculations must be provided by a licensed Washington state structural engineer using provisions of the 2009 SBC.

**Foundation**Reference: See *IRC Concrete Footing and Stemwall Requirements in Seattle*

- Footings must bear on undisturbed soil minimum 12" below grade, including deck footings
- 1/2" x 10" anchor bolts with 1/4"x3"x3" plate washers minimum at 6' o.c. maximum with two bolts per piece of plate and at least one bolt within 12" of each end of each piece

**Foundation Reinforcement**Reference: See *IRC Concrete Footing and Stemwall Requirements in Seattle***Concrete**

Reference: SRC Table R402.2

Note: 2,000 psi, 5 sack concrete (certified plant) consistently yields 3,000 psi concrete and therefore will be "deemed to comply" with requirements for 2,500 or 3,000 psi concrete required by Table R402.2.

**Soil Types**

Reference: SRC Table R401.4.1

- 2,000 psf assumed bearing, except in ECA areas or per pre-application site inspection. Design soil bearing greater than 2,000 psf requires geotechnical engineer justification

**Wood/Earth Separation**

Reference: SRC R317.1

- Pressure-treated wood or foundation cedar is required for wood in contact with concrete or wood close to earth per SRC R317.1
- 6" minimum clearance between wood and earth

**Framing**

Reference: SRC R301.2.2.2.2.5, R602.10

- Conventional wall bracing is limited to two stories for seismic loads

**Wall Stud Size**

Reference: SRC Table R602.3(5)

- Size and spacing regulated per number of floors supported and clear height of stud

**Connections Between Beam/Columns**

Reference: SRC R502.9

- Positive connection required for uplift and lateral movement

**Masonry Fireplace and Chimneys**Reference: DR 5-2004, *Alteration and Repair of Unreinforced Masonry Chimneys*

- Existing exterior unreinforced masonry chimneys may be extended per DR 5-2004, *Alteration and Repair of Unreinforced Masonry Chimneys*

**Metal Fireplaces and Chimneys**

Reference: SRC R1002

- Must be UL- or ICC- approved and must be installed per manufacturer's requirements
- Wood stoves require a separate furnace permit
- WABO standards for solid fuel burning appliances, see CAM 416, *Installation Requirements for Wood, Coal and Other Solid Fuel Burning Appliances*

**Solid Fuel Burning Appliances**

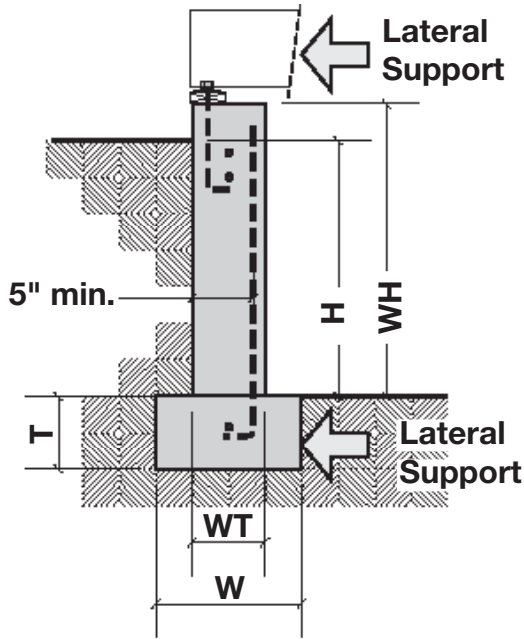
Reference: SRC Table M1306.2

State of Washington Woodstove Regulations, RCW Chapter 70.94

- Tight fitting glass or metal doors
- Outside source of combustion air to the firebox

### 11. Prescriptive Foundation Requirements

#### SRC Concrete Footing and Stemwall Requirements in Seattle



**Footing Sizes**

	“T”(in.)	“W”(in.)	Reinforcing
1 Story	6	12	1-#4 Bottom of Footing
2 Story	6	12	1-#4 Bottom of Footing
3 Story	6	17	1-#4 Bottom of Footing

### Stem Walls

Maximum Unbalanced Backfill “H”	Maximum Wall Height “WH”	Minimum Wall Thickness “WT”	Horizontal Reinforcing	Vertical Reinforcing
4’	≤4’6”	6”	1-#4 top of stem wall	#4 @ 48” Min. 14” into stemwall <sup>1</sup>
4’	8’	8”	1-#4 top of stem wall	#4 @ 48” Min. 14” into stemwall <sup>1</sup>
4’-5’	9’	8”	2-#4 top of stem wall	#4 @ 48”, Grade 60
5’-6’	6’	8”	2-#4 top of stem wall	#4 @ 40”, Grade 60
5’-6’	9’	8”	2-#4 top of stem wall	#5 @ 48”, Grade 60
7’	7’	8”	2-#4 top of stem wall	#5 @ 40”, Grade 60
7’	9’	8”	2-#4 top of stem wall	#6 @ 48”, Grade 60
8’	8’	8”	2-#4 top of stem wall	#6 @ 40”, Grade 60
8’	9’	8”	2-#4 top of stem wall	#6 @ 32”, Grade 60
9’	9’	8”	2-#4 top of stem wall	#6 @ 24”, Grade 60

