



# SEATTLE CITY COUNCIL

## Legislative Summary

CB 119072

Record No.: CB 119072

Type: Ordinance (Ord)

Status: Passed

Version: 1

Ord. no: Ord 125410

In Control: City Clerk

File Created: 08/11/2017

Final Action: 09/21/2017

**Title:** AN ORDINANCE relating to Seattle’s technical codes; amending the 2015 Seattle Building, Existing Building, Residential, Mechanical, Plumbing, and Energy Codes to clarify regulations, adopt amendments consistent with Washington State regulations, and make technical corrections; amending Sections 22.100.010 and 22.150.010 of the Seattle Municipal Code; and requesting that the Seattle Department of Construction and Inspections submit code updates to the Office of the City Clerk.

Date

Notes:

Filed with City Clerk:

Mayor's Signature:

Sponsors: Johnson

Vetoed by Mayor:

Veto Overridden:

Veto Sustained:

**Attachments:** Att A - Seattle Building Code Amendments, Att B - Seattle Existing Building Code Amendments, Att C - Seattle Residential Code Amendments, Att D - Seattle Mechanical Code Amendments, Att E - Seattle Energy Code Amendments, Mayor's Letter on Returning Bill Unsigned

**Drafter:** bonita.chinn@seattle.gov

**Filing Requirements/Dept Action:**

### History of Legislative File

Legal Notice Published:  Yes  No

Ver- sion:	Acting Body:	Date:	Action:	Sent To:	Due Date:	Return Date:	Result:
1	Mayor	08/15/2017	Mayor's leg transmitted to Council	City Clerk			
1	City Clerk	08/15/2017	sent for review	Council President's Office			
1	Council President's Office	08/18/2017	sent for review	Planning, Land Use, and Zoning Committee			

**Action Text:** The Council Bill (CB) was sent for review. to the Planning, Land Use, and Zoning Committee

**Notes:**

**Legislative Summary Continued (CB 119072)**

---

- 1 Full Council 09/05/2017 referred Planning, Land Use, and Zoning Committee
- 1 Planning, Land Use, and Zoning Committee 09/08/2017 pass Pass  
**Action Text:** The Committee recommends that Full Council pass the Council Bill (CB).  
**Notes:**  
In Favor: 3 Chair Johnson, Vice Chair O'Brien, Member Herbold  
Opposed: 0
- 1 Full Council 09/18/2017 passed Pass  
**Action Text:** The Council Bill (CB) was passed by the following vote, and the President signed the Bill:  
**Notes:**  
In Favor: 7 Councilmember Bagshaw, Councilmember Burgess, Councilmember González , Councilmember Johnson, Councilmember Juarez, Councilmember O'Brien, Councilmember Sawant  
Opposed: 0
- 1 City Clerk 09/21/2017 submitted for Mayor's signature Mayor
- 1 Mayor 09/21/2017 returned City Clerk
- 1 Mayor 09/21/2017 returned unsigned  
**Action Text:** The Ordinance (Ord) was returned unsigned.  
**Notes:**
- 1 City Clerk 09/21/2017 attested by City Clerk  
**Action Text:** The Ordinance (Ord) was attested by City Clerk.  
**Notes:**
-



**City of Seattle**  
**Mayor Tim Burgess**

September 21, 2017

Monica Martinez Simmons  
Seattle City Clerk  
600 4<sup>th</sup> Avenue, 3<sup>rd</sup> Floor  
Seattle, WA 98124

Dear Ms. Martinez Simmons,

I support the content of Council Bill 119072 and voted for it as a member of the City Council on September 18, 2017. The City Attorney's Office has advised, to preserve the separation of the branches of City government, not to have a person that voted for the passage of a Bill as a Councilmember sign it as Mayor.

I am returning Council Bill 119072 without my signature, understanding that it will become law.

Sincerely,

A handwritten signature in blue ink, appearing to read "Tim Burgess".

Tim Burgess  
Mayor of Seattle

**CITY OF SEATTLE**

**ORDINANCE** 125410

**COUNCIL BILL** 119072

AN ORDINANCE relating to Seattle's technical codes; amending the 2015 Seattle Building, Existing Building, Residential, Mechanical, Plumbing, and Energy Codes to clarify regulations, adopt amendments consistent with Washington State regulations, and make technical corrections; amending Sections 22.100.010 and 22.150.010 of the Seattle Municipal Code; and requesting that the Seattle Department of Construction and Inspections submit code updates to the Office of the City Clerk.

**BE IT ORDAINED BY THE CITY OF SEATTLE AS FOLLOWS:**

Section 1. The Seattle Building Code, Clerk File 319954 as amended by Ordinance 125161 and adopted by Section 22.100.010 of the Seattle Municipal Code, is amended as shown in red text in Attachment A to this ordinance.

Section 2. The Seattle Existing Building Code, Clerk File 319951 as amended by Ordinance 125158 and adopted by Section 22.110.010 of the Seattle Municipal Code, is amended as shown in red text in Attachment B to this ordinance.

Section 3. The Seattle Residential Code, Clerk File 319950 and adopted by Section 22.150.010 of the Seattle Municipal Code, is amended as shown in red text in Attachment C to this ordinance.

Section 4. The Seattle Mechanical Code, Clerk File 319953 as amended by Ordinance 125162 and adopted by Section 22.400.010 of the Seattle Municipal Code, is amended as shown in red text in Attachment D to this ordinance.

Section 5. The Seattle Energy Code, Clerk File 319948 as amended by Ordinance 125159 and adopted by Section 22.700.010 of the Seattle Municipal Code, is amended as shown in red text in Attachment E to this ordinance.



1 Section 6. Section 22.100.010 of the Seattle Municipal Code, last amended by Ordinance  
2 125161, is amended as follows:

3 **22.100.010 Adoption of the Seattle Building Code**

4 The Seattle Building Code is adopted and consists of: 1) Chapters 2 through 29, Chapters 31  
5 through 33, and Chapter 35 of the 2015 edition of the International Building Code as amended  
6 by ~~((the)) ordinance ((introduced as Council Bill 118781))~~; and 2) Chapters 1 and 30 as adopted  
7 by the ordinance introduced as Council Bill 118781. One copy of the 2015 International Building  
8 Code is filed with the City Clerk in ~~((C.F.))~~ Clerk File 319954.

9 Section 7. Section 22.150.010 of the Seattle Municipal Code, last amended by Ordinance  
10 125160, is amended as follows:

11 **22.150.010 Adoption of Seattle Residential Code**

12 The Seattle Residential Code is adopted and consists of: 1) Chapters 2 through 10, Chapters 12  
13 through 24, Section P2904, Chapter 44, Appendices F and U of the 2015 edition of the  
14 International Residential ~~((code))~~ Code as amended by ~~((the)) ordinance ((introduced as Council  
15 Bill 118780))~~, and 2) Chapter 1 as adopted in Section 2 of the ordinance introduced as Council  
16 Bill 118780. One copy of the 2015 International Residential Code is filed with the City Clerk in  
17 Clerk File 319950.

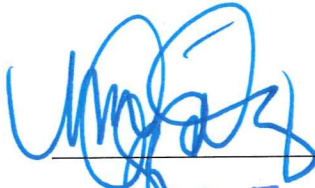
18 Section 8. The Council requests that the Seattle Department of Construction and  
19 Inspections, as soon as practicable, submit updates consistent with this ordinance to the Office of  
20 the City Clerk for the technical codes referenced in this ordinance.

21 Section 9. The provisions of this ordinance are declared to be separate and severable. The  
22 invalidity of any clause, sentence, paragraph, subdivision, section, or portion of this ordinance,  
23 or the invalidity of its application to any person or circumstance, does not affect the validity of

1 the remainder of this ordinance or the validity of its application to other persons or  
2 circumstances.

3 Section 10. This ordinance shall take effect and be in force 30 days after its approval by  
4 the Mayor, but if not approved and returned by the Mayor within ten days after presentation, it  
5 shall take effect as provided by Seattle Municipal Code Section 1.04.020.

6 Passed by the City Council the 18<sup>th</sup> day of September, 2017,  
7 and signed by me in open session in authentication of its passage this 18<sup>th</sup> day of  
8 September, 2017.

9   
10 President Pro Tem of the City Council

11 Approved by me this \_\_\_\_\_ day of \_\_\_\_\_, 2017.

**Returned Unsigned  
by Mayor**

12 \_\_\_\_\_  
13 Mayor, \_\_\_\_\_

14 Filed by me this 21<sup>st</sup> day of September, 2017.

15   
16 \_\_\_\_\_

Monica Martinez Simmons, City Clerk

17 (Seal)  
18  
19

20 Attachments:

- 1 Attachment A – Seattle Building Code Amendments
- 2 Attachment B – Seattle Existing Building Code Amendments
- 3 Attachment C – Seattle Residential Code Amendments
- 4 Attachment D – Seattle Mechanical Code Amendments
- 5 Attachment E – Seattle Energy Code Amendments

Only amended sections and subsections are shown. Text amended by this ordinance (as opposed to amendments Seattle has already made to the *International Building Code*) is in red.

## CHAPTER 1 ADMINISTRATION

### SECTION 101 TITLE, PURPOSE AND SCOPE

\* \* \*

**101.~~(5)~~4 Purpose.** The purpose of this code is to provide minimum standards to safeguard life or limb, health, property and public welfare by regulating and controlling the design, construction, quality of materials, occupancy, location and maintenance of buildings and structures within the City and certain equipment specifically regulated herein. The purpose of this code is to provide for and promote the health, safety and welfare of the general public, and not to create or otherwise establish or designate any particular class or group of *persons* who will or should be especially protected or benefited by the terms of this code.

**101.~~(6)~~5 Internal consistency.** Where in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive governs. Where there is a conflict between a general requirement and a specific requirement, the specific requirement governs.

**101.~~(7)~~6 Referenced codes and standards.** The codes and standards referenced in this code are considered part of this code to the extent prescribed by each such reference. If differences occur between provisions of this code and referenced codes and standards, the provisions of this code apply, except that nothing in this code limits the effect of any provision of the Grading Code, Stormwater Code, or Regulations for Environmentally Critical Areas.

**101.~~(8)~~7 Appendices.** Provisions in the appendices of the *International Building Code* do not apply unless specifically adopted.

**101.~~(9)~~8 Metric units.** Wherever in this code there is a conflict between metric units of measurement and U.S. customary units, the U.S. customary units govern.

### SECTION 106 BUILDING PERMITS

\* \* \*

**106.13.5.2 Requirements for construction buildings.** The construction of the structure shall be subject to reasonable safeguards for *persons* and property as the *building official* shall (~~prescribes~~) **prescribe**; the nature and extent of fire-extinguishing equipment shall be subject to the requirements of the fire chief, and the sanitary facilities shall meet the requirements of the Director of Public Health.

