

Ordinance No. 20378

Council Bill No. 113667

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The City of Seattle
Council Bill/Ordinance

AN ORDINANCE relating to energy efficiency and energy conservation: amending Section 22.700.010 of the Seattle Municipal Code ("SMC") to adopt by reference the 2000 Washington State Energy Code (WAC 51-11) and to repeal the 1997 Washington State Energy Code and amendments thereto; amending 2000 Washington State Energy Code Sections 1144, 1150, 1161, 1162, 1311.6, 1323, 1402, 1411.2, 1412.4, 1414.2, 1421, 1432.2, 1435, 1436, 1438, 1530, and Tables 10-6 and 13-1; and adding to the 2000 Washington State Energy Code new Sections 1144.1, 1144.2, 1144.3, 1144.4, 1144.5, 1144.6, 1144.7, 1411.5, 1412.8, 1421.1, 1431.2, 1438.1, and 1452.

5/17/01 PAS

CF No. _____

Date introduced: <u>MAY 14 2001</u>		
Date 1st Referred: <u>MAY 14 2001</u>	To: (committee)	<u>Energy & Environmental Policy Committee</u>
Date Re - Referred:	To: (committee)	
Date Re - Referred:	To: (committee)	
Date of Final Passage: <u>5-21-01</u>	Full Council Vote: <u>7-0</u>	
Date Presented to Mayor: <u>5-21-01</u>	Date Approved: <u>5-24-01</u>	
Date Returned to City Clerk: <u>5-24-01</u>	Date Published: <u>16 PM</u>	T.O. <input checked="" type="checkbox"/> P.T. <input checked="" type="checkbox"/>
Date Vetoes by Mayor:	Date Veto Published:	
Date Passed Over Veto:	Veto Sustained:	

5-21-01 Passed As Amended
(Excused: Dro)

This file is complete and ready

Law Department

Law Dept. Review

Council Bill/Ordinance sponsored by: WILLS
Councilmember

Committee Action:

5/17/01 PASSED 2-0 HW, JC

(E)

Passed As Amended 7-0
(Excused: Drago, Steinbrueck)

This file is complete and ready for presentation to Full Council. Committee: _____

(Initial/Date)

Law Department

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Law Dept. Review

OMP
Review

City Clerk
Review

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*Presented
5/17/01*

ORDINANCE 120378

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4 AN ORDINANCE relating to energy efficiency and energy conservation: amending Section
5 22.700.010 of the Seattle Municipal Code ("SMC") to adopt by reference the 2000
6 Washington State Energy Code (WAC 51-11) and to repeal the 1997 Washington
7 State Energy Code and amendments thereto; amending 2000 Washington State
8 Energy Code Sections 1144, 1150, 1161, 1162, 1311.6, 1323, 1402, 1411.2, 1412.4,
9 1414.2, 1421, 1432.2, 1435, 1436, 1438, 1530, and Tables 10-6 and 13-1; and adding
10 to the 2000 Washington State Energy Code new Sections 1144.1, 1144.2, 1144.3,
11 1144.4, 1144.5, 1144.6, 1144.7, 1411.5, 1412.8, 1421.1, 1431.2, 1438.1, and 1452.
12

13 **BE IT ORDAINED BY THE CITY OF SEATTLE AS FOLLOWS:**
14

15 **Section 1.** Effective July 1, 2001, 22.700.010, SMC, as last amended by Ordinance
16 119081 is further amended to read as follows:
17

18 22.700.010 Adoption of the ((1997)) 2000 Washington State Energy Code and local
19 amendments.

20 The ((1997)) 2000 Washington State Energy Code (WAC 51-11) and the
21 amendments thereto adopted by Ordinance ((119081)) 120378
22 incorporating the Seattle Amendments, and amendments made by the Washington State
23 Building Code Council to the ((1997)) 2000 Washington State Energy Code filed ((January
24 8, 1998 (WSR 98-03-003))) January 5, 2001 (WSR 01-03-010), which is filed with the City
25 Clerk in C.F. ((300684)) 30465, are hereby adopted and by this reference made a part of
26 this subtitle and shall constitute the official Energy Code of the City. The ((1994)) 1997
27 Washington State Energy Code, and amendments thereto, are hereby repealed.
28

29
30 **Section 2.** Effective July 1, 2001, Table 10-6 of the 2000 Washington State Energy
31 Code is amended to read as follows:
32

33 **TABLE 10-6**
34 **Other than Group R Occupancy:**
35 **Default U-Factors for Vertical Glazing, Overhead Glazing and Opaque Doors**
36



1

Vertical Glazing

	U-Factor		
	Any Frame	Aluminum w/thermal Break	Vinyl/Wood Frame
Single	1.45	1.45	1.45
Double	0.90	0.85	0.75
½ Inch Air, Fixed	0.75	0.70	0.60
½ Inch Air, Low-e ^(0.40) , Fixed	0.60	0.55	0.50
½ Inch Air, Low-e ^(0.10) , Fixed	0.55	0.50	0.45
½ Inch Argon, Low-e ^(0.30) , Fixed	0.55	0.50	0.45
½ Inch Argon, Low-e ^(0.10) , Fixed	0.50	0.45	0.40

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The category for aluminum frame with a thermal break is as defined in footnote 9 to Table 10-6B.

Overhead Glazing

	U-Factor	
	Any Frame	Vinyl/Wood Frame
Single	2.15	2.15
Double	1.45	1.00
Low-e(0.40) or Argon	1.40	0.95
Low-e(0.40) + Argon	1.30	0.85
Low-e(0.20) Air	1.30	0.90
Low-e(0.20) + Argon	1.25	0.80
Triple	1.25	0.80

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Opaque Doors

	U-Factor
Uninsulated Metal	1.20
Insulated Metal (Including Fire Door and Smoke Vent)	0.60
Wood	0.50

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NOTES:

- Where a gap width is listed (i.e.: 1/2 inch), that is the minimum allowed.
- Where a low-emissivity emittance is listed (i.e.: 0.40, 0.30, 0.20, 0.10), that is the maximum allowed.
- Where a gas other than air is listed (i.e.: argon), the gas fill shall be a minimum of 90%.
- Where an operator type is listed (i.e.: fixed), the default is only allowed for that operator type.
- Where a frame type is listed (i.e.: wood/vinyl), the default is only allowed for that frame type. Wood/Vinyl frame includes reinforced vinyl and aluminum-clad wood.