<sup>1</sup>Vertical reinforcing is required (for shear) only where a construction joint is created between a concrete footing and stem wall. Reinforcing may be placed at center of wall.

## 12. VENTILATION REQUIREMENTS

Reference WAC 51-13, *Washington State Ventilation and Indoor Air Quality Code Seattle Residential Code* (SRC), Chapter 15.

### Ventilation requirements:

Reference: SRC Chapter 15

- Source specific ventilation shall be required in each kitchen, bathroom, water closet, laundry room, indoor swimming pool, spa and other rooms where excess water vapor or cooking odor is produced. The minimum source specific ventilation effective exhaust capacity shall be not less than levels specified in Table M1507.3.
- Each dwelling unit shall be equipped with a whole house ventilation system which shall be capable of providing the volume of outdoor air specified in Table M1508.2 (if continuously operating).
- Intermittently-operated, whole-house ventilation systems shall have the capability for continu-

ous operation, and shall have a manual control and an automatic control and shall be sized per equation in M1508.3 which factors in cycle time.

- See code for further information about sizing intermittent whole house fan and other whole house ventilation options.
- Noise: Whole house fans located four feet or less from the interior grille shall have a sone rating of 1.0 or less.
- Exhaust ducts shall terminate outside of the building
- Outdoor Air Distribution: Outdoor air shall be distributed to each habitable room by means such as individual inlets, separate duct systems, or a forced-air system. Doors shall be undercut to a minimum of one-half inch above the surface of the finish floor covering. Doors and operable lites in windows are deemed not to meet the outdoor air supply intake requirements.

**Table M1508.2**  
Minimum Ventilation Rates (Continuously Operating Systems)

SQUARE FOOTAGE	BEDROOMS				
	0-1	2-3	4-5	6-7	> 7
< 1500	30	45	60	75	90
1501-3000	45	60	75	90	105
3001-4500	60	75	90	105	120
4501-6000	75	90	105	120	135
6001-7500	90	105	120	135	150
> 7500	105	120	135	150	165

For SI: 1 square foot = 0.0929 m<sup>2</sup>

**Table M1507.3**

**Minimum required exhaust rates for one- and two-family dwellings**

**Bathrooms Kitchens**

	<b>Bathrooms</b>	<b>Kitchens</b>
Intermittently operating	50 cfm	100 cfm
Continuous operation	20 cfm	25 cfm

**13. ENERGY CODE REQUIREMENTS**

Reference: SEC

The table on the following pages is from the Washington State Energy Code. The tables provides prescriptive. See Sections 402.1 to 402.6 for systems analysis requirements and Chapter 5 for component performance approach.

- Provide glazing area calculations which show the product type, size, and number of each type. Glazing includes vertical and overhead glazing (windows, sliding and swinging glass doors and glazed roll-up doors, plastic panels, clerestories, glass block, skylights, etc.). Glazing area is the rough opening area including the sash and frame. For doors with area more than 50 percent glass, use the rough opening area. For doors with less than 50 percent glass, use the daylight opening area. For garden/greenhouse windows, use triple the rough opening area.
- Provide glazing and opaque door schedule which lists the U-factor and whether the U-factor is NFRC certified or default. If the product is claimed to be NFRC-certified, the NFRC Certified Products Directory (CPD) number shall be provided. If a default is used, the schedule must include a description of the key energy efficiency features that are necessary to achieve that default U-factor indicating whether the glazing product is fixed or operable, frame material type, thermal break description, number of glazing layers, emissivity of low-e coatings, gap width, gas fill, spacer type, etc. (See CAM 303, *Common Seattle Residential Code Requirements*, for an example.)
- Provide the manufacturer and model number for all glazing products regardless of U-factor.