\* \* \*

## CHAPTER 4

# SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

### SECTION 406 MOTOR-VEHICLE-RELATED OCCUPANCIES

**406.1 General.** Motor-vehicle-related occupancies shall comply with Sections 406.1 through 406.8.

**Note:** The Seattle Electrical Code requires that all occupancies provide one of the following to facilitate future installation of electric vehicle charging outlets:

1. Reserved space in the electrical service equipment for installation of an overcurrent protective device for electric vehicle electric vehicle charging system branch circuits, or
2. A designated location and working clearances for a future electric vehicle charging system panel-board.

See Seattle Electrical Code [220.57](#) and [625.27](#) for details.

\* \* \*

### SECTION 428 PRIVATE AND UTILITY TRANSFORMER VAULTS

\* \* \*

#### **428.9 Drainage for vaults.**

**428.9.1 General.** Drains are prohibited in all transformer vaults.

**428.9.2 Sumps.** All transformer vaults containing oil-insulated transformers shall have a dry sump. All sumps shall have an opening of at least 6 inches (152 mm) diameter, a depth of at least 12 inches (305 mm), and shall be equipped with a removable steel grate that is flush with the floor. Sumps shall have at least an 8 gallon (30 liter) capacity. Sump capacity may be greater where required by the utility. The sump shall have a grouted bottom. The sump shall be located near, but not directly behind, the personnel door and shall be out of the entry path for moving transformers in and out of the vault. The vault floor shall slope at least 1 inch in 10 feet (25 mm in ~~(305 mm)~~ [3048 mm](#)) toward the sump.

\* \* \*



# CHAPTER 5

## GENERAL BUILDING HEIGHTS AND AREAS

### SECTION 506 BUILDING AREA

\* \* \*

**TABLE 506.2<sup>a, b</sup>**  
**ALLOWABLE AREA FACTOR (A<sub>f</sub> = NS, S1, S13R, or SM, as applicable) IN SQUARE FEET**

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE ((H)) III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
A-1	NS	UL	UL	15,500	8,500	14,000	8,500	15,000	11,500	5,500
	S1	UL	UL	62,000	34,000	56,000	34,000	60,000	46,000	22,000
	SM	UL	UL	46,500	25,500	42,000	25,500	45,000	34,500	16,500
A-2	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000
	SM	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000
A-3	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000
	SM	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000
A-4	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000
	SM	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000
A-5	NS	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S1									
	SM									
B	NS	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000
	S1	UL	UL	150,000	92,000	114,000	76,000	144,000	72,000	36,000
	SM	UL	UL	112,500	69,000	85,500	57,000	108,000	54,000	27,000
E	NS	UL	UL	26,500	14,500	23,500	14,500	25,500	18,500	9,500
	S1	UL	UL	106,000	58,000	94,000	58,000	102,000	74,000	38,000
	SM	UL	UL	79,500	43,500	70,500	43,500	76,500	55,500	28,500
F-1	NS	UL	UL	25,000	15,500	19,000	12,000	33,500	14,000	8,500
	S1	UL	UL	100,000	62,000	76,000	48,000	134,000	56,000	34,000
	SM	UL	UL	75,000	46,500	57,000	36,000	100,500	42,000	25,500
F-2	NS	UL	UL	37,500	23,000	28,500	18,000	50,500	21,000	13,000
	S1	UL	UL	150,000	92,000	114,000	72,000	202,000	84,000	52,000
	SM	UL	UL	112,500	69,000	85,500	54,000	151,500	63,000	39,000
H-1	NS <sup>c</sup>	21,000	16,500	11,000	7,000	9,500	7,000	10,500	7,500	NP
	S1									
H-2	NS <sup>c</sup>	21,000	16,500	11,000	7,000	9,500	7,000	10,500	7,500	3,000
	S1									
	SM									



**TABLE 506.2<sup>a, b</sup>—continued**  
**ALLOWABLE AREA FACTOR (A<sub>f</sub> = NS, S1, S13R, or SM, as applicable) IN SQUARE FEET**

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION																	
		TYPE I		TYPE II		TYPE ((#)) III		TYPE IV	TYPE V										
		A	B	A	B	A	B	HT	A	B									
H-3	NS <sup>c</sup>	UL	60,000	26,500	14,000	17,500	13,000	25,500	10,000	5,000									
	S1																		
	SM																		
H-4	NS <sup>c, d</sup>	UL	UL	37,500	17,500	28,500	17,500	36,000	18,000	6,500									
	S1	UL	UL	150,000	70,000	114,000	70,000	144,000	72,000	26,000									
	SM	UL	UL	112,500	52,500	85,500	52,500	108,000	54,000	19,500									
H-5	NS <sup>c, d</sup>	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000									
	S1	UL	UL	150,000	92,000	114,000	76,000	144,000	72,000	36,000									
	SM	UL	UL	112,500	69,000	85,500	57,000	108,000	54,000	27,000									
I-1	NS <sup>d, e</sup>	UL	55,000	19,000	10,000	16,500	10,000	18,000	10,500	4,500									
	S1	UL	220,000	76,000	40,000	66,000	40,000	72,000	42,000	18,000									
	SM	UL	165,000	57,000	30,000	49,500	30,000	54,000	31,500	13,500									
I-2	NS <sup>d, f</sup>	UL	UL	15,000	11,000	12,000	NP	12,000	9,500	NP									
	S1	UL	UL	60,000	44,000	48,000	NP	48,000	38,000	NP									
	SM	UL	UL	45,000	33,000	36,000	NP	36,000	28,500	NP									
I-3	NS <sup>d, e</sup>	UL	UL	15,000	10,000	10,500	7,500	12,000	7,500	5,000									
	S1	UL	UL	45,000	40,000	42,000	30,000	48,000	30,000	20,000									
	SM	UL	UL	45,000	30,000	31,500	22,500	36,000	22,500	15,000									
I-4	NS <sup>d, g</sup>	UL	60,500	26,500	13,000	23,500	13,000	25,500	18,500	9,000									
	S1	UL	121,000	106,000	52,000	94,000	52,000	102,000	74,000	36,000									
	SM	UL	181,500	79,500	39,000	70,500	39,000	76,500	55,500	27,000									
M	NS	UL	UL	21,500	12,500	18,500	12,500	20,500	14,000	9,000									
	S1	UL	UL	86,000	50,000	74,000	50,000	82,000	56,000	36,000									
	SM	UL	UL	64,500	37,500	55,500	37,500	61,500	42,000	27,000									
R-1	NS <sup>d, h</sup>	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000									
	S13R																		
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000									
R-2	SM	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000									
	NS <sup>d, h</sup>	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000									
	S13R																		
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000									
SM	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000										
R-3	NS <sup>d, h</sup>	UL	UL	UL	UL	UL	UL	UL	UL	UL									
	S13R																		
	S1																		
	SM																		
((R-4	NS <sup>d, h</sup>	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000									
	S13R																		
	S1										UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM										UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
S-1	NS	UL	48,000	26,000	17,500	26,000	17,500	25,500	14,000	9,000									
	S1	UL	192,000	104,000	70,000	104,000	70,000	102,000	56,000	36,000									
	SM	UL	144,000	78,000	52,500	78,000	52,500	76,500	42,000	27,000									

**TABLE 506.2<sup>a, b</sup>—continued**  
**ALLOWABLE AREA FACTOR (A<sub>f</sub> = NS, S1, S13R, or SM, as applicable) IN SQUARE FEET**

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE ((H)) III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
S-2	NS	UL	79,000	39,000	26,000	39,000	26,000	38,500	21,000	13,500
	S1	UL	316,000	156,000	104,000	156,000	104,000	154,000	84,000	54,000
	SM	UL	237,000	117,000	78,000	117,000	78,000	115,500	63,000	40,500
U	NS	UL	35,500	19,000	8,500	14,000	8,500	18,000	9,000	5,500
	S1	UL	142,000	76,000	34,000	56,000	34,000	72,000	36,000	22,000
	SM	UL	106,500	57,000	25,500	42,000	25,500	54,000	27,000	16,500

Note: UL = Unlimited; NP = Not permitted;

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

NS = Buildings not equipped throughout with an automatic sprinkler system; S1 = Buildings a maximum of one *story above grade plane* equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; SM = Buildings two or more *stories above grade plane* equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2.

- a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.
- b. See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.
- c. New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.
- d. The NS value is only for use in evaluation of *existing building* area in accordance with the *International Existing Building Code*.
- e. New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6. For new Group I-1 occupancies, Condition 1, see Exception 1 of Section 903.2.6.
- f. New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and Section 1103.5 of the *International Fire Code*.
- g. New Group I-4 occupancies see Exceptions 2 and 3 of Section 903.2.6.
- h. New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.

CHAPTER 7  
FIRE AND SMOKE PROTECTION FEATURES

SECTION 703  
FIRE-RESISTANCE RATINGS AND FIRE TESTS

\* \* \*

**703.4 Automatic sprinklers.** Under the prescriptive fire-resistance requirements of this code, the *fire-resistance rating* of a building element, component or assembly shall be established without the use of *automatic sprinklers* or any other fire suppression system being incorporated as part of the assembly tested in accordance with the fire exposure, procedures and acceptance criteria specified in ASTM E119 or UL 263. However, this section shall not prohibit or limit the duties and powers of the *building official* allowed by Sections ~~((104.10 and 104.11))~~ 104.4 and 104.5.

\* \* \*



# CHAPTER 9

## FIRE PROTECTION SYSTEMS

### SECTION 903 AUTOMATIC SPRINKLER SYSTEMS

\*\*\*

[W] 903.2.1.8 Nightclubs. An automatic sprinkler system shall be provided throughout nightclubs.

\*\*\*

[F] 903.2.11 Specific building areas and hazards. In all occupancies other than Group U, an *automatic sprinkler system* shall be installed for building design or hazards in the locations set forth in Sections 903.2.11.1 through 903.2.11.~~(6)~~7.

\*\*\*

[F] 903.3.1.1 NFPA 13 sprinkler systems. Where the provisions of this code require that a building or portion thereof be equipped throughout with an *automatic sprinkler system* in accordance with this section, sprinklers shall be installed throughout in accordance with NFPA 13 except as provided in Sections 903.3.1.1.1 and 903.3.1.1.~~(2)~~3.