1
2
3 **Section 3.** Effective July 1, 2001, Section 1144 of the 2000 Washington State Energy
4 Code is amended to read as follows:
5

6 **1144 Violations and Penalties** ~~((It shall be a violation of this Code for any person, firm,
7 or corporation to erect or construct any building, or remodel or rehabilitate any existing
8 building or structure in the state, or allow the same to be done, contrary to any of the
9 provisions of this Code.))~~

10
11
12 **Section 4.** Effective July 1, 2001, the 2000 Washington State Energy Code is amended
13 by adding new Sections 1144.1, 1144.2, 1144.3, 1144.4, 1144.5, 1144.6, and 1144.7 to read
14 as follows:
15

16 **1144.1 Violations:** It shall be a violation of this Code for any person, firm or corporation to
17 erect, construct, enlarge, repair, move, improve, remove, convert or demolish, equip, occupy,
18 inspect or maintain any building or structure in the City, contrary to or in violation of any of
19 the provisions of this Code.

20 It shall be a violation of this Code for any person, firm or corporation to knowingly
21 aid, abet, counsel, encourage, hire, commend, induce or otherwise procure another to violate
22 or fail to comply with this Code.

23 It shall be a violation of this Code to for any person, firm, or corporation to use any
24 material or to install any device, appliance or equipment which does not comply with the
25 applicable standards of this Code or which has not been approved by the building official.

26 **1144.2 Notice of Violation:** If after investigation the building official determines that
27 standards or requirements of this code have been violated, the building official may serve a
28 notice of violation upon the owner or other person responsible for the action or condition.
29 The notice of violation shall state the standards or requirements violated, shall state what
30 corrective action, if any, is necessary to comply with the standards or requirements, and shall
31 set a reasonable time for compliance. The notice shall be served upon the owner or other
32 responsible person by personal service, certified mail with return receipt requested or
33 registered mail with return receipt requested or registered mail addressed to the last known
34 address of such person. In addition, a copy o f the notice may be posted at a conspicuous
35 place on the property. The notice of violation shall be considered an order of the building
36 official. Nothing in this subsection shall be deemed to limit or preclude any action or
37 proceeding pursuant to Sections 102, 103 or 104 of the Seattle Building Code, and nothing
38 in this section shall be deemed to obligate or require the building official to issue a notice of
39 violation prior to the imposition of civil or criminal penalties in this section.

40 **1144.3 Civil Penalties:** Any person, firm or corporation failing to comply with the
41 provisions of this code shall be subject to a cumulative civil penalty in an amount not to
42 exceed \$500 per day for each violation from the date the violation occurs or begins until
43 compliance is achieved. In cases where the building official has issued a notice of violation,
44 the violation will be deemed to begin, for purposes of determining the number of days of
45 violation, on the date compliance is required by notice of violation. In any civil action for a
46 penalty, the City has the burden of proving by a preponderance of the evidence that a



1 violation exists or existed; the issuance of the notice of violation or of an order following a
2 review by the Director is not itself evidence that a violation exists.

3 **1144.4 Criminal Penalty:** Anyone who violates or fails to comply with any order issued by
4 the building official pursuant to this code or who removes, mutilates, destroys or conceals a
5 notice issued or posted (i.e., affixed to the structure in a conspicuous place) by the building
6 official shall, upon conviction thereof, be punished by a fine of not more than \$1,000 or by
7 imprisonment for not more than 360 days, or by both such fine and imprisonment. Each
8 day's violation or failure to comply shall constitute a separate offense.

9 Anyone violating or failing to comply with any of the provisions of this code and
10 who within the past five years has had a judgment against them for civil penalties arising
11 from a violation of the building code, shall upon conviction thereof, be fined in a sum not to
12 exceed \$500 or by imprisonment for not more than 180 days, or by both such fine and
13 imprisonment. Each day's violation or failure to comply shall constitute a separate offense.

14 **1144.5 Additional Relief:** The building official may seek legal or equitable relief to enjoin
15 any acts or practices and abate any condition which constitutes a violation of this code when
16 civil or criminal penalties are inadequate to effect compliance.

17 **1144.6 Notices:** It shall be unlawful for any person to remove, mutilate, destroy or conceal
18 any notice issued or posted by the building official pursuant to the provisions of this code, or
19 any notice issued or posted by the building official in response to a natural disaster or other
20 emergency.

21 The building official may record a copy of any order or notice with the Department
22 of Records and Elections of King County.

23 The building official may record with the Department of Records and Elections of
24 King County a notification that a permit has expired without a final inspection after
25 reasonable efforts have been made to provide a final inspection.

26 **1144.7 Review by the Director**

27 **1144.7.1.** Any party affected by a notice of violation issued by the Director pursuant to
28 Section 1144.2 may obtain a review of the notice by requesting such review in writing
29 within fifteen days after service of the notice. When the last day of the period computed is a
30 Saturday, Sunday, federal or City holiday, the period shall run until 5:00 p.m. of the next
31 business day. The request shall be in writing, and upon receipt of the request, the Director
32 shall notify any persons served the notice of violation and the complainant, if any, of the
33 request for review, which shall be within twenty days after the request is received, unless
34 otherwise agreed by all persons served with the notice of violation. Before the deadline for
35 submission of information, any person significantly affected by or interested in the notice of
36 violation (including any persons served the notice of violation and the complainant) may
37 submit any additional information in the form of written material or oral comments to the
38 Director for consideration as part of the review.

39 **1144.7.2.** The review will be made by a representative of the Director who is familiar with
40 the case and the applicable ordinances. The Director's representative will review all
41 additional information received by the deadline for submission of information. The reviewer
42 may also request clarification of information received and a site visit. After review of the
43 additional information, the Director may:

- 44 1. Sustain the notice of violation; or
45 2. Withdraw the notice of violation; or
46 3. Continue the review to a date certain for receipt of additional information; or



1 4. Modify the notice of violation, which may include an extension of the compliance
2 date.

3 **1144.7.3.** The Director shall issue an Order of the Director containing the decision within
4 seven days of the date of the completion of the review, and shall cause the same to be mailed
5 by regular first-class mail to the person or persons named in the notice of violation, mailed
6 to the complainant, if possible, and filed with the Department of Records and Elections of
7 King County.
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10 **Section 5.** Effective July 1, 2001, Section 1150 of the 2000 Washington State Energy
11 Code is amended to read as follows:
12

13 **1150 Conflicts with Other Codes:** In case of conflicts among Codes enumerated in RCW
14 19.27.031 subsections (1), (2), (3) and (4) and this Code, the first named Code shall govern.
15 The duct insulation requirements in this Code or a local jurisdiction's energy code,
16 whichever is more stringent, supersede the requirements in the Uniform Mechanical Code.

17 This Code is intended to supplement the provisions of the Seattle Building Code, the
18 Seattle Mechanical Code, and the Seattle Electrical Code, and in cases of conflict between
19 this Code and any of those codes, the provisions of those codes shall apply.
20

Additional efficiency standards for electrical energy use
may also appear in Seattle City Light service
requirements, which should be consulted.

