

Seattle Permits

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

Common Seattle Residential Code Requirements

Updated November 16, 2004

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 (townhouses) 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 of 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 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)
- SMC refers to the Seattle Mechanical Code (International Mechanical Code with Seattle Amendments)
- SEC refers to the Seattle Energy Code (Washington State Energy Code Group R-3).

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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 & Submittal Checklists

- Professional stamp required – See: 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 1/8"
- 18" x 18" minimum plan size
- DPD Coversheet
- Site Plan
- DPD Standard Construction Stormwater Control 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

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2. BUILDING SEPARATION REQUIREMENTS

Proximity to property line

Reference: SRC R302

- 1-hour wall is required if less than 3' 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 1-hour construction.
- No openings (doors and windows) in walls less than 3' to property line.

Eave overhangs

Reference: SRC R302.1 and SBC 704.2.3

- Wood eaves can extend no closer than 2' to property line.
- Eaves closer than 3' to property line must be finished on the underside with at least 1/2" gypsum sheathing or equivalent.

3. GARAGE/DWELLING SEPARATION REQUIREMENTS

Reference: SRC R309

- 1/2" regular gypsum board required at walls between 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 (min.) solid core or 20 minute door required between garage and dwelling (0.20 U-value door required for electric resistance heat.)
- No separation required at carports (2 sides open).

4. SOUND TRANSMISSION CONTROL

Reference: SRC Section R328

- 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 R311.5

- Minimum width = 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

Smoke Detector

Reference: SRC R313

- Smoke detectors required when permit 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 except when wiring can be installed without removal of interior finishes.
- Required in sleeping rooms, outside sleeping areas, and other floors (including basements). Any alarm must be clearly audible in all bedrooms. Locate on plans per code.
- Battery-powered okay in existing buildings not being remodeled.

Emergency Escape and Rescue

Reference: SRC R310

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

- 5.7 ft.² minimum net clear open area (windows with maximum sill height 44" above or below grade may have 5.0 ft.² minimum net clear open area)

- 20" minimum clear open width
- 24" minimum clear open height
- 44" maximum sill height
- Window wells require minimum 3'x3' but must permit full opening of window. Ladder escape okay.

Security Requirements

Reference: SRC R327

- 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.
- All 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 floor – see code for other hazardous locations

6. NATURAL LIGHT REQUIREMENTS

Reference: SRC R303

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

7. VENTILATION REQUIREMENTS

Roof Ventilation

Reference: SRC R806

- 1 sq. ft. of venting per 150 sq. ft. of area to be vented – can be reduced to 1/300 if ventilators are provided in the upper portion of 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: WAC 51-13

- Habitable rooms must have outside air supply
- Kitchens, bathrooms, laundry rooms must be vented mechanically (SMC)

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 corridor
- Sloped ceiling (min. 5'0") must meet minimum height over 1/2 of the area.
- 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 – Three or more multiple one family dwellings will require preparation by a licensed design professional.
- SRC R317.2 – Townhouses shall be separated by two-1 hour fire-resistive walls or a common two-hour fire-resistive wall that contains no plumbing or mechanical equipment, et al.
- SRC R322 – 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" by 30" minimum.
- Attic headroom to be 30" at access.

Crawl Space

Reference: SRC R408.3

- 24" x 18" minimum opening

Fire and Draftstops

Reference: SRC R502.12, R602.8

- Install draft stops in floor-ceiling assemblies so that concealed space does not exceed 1,000 sq. ft.
- Fire blocks per R602.8

Weather Protection

Reference: SRC R703.2, R903

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

Non-combustible Surface on Garage Floors

Reference: SRC R309.3

Drainage

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

- Specify method of drainage control per Section 802.015 C and D.
- Attach "Erosion Control Prescriptive Plan" to submitted plan sets.
- Disturbance of 5,000 sq. ft. or more requires engineered design.
- Additional requirements, which may include a soils report prepared by a licensed soils engineer, may apply to sites designated as Environmentally Critical Areas (ECA).
- See also DR 16-2000, 17-2000, 26-2000, 27-2000.