\*\*\*

[F] 903.3.1.2.1 Balconies and decks. Sprinkler protection shall be provided for exterior balconies, decks and ground floor patios of *dwelling units* and *sleeping units* in accordance with rules promulgated by the *building official* or *fire code official*~~((where))~~ where the building is of Type V construction, provided there is a roof or deck above. Sidewall sprinklers that are used to protect such areas shall be permitted to be located such that their deflectors are within 1 inch (25 mm) to 6 inches (152 mm) below the structural members and a maximum distance of 14 inches (356 mm) below the deck of the exterior balconies and decks that are constructed of open wood joist construction.

\*\*\*

[F] 903.3.1.3 NFPA 13D sprinkler systems. *Automatic sprinkler systems* installed in one- and two-family *dwelling units*, ~~((:))~~ Group R-3, ~~((Group R-4 Condition 4))~~ and *townhouses*, when approved by the *fire code official*, shall be permitted to be installed throughout in accordance with NFPA 13D.

### SECTION 907 FIRE ALARM AND DETECTION SYSTEMS

\*\*\*

[F] 907.1.2 Fire alarm shop drawings. All construction documents shall be reviewed by a NICET III or IV in ~~((fire))~~ fire alarms or a professional engineer licensed in the state of Washington prior to being submitted for permitting. The reviewing professional shall submit a stamped, signed and dated letter; or a verification method approved by the *fire code official* indicating the system has been reviewed and meets or exceeds the design requirements of the State of Washington and the *fire code official*.

Shop drawings for fire alarm systems shall be submitted for review and approval prior to system installation, and shall include, but not be limited to, all of the following where applicable to the system being installed:

1. A floor plan that indicates the use of all rooms.
2. Locations of alarm-initiating devices.
3. Locations of alarm notification appliances, including candela ratings for visible alarm notification appliances.
4. Design minimum audibility level for occupant notification.
5. Location of fire alarm control unit, transponders and notification power supplies.
6. Annunciators.
7. Power connection.
8. Battery calculations.
9. Conductor type and sizes.
10. Voltage drop calculations.
11. Manufacturers' data sheets indicating model numbers and listing information for equipment, devices and materials.
12. Details of ceiling height and construction.
13. The interface of fire safety control functions.
14. Classification of the supervising station.

\*\*\*

## SECTION 909 SMOKE CONTROL SYSTEMS

\*\*\*

[F] **909.6.3 Pressurized stairways and elevator hoistways.** Where stairways or elevator hoistways are pressurized, such pressurization systems shall comply with Section 909 as smoke control systems, in addition to the requirements of Sections 909.20 ~~((of this code))~~ and 909.21 ~~((of the International Fire Code))~~.

\*\*\*

**909.6.3 Pressurized stairways and elevator hoistways.** Where stairways or elevator hoistways are pressurized, such pressurization systems shall comply with Section 909 as smoke control systems, in addition to the requirements of Section 909.20 ~~((of this code))~~ and Section 909.21 ~~((of the International Building Code))~~.

\*\*\*

**909.20.6 Stairway pressurization for low-rise buildings.** Where stairway pressurization is provided in accordance with Section 1006.3.2 exception 7 or Section 510.2 item 10 or 11, the pressurization system shall comply with the following:

1. Stairways shall be pressurized to a minimum positive pressure of 0.15 inch of water column (37 Pa) relative to the main occupied area on each floor, and a maximum pressure that complies with Section 1010.1.3.
2. The stairway pressurization shall be activated by a fire alarm originating anywhere in the building.
3. Pressurization equipment and its duct work located within the building shall be separated from other portions of the building by construction equal to that required for the interior exit stairway.
4. Supply air shall be taken directly from an outside, uncontaminated source at least 20 feet (6096 mm) from any air exhaust system or outlet. Air ducts shall be continuous to the exterior of the building. Two smoke detectors shall be located in the duct in accordance with NFPA 72 arranged to automatically shut down the fan system only when both smoke detectors activate. The detectors shall be located downstream of the fan and shall be connected to the fire alarm as a supervisory signal.
5. A legally required standby power system shall be provided for the pressurization system according to Seattle Electrical Code Section 701. A connection ahead of the service disconnecting means shall be permitted as the sole source of power to the pressurization system.
6. Other measures to prevent loss of pressurization shall be provided in the design and construction of

interior exit stairways, such as doors and door closers, quality of workmanship and caulking of penetrations and joints.

7. Stairway pressurization systems in low-rise buildings shall comply with Sections 909.10, ~~((through)) 909.12, 909.13, 909.14, 909.15, 909.17, 909.18, and 909.19,~~ in addition to Section 909.20.5.

**Exception:** A rational analysis complying with Section 909.4 is not required.

\*\*\*

**909.21.8 Smoke control provisions.** Hoistway pressurization systems shall comply with Sections 909.10 through 909.19 in addition to Section 909.21.

**Exception:** Hoistway pressurization systems in low-rise buildings are not required to comply with 909.11 and 909.16.

## CHAPTER 12

# INTERIOR ENVIRONMENT

### SECTION 1207 SOUND TRANSMISSION

\* \* \*

**1207.2 Air-borne sound.** Walls, partitions and floor/ceiling assemblies separating *dwelling units* and *sleeping units* from each other or from public or service areas shall have a sound transmission class of not less than 50, or not less than 45 if field tested, for air-borne noise when tested in accordance with ASTM E90. Penetrations or openings in construction assemblies for piping; electrical devices; recessed cabinets; bathtubs; soffits; or heating, ventilating or exhaust ducts shall be sealed, lined, insulated or otherwise treated to maintain the required ratings. ~~((This requirement shall not apply to entrance doors; however, such doors shall be tight fitting to the frame and sill.))~~

**Exception:** *Dwelling unit* or guest room entrance doors from interior corridors and interconnecting doors between separate units shall have perimeter seals. Such door assemblies shall have a sound transmission class (STC) rating of not less than 28.

\* \* \*



CHAPTER 16

STRUCTURAL DESIGNS

SECTION 1607  
LIVE LOADS

\*\*\*

TABLE 1607.1  
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS,  $L_o$ , AND  
MINIMUM CONCENTRATED LIVE LOADS<sup>a</sup>

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (pounds)
1. Apartments (see residential)	—	—
2. Access floor systems		
Office use	50	2,000
Computer use	100	2,000
3. Armories and drill rooms	150 <sup>m</sup>	—
4. Assembly areas		
Fixed seats (fastened to floor)	60 <sup>m</sup>	
Follow spot, projections and control rooms	50	
Lobbies	100 <sup>m</sup>	—
Movable seats	100 <sup>m</sup>	
Stage floors	150 <sup>m</sup>	
Platforms (assembly)	100 <sup>m</sup>	
Other assembly areas	100 <sup>m</sup>	
5. Balconies and decks <sup>b, (m)</sup>	((Same as occupancy-served)) 1.5 times the live load for the area served. Not to exceed 100 psf	—
***	***	***

\*\*\*

SECTION 1613  
EARTHQUAKE LOADS

\*\*\*

1613.5.2 ASCE 7 Section 12.2.5.4. Modify ASCE 7 Section 12.2.5.4 to read as follows:

12.2.5.4 Increased Structural Height Limit for Steel Eccentrically Braced Frames, Steel Special Concentrically Braced Frames, Steel Buckling-Restrained Braced Frames, Steel Special Plate Shear Walls, and Special Reinforced Concrete Shear Walls. The limits on height,  $h_n$ , in Table 12.2-1 are permitted to be increased from 160 ft (50 m) to 240 ft (75 m) for structures assigned to Seismic Design Categories D or E and from 100 ft (30 m) to ~~(+50)~~ 160 ft (50 m) for structures assigned to Seismic Design Category F, if all of the following are satisfied:

1. The structure shall not have an extreme torsional irregularity as defined in Table 12.3-1 (horizontal structural irregularity Type 1b).
2. The steel eccentrically braced frames, steel special concentrically braced frames, steel buckling-restrained braced frames, steel special plate shear walls or special reinforced concrete shear walls in any one plane shall resist no more than 60 percent of the total seismic forces in each direction, neglecting accidental torsional effects.
3. Where floor and roof diaphragms transfer forces from the vertical seismic force-resisting elements above the diaphragm to other vertical force-resisting elements below the diaphragm, these in-plane transfer forces shall be amplified by the overstrength factor,  $\Omega_o$  for the design of the diaphragm flexure, shear, and collectors.
4. The earthquake force demands in foundation mat slabs, grade beams, and pile caps supporting braced frames and/or walls arranged to form a shear-resisting core shall be amplified by 2 for shear and 1.5 for flexure.
5. The earthquake shear force demands in special reinforced concrete shear walls shall be amplified by the overstrength factor,  $\Omega_o$ .

\*\*\*

CHAPTER 18  
SOILS AND FOUNDATIONS

SECTION 1810  
DEEP FOUNDATIONS

\* \* \*

**1810.3.10.4 Seismic reinforcement.** For structures assigned to *Seismic Design Category C*, a permanent steel casing shall be provided from the top of the micropile down to the point of zero curvature. For structures assigned to *Seismic Design Category D, E or F*, the micropile shall be considered as an alternative system in accordance with Section ~~((104.11))~~ 104.5. The alternative system design, supporting documentation and test data shall be submitted to the *building official* for review and approval.

\* \* \*

## CHAPTER 19

# CONCRETE

### SECTION 1905 MODIFICATIONS TO ACI 318

\* \* \*

1905.1.9 ACI 318, Section ~~((5.1.1))~~ 19.2.1.2. Modify ACI 318, Section ~~((5.1.1))~~ 19.2.1.2, to read as follows:

~~((5.1.1—Concrete shall be proportioned to provide an average compressive strength,  $f'_c$ , as prescribed in 5.3.2 and shall satisfy the durability criteria of Chapter 4. Concrete shall be produced to minimize the frequency of strength tests below  $f'_c$ , as prescribed in 5.6.3.3. For concrete designed and constructed in accordance with the Code,  $f'_c$  shall not be less than 2500 psi.))~~

19.2.1.2 The specified compressive strength shall be used for proportioning of concrete mixtures in Section 26.4.3 and for testing and acceptance of concrete in Section 26.12.3.

**Exception:** Concrete is permitted to be designed and constructed in accordance with Section ~~((1905.1.2))~~ 1905.1.10.