21
22 Where, in any specific case, different sections of this Code specify different
23 materials, methods of construction or other requirements, the most restrictive shall govern.
24 Where there is a conflict between a general requirement and a specific requirement, the
25 specific requirement shall be applicable.
26
27

28 **Section 6.** Effective July 1, 2001, Section 1161 of the 2000 Washington State Energy
29 Code is amended to read as follows:
30

31 **1161 Severability:** If any provision of this Code or its application to any person or
32 circumstance is held invalid, the remainder of this Code or the application of the provision to
33 other persons or circumstances is not affected.

34 The legislative body hereby declares that it would have passed this Code, and each
35 section, subsection, clause or phrase thereof, irrespective of the fact that any one or more
36 sections, subsections, sentences, clauses, and phrases be declared unconstitutional.
37
38

39 **Section 7.** Effective July 1, 2001, Section 1162 of the 2000 Washington State Energy
40 Code is amended to read as follows:
41

42 **1162 Liability:** Nothing contained in this Code is intended to be nor shall be construed to
43 create or form the basis for any liability on the part of ~~((any city or county))~~ the City or its



1 officers, employees or agents for any injury or damage resulting from the failure of a
2 building to conform to the provisions of this Code, or by reason of or in consequence of any
3 inspection, notice, order, certificate, permission of approval authorized or issued or done in
4 connection with the implementation or enforcement of this Code, or by reason of any action
5 or inaction on the part of the City related in any manner to the enforcement of this Code or
6 by its officers or agents. The building official or any employee charged with the
7 enforcement of this Code, acting in good faith and without malice for the City in the
8 discharge of his/her duties, shall not thereby render himself/herself liable personally and
9 he/she is hereby relieved from all personal liability for any damage that may accrue to
10 persons or property as a result of any act required or by reason of any act or omission in the
11 discharge of his/her duties.

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14 **Section 8.** Effective July 1, 2001, Section 1311.6 of the 2000 Washington State Energy
15 Code is amended to read as follows:
16

17 **1311.6 Radiant Floors (on or below grade):** Slab on grade insulation shall extend
18 downward from the top of the slab a minimum distance of 36 inches or downward to the top
19 of the footing and horizontal for an aggregate of not less than 36 inches.

20 ~~(If required by the building official where soil conditions warrant such insulation, t)~~
21 The entire area of radiant floor shall be thermally isolated from the soil. Where a soil gas
22 control system is provided below the radiant floor, which results in increased convective
23 flow below the radiant floor, the radiant floor shall be thermally isolated from the sub-floor
24 gravel layer.

25 **Section 9.** Effective July 1, 2001, Section 1323 of the 2000 Washington State Energy
26 Code is amended to read as follows:
27

28 **1323 Glazing:** Glazing shall comply with Section 1312 and Tables 13-1 or 13-2. All
29 glazing shall be, at a minimum, double glazing.

30 **EXCEPTIONS:**

31 1. Vertical glazing located on the display side of the street level story of a retail
32 occupancy or where there is a street level transparency requirement in the Seattle Land
33 Use Code provided the glazing is

34 a. double-glazed with a minimum 1/2 inch airspace and with a low-e coating
35 having a maximum emittance of $e=0.40$ or has an area-weighted U-factor of 0.60 or less.

36 (When this exception is used, there are no SHGC requirements) and

37 b. does not exceed 75% of the gross exterior wall area of the display side of the
38 street level story. However, if the display side of the street level story exceeds 20 feet in
39 height, then this exception may only be used for the first 20 feet of that story.

40 When this exception is utilized, separate calculations shall be performed for
41 these sections of the building envelope and these values shall not be averaged with any
42 others for compliance purposes. The 75% area may be exceeded on the street level, if the
43 additional glass area is provided from allowances from other areas of the building.



2. Single glazing for ornamental, security, or architectural purposes shall be included in the percentage of total glazing area, U-factor calculation and SHGC as allowed in the Tables 13-1 or 13-2. The maximum area allowed for the total of all single glazing is 1% of the gross exterior wall area.

Section 10. Effective July 1, 2001, Table 13-1 of the 2000 Washington State Energy Code is amended to read as follows:

**TABLE 13-1
 BUILDING ENVELOPE REQUIREMENTS
 FOR CLIMATE ZONE 1**

**MINIMUM INSULATION R-VALUES OR
 MAXIMUM COMPONENT U-FACTORS FOR ZONE 1**

Building Components

Space Heat Type	Components					
	Roofs Over Attic	All Other Roofs	Opaque Walls ^{1,2}	Opaque Doors	Floor Over Uncond Space	Slab On Grade ⁵
1. Electric resistance heat**	R-38 or U=0.031	R-30 or U=0.034	R-19 or U=0.062 ³	U=0.60	R-30 or U=0.029	R-10 or F=0.54
2. All others including Heat pumps and VAV	R-30 or U=0.036	R-21 or U=0.050	R-11 or U=0.14	U=0.60	R-19 or U=0.056	R-10 or F=0.54

** Compliance with nominal prescriptive R-values requires wood framing.

**MAXIMUM GLAZING AREAS AND U-FACTORS AND
 MAXIMUM GLAZING SOLAR HEAT GAIN COEFFICIENTS
 FOR ZONE 1**

Glazing

Maximum Glazing Area as % of Wall	0% to 15%		>15% to 20%		>20% to 30%		>30% to 40%					
	Maximum U-Factor		Max. SHGC ⁴	Maximum U-Factor		Max. SHGC ⁴	Maximum U-Factor		Max. SHGC ⁴			
	VG	OG		VG	OG		VG	OG				
1. Electric resistance heat	0.40	0.80	1.0	0.40	0.80	1.0	PRESCRIPTIVE PATH NOT ALLOWED					
2. All others including Heat pumps and VAV	0.90	1.45	1.0	0.75	1.40	1.0	0.60	1.30	0.65	0.50	1.25	0.45

Footnotes

1. Below Grade Walls:

When complying by the prescriptive approach, Section 1322:

- a) walls insulated on the interior shall use opaque wall values,
- b) walls insulated on the exterior shall use a minimum of R-10 insulation,
- c) those portions of below grade walls and footings that are more than 10 feet below grade, and not included in the gross exterior wall area, may be left uninsulated.

When complying by the component performance approach, Section 1331:

- a) walls insulated on the interior shall use the opaque wall values when determining



U_{bgwt} ,

b) walls insulated on the exterior shall use a target U-factor of $U=0.070$ for U_{bgwt} ,

c) those portions of below grade walls and footings that are more than 10 feet below grade, and not included in the gross exterior wall area, need not be included when determining A_{bgwt} and A_{bgw} .

2. Concrete Masonry Walls: If the area weighted heat capacity of the total opaque above grade wall is a minimum of $9.0 \text{ Btu/ft}^2 \cdot ^\circ\text{F}$, then the U-factor may be increased to 0.19 for interior insulation and 0.25 for integral and exterior insulation for insulation position as defined in Chapter 12.