10. BUILDING CONSTRUCTION REQUIREMENTS

Alternate design with calculations must be provided by a licensed Washington state structural engineer using provisions of the 2003 SBC.

FoundationReference: 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 w/ 1/4"x2"x2" plate washers minimum at 6' o.c. maximum with 2 bolts per piece of plate and at least 1 bolt within 12" of each end of each piece.

Foundation ReinforcementReference: 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 R319.1

- Pressure-treated wood or foundation cedar is required for wood in contact with concrete or wood close to earth per SRC R319.1.
- 6" minimum clearance between wood and earth

Framing

Reference: SRC R301.2.2.2.2, 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

- Existing exterior unreinforced masonry chimneys may be extended per DR 5-2004.

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

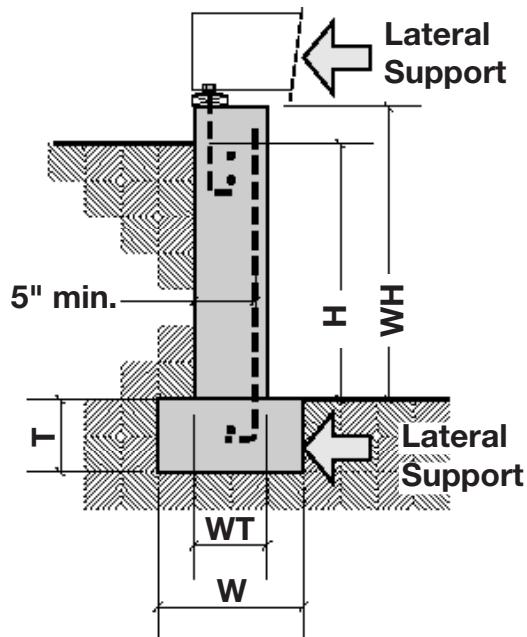
Reference: SRC Table M1306.2

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 ¹
4'	8'	8"	1-#4 top of stem wall	#4 @ 48" Min. 14" into stemwall ¹
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

¹Vertical 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

Ventilation requirements:

Reference: VIAQ 302.2 & 302.3

- 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 3-1.
- 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 3-2.
- Intermittently operated whole house ventilation systems shall have the capability for continuous operation, and shall have a manual control and an automatic control.

- Noise: Whole house fans located four feet or less from the interior grille shall have a sone rating of 1.5 or less.
- 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.

VIAQ Table 3-1
Minimum Source Specific Ventilation Capacity Requirements

	Bathrooms	Kitchens
Intermittently operating	50 cfm	100 cfm
Continuous operation	20 cfm	25 cfm

VIAQ Table 3-2
Whole House Ventilation Flow Requirements (CFM)

Floor	Bedrooms ¹															
	2 or less		3		4		5		6		7		8			
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
<500	50	75	65	98	80	120	95	143	110	165	125	188	140	210		
501-1000	55	83	70	105	85	128	100	150	115	173	130	195	145	218		
1001-1500	60	90	75	113	90	135	105	158	120	180	135	203	150	225		
1501-2000	65	98	80	120	95	143	110	165	125	188	140	210	155	233		
2001-2500	70	105	85	128	100	150	115	173	130	195	145	218	160	240		
2501-3000	75	113	90	135	105	158	120	180	135	203	150	225	165	248		
3001-3500	80	120	95	143	110	165	125	188	140	210	155	233	170	255		
3501-4000	85	128	100	150	115	173	130	195	145	218	160	240	175	263		
4001-5000	95	143	110	165	125	188	140	210	155	233	170	255	185	278		
5001-6000	105	158	120	180	135	203	150	225	165	248	180	270	195	293		
6001-7000	115	173	130	195	145	218	160	2400	175	263	190	285	205	308		
7001-8000	125	188	140	210	155	233	170	255	185	278	200	300	215	323		
8001-9000	135	203	150	225	165	248	180	270	195	293	210	315	225	338		
>9000	145	218	160	240	175	263	190	285	205	308	220	330	235	353		

¹For residences that exceed 8 bedrooms increase the minimum requirement listed for 8 bedrooms by an additional 15 CFM per bedroom. The maximum CFM is equal to 1.5 times the minimum.