1905.1.10 ACI 318, Section ~~((5.2))~~ 26.4.3. Modify ACI 318, Section ~~((5.2))~~ 26.4.3 by adding new Section ~~((5.2.4))~~ 26.4.3.2 as follows:

Concrete proportioning in accordance with Table 1905.1.10 is permitted to be used for concrete to be made with cements meeting strength requirements for Type I, II, or III of ASTM C 150. Table 1905.1.10 shall not be used to proportion concrete containing lightweight aggregates. If approved by the building official, Table 1905.1.10 is permitted to be used with air-entraining admixtures (conforming to ASTM C260) and/or normal-range water-reducing admixtures (conforming to ASTM C494-11 Standard Specification for Chemical Admixtures for Concrete, Types A, D or E; or C618-12 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete). For strengths greater than 4000 psi (27.7 MPa), proportions shall be established on the basis of field experience and trial mixtures according to ACI Section ~~((5.3))~~ 26.4.3.1(b) or by proportioning without field mixtures or trial mixtures according to ACI Section ~~((5.4))~~ 26.4.4.1(b). When approved by the building official, concrete proportions shall be determined in accordance with the provisions of ACI 318, Section ~~((5.3. or 5.4))~~ 26.4.3.1(b) or 26.4.4.1(b).



## CHAPTER 30

# ELEVATORS AND CONVEYING SYSTEMS

### SECTION 3003 CODES

**3003.1 Seattle Elevator Code.** The following are adopted by reference as part of the Seattle Building Code. They also constitute the Elevator Code of the City of Seattle.

1. Safety Code for Elevators and Escalators, ASME A17.1-2013, as amended in this ordinance and Appendices A through D, F through J, L, M and P through V.

#### Exceptions:

- 1.1. ASME A17.1 Sections 5.4, 5.5, 5.10, ~~((and))~~ 5.11, and 5.12 are not adopted.
- 1.2. ASME A17.1 Section 1.2.1, Purpose, is not adopted.
2. Safety Standard for Platform Lifts and Stairway Chairlifts, ASME A18.1-2011.
3. Standard for Elevator Suspension, Compensation, and Governor Systems, ASME A17.6-2010.

**Exception:** ASME A17.6 Part 2 Aramid Fiber Ropes for Elevators, is not adopted.

4. Safety regulations for all elevators, dumbwaiters, escalators and other conveyances, Washington Administrative Code Chapter 296-96 as it existed on February 15, 2013.

**Exception:** The following sections of WAC Chapter 296-96 are not part of the *Elevator Code of the City of Seattle*:

1. Part B, Licenses and Fees for all Elevators, Dumbwaiters, Escalators, and Other Devices.
2. Part B-1, Regulations and Fees for All Elevators, Dumbwaiters, Escalators and Other Conveyances.

3. Part C, Regulations for New and Altered Elevators and Lifting Devices, WAC 296-96-02400 through WAC 296-96-02420.

~~((3-))~~ 4. Part C3, Construction, Operation, Maintenance and Inspection of Private Residence Conveyances for Transporting Property for Residential Use.

~~((4-))~~ 5. Part C4, Temporary Hoists.

~~((5-))~~ 6. Part C5, Additional Types of Conveyances.

\*\*\*

### SECTION 3011 RETROACTIVE REQUIREMENTS FOR EXISTING INSTALLATIONS

\*\*\*

**3011.3 Key retainer box.** The key retainer box shall comply with Section 3011.3.1 or 3011.3.2.

**3011.3.1 Conveyances installed between March 1, 1956, and August 14, 2004.** A key retainer box locked and keyed to the standard City access key for elevator access and operation keys shall be provided. The key retainer box shall meet the following standards:

1. Dimensions – 8 inches high, 6 inches wide, 1 inch deep.
2. Material – 16 gauge steel welded.
3. Color – red (unless located in the main lobby above the hall call button, 6 feet nominal above the floor).
4. Labeling – “FOR FIRE DEPARTMENT USE.”
5. Lock – Ace one-inch cylinder cam lock key #39504.

The key retainer box is to be installed at the designated recall floor above the Phase I recall switch or in the main lobby above the hall call button when no recall feature exists. The key retainer box is to be mounted 6 feet nominal above the floor. The *building official* is permitted to approve other locations upon request.

Key retainer boxes are permitted to comply with Section 3011.3.2 or 3016.9 as an alternative to complying with this section.

**3011.3.2 Conveyances installed between August 15, 2004, and November 5, 2016.** A key retainer box locked and keyed to the secure city access key for elevator and other conveyance access and operation keys shall be provided. The key retainer box shall meet the following standards:

1. Minimum dimensions – 6 1/2 inches high, 6 inches wide, 2 inches deep.
2. Material – at least 16 gauge steel welded.
3. Color – red (unless located in the main lobby above the hall call button, 6 feet above the floor).
4. Labeling – “For Emergency Use.”
5. Lock – high security Medeco lock specified by the building official. Use of the key shall be restricted to fire, emergency response, and elevator inspection personnel.

The key retainer box shall be flush or surface mounted, installed at the designated recall floor above the Phase I recall switch or in the main lobby above the hall call button if no recall feature exists. The key retainer box is to be

mounted approximately 6 feet above the floor. The key retainer box shall be attached to the building so as to be able to withstand a force of 300 lbf/square foot applied horizontally at any point. In buildings with more than one elevator, the key retainer box shall be large enough to accommodate all required keys. The building official may approve other locations and custom box types upon request.

Key retainer boxes are permitted to comply with Section 3016.9 as an alternative to complying with this section.

\*\*\*

### SECTION 3016 NEW INSTALLATIONS - CONSTRUCTION STANDARDS

\*\*\*

**3016.4 Requirements to accommodate people with disabilities.** All new elevators shall comply with Chapter 11. In addition, WAC ~~((296-96-02400))~~ 296-96-02425 through 02605 ~~((applies))~~ apply as those sections existed on February 15, 2013.

\*\*\*

### SECTION 3017 NEW INSTALLATIONS - GENERAL EMERGENCY OPERATION REQUIREMENTS

\*\*\*

**3017.5 Fireman's visual signal, ASME 2.27.3.2.6.** Elevators requiring Phase I or Phase II operation shall comply with ASME 2.27.3.2.6 as amended below:

When ~~((Phase I Emergency Recall Operation is initiated by a fire alarm initiating device))~~ a smoke or heat detector for any location listed in 2.27.3.2.6(a) through (e) ~~((;))~~ is activated during Phase I Emergency Recall Operation as required by 2.27.3.2.3 or 2.27.3.2.4, or Phase II Emergency In-Car Operation as required by 2.27.3.3, the visual signal [see 2.27.3.1.6(h) and Fig. 2.27.3.1.6(h)] shall illuminate intermittently only in a car(s) with equipment in that location, as follows:

- (a) machine room
- (b) machinery space containing a ~~((motor-controller or))~~ driving machine
- (c) control room
- ~~((d))~~ control space
- (e)) (d) hoistway

### SECTION 3028 PERIODIC INSPECTIONS AND TESTS

\*\*\*

**3028.2 Category Five tests.** Elevators shall be subject to five-year inspection test requirements in accordance with Table 3028, Periodic Test Requirements – Category Five, except that safety and governor systems of cars operating on wood guide rails shall be tested by tripping the governor by hand with rated load in the car, and the car at rest.

All Category Five tests shall comply with ASME A17.1, 8.6 as amended below:

#### ASME 8.6.4.20 Periodic Test Requirements – Category 5.

NOTE: For test frequency, see ~~((8.11.1.3))~~ Table 3028.

**8.6.4.20.1 Car and Counterweight Safeties.** Types A, B, and C car and counterweight safeties shall be tested in accordance with 8.6.4.20.1(a) ~~((or subject to approval by the authority having jurisdiction with 8.6.4.20.1(b)))~~.

(a) *Rated Load and Rated Speed Test.* Car safeties, except those operating on wood guide rails, and their governors, shall be tested with rated load in the car. Counterweight safety tests shall be made with no load in the car. Tests shall be made by tripping the governor by hand at the rated speed. The following operational conditions shall be checked (Item 2.29.2):

(1) Type B safeties shall stop the car with the rated load within the required range of stopping distances for which the governor is tripped (Item 2.29.2) and the level of the platform checked for conformance to 2.17.9.2.

(2) For Type A safeties and Type A safety parts of Type C safeties, there shall be sufficient travel of the safety rollers or dogs remaining after the test to bring the car and its rated load to rest on safety application at governor tripping speed. The level of the platform shall be checked for conformance to 2.17.9.2.

~~((b))~~ *Alternative Test Method for Car Safeties.* The alternative test methods shall comply with 8.6.11.10 and the following:

~~((1))~~ The testing of safeties with any load in the car, centered on each quarter of the platform symmetrically with relation to the centerlines of the platform from no load up to rated load, and at not less than rated speed shall be permitted provided that

(a) when the alternative test is performed, the test shall stop the car and verify that the safeties will be capable of stopping an overspeeding car in accordance with the requirements of Section 2.17 applicable to the specific classification of safeties, and



(b) when applied, the method shall verify that the safeties perform or are capable of performing in compliance with 8.6.4.20.1(a) and the platform shall not be out of level more than 30 mm/m (0.36 in./ft) in any direction.)

(2) A test tag as required in 8.6.1.7.2 shall be provided.

#### 8.6.4.20.2 Governors

(a) The tripping speed of the governor and the speed at which the governor overspeed switch, where provided, operates shall be tested to determine conformance with the applicable requirements and the adjustable means shall be sealed (Item 2.13.2.1).

(b) The governor rope pull-through and pull-out forces shall be tested to determine conformance with the applicable requirements, and the adjustment means shall be sealed (Item 2.13.2.1).

(c) After these tests **in jurisdictions enforcing NBCC**, a metal tag indicating the date of the governor tests, together with the name of the person or firm that performed the tests, shall be attached to the governor in a permanent manner.

\*\*\*

### SECTION 3029 REQUIREMENTS FOR MAINTENANCE CONTROL PROGRAM AND REMOTE MONITORING

**3029.1 ASME A17.1, 8.6.1 General Maintenance Requirements.** Conveyances shall be maintained in accordance with ASME A17.1, 8.6.1 as amended below.

**8.6.1.2.1** A written Maintenance Control Program shall be in place to maintain the equipment in compliance with the requirements of 8.6. The MCP shall specify examinations, tests, cleaning, lubrication, and adjustments to applicable components at regular intervals (see definition for *maintenance*) and shall comply with the following.

(a) "A Maintenance Control Program for each unit (see 8.6.1.1.1) shall be provided by the person(s) and/or firm maintaining the equipment and shall be viewable on-site by elevator personnel at all times from time of acceptance inspection and test or from the time of equipment installation or alteration (see 8.10.1.5)."

(b) The MCP shall include, but not be limited to, the Code required maintenance tasks, maintenance procedures, and examination and test listed with the associated requirement (see 8.6.4 through 8.6.11). Where maintenance tasks, maintenance procedures, or examinations or tests have been revised in 8,6, the MCP shall be updated.