Individual walls with heat capacities less than $9.0 \text{ Btu/ft}^2 \cdot ^\circ\text{F}$ and below grade walls shall meet opaque wall requirements listed above. Glazing shall comply with the following:

Maximum Glazing Area as % of Wall	0 to 10 %			>10 to 15 %			>15% to 20 %			>20% to 25 %		
	Maximum U-Factor		Max. SHGC ⁴									
	VG	OG		VG	OG		VG	OG		VG	OG	
1. Electric resistance heat	0.40	0.80	1.0	0.40	0.80	1.0	0.40	0.80	1.0	NOT ALLOWED		
2. All others including Heat pumps and VAV	0.90	1.45	1.0	0.75	1.40	1.0	0.65	1.30	0.80	0.60	1.30	0.65

3. Reserved.

4. SHGC (Solar Heat Gain Coefficient per Section 1312.2): May substitute Maximum Shading Coefficient (SC) for SHGC (See Chapter 2 for definition of Shading Coefficient).

5. Radiant Floors: Where insulation is required under the entire slab, radiant floors shall use a minimum of R-10 insulation or $F=0.55$ maximum. Where insulation is not required under the entire slab, radiant floors shall use R-10 perimeter insulation according to Section 1311.6 or $F=0.78$ maximum.

6. Prescriptive Alternate: For the prescriptive building envelope option only, for other than electric resistance heat only, glazing may comply with either of the following:

Maximum Glazing Area as % of Wall:	Maximum U-Factor		Max. SHGC ⁴
	VG	OG	
>40% to 60%			
alternate a	0.40	0.80	0.30
alternate b	0.35	0.80	0.35

For glazed wall systems, assemblies with all of the following features are deemed to satisfy the vertical glazing U-factor requirement of U-0.40:

a. Double glazing with a minimum 1/2 inch gap width, having a low-emissivity coating with $e=0.10$ maximum, with 90% minimum argon gas fill, and a non-aluminum spacer (as defined in footnote 1 to Table 10-6B), and

b. Frame that is thermal break aluminum (as defined in footnote 9 to Table 10-6B), wood, aluminum clad wood, vinyl, aluminum clad vinyl, or reinforced vinyl.



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3 **Section 11.** Effective July 1, 2001, Section 1402 of the 2000 Washington State Energy
4 Code is amended to read as follows:

5
6 **1402 Mechanical Ventilation:** The minimum requirements for ventilation shall comply
7 with the (~~Washington State Ventilation and Indoor Air Quality Code (WAC51-13)~~) Seattle
8 Mechanical Code.
9

10
11 **Section 12.** Effective July 1, 2001, Section 1411.2 of the 2000 Washington State
12 Energy Code is amended to read as follows:

13
14 **1411.2 Rating Conditions:** Cooling equipment shall be rated at ARI test conditions and
15 procedures when available. Where no applicable procedures exist, data shall be furnished by
16 the equipment manufacturer.
17

If equipment is rated in accordance with an
ARI Standard, it shall be rated at
Standard (not "design") ARI Rating Conditions.

18
19
20 **Section 13.** Effective July 1, 2001, the 2000 Washington State Energy Code is
21 amended by adding a new Section 1411.5 to read as follows:

22
23 **1411.5 Heating Systems in Unenclosed Spaces.** Where heating is provided to unenclosed
24 spaces, only radiant heating systems shall be used unless otherwise approved by the building
25 official. An unenclosed space is one that is not substantially surrounded by solid surfaces
26 such as walls, floors, roofs, and openable devices such as doors and operable windows.
27 Warehouses and repair garages are considered enclosed spaces.
28

29
30 **Section 14.** Effective July 1, 2001, Section 1412.4 of the 2000 Washington State
31 Energy Code is amended to read as follows:

32
33 **1412.4 Setback and Shut-Off:** HVAC systems shall be equipped with automatic controls
34 capable of accomplishing a reduction of energy use through control setback or equipment
35 shutdown during periods of non-use or alternate use of the spaces served by the system. The
36 automatic controls shall have a minimum seven-day clock and be capable of being set for
37 seven different day types per week.

38 **EXCEPTIONS:**

- 39 1. Systems serving areas which require continuous operation at the same
40 temperature setpoint.
41 2. Equipment with full load demands of 2 kW (6,826 Btu/h) or less may be
42 controlled by readily accessible manual off-hour controls.
43



1 **1412.4.1 Dampers:** Outside air intakes, exhaust outlets and relief outlets serving
2 conditioned spaces shall be equipped with motorized dampers which close automatically
3 when the system is off or upon power failure. Stair shaft and elevator shaft smoke relief
4 openings shall be equipped with normally open dampers. These dampers shall remain
5 closed until activated by the fire alarm system or other approved smoke detection system.
6

7 **EXCEPTIONS:**

- 8 1. Systems serving areas which require continuous operation.
9 2. Combustion air intakes.
10 3. Gravity (non-motorized) dampers are acceptable in buildings less than 3
11 stories in height.
12

13 **1412.4.2 Optimum Start Controls:** Heating and cooling systems with design supply air
14 capacities exceeding 10,000 cfm shall have optimum start controls. Optimum start controls
15 shall be designed to automatically adjust the start time of an HVAC system each day to bring
16 the space to desired occupied temperature levels immediately before scheduled occupancy.
17 The control algorithm shall, as a minimum, be a function of the difference between space
18 temperature and occupied setpoint and the amount of time prior to scheduled occupancy.
19
20

21 **Section 15.** Effective July 1, 2001, the 2000 Washington State Energy Code is
22 amended by adding a new Section 1412.8 to read as follows:
23

24 **1412.8 Enclosed Parking Garage Ventilation.** Garage ventilation fan systems with a total
25 design capacity greater than 30,000 cfm shall have at least one of the following:

- 26 (a) An automatic control that is capable of staging fans or modulating fan
27 volume as required to maintain carbon monoxide (CO) concentration below a
28 level of 50 ppm as stated in ASHRAE Standard 62. This option only applies
29 to garages used predominantly by gasoline powered vehicles.
30 (b) An automatic control that is capable of shutting off fans or reducing fan
31 volume during periods when the garage is not in use. The system shall be
32 equipped with at least one of the following:
33 (i) An automatic timeclock that can start and stop the system under
34 different schedules for seven different day-types per week, is capable
35 of retaining programming and time setting during loss of power for a
36 period of at least 10 h, and includes an accessible manual override that
37 allows temporary operation of the system for up to 2 h.
38 (ii) An occupant sensor.
39

40
41 **Section 16.** Effective July 1, 2001, Section 1414.2 of the 2000 Washington State
42 Energy Code is amended to read as follows:
43

44 **1414.2 Insulation.** Ducts and plenums that are constructed and function as part of the
45 building envelope, by separating interior space from exterior space, shall meet all applicable
46 requirements of Chapter 13. These requirements include insulation installation, moisture



1 control, air leakage, and building envelope insulation levels. (~~Unheated equipment rooms~~
2 ~~with combustion air louvers shall be isolated from the conditioned space by insulating~~
3 ~~interior surfaces to a minimum of R-11 and any exterior envelope surfaces per Chapter 13.~~)

4 Outside air ducts serving individual supply air units with less than 2,800 cfm of total supply
5 air capacity shall be insulated to a minimum of R-7 and are not considered building
6 envelope. Other outside air duct runs are considered building envelope until they,

7 1. connect to the heating or cooling equipment, or

8 2. are isolated from the exterior with an automatic shut-off damper complying with
9 Section 1412.4.1.