13. ENERGY CODE REQUIREMENTS

Reference: SEC

The tables on the following pages are from the Washington State Energy Code. The tables provide prescriptive and target UA requirements. See Sections 402.1 to 402.6 for Systems Analysis requirements.

- Provide glazing area calculations which show the product type, size, and number of each type. Glazing area is the rough opening area including the sash and frame. For doors with area more than 50% glass, use the rough opening area. For doors with less than 50% glass, use the daylight opening area. For garden/greenhouse windows, use double 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 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. (See CAM 303 for an example.)
- Provide the manufacturer and model number for all glazing products with a U-factor less than 0.40. This includes prescriptive option I in Table 6-1. It may also include Target UA and annual energy analysis compliance options.
- Specify the space heating system type on the drawings. (The building envelope requirements vary by space heat type when doing target UA and annual energy analysis calculations.)
- 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.

References

- 2003 Seattle Residential Code
- 2003 Seattle Building Code
- 2003 Seattle Mechanical Code
- 2004 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., (206) 684-8850.

- Building Code Technical Support, (206) 684-4630
- Electrical Code Technical Support, (206) 684-5383
- Energy/Mech Code Tech Support, (206) 684-7846

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. 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 — 2004 EDITION

TABLE 5-1
TARGET COMPONENT VALUES FOR GROUP R OCCUPANCY

COMPONENT	TARGET VALUE
Glazing % Floor Area	15%
Vertical Glazing U-Factor	U = 0.400
Overhead Glazing U-Factor	U = 0.58
Doors	U = 0.200 (R-5)
Ceilings: Attic	U = 0.031 (R-38)
Single Rafter/ Joist Vaulted	U = 0.034 (R-30)
Walls: ²	Space Heat Type/ Electric Resistance
	U = 0.058 (R-19A)
	Other
	U = 0.062 ¹ (R-19)
Floors	U = 0.029 (R-30)
Slab on Grade	F = 0.54
Slab R-Value	(R-10)
BELOW GRADE INTERIOR	
Wall R-Value	R-19
2' Depth: Walls	U = 0.043
Slab	F = 0.69
3.5' Depth: Walls	U = 0.041
Slab	F = 0.64
7' Depth: Walls	U = 0.037
Slab	F = 0.57
BELOW GRADE EXTERIOR	
Wall R-Value	R-10
2' Depth: Walls	U = 0.070
Slab	F = 0.60
3.5' Depth: Walls	U = 0.064
Slab	F = 0.57
7' Depth: Walls	U = 0.056
Slab	F = 0.42

¹ Log and solid timber walls that have a minimum average thickness of 3.5" are exempt from wall target UA and proposed UA calculations.

² "A" means advanced framing. For more information, see Section 1005.2.

WASHINGTON STATE ENERGY CODE — 2004 EDITION

TABLE 6-1
PRESCRIPTIVE REQUIREMENTS^{0,1} FOR GROUP R OCCUPANCY
CLIMATE ZONE 1

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%	0.35	0.58	0.20	R-38	R-30	R15	R-15	R-10	R-30	R-10
II.*	15%	0.40	0.58	0.20	R-38	R-30	R-21	R-21	R-10	R-30	R-10
III.	25% Group R-1 & R-2 Occupancies Only	0.40	0.58	0.20	R-38/ U=0.031	R-30/ U=0.034	R-21/ U=0.060	R-15	R-10	R-30/ U=0.029	R-10
IV.	Unlimited Group R-3 & R-4 Occupancies Only	0.40	0.58	0.20	R-38	R-30	R-21	R-21	R-10	R-30	R-10
V.	Unlimited Group R-1 & R-2 Occupancies Only	0.35	0.58	0.20	R-38/ U=0.031	R-30/ U=0.034	R-21/ U=0.060	R-15	R-10	R-30/ U=0.029	R-10

* 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. '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, or on the interior to the same level as walls above grade. 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.
7. Int. denotes standard framing 16 inches on center with headers insulated with a minimum of R-10 insulation.
8. This wall insulation requirement denotes R-19 wall cavity insulation plus R-5 foam sheathing.
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=0.40 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.