(c) The MCP shall reference On-Site Equipment Documentation (see 8.6.1.2.2) needed to fulfill 8.6.1.2.1(b) and On-Site Maintenance Records (see 8.6.1.4.1) that record the completion of all associated maintenance tasks specified in 8.6.1.4.1(a).

~~((d) Where the MCP is maintained remotely from the machine room, machinery space, control room, or control space (see 8.11.1.8), instructions for on-site locating or viewing the MCP either in hard copy or in electronic format shall be posted on the controller or at the means necessary for test (see 2.7.4). The instructions shall be permanently legible with characters a minimum of 3 mm (0.125 in.) in height.)) The MCP shall be posted in the machine room, machinery place or control room.~~

(e) The specified scheduled maintenance intervals (see 1.3) shall, as applicable, be based on

- (1) equipment age, condition, and accumulated wear
- (2) design and inherent quality of the equipment
- (3) usage
- (4) environmental conditions
- (5) improved technology
- (6) the manufacturer's recommendations and original equipment certification for any SIL rated devices or circuits (see 8.6.3.12 and 8.7.1.9)
- (7) the manufacturer's recommendations based on any ASME A17.7/CSA B44.7 approved components or functions

(f) Procedures for tests; periodic inspections; maintenance; replacements; adjustments; and repairs for traction-loss detection means, broken-suspension-member detection means, residual-strength detection means, and related circuits shall be incorporated into the made part of the Maintenance Control Program. [See 2.20.8.1, 2.20.8.2, 2.20.8.3, ~~((8.6.11.10, 8.10.2.2.2(ee)(3)(e)(2);))~~ 8.10.2.2.2(ss), and 8.6.4.19.12~~((b))~~.]

\*\*\*

#### 8.6.1.4.1 On-Site Maintenance Records

(a) *Maintenance Control Program Records*

(1) A record that shall include the maintenance tasks listed with the associated requirements of 8.6 identified in the Maintenance Control Program (8.6.1.2.1), other tests (see 8.6.1.2.2), examinations and adjustments, and the specified scheduled intervals shall be maintained.

(2) The specified scheduled maintenance intervals (see 1.3) shall, as applicable, be based on the criteria given in 8.6.1.2.1(e).

(3) MCP records shall be viewable on-site by elevator personnel in ~~((either))~~ hard copy ~~((or electronic format acceptable to the authority having jurisdiction))~~ and shall include but are not limited to the following:

- (a) site name and address
- (b) service provider name
- (c) conveyance identification (I.D.) and type
- (d) date of record



(e) a description of the maintenance task, interval, and associated requirements of 8.6

(f) indication of completion of maintenance task

NOTE: [8.6.1.4.1(a)]: Recommended format for documenting Maintenance Control Program records can be found in Nonmandatory Appendix Y. This is only an example format. A specific maintenance control program that includes all maintenance needs is required for each unit.

(b) *Repair and Replacement Records.* The following repairs and replacements shall be recorded and shall be kept on-site for viewing by elevator personnel in ~~((either))~~ hard copy. Records in electronic format may be provided if approved by the building official. ~~((or electronic format. Instructions for locating the records of each unit for immediate viewing shall be posted on the controller or at the means necessary for test (see 2.7.6.4).))~~ The provided instructions shall be permanently legible with characters a minimum of 3 mm (0.125 in) in height. The record shall include an explanation of the repair or replacement, date, and name of person(s) and/or firm performing the task. The record of repairs and replacements shall be retained by the owner of the equipment for the most recent 5 yr or from the date of installation or adoption of this Code edition, whichever is less or as specified by the authority having jurisdiction and shall be a permanent record for the installation. ~~((These records may be kept remotely from the site.))~~

(1) Repairs (8.6.2.1 through 8.6.2.5) including repairs of components and devices listed in 8.6.4, 8.6.5, 8.6.6, 8.6.7, 8.6.8, 8.6.9, and 8.6.10.

(2) Replacements (8.6.3.1 through 8.6.3.11 except 8.6.3.7 and 8.6.3.10) including replacements of components and devices listed in 8.6.4, 8.6.5, 8.6.6, 8.6.7, 8.6.8, 8.6.9, and 8.6.10.

(c) *Other Records.* The following written records shall be kept on-site for each unit. Instruction for locating the records of each unit for immediate viewing shall be posted on the controller or at the means necessary for test (see 2.7.6.4). The provided instructions shall be permanently legible with characters a minimum of 3 mm (0.125 in.) in height. These records shall be retained for the most recent 5 yr from of the date of installation or adoption of this Code edition, whichever is less or as specified by the authority having jurisdiction. The record shall include the date and name of person(s) and/or firm performing the task.

(1) A record of oil usage (8.6.5.7).

(2) A record of findings for firefighters' service operation required by 8.6.11.1 with identification of the person(s) that performed the operation.

(3) Periodic tests (see 8.6.1.7) shall be documented or recorded in accordance with 8.6.1.7.2.

(4) Written record to document compliance with replacement criteria specified in ASME A17.6 requirement 1.10.1.1(c).

(d) *Permanent Record.* A permanent record of the results of all acceptance tests as required by 8.10.1.1.4 and 8.10.1.1.5 shall be kept with the on-site records.

Test tags, complying with 2.16.3.3 for marking plates (except lettering shall be 1.6 mm [0.0625 in]), permanently attached to or adjacent to the controller, shall meet this requirement.

NOTE: This requirement does not apply to equipment installed under ASME A17.1-2010 and earlier editions.

\* \* \*

Only amended sections and subsections are shown. Text amended by this ordinance (as opposed to amendments Seattle has already made to the *International Existing Building Code*) is in red.

## CHAPTER 10

# CHANGE OF OCCUPANCY

### SECTION 1001 GENERAL

\* \* \*

**1001.2.1 Change of use.** Any work undertaken in connection with a change in use that does not involve a *change of occupancy* classification or a change to another group within an occupancy classification shall conform to the applicable requirements for the work as classified in Chapter 5 and to the requirements of Sections 1002 through 1011.

**Exception:** As modified in Section ~~((1205))~~ **306** for ~~((historic-buildings))~~ **Landmarks**.

\* \* \*

# CHAPTER 11

## ADDITIONS

### SECTION 1103 STRUCTURAL

\* \* \*

[BS] 1103.5 Flood hazard areas. *Additions and foundations in flood hazard areas shall comply with ((the following requirements)) Section ((307)) 310.*

- ~~1. For horizontal additions that are structurally interconnected to the existing building:
  - 1.1. If the addition and all other proposed work, when combined, constitute *substantial improvement*, the existing building and the addition shall comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.
  - 1.2. If the addition constitutes *substantial improvement*, the existing building and the addition shall comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.~~
2. For horizontal additions that are not structurally interconnected to the existing building:
  - 2.1. The addition shall comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.
  - 2.2. If the addition and all other proposed work, when combined, constitute *substantial improvement*, the existing building and the addition shall comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.
3. For vertical additions and all other proposed work that, when combined, constitute *substantial improvement*, the existing building shall comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.
4. For a raised or extended foundation, if the foundation work and all other proposed work, when combined, constitute *substantial improvement*, the existing building shall comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.
5. For a new foundation or replacement foundation, the foundation shall comply with Section 1612 of the *International Building Code* or Section R322 of the *International Residential Code*, as applicable.)

Only amended sections and subsections are shown. Text amended by this ordinance (as opposed to amendments Seattle has already made to the *International Residential Code*) is in red.

## CHAPTER 1 ADMINISTRATION

### SECTION R107 EXISTING STRUCTURES AND EQUIPMENT

\* \* \*

**R107.9 Substantial alterations or repairs.** Any building or structure to which substantial *alterations* or repairs are made shall conform to the requirements of this Section and Sections R310 (emergency escape and rescue openings), R311 (means of egress), R314 (smoke alarms), R315 (carbon monoxide alarms) and R302.2((-)) through R302.4 (*dwelling unit separation*).

\* \* \*

**R107.12 Rat abatement for demolished buildings.** All applicants for a demolition permit shall initiate a rat abatement program on the project site at least 15 days prior to the start of demolition or any clearing or grading activity on the demolition site.

**R107.12.1 Duration of rat abatement program.** The rat abatement program must continue at least until demolition begins. No demolition or clearing or grading on the demolition site shall begin until the rat abatement program is complete unless approved by the *building official*. The rat abatement program may be terminated or waived by the *building official* when supported by a written recommendation of a licensed pest control agent.

**R107.12.2 Requirements of rat abatement program.** The rat abatement program shall be approved by a qualified pest control agent and shall comply with the Seattle-King County Public Health Department guidelines and recommendations for rat baiting. The use of any pesticide shall comply with WAC 16-228-1380. The *building official* may require additional deterrent measures on recommendation of the Seattle-King County Public Health Department.

**107.12.3 Demolition permit.** The *building official* shall not issue any demolition permit until the applicant has provided a copy of the rat abatement program and a declaration that the requirements of Section R107.12 have been or will be complied with prior to the start of demolition.

\* \* \*

CHAPTER 3  
BUILDING PLANNING

SECTION R308  
GLAZING

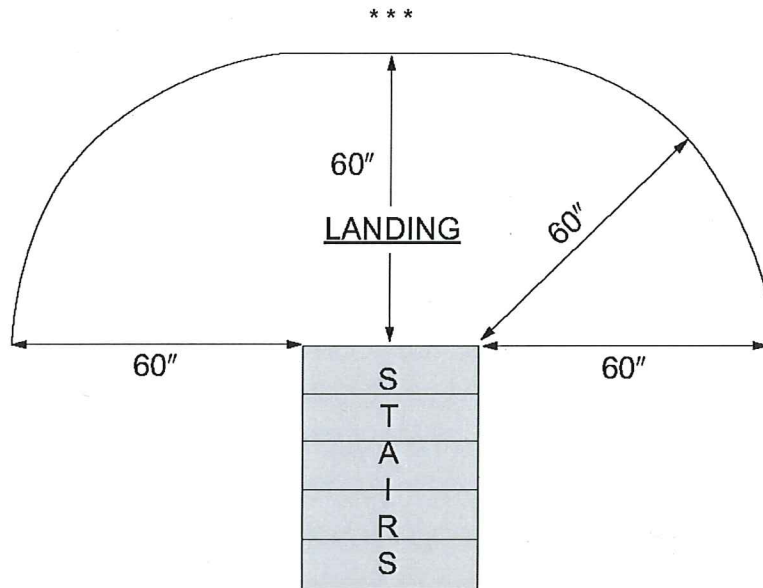


FIGURE R308.4.7  
**((PROHIBITED)) HAZARDOUS GLAZING LOCATIONS AT BOTTOM STAIR**

\*\*\*

SECTION R322  
FLOOD-RESISTANT CONSTRUCTION

\*\*\*

**R322.3.1 Location and site preparation.**

1. New buildings and buildings that are determined to be substantially improved pursuant to Section **((R105.3.1.1)) R105.7.3** shall be located landward of the reach of mean high tide.
2. For any alteration of sand dunes and mangrove stands, the *building official* shall require submission of an engineering analysis that demonstrates that the proposed *alteration* will not increase the potential for flood damage.