10 Once outside air ducts meet the above listed requirements, any runs within conditioned space
11 shall comply with Table 14-5 requirements. Other ducts and plenums shall be thermally
12 insulated per Table 14-5.

13 **EXCEPTIONS:**

14 1. Within the HVAC equipment.

15 2. Exhaust air ducts not subject to condensation.

16 3. Exposed ductwork within a zone that serves that zone.

17
18
19 **Section 17.** Effective July 1, 2001, Section 1421 of the 2000 Washington State Energy
20 Code is amended to read as follows:

21
22 **1421 System Type:** To qualify as a simple system, systems shall be one of the following:

23
24 a. Air cooled, constant volume packaged equipment, which provide heating, cooling
25 or both, and require only external connection to duct work and energy services with
26 cooling capacity of 135,000 Btu/h or less.

27 b. Air cooled, constant volume split systems, which provide heating, cooling or both,
28 with cooling capacity of 84,000 Btu/h or less.

29 c. Heating only systems which have a capacity of less than 5,000 cfm or which have a
30 minimum outside air supply of less than 70% of the total air circulation.

31 All other systems shall comply with Sections 1430 through 1438.

32
33
34 **Section 18.** Effective July 1, 2001, the 2000 Washington State Energy Code is
35 amended by adding a new Section 1421.1 to read as follows:

36
37 **1421.1 System Sizing Limits:** Installed space heating equipment output shall not exceed 30
38 Btu per square foot of gross conditioned floor area and installed space cooling equipment
39 output shall not exceed 30 Btu per square foot of gross conditioned floor area.

40
41 **EXCEPTIONS:**

42 1. For equipment which provides both heating and cooling in one package unit,
43 compliance need only be demonstrated for either the space heating or space cooling
44 system size.

45 2. Equipment sized in accordance with Section 1431.2.



1
2 **Section 19.** Effective July 1, 2001, the 2000 Washington State Energy Code is
3 amended by adding a new Section 1431.2 to read as follows:
4

5 **1431.2 System Sizing Limits:** Heating and cooling design loads for the purpose of sizing
6 systems shall be determined in accordance with one of the procedures described in Chapter
7 28 of Standard RS-27 listed in Chapter 17 or an equivalent computation procedure. For
8 interior temperatures, 70°F shall be used for heating and 75°F for cooling. For exterior
9 temperatures, 24°F shall be used for heating and 82°F drybulb and 66°F wetbulb for cooling.

10 Building mechanical systems for all buildings which provide space heating and/or space
11 cooling shall be sized no greater than 150% of the design load as calculated above. No
12 additional safety factor is allowed.

13 **EXCEPTIONS:** The following limited exemptions from the sizing limit shall be
14 allowed, however, in all cases heating and/or cooling design load calculations shall
15 be submitted.

- 16 1. For a single piece of equipment which has both heating and cooling
17 capability, only one function, either the heating or the cooling, need meet the
18 requirements of this section. Capacity for the other function shall be, within
19 available equipment options, the smallest size necessary to meet the load.
20 2. (Reserved.)
21 3. Stand-by equipment may be installed if controls and devices are provided
22 which allow redundant equipment to operate automatically only when the
23 primary equipment is not operating.
24 4. Multiple units of the same equipment type, such as multiple chillers and
25 boilers, with combined capacities exceeding the design load may be specified
26 to operate concurrently only if controls are provided that sequence or
27 otherwise optimally control the operation of each unit based on load.
28

29
30 **Section 20.** Effective July 1, 2001, Section 1432.2 of the 2000 Washington State
31 Energy Code is amended to read as follows:
32

33 **1432.2 Systems Temperature Reset Controls**

34 **1432.2.1 Air Systems for Multiple Zones:** Systems supplying heated or cooled air to
35 multiple zones shall include controls which automatically reset supply air temperatures by
36 representative building loads or by outside air temperature. Temperature shall be reset by at
37 least 25% of the design supply-air-to-room-air temperature difference.

38 **EXCEPTION:** Where specified humidity levels are required to satisfy process needs,
39 such as computer rooms or museums.
40

41 **1432.2.2 Hydronic Systems.** Systems with a design capacity of 600,000 Btu/h or greater
42 supplying heated or mechanically refrigerated water to comfort conditioning systems shall
43 include controls which automatically reset supply water temperatures by representative
44 building loads (including return water temperature) or by outside air temperature.
45 Temperature shall be reset by at least 25% of the design supply-to-return water temperature
46 differences.



EXCEPTION: Hydronic systems that use variable flow devices complying with Section 1438 to reduce pumping energy.

Section 21. Effective July 1, 2001, Section 1435 of the 2000 Washington State Energy Code is amended to read as follows:

1435 Simultaneous Heating and Cooling: Systems which provide heating and cooling simultaneously to a zone are prohibited. Zone thermostatic and humidistatic controls shall be capable of operating in sequence the supply of heating and cooling energy to the zone. Such controls shall prevent:

- a. Reheating for temperature control.
- b. Recooling for temperature control.
- c. Mixing or simultaneous supply of air that has been previously mechanically heated and air that has been previously cooled, either by economizer systems or by mechanical refrigeration.
- d. Other simultaneous operation of heating and cooling systems to the same zone.
- e. Reheating for humidity control.