- Specify the space heating system type on the drawings.
- Generally all spaces, including unfinished spaces, are considered heated and must be insulated. If any spaces are to be considered unheated, they must be labeled as such on the drawings. Neither glazing nor floor area of unheated space is included in calculations.
- Provide heat loss calculation unit-by-unit for residential units.
- Specify the Table 9-1 option number(s) (which can be found in the SEC, Chapter 9) selected to achieve the minimum number of credits for compliance with Chapter 9. (Note that dwelling units exceeding 5,000 sq. ft. of floor area are required to achieve a minimum of 2.0 credits from Table 9-1 and that new dwelling units less than 1500 sq. ft. and additions less than 750 sq. ft. automatically receive the required energy credit.)
- Provide, on the drawings included with the building permit application, the features necessary to comply with the selected credits in Table 9-1, even if this information would be included as part of other permit applications, such as for heating equipment or electrical or plumbing. For example, specify (depending on the option selected): heating equipment type and efficiency, location of ductwork, building air leakage criteria, water heater type and efficiency and flow rates for plumbing fixtures, photovoltaic or wind equipment and documentation of solar or wind access and calculation of the minimum annual energy power production.
- SEC 502.4.5 - Please note on plans: "Building air leakage testing, demonstrating the Specific Leakage Area is  $\leq 0.00030$  (SEC 502.4.5), is required prior to final inspection. The test results shall be posted on the Residential Energy Compliance Certificate (SEC 105.4)."
- SEC 503.8.1 - Please note on the plans, "Each dwelling unit is required to be provided with at least one programmable thermostat for the regulation of temperature."
- SEC 503.10.2 - Please note on the plans: "A signed affidavit documenting the duct leakage test results shall be provided to the building inspector prior to an approved final inspection."
- SEC 101.3.2.6 and 503.10.2 - Please note on the plans: "Duct leakage test results shall be provided to the building inspector and homeowner prior to an approved final inspection."

- SEC 505 - Please note on plans, "Minimum 50 percent of all interior luminaires shall be high efficacy luminaires" and "All exterior lighting shall be high efficacy luminaires".

## References

- 2009 Seattle Residential Code
- 2009 Seattle Building Code
- 2009 Seattle Energy Code

These codes can be purchased from the DPD Public Resource Center, located on the 20th floor of Seattle Municipal Tower at 700 Fifth Ave., (206) 684-8467.

## Questions?

If you have questions about requirements detailed in this CAM, contact a permit specialist in the DPD Applicant Services Center, located on the 20th floor of Seattle Municipal Tower at 700 Fifth Ave.

## Access to Information

Links to electronic versions of many of the DPD documents mentioned in this CAM are available on the "Publications" and "Codes" pages of our website at [www.seattle.gov/dpd](http://www.seattle.gov/dpd). Paper copies are available from our Public Resource Center, located on the 20th floor of Seattle Municipal Tower at 700 Fifth Ave. in downtown Seattle, (206) 684-8467.

**WASHINGTON STATE ENERGY CODE — 2009 EDITION**

**Table 6-1  
PRESCRIPTIVE REQUIREMENTS<sup>0,1</sup> FOR SINGLE-FAMILY RESIDENTIAL  
CLIMATE ZONE 1**

Option	Glazing Area <sup>10</sup> : % of Floor	Glazing U-Factor		Door <sup>9</sup> U-Factor	Ceiling <sup>2</sup>	Vaulted Ceiling <sup>3</sup>	Wall <sup>12</sup> Above Grade	Wall• int <sup>4</sup> Below Grade	Wall• ext <sup>4</sup> Below Grade	Floor <sup>5</sup>	Slab <sup>6</sup> on Grade
		Vertical	Over-head <sup>11</sup>								
I.	<b>13%</b>	<b>0.34</b>	<b>0.50</b>	0.20	<b>R-49 or R-38 adv</b>	<b>R-38</b>	<b>R-21 int<sup>7</sup></b>	<b>R-21 TB</b>	R-10	R-30	R-10 2'
II.*	<b>25%</b>	<b>0.32</b>	<b>0.50</b>	0.20	<b>R-49 or R-38 adv</b>	<b>R-38</b>	<b>R-21 int<sup>7</sup></b>	<b>R-21 TB</b>	R-10	R-30	R-10 2'
III.	<b>Unlimited</b>	<b>0.30</b>	<b>0.50</b>	0.20	<b>R-49 or R-38 adv</b>	<b>R-38</b>	<b>R-21 int<sup>7</sup></b>	<b>R-21 TB</b>	R-10	R-30 / U=0.029	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 15 percent, it shall comply with all of the requirements of the 25 percent 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-10 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.

**(values in bold are changed from the previous Energy Code)**

**LEGAL DISCLAIMER:** This Client Assistance Memo (CAM) should not be used as a substitute for codes and regulations. The applicant is responsible for compliance with all code and rule requirements, whether or not described in this CAM.