**CHAPTER 20**  
**BOILERS AND WATER HEATERS**

**SECTION M2004**  
**WATER HEATERS USED FOR SPACE HEATING**

**M2004.1 General.** Water heaters used to supply both potable hot water and hot water for space heating shall be installed in accordance with this chapter, Chapter 24, (~~Chapter 28~~) and the manufacturer's instructions.



APPENDIX U

**SOLAR-READY PROVISIONS—DETACHED  
ONE- AND TWO-FAMILY DWELLINGS,  
MULTIPLE SINGLE-FAMILY DWELLINGS  
(TOWNHOUSES)**

*APPENDIX U ~~((will go))~~ went into effect ~~((upon))~~ in March of 2017, following approval by the  
Washington State Building Code Council.*

*((The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.))*

\* \* \*

**SECTION U103  
SOLAR-READY ZONE**

\* \* \*

**U103.4 Construction documents.** *Construction documents shall indicate the boundaries and the assumed photovoltaic panel weight used for design in Section ~~((U103.4))~~ U103.1.3 for the solar-ready zone.*

Only amended sections and subsections are shown. Text amended by this ordinance (as opposed to amendments Seattle has already made to the *International Mechanical Code*) is in red.

## CHAPTER 1 ADMINISTRATION

### SECTION 115 APPLICATION REVIEW AND PERMIT ISSUANCE

\* \* \*

**115.9 Reestablishment of expired permits.** A new permit is required to complete work if a permit has expired and was not renewed.

**Exception:** A permit that expired less than one year prior to the date of a request for reestablishment may be reestablished upon approval of the code official if it complies with Items 2 and 3 of Section ~~((117.8))~~ 115.8. Once reestablished the permit will not be considered to have expired. The new expiration date of a re-established permit shall be determined in accordance with Section ~~((117.7))~~ 115.7.

\* \* \*

## CHAPTER 3

# GENERAL REGULATIONS

### SECTION 306 ACCESS AND SERVICE SPACE

\* \* \*

[W]306.6 Appliances above ceilings. Appliances that are located above the ceiling shall be accessible for inspection, service, and repair without removing *permanent construction*. Appliances shall be accessible from an access panel or removable ceiling tile with minimum nominal dimensions of 24 inches x 24 inches (609mm x 609mm).

The appliance is not required to be removable or replaceable through the access panel or removable ceiling tile. The appliance may be removed or replaced by removing the ceiling or wall assemblies adjacent to the appliances as long as they are not *permanent construction*.

**Exception:**

1. This section shall not apply to replacement appliances installed in existing compartments and alcoves where the working space *clearances* are in accordance with the *equipment* or appliance manufacturer's installation instructions.
2. A smaller access panel or ~~((removal))~~ removable ceiling tile shall be permitted when allowed by the *equipment* or appliance manufacturer installation instructions.

\* \* \*

# CHAPTER 4 VENTILATION

## SECTION 403 MECHANICAL VENTILATION

\* \* \*

**Table 403.4.1**  
**Ventilation Rates for All Group R Private Dwellings,**  
**Single and Multiple**  
**(Continuously Operating Systems)**

Floor Area (ft <sup>2</sup> )	Bedrooms <sup>1</sup>				
	0-1	2-3	4-5	6-7	≥( <del>6</del> ) 7
<500	30	40	45	55	60
500 – 1000	45	55	60	70	75
1001 – 1500	60	70	75	85	90
1501 – 2000	75	85	90	100	105
2001 – 2500	90	100	105	115	120
2501 – 3000	105	115	120	130	135
3001 – 3500	120	130	135	145	150
>3500	135	145	150	160	165

<sup>1</sup> Ventilation rates in table are minimum outdoor airflow rates measured in cfm.

\* \* \*



## CHAPTER 5

# EXHAUST SYSTEMS

### SECTION 506 COMMERCIAL KITCHEN HOOD VENTILATION SYSTEM DUCTS AND EXHAUST EQUIPMENT

\* \* \*

**506.4.2 Type II terminations.** Exhaust outlets serving Type II hoods shall terminate in accordance with the hood manufacturer's installation instructions and shall comply with all of the following:

1. Exhaust outlets shall terminate not less than 3 feet (914 mm) in any direction from openings into the building.
2. Outlets shall terminate not less than 10 feet (3048 mm) from property lines or buildings on the same lot.
3. Outlets shall terminate not less than 10 feet (3048 mm) above grade.
4. Outlets that terminate above a roof shall terminate not less than 30 inches (762 mm) above the roof surface.
5. ~~((Vertical outlets on roofs))~~ Outlets shall terminate not less than 30 inches (762 mm) from exterior vertical walls.
6. Outlets shall be protected against local weather conditions.
7. Outlets shall not be directed onto walkways.
8. Outlets shall meet the provisions for exterior wall opening protectives in accordance with the *International Building Code*.

\* \* \*

### SECTION 507 COMMERCIAL KITCHEN HOODS

**507.1 General.** Commercial kitchen exhaust hoods shall comply with the requirements of this section. Hoods shall be Type I or II and shall be designed to capture and confine cooking vapors and residues. A Type I or Type II hood shall be installed at or above all *commercial cooking appliances* in accordance with Sections 507.2 and 507.3 and Table 507.2.1. Where any cooking *appliance* under a single hood requires a Type I hood, a Type I hood shall be installed. Where a Type II hood is required, a Type I or Type II hood shall be installed. Where a Type I hood is installed, the installation of the entire system, including the hood, ducts, exhaust *equipment* and *makeup air* system shall comply with the requirements of Sections 506, 507, 508 and 509.

**Exceptions:**

1. Factory-built commercial exhaust hoods that are *listed* and *labeled* in accordance with UL 710, and installed in accordance with Section 304.1, shall not be required to comply with Sections 507.1.5, 507.2.3, 507.2.5, 507.2.8, 507.3.1, 507.3.3, 507.4 and 507.5.
2. Factory-built commercial cooking recirculating systems that are *listed* and *labeled* in accordance with UL 710B, and installed in accordance with Section 304.1, shall not be required to comply with Sections 507.1.5, 507.2.3, 507.2.5, 507.2.8, 507.3.1, 507.3.3, 507.4 and 507.5. Spaces in which such systems are located shall be considered to be kitchens and shall be ventilated in accordance with Table 403.3.1.1. The kitchen exhaust system shall discharge in accordance with Section 501.3.1, item 3. For the purpose of determining the floor area required to be ventilated, each individual *appliance* shall be considered as occupying not less than 100 square feet (9.3 m<sup>2</sup>).
3. Where cooking appliances are equipped with integral down-draft exhaust systems and such appliances and exhaust systems are *listed* and *labeled* for the application in accordance with NFPA 96, a hood shall not be required at or above them.

\* \* \*

**[W] Table 507.2.1  
Type of Hood Required for Commercial Cooking Appliances**

TYPE OF APPLIANCE <sup>1</sup>	TYPE OF HOOD REQUIRED <sup>2</sup>		
	TYPE I <sup>3</sup>	TYPE II	NONE <sup>6</sup>
Baking oven	Solid fuel	> 6 kW	≤ 6 kW
Charbroiler	All sizes		
Coffee maker		> 6 kW	≤ 6 kW
Coffee roaster <sup>4</sup>		All sizes	
Convection ovens (electric)		> 6 kW	(↔) ≤ 6 kW
Deep-fat fryer	All sizes		
Dishwasher		> 140°F	≤ 140°F
Grill	All sizes		
Hot dog display heater		> 6 kW	≤ 6 kW
Microwave oven			All sizes
Pastry oven		> 6 kW	≤ 6 kW
Pizza oven	Solid fuel	> 6 kW	≤ 6 kW
Popcorn maker		> 6 kW	≤ 6 kW
Roasting oven <sup>5</sup>	> 6 kW	≤ 6 kW	
Roll warmer		> 6 kW	≤ 6 kW
Solid-fuel burning appliances	All sizes & all food products		
Soup warmer, soup preparation cooking unit		> 6 kW	≤ 6 kW
Steam reconstitution device		> 6 kW	≤ 6 kW
Steam table		> 6 kW	≤ 6 kW
Steamer		> 6 kW	≤ 6 kW
Toaster		> 6 kW	≤ 6 kW
Warming oven		> 6 kW	≤ 6 kW

- 1 The code official shall determine hood requirements for appliances not listed in the table.
- 2 Section 507.2 describes Type I and Type II kitchen hoods.
- 3 The definition of extra-heavy-duty cooking appliance includes all appliances utilizing solid fuel.
- 4 Puget Sound pollution control requires an after-burner for particulates.
- 5 Roasting ovens are used to cook raw or partially cooked food.
- 6 Where no hood is required, general kitchen exhaust shall be required per Section 507.3.

\* \* \*

**SECTION 508  
COMMERCIAL KITCHEN MAKEUP AIR**

**508.1 Makeup air.** *Makeup air* shall be supplied during the operation of commercial kitchen exhaust systems that are provided for *commercial cooking appliances*. ~~((The amount of *makeup air* supplied to the building from all sources shall be approximately equal to the amount of *exhaust air* for all exhaust systems for the building))~~ A separate *makeup air* system for the kitchen shall ~~((supply))~~ **be capable of providing** not less than 90 percent of the air to be exhausted. The *makeup air* shall not reduce the effectiveness of the exhaust system. *Makeup air* shall be provided by gravity or mechanical means or both. Mechanical *makeup air* systems shall be automatically controlled to start and operate simultaneously with the exhaust system. Exterior windows and doors shall not be used to provide commercial kitchen *makeup air*. *Makeup air* intake opening locations shall comply with Section 401.4.

**Note:** Refer to Section 403.2.7.1 of the *Seattle Energy Code* in addition to the requirements of this section.

**Exceptions:**

1. Where the total airflow for the exhaust system is less than 400 cfm, *makeup air* is not required; or
2. In atriums, food courts, and similar areas, occupant *ventilation air* that would otherwise exfiltrate or be exhausted by other mechanical exhaust systems may be used to provide all *makeup air*, or a portion of *makeup air* when a direct path through permanent openings exists for occupant *ventilation air* to transfer to the kitchen hood area. That portion of air not supplied by occupant *ventilation air* shall be provided by a separate *makeup air* system. The combined air quantity provided by a separate *makeup air* system and occupant *ventilation air* shall provide 100 percent of the air to be exhausted.