EXCEPTIONS:

1. Zones for which the volume of air that is reheated, recooled, or mixed is no greater than the larger of the following:
 - i. The volume of air required to meet the minimum required to meet the ventilation requirements of the (~~Washington State Ventilation and Indoor Air Quality Code~~) Seattle Mechanical Code for the zone.
 - ii. 0.4 cfm/ft² of the zone conditioned floor area, provided that the temperature of the primary system air is, by design or through reset controls, 0-12°F below the design space heating temperature when outside air temperatures are below 60°F for reheat systems and cold deck of mixing systems and 0-12°F above design space temperature when outside air temperatures are above 60°F for recooling systems and hot deck of mixing systems. For multiple zone systems, each zone need not comply with this exception provided the average of all zones served by the system that have both heating and cooling ability comply.
 - iii. 300 cfm. This exception is for zones whose peak flow rate totals no more than 10% of the total fan system flow rate.
 - iv. Any higher rate that can be demonstrated, to the satisfaction of the building official, to reduce overall system annual energy usage by offsetting reheat/recool energy losses through a reduction in outdoor air intake in accordance with the multiple space requirements defined in ASHRAE Standard 62.
2. Zones where special pressurization relationships, cross-contamination requirements, or code required minimum circulation rates are such that variable air volume systems are impractical.
3. Zones where at least 75% of the energy for reheating or for providing warm air in mixing systems is provided from a site-recovered (including condenser heat) or site-solar energy source.
4. Zones where specific humidity levels are required to satisfy process needs, such as computer rooms, museums, surgical suites, and buildings with refrigerating systems, such as supermarkets, refrigerated warehouses, and ice arenas.

Section 22. Effective July 1, 2001, Section 1436 of the 2000 Washington State Energy Code is amended to read as follows:

1436 Heat Recovery: Fan systems which have both a capacity of 5,000 cfm or greater and which have a minimum outside air supply of 70% or greater of the total air circulation shall



1 have a heat recovery system with at least 50% recovery effectiveness. 50% heat recovery
2 effectiveness shall mean an increase in the outside air supply temperature at design heating
3 conditions of one half the difference between the outdoor design air temperature and 65°F.
4 Provision shall be made to bypass or control the heat recovery system to permit air
5 economizer operation as required by Section 1433. Heat recovery energy may be provided
6 from any site-recovered or site-solar source.

7 **EXCEPTIONS:**

- 8 1. Laboratory systems equipped with both variable air volume supply and variable air
9 volume or two-speed exhaust fume hoods provided that an instruction label is
10 placed on the face of the hood that provides the information in Exhibit 14-1.

11 Exhibit 14-1

12 INSTRUCTIONS TO OPERATOR

13 To be in compliance with the Seattle Energy Code, this fume hood
14 is designed to operate as variable air volume (VAV)
by adjusting the sash or controller. Maintain sash in the minimum
position during use and close totally when the fume hood is not in use.

- 15 2. Systems serving spaces heated to less than 60°F.
16 3. Systems which can be shown to use as much energy with the addition of heat
17 recovery equipment as without it.
18 4. Systems exhausting toxic, flammable, paint exhaust or corrosive fumes making the
19 installation of heat recovery equipment impractical.
20 5. Type I commercial kitchen hoods.

21 **Section 23.** Effective July 1, 2001, Section 1438 of the 2000 Washington State Energy
22 Code is amended to read as follows:

23 **1438 Variable Flow Systems and System Criteria:** For fans and pumps greater than 10
24 hp where the where the application involves variable flow, there shall be

- 25 1. variable speed drives or
26 2. other controls and devices that will result in fan and pump motor demand of
27 no more than 30% of design wattage at 50% of design air volume for fans
28 when static pressure set point equals 1/3 the total design static pressure, and
29 50% of design water flow for pumps, based on manufacturer's certified test
30 data.

31 At the time this code was adopted, very few technologies
32 could be shown to meet the criteria in option 2.



1 ((~~variable flow devices installed. Acceptable variable flow devices include variable inlet~~
2 ~~vanes, variable blade pitch and variable fan geometry.~~ F)) Variable inlet vanes, throttling
3 valves (dampers), scroll dampers or bypass circuits shall not be allowed.
4

5
6 **Section 24.** Effective July 1, 2001, the 2000 Washington State Energy Code is
7 amended by adding a new Section 1438.1 to read as follows:
8

9 **1438.1 Cooling Towers:** All cooling towers with a total fan motor horsepower greater than
10 10 hp shall be equipped with a pony motor of a rated hp no greater than 1/3 of the hp of the
11 primary motor or with a two-speed motor. The cooling tower control shall provide two-
12 stage operation of fans and shall bring on the pony motor to operate without the primary
13 motor or for a two-speed motor run at the lower speed when possible while meeting the
14 condenser water return setpoint.

15 **EXCEPTION:** Cooling towers with variable frequency drive.
16

17
18 **Section 25.** Effective July 1, 2001, the 2000 Washington State Energy Code is
19 amended by adding a new Section 1452 to read as follows:
20

21 **1452 Pool Water Heaters:** Pool water heaters using electric resistance heating as the
22 primary source of heat are prohibited for pools over 2,000 gallons.
23

24
25 **Section 26.** Effective July 1, 2001, Section 1530 of the 2000 Washington State Energy
26 Code is amended to read as follows:
27

28 **1530 LIGHTING POWER ALLOWANCE OPTION:** The installed lighting wattage
29 shall not exceed the lighting power allowance. Lighting wattage includes lamp and ballast
30 wattage. Wattage for fluorescent lamps and ballasts shall be tested per ANSI Standard
31 C82.2-1984.



1 The wattage used for any unballasted fixture shall be the maximum UL listed wattage
2 for that fixture regardless of the lamp installed. The wattage used for track lighting shall be:

3 a. for line voltage track, 50 watts per lineal foot of track or actual luminaire
4 wattage, whichever is greater.

5 b. for low voltage track (less than 30 volts), 25 watts per lineal foot of track or
6 the VA rating of the transformer, whichever is greater.

7 No credit towards compliance with the lighting power allowances shall be
8 given for the use of any controls, automatic or otherwise.

9 Exit lights that are 5 watts or less per fixture shall not be included in the lighting
10 power allowance calculations. Other exit lights shall be included in the lighting power
11 allowance calculations.

12
13
14 **Section 27.** This ordinance shall take effect and be in force thirty (30) days from and
15 after its approval by the Mayor, but if not approved and returned by the Mayor within ten
16 (10) days after presentation, it shall take effect as provided by Municipal Code Section
17 1.04.020.

18
19 Passed by the City Council the 21st day of May, 2001, and signed by me
20 in open session in authentication of its passage this 21st day of May, 2001.

21 Margaret C. Dyer
22 _____
23 President of the City Council

24 Approved by me this 24th day of MAY, 2001.

25 Paul Schell
26 _____
27 Paul Schell, Mayor

28
29 Filed by me this 24 day of May, 20

30 Judith E. Duppini
31 _____
32 City Clerk

33 (SEAL)





City of Seattle

Paul Schell, Mayor

Department of Design, Construction and Land Use
R. F. Krochalis, Director

MEMORANDUM

TO: Council President Margaret Pageler
Via Margaret Klockars, Law Department
Margaret Klockars

FROM: Rick Krochalis, Director

DATE: 4 May 2001

SUBJECT: Adoption of the 2000 Seattle Energy Code

Transmittal

I am pleased to send to you the attached ordinance, which adopts the 2000 Seattle Energy Code (the 2000 Washington State Energy Code plus carrying over the 1997 Seattle Energy Code amendments).

Background on the 2000 Seattle Energy Code

In November 2000 the Washington State Building Code Council (WSBCC) made modifications and adopted the new State codes, including the 2000 Washington State Energy Code. Both the State and the City of Seattle typically update the technical building codes every three years, and last year was no exception. The 2000 State codes take effect statewide on 1 July 2001. Given the current energy situation, it is especially important that the City of Seattle begin enforcement on that date.

The Seattle amendments in the attached ordinance were previously reviewed and supported by CCAB at their meeting on 19 March 1998 as part of the 1997 Seattle Energy Code adoption process (the 1997 Seattle Energy Code being the 1997 Washington State Energy Code with Seattle amendments). The 2000 ordinance is shorter because some of the 1997 Seattle amendments were incorporated into the 2000 Washington State Energy Code, and because two little-used amendments are not proposed to be re-adopted. In addition, the violations language has been edited to make it consistent with the other codes that DCLU enforces. A summary of the changes between the 1997 Washington State Energy Code and the 2000 Washington State Energy Code has been posted on the Seattle Energy Code website since January 2001 and is attached.



City Council Review

On Thursday, May 4, 2001, DCLU provided a briefing on this legislation to the City Council's Energy and Environment Committee. The Council's Energy and Environment Committee is scheduled to consider this legislation at their meeting on Thursday, May 17, 2001.

Non-Financial Legislation

Implementation costs associated with this legislation will be minor, and can be accommodated within existing resources.

Future work: the 2001 Seattle Energy Code

In February 2001, the Seattle City Council adopted Resolution 30280 directing DCLU and Seattle City Light to bring forward, by July 1, 2001, a package of Energy Code amendments that would achieve a 20% improvement in energy efficiency for nonresidential buildings over that achieved through ASHRAE/IESNA Standard 90.1-1999. DCLU published a First Draft proposal in January 2001 and a Second Draft in April 2001. DCLU has been conducting weekly public review meetings, and the meetings have been well-attended. For further information, see the Seattle Energy Code website at <http://www.ci.seattle.wa.us/dclu/energy>.

Timeline of Past and Proposed Actions:

- **June, 1998:** Council adopted 1997 Washington State Energy Code with Seattle amendments. This became the 1997 Seattle Energy Code.
- **May, 2001:** Council will adopt 2000 Washington State Energy Code and incorporate 1997 Seattle amendments. (This will effectively be a placeholder until new Seattle amendments are finalized.) This 2000 Seattle Energy Code will take effect July 1, 2001.
- **July, 2001:** DCLU will bring forward more amendments to the State's 2000 Energy Code. This will potentially include the following three packages of amendments: a package from DCLU's Construction Codes Advisory Board (CCAB); a package from DCLU and City Light; and a package developed pursuant to City Council Resolution 30280 that would achieve a 20% improvement in energy efficiency over ASHRAE/IESNA Standard 90.1-1999, the national standard on which the State and Seattle Energy Codes are based.
- **Summer/Fall, 2001:** Council will adopt new Seattle amendments, effectively creating the 2001 Seattle Energy Code.

If you have any questions about the proposed legislation or future work, please contact John Hogan of my staff by e-mail at john.hogan@ci.seattle.wa.us or by phone at (206) 386-9145.

Attachments: Ordinance

Summary of Changes for the 2000 Washington State Energy Code





City of Seattle

Paul Schell, Mayor

Department of Design, Construction and Land Use
R. F. Krochalis, Director

TO: Interested Parties
FROM: John Hogan *JH*
DATE: 18 January 2001
SUBJECT: Summary of Changes for the 2000 Washington State Energy Code

In November 2000, the Washington State Building Code Council (WSBCC) adopted the new State codes, including the 2000 Washington State Energy Code. The revisions were published in January 2001 in the Washington State Register 01-03-010 (<http://slc.leg.wa.gov/wsr/register.htm>, then "index", then "Building Code Council"). Barring any action by the Washington State Legislature, the 2000 State codes take effect statewide on 1 July 2001.

This document contains a summary of those changes adopted for the 2000 Washington State Energy Code. A complete published version of the 2000 Washington State Energy Code containing all the changes is not likely to be available before May 2001.

You can download an electronic version of this document and also obtain draft Seattle amendments to the 2000 Washington State Energy Code at the Seattle Energy Code website at: <http://www.ci.seattle.wa.us/dclu/energy>.



SUMMARY OF CHANGES FOR THE 2000 WASHINGTON STATE ENERGY CODE

Below is a section-by-section summary of changes for the 2000 Washington State Energy Code. Auxiliary chapters with similar information were combined to reduce duplication and conflicts, and to simplify and shorten the code. Chapter consolidations are listed in the beginning.

<u>Chapter</u>	<u>Subject</u>	<u>Summary</u>
2 & 12	Definitions	Consolidates the two definition chapters (2 & 12) using the definitions from Chapter 12 as a base. Definitions are then all located in Chapter 2.
7 & 17	Standards	Consolidates the two standards chapters (7 & 17) using the standards from Chapter 17 as a base. Standards are then all located in Chapter 7.
10 & 20	Definitions	Consolidates the two default U-factor chapters (10 & 20) using the default U-factors from Chapter 20 as a base. Default U-factors are then all located in Chapter 10.

<u>Section</u>	<u>Subject</u>	<u>Summary</u>
----------------	----------------	----------------

RESIDENTIAL (Group R Occupancy)

101.3.2.1	Additions	Exception clarifies intent that tradeoff calculations for additions less than 750 square feet do not include any elements which are no longer part of the building envelope once the addition is added.
101.3.2.8	Lighting alter.	Companion change to lighting alterations subject to 505.
201.1	Definitions	Definitions revised for consistency with Chapter 12 for conditioned space, cooled space, door, glazing, glazing area, gross exterior wall area, gross roof/ceiling area, heated space, HSPF, opaque envelope areas, radiant slab floor, roof/ceiling assembly, skylight, thermal transmittance, thermal transmittance overall, vapor retarder; definitions moved from Chapter 12 for ARI, daylighted zone, daylight sensing control, design cooling conditions, design heating conditions, economizer air, economizer water, façade area, indirectly conditioned space, insulation position, IPLV, microcell, NFPA, nonresidential, personal wireless service facility, SEER, shading coefficient, split system, vertical glazing; and definitions deleted for building existing, comfort envelope, degree day heating, illumination, packaged terminal heat pump, positive cooling supply, positive heating supply, public facility rest room.