\* \* \*

Only amended sections and subsections are shown. Text amended by this ordinance (as opposed to amendments Seattle has already made to the *International Energy Code*) is in red.

## CHAPTER 2 [CE]

### DEFINITIONS

#### SECTION C202 GENERAL DEFINITIONS

\* \* \*

**CERTIFIED COMMISSIONING PROFESSIONAL.** An individual who is certified by an ANSI/ISO/IEC 17024:2012 accredited organization to lead, plan, coordinate and manage commissioning teams and implement commissioning processes, or a licensed professional engineer in Washington State. ~~((The individual's accredited certification required by the referenced standard provides a measured level of experience and competence with the various whole building commissioning processes and the ability to deliver quality service. Accredited organizations include, but are not limited to, ((AABC, BCA and NEBB)) Building Commissioning Certification Board (BCCB), providers of the Certified Commissioning Professional (CCP) designation, and ASHRAE, providers of the Commissioning Process Management Professional (CPMP) designation. The engineer of record for the project may be considered the certified commissioning professional if she/he is qualified to perform commissioning services for the entire commissioning process.))~~

\* \* \*



## CHAPTER 5 [CE]

# EXISTING BUILDINGS

### SECTION C503 ALTERATIONS

\* \* \*

**C503.8.3 Energy Efficiency.** Buildings undergoing substantial alterations shall comply with Section C503.4.6 and one of the following:

1. **Full code compliance.** Fully comply with the requirements of this code for new construction, including Section C406.
2. **Envelope thermal performance within 15 percent of code.** Demonstrate that heat loss through the building envelope is no more than 15 percent greater than allowed by the Seattle Energy Code, using the Component Performance Building Envelope Option in Section C402.1.5, and meet all other prescriptive requirements of the Seattle Energy Code for new construction.
  - 2.1. **Default U-values.** The values listed in Appendix A and Section C303 shall be used as the default U-values for existing building envelope components. For buildings whose original construction permits were applied for after January 1, 1992, existing building envelope components are deemed to meet the minimum U-values required by the edition of the Seattle Energy Code in effect at the time of permit application, where visual inspection by the *code official* reveals that those components appear to be equal to or better than code-compliant components.
  - 2.2. **Disproportionality.** Where *approved* by the *code official*, the cost of required thermal improvements to the building envelope ~~((are))~~ **is** not required to exceed 20 percent of the valuation of the substantial alterations project, determined in accordance with the Fee Subtitle, when using this envelope thermal performance compliance method. Envelope improvement costs shall be documented using standard cost estimating software and methodology.
3. **Total building performance within 10 percent of code.** Demonstrate that the building energy consumption will be less than 10 percent higher than that of the standard reference design (SRD) using the Total Building Performance methodology in Section C407 of the Seattle Energy Code, as follows.
  1. Less than 97 percent of SRD when no C406 options are included in the project and the Proposed Design.
  2. Less than 100 percent of SRD when one C406 option is included in the project and the Proposed Design.
  3. Less than 103 percent of SRD when two C406 options are included in the project and the Proposed Design.
4. **Operating energy alternative.** The *code official* is permitted to allow calculated building energy consumption 20 percent greater than the standard reference design calculated in accordance with the Total Building Performance methodology in Section C407, provided that:
  - a. The applicant demonstrates that constructability, economic, or historic preservation considerations preclude conformance with any of the above options; and
  - b. The owner agrees to operate the building at or below the annual energy use level predicted for that calculated energy performance during a period of 12 consecutive months, concluding no later than three years after issuance of the certificate of occupancy, adjusted as allowed by Sections C401.3.6 through C401.3.10, and to meet the requirements of Sections C401.3.11 through ~~((C401.1.5.13))~~ **C401.3.13**, substituting the energy consumption standard in option 4 of this Section C503.8.3 for the energy consumption targets set out in Section C401.3.2.
- 4.1. **Reporting.** The building owner shall report the energy consumption in kBtu/square foot using automated reporting directly from utilities via Energy Star Portfolio Manager, and shall authorize the *code official* to view the reports directly in Portfolio Manager during the demonstration period.

\* \* \*

## APPENDIX E

# TOTAL BUILDING PERFORMANCE REPORTING FORMAT

\*\*\*

### REPORTING FORMAT OUTLINE (See detailed description below)

\*\*\*

#### I. Executive Summary

The executive summary is the condensed version of the text. This is usually several paragraphs long, never more than ~~((one page))~~ two pages, and includes:

1. A brief description of the project with name, address, number of stories, and total square footage, as well as a listing of the various uses and the square footage of each use.
2. An explanation about why the systems analysis compliance option was chosen (i.e. what elements of the Proposed Design do not comply with the prescriptive option).
3. A listing of the key energy efficiency features that are being used to compensate for the elements that do not comply.
4. The Additional Efficiency Package Options selected from Section C406 (if any), and the target for the proposed design (87, 90, or 93 percent of Standard Reference Design).

~~((4))~~ 5. The total energy consumption on a Btu-per-conditioned-square-foot-per-year basis for both the Standard Reference Design and the Proposed Design, and the percentage ratio of the Proposed Design to the Standard Reference Design (i.e. what the energy efficiency improvement has been).

#### II. Project Description

The project description is a detailed summary of the project. First is the name and the street address as well as adjacent cross-streets or streets on all four sides of the building if it is a full-block development. Indicate the number of stories and total square footage. A listing of the various uses and square footage of each use should be done on a floor-by-floor or a system-by-system basis. Thus, for mixed-use floors, specify how much is office and how much is retail, or how much is office and how much is lab. Include parking garage number of floors and area in the listing. The description should also include information on the energy efficiency of the Proposed Design systems, and whether any of those systems are designed to comply with Section C406 requirements.

1. For the building envelope: indicate the glazing area, and how the fenestration U-factor and SHGC compare with the Standard Reference Design requirements; and point out any opaque component U-

factors or R-values which are better than the Standard Reference Design requirements.

2. For each HVAC system: provide an explanation of the system including area served, key features, economizer percentage, control strategies, etc. Indicate any differences between the Standard Reference Design and the Proposed Design, such as equipment efficiency.
3. For the lighting: indicate whether any tradeoffs are included in this analysis, and, if so, what they are.
4. For other end-uses: indicate any differences between the Standard Reference Design and the Proposed Design. It is intended that the material in this section be descriptive, supporting calculations are to be included in the appendices.

\*\*\*

#### Appendices (Supporting Materials)

##### A. Energy Analysis Summary Form (required)

1. Complete the Energy Consumption by End-use portion of the form for each project. Where a project has multiple buildings (~~((which))~~ that are individually analyzed, complete the form for each building as well as for the overall project. (An automated electronic spreadsheet version of this page is on the ~~((DPD))~~ SDCI Seattle Energy Code website at: (~~((www.seattle.gov/dpd/energy))~~ [www.seattle.gov/dpd/codesrules/codes/energy/forms](http://www.seattle.gov/dpd/codesrules/codes/energy/forms).)
2. Complete the Design Parameter Comparison portion of the form for each project. Where a project has multiple HVAC systems, complete the HVAC information for each system. (An electronic version of these pages is on the ~~((DPD))~~ SDCI Seattle Energy Code website at: (~~((www.seattle.gov/dpd/energy))~~ <http://www.seattle.gov/dpd/codesrules/codes/energy/overview/default.htm>.)

##### B. General Information

1. Site Plan (required) – provide site plan (8½ x 11 preferred) showing location and height, in feet or stories, of all adjacent buildings and also any other buildings and topography which would provide significant shading of the proposed building.



2. HVAC zoning diagram used in the modeling process (required) – provide zoning diagram indicating zone lines and with zones labeled to match the modeling, plus takeoff sheets with area inputs for ~~((DPD))~~ SDCI review.)

C. Building Envelope

1. Glazing and opaque doors, including windows, skylights, sliding/swinging/rollup doors, glass block (required):

- a. U-factor, with basis for information (NFRC ~~((Certification Authorization))~~ CMA Bid Report, simulation report or approved alternate source).
- b. Solar Heat Gain Coefficient (SHGC), with basis for information (NFRC ~~((Certification Authorization))~~ CMA Bid Report, simulation report or approved alternate source)

2. Opaque roof, wall, floor (required):

- a. provide cross-sections and U-factor calculations for each different assembly where default U-factors from Chapter 3 and Appendix A have not been used;
- b. if multiple elements (e.g., three wall types) are combined into one value for modeling purposes, provide calculations used to determine weighted-average value.

3. Shading diagrams (required):

- a. provide information on how shading by adjacent buildings and topography has been modeled,
- b. provide wall and roof sections showing overhangs and setbacks for glazing to justify the shading modeled.

4. Building air leakage:

- a. the standard reference design building air leakage test rate shall equal that required by Section ~~((C402.4.1.2.3))~~ C402.5.1.2,
- b. provide calculation showing how the building air leakage test rate at the standard rating conditions in Section ~~((C402.4.1.2.3))~~ C402.5.1.2 has been converted to an air leakage test rate appropriate for the energy modeling,
- c. for modeling, indicate:
  - i. what percentage of air leakage is modeled for the hours when the building fan system is off and
  - ii. what percentage of air leakage is modeled for the hours when the building fan system is on.

D. Lighting

~~((1. Interior lighting (as applicable):~~

- a. ~~explain any special assumptions about interior lighting,~~

- b. ~~discuss lighting inputs to account for any exempt lighting (e.g. retail, kitchen).~~

~~2. Parking/outdoor areas lighting (as applicable):~~

- a. ~~provide calculation of areas for parking garages, then multiply by allowed Watts/square foot; provide calculation of areas for surface parking, and other lighted outdoor areas, then multiply by allowed Watts/square foot to obtain Standard Reference Design;~~

- b. ~~provide supporting information for Proposed only if different from Standard Reference Design;~~

- e. ~~if program does not list parking/outdoor area lighting energy consumption separately, then provide calculation of annual energy consumption for this end-use.~~

~~3. Façade lighting (required):~~

- a. ~~provide calculation of building façade, then multiply by allowed Watts/square foot to obtain Standard Reference Design;~~

- b. ~~provide supporting information for Proposed only if different from Standard Reference Design;~~

- e. ~~if program does not list facade lighting energy consumption separately, then provide calculation of annual energy consumption for this end-use.))~~

1. Interior lighting:

- a. state whether the lighting power density is based on the building area method or space-by-space method;

- b. explain any special assumptions about interior lighting;

- c. identify any additional retail display lighting allowances or ceiling height adjustments used;

- d. discuss lighting inputs to account for any exempt lighting (e.g., retail, kitchen, plan growth);

- e. separately identify lighting for covered parking areas.

2. Uncovered parking and other tradable exterior lighting (as applicable):

- a. identify the exterior lighting zone for the site;

- b. provide calculation of areas for uncovered surface parking and other exterior “tradable areas,” and multiply by the allowances.

3. Façade and other non-tradable exterior lighting (as applicable):

- a. identify any non-tradable exterior lighting areas;

- b. provide calculation of lighted building façade and other non-tradable areas, and multiply by the allowances.

E. Space Heating and Space Cooling Equipment and Plant

1. provide manufacturer's specifications for equipment efficiency,
2. provide ((calculations)) energy efficiency ratings (COP, EER, IPLV, etc.) per AHRI standards ((for COP, EER, IPLV)),
3. provide list of equipment and size and calculations to justify if Proposed Design includes multiple pieces of equipment and a weighted average equipment efficiency is used in the energy analysis,
4. provide calculations to justify the equipment size for the Standard Reference Design
  - a. provide calculations of ratio of Proposed Design equipment size to Proposed Design design heating load and design cooling load,
  - b. provide calculations of ratio of Standard Reference Design equipment size to Standard Reference Design design heating load and design cooling load.

F. Ventilation - interior (required):

1. provide W/CFM calculations for the ventilation system for the Proposed Design and for the Standard Reference Design to justify inputs for the Standard Reference Design,
2. if program does not list energy consumption for interior ventilation separately in the output, then provide calculation of annual energy consumption for this end-use.

G. Interior Exhaust Fans (as applicable):

1. where multiple toilet exhaust and relief fans are to be installed, provide listing of capacity for each and total for the interior exhaust fans,
2. if program does not list energy consumption for interior exhaust fans separately in the output, then provide calculation of annual energy consumption for this end-use.

H. Parking Garage Fans (as applicable):

1. where multiple parking garage fans are to be installed, provide listing of capacity for each and total for the parking garage fans,
2. if program does not list energy consumption for parking garage fans separately in the output, then provide calculation of annual energy consumption for this end-use.

I. Service Water Heating (required):

1. provide calculations ((used to size equipment)) of water heating loads and type and size of equipment simulated in the analysis (see Appendix B, Table B102, for default assumptions for service hot water quantities in Btuh per person),
2. if program does not list energy consumption for service water heating separately in the output,

then provide calculation of annual energy consumption for this end-use.

J. Other End-uses

1. Office/miscellaneous equipment (as applicable):

- a. if program requires an input of total equipment capacity rather than capacity on a square foot basis, then provide calculations used to size equipment (see Appendix B, Table B102, for default assumptions for ((service hot water quantities)) receptacle power density in Watts/square foot),
- b. if program does not list energy consumption for office/miscellaneous equipment separately in the output, then provide calculation of annual energy consumption for this end-use.

2. Elevators and escalators (as applicable):

- a. where multiple elevators and escalators are to be installed, provide listing of capacity for each and total for the system,
- b. if program does not list energy consumption for elevators and escalators separately in the output, then provide calculation of annual energy consumption for this end-use.

3. Refrigeration - food, etc. (as applicable):

- a. where multiple units are to be installed for refrigeration other than for comfort cooling, provide listing of capacity for each and total for the system,
- b. if program does not list energy consumption for refrigeration other than for comfort cooling separately in the output, then provide calculation of annual energy consumption for this end-use.

4. Cooking (as applicable):

- a. where multiple units are to be installed for cooking, provide listing of capacity for each and total for the system,
- b. if program does not list energy consumption for cooking separately in the output, then provide calculation of annual energy consumption for this end-use.

5. Other (as applicable):

- a. provide supporting data for other end-uses (e.g. commercial washers and dryers, etc.),
- b. if program does not list energy consumption for other end-uses separately in the output, then provide calculation of annual energy consumption for these end-uses.

K. Computer Printout of Inputs and Outputs

Provide inputs and outputs with pages numbered so cross-references can be made to the Energy Analysis Summary Form.



**INSTRUCTIONS:**

**Electronic Version:**

A spreadsheet version is available on the Seattle Energy Code website @ [www.seattle.gov/dpd/codesrules/codes/energy/forms](http://www.seattle.gov/dpd/codesrules/codes/energy/forms)

**Project Information:**

Enter SDCI address, project number, and date of this Energy End-use Summary Form.

Enter the space uses in the building and the gross square footage of each.

(Add/revise headings as necessary.) Spreadsheet automatically calculates subtotals and total.

**Energy Consumption by End-Use:**

Enter fuel source for each end-use (e.g., electric, gas, oil, steam, etc.).

Enter total site energy consumption in BTU for each end-use for both the Standard Reference Design and Proposed Design.

(Spreadsheet calculates the BTU/conditioned-square-foot-year, percentages, and differences.)

**ENERGY ANALYSIS SUMMARY FORM**

**PROJECT INFORMATION**

SDCI Project Address:						SDCI Project Number:			
Project Name:						Date of this submittal:			
	Conditioned Space					Unconditioned Space			
Bldg Use	Office	Retail	Group R			Subtotal	Parking		Subtotal
Area (SF)									

**ENERGY CONSUMPTION BY END-USE**

END-USE	FUEL	STANDARD REFERENCE DESIGN			PROPOSED DESIGN			DIFFERENCES		
		Total Energy Use Estimate	BTU/Cond. Sq.Ft.-Year	% of Standard Design Total	Total Energy Use Estimate	BTU/Cond. Sq.Ft.-Year	% of Standard Design Total	Total Energy Use Estimate	BTU/Cond. Sq.Ft.-Year	% of Standard Design Total
Lighting - interior			____%			____%				____%
Lighting - parking			____%			____%				____%
Lighting - façade			____%			____%				____%
Space Heating (1)			____%			____%				____%
Space Heating (2)			____%			____%				____%
Space Cooling			____%			____%				____%
Fans – interior ventilation			____%			____%				____%
Fans – interior exhaust			____%			____%				____%
Fans – parking garage			____%			____%				____%
Service water heating			____%			____%				____%
Office equipment			____%			____%				____%
Elevators & escalators			____%			____%				____%

**ENERGY CONSUMPTION BY END-USE—continued**

Refrigeration (food, etc.)			_____ %			_____ %				_____ %
Cooking (commercial)			_____ %			_____ %				_____ %
_____			_____ %			_____ %				_____ %
_____			_____ %			_____ %				_____ %
Total			100%			100%				100%
Percent of Standard Reference Design: 100% = _____ % + _____ % = _____ %										

**((INSTRUCTIONS:**

**Electronic Version:**

A spreadsheet version is available on the Seattle Energy Code website @ [www.seattle.gov/dpd/energy](http://www.seattle.gov/dpd/energy)

**Project Information:**

Enter DPD address, project number, and date of this Energy End-use Summary Form.

Enter the space uses in the building and the gross square footage of each.

(Add/revise headings as necessary.) Spreadsheet automatically calculates subtotals and total.

**Energy Consumption by End-use:**

Enter fuel source for each end-use (e.g. electric, gas, oil, steam, etc.).

Enter total energy consumption in **BTU** for each end-use for both the Standard Reference Design and Proposed Design.

(Spreadsheet calculates the BTU/conditioned square foot year, percentages, and differences.))

**DESIGN PARAMETER COMPARISON**

Element	Standard Design Value	(Page)	Proposed Design Value	(Page)
<b>Building Envelope</b>				
<del>((Space heat type (electric resistance vs. other:))</del>				
<b>Glazing:</b> total vertical + overhead area (sq. feet):				
<del>((Glazing))</del> Vertical glazing area as a percentage of gross above-grade wall (%):				
<b>Overhead:</b> total area (square feet):				
Overhead U-factor (weighted-average):				
Overhead SHGC (weighted-average):				
<b>Vertical:</b> total area (square feet):				
Vertical U-factor (weighted-average):				
Vertical SHGC (weighted-average):				
<b>Roof:</b> total area (square feet):				
Opaque roof: net area (square feet):				
Opaque roof U-factor (weighted-average):				
<b>Wall:</b> total above-grade area (square feet):				
Opaque above-grade wall: net area (square feet):				
Above-grade wall U-factor (weighted-average):				
Below-grade wall: net area (square feet):				
Below-grade wall U-factor (weighted-average):				
<b>Opaque door:</b> area (sq. feet):				
Opaque door U-factor (weighted-average):				
<b>Floor over unconditioned space:</b> area (sq. feet):				
Floor U-factor (weighted-average):				
<b>Slab-on-grade floor:</b> perimeter (lineal feet):				
Slab-on-grade F-factor (weighted-average):				
<b>Below-grade slab floor:</b> net area (square feet):				
Below-grade floor U-factor (weighted-average):				
<b>Infiltration rate:</b>				

**DESIGN PARAMETER COMPARISON—continued**

<b>Element</b>	<b>Standard Design Value</b>	<b>(Page)</b>	<b>Proposed Design Value</b>	<b>(Page)</b>
<b>Design heating load:</b>				
<b>Design cooling load:</b>				
<b>Lighting</b>				
Interior				
Watts/sq.ft.: Office				
Watts/sq.ft.: Retail				
Watts/sq.ft.:				
Watts/sq.ft.:				
<b>Parking/outdoor: total area (square feet)</b>				
Watts/square foot				
<b>Façade: total area (square feet)</b>				
Watts/square foot				
<b>Space Heating and Space Cooling System</b>				
<b>Space Heating: system type:</b>				
Peak equipment efficiency:				
Output capacity:				
Percent of design heating load:				
Other features:				
<b>Space Cooling: system type:</b>				
Peak equipment efficiency:				
Output capacity:				
Percent of design cooling load:				
Other features:				
<b>Ventilation</b>				
Interior ventilation fans				
Economizer type (air or water):				
Economizer percentage:				
Supply fan: total CFM:				
Fan KW:				
Return fan: total CFM:				
Fan KW:				
Exhaust fan: total CFM:				
Fan KW:				
System Watts/CFM:				
Other features:				
Other features				
<b>Service Water Heating</b>				
Capacity:				



**DESIGN PARAMETER COMPARISON—continued**

Element	Standard Design Value	(Page)	Proposed Design Value	(Page)
<b>Other End-uses</b>				
Fans – toilet and other exhaust: capacity (KW)				
Fans – parking garage: capacity (KW)				
Elevator and escalator: capacity				
Refrigeration: capacity				
Cooking: capacity				
_____ : capacity				
_____ : capacity				
_____ : capacity				