502.1.1	General	Table of parallel path R-values for metal stud walls and roof/ceilings moved to Chapter 10.
502.1.4.6	Insulation	Clarifies that wall insulation to fill framed cavity.
503.1	General	Deletes obsolete language.
503.2.2	Sizing limits	Natural gas- and oil-fired space heating equipment: (a) 40,000 Btu/h and less exempt from sizing limits; (b) over 40,000 can exceed 200 percent sizing provided that furnace AFUE is not less than 90 percent.
503.7	Economizer	Reference made to nonresidential requirements for consistency; small units in Group R occupancy exempt from overall building limits.
503.10.2	Duct sealing	Establishes good practice duct sealing requirements for seams and joints, duct tape not permitted as a sealant.
503.10.4	Duct insulation	Reference added to Table 5-11.
503.11	Pipe insulation	Revised for consistency with nonresidential requirements for HVAC systems.
504.7	Pipe insulation	Revised for consistency with nonresidential requirements for service water heating systems.
505	Lighting	Adds lighting control requirements for hotel/motel guest rooms; adds lighting power requirements for hotel/motels and multifamily corridors.
Table 5-1	Target UA	Editorial corrections.
601.1	General	Incorporates previous State interpretation that clarifies that prescriptive approach can only be used for wood framing; buildings with other framing must use Target UA or systems analysis to demonstrate compliance.
605	Lighting	Companion change to 505 – refers to lighting requirements in 505.
Tables 6-1 to 6-6		Companion change to 601.1 – adds footnote to table to incorporate previous State interpretation that clarifies that prescriptive approach can only be used for wood framing.
701	Standards	Standards and accredited authoritative agencies updated to current versions; nonresidential standards moved here from Chapter 17.



1001	General	Air film and insulation compression sections and Table 10-A moved here from Chapter 20.
1003	Slab floors	Minor changes from Chapter 20.
1003	Exposed floors	Minor changes from Chapter 20.
1005	Walls	Default metal building U-factors in Table 10-5A and default U-factors for concrete and masonry walls in Table 10-5B moved here from Chapter 20; minor changes from Chapter 20.
1006	Glazing, doors	Default U-factors for other than Group R occupancy in Table 10-6 moved here from Chapter 20; minor changes from Chapter 20.
Table 10-6C & 10-6D		New Table 10-6C with door U-factors from ASHRAE 1997 Fundamentals Handbook replaces previous Tables 10-6C & 10-6D.
1007	Ceilings	Minor changes from Chapter 20.
1008	Air infiltration	Minor changes for clarification.
1009	Mass	Minor changes from Chapter 20.

NONRESIDENTIAL (Other than Group R Occupancy)

1132.3	Lighting alter.	Clarifies what area 60% threshold applies to. <i>(Incorporates 1997 Seattle Energy Code amendment.)</i>
Chap. 12	Definitions	Moved to Chapter 2.
1313.2	Roof/ceiling	Clarifies when vented airspace not required and adds cross-reference to UBC.
1322	Insulation	Clarifies that prescriptive approach for electric resistance space heat can only be used for wood framing; buildings that have electric resistance heat with other framing must use Target UA or systems analysis to demonstrate compliance.
1323	Glazing	Glazing in retail storefronts required to have low-e coating to qualify for exception allowing 75 percent glazing area, similar to ASHRAE/IESNA Standard 90.1-1999; clarification on treatment of storefronts over 20 feet.
1331	ENVSTD	Specifies use of the 1989 version for consistency with envelope criteria.
Tables 13-1 & 13-2		Companion change to 1322 – adds footnote to table to clarify that prescriptive approach for electric resistance space heat can only be used for wood framing.



- 1410 Figure 14A Editorial change to add new section references.
- 1411.1 Equip. effic. HVAC equipment must be listed in certification program if one exists.
- 1412.4.2 HVAC controls Optimum start controls required for systems over 10,000 cfm, similar to ASHRAE/IESNA Standard 90.1-1999.
(Incorporates 1997 Seattle Energy Code amendment.)
- 1414.2 Duct insulation Allows small outside air ducts to be insulated to R-7.
(Incorporates 1997 Seattle Energy Code amendment.)
Revises exemption to include a duct passing through any space as long as the duct serves that space.
- 1415.1 Pipe insulation Editorial revision for consistency with residential requirements for HVAC systems.
- 1416 Completion Completion and commissioning required for HVAC systems, similar to ASHRAE/IESNA Standard 90.1-1999.
(Incorporates 1997 Seattle Energy Code amendment.)
- 1423 Economizer Companion change to 503.7, small units in Group R occupancy exempt from overall building limits.
- 1433 Economizer Companion change to 503.7, small units in Group R occupancy exempt from overall building limits.
- 1435 Simul.htg&clg Eliminates requirement for fan-powered terminal units, and prohibits mixing of air cooled by economizer unless qualifying by one of the exceptions, similar to ASHRAE/IESNA Standard 90.1-1999.
- 1438 Variable flow Changes variable frequency drive to variable speed drive.
- 1439 Exhaust hoods Kitchen hoods and fume hoods to use minimally treated air, similar to ASHRAE/IESNA Standard 90.1-1999.
- 1512 Exempt ltg. Sanctuary portion of house of worship exempted.
- 1513 Light. control Clarification that all lighting to comply with controls requirements.
- 1513.3 Daylighting Clarification that daylighting controls only allowed to serve two contiguous orientations, interior skylights to be controlled separately, spaces with two or fewer light fixtures exempted.
- 1513.6 Auto shutoff Threshold lowered to 5,000 square feet for office buildings.
(Incorporates 1997 Seattle Energy Code amendment.)
- 1513.7 Commissioning Commissioning required for automatic lighting controls, similar to earlier public review draft of ASHRAE/IESNA Standard 90.1-1999.
(Incorporates 1997 Seattle Energy Code amendment.)



- 1521 Prescriptive Clarification that electronic ballasts that screw into medium base sockets do not comply; exit lights must be LED or T-1 not exceeding 5 Watts/fixture to be exempted.
- 1530 Light. power Exit lights must not exceed 5 Watts/fixture, otherwise they are included in the lighting power allowance calculations.
- 1531 Int.light.power Clarify that lighting power allowance calculations for tenant improvements are based on the interior floor area.
- 1532 Ext.light.power Incorporates previous State interpretation that lighting power allowance calculations for outdoor areas are based on the area that is illuminated; parking garage exemption limited to Group U occupancy accessory to Group R-3 occupancy; and, lighting power allowance allowed to be increased to 0.3 W/sf provided that ceilings and walls are painted in a bright reflective paint.

Table 15-1 Retail lighting combined into one category at 1.5 W/sf maximum plus an additional 1.5 W/sf for qualifying tungsten halogen, fluorescent, and HID luminaires; Group R-1 use added at 1.0 W/sf maximum; main floor building lobby use added at 1.2 W/sf maximum; incorporates previous State interpretation clarifying application for school buildings; incorporates previous State interpretation clarifying exemption for illumination in display windows, freestanding displays, and showcases; and clarifies that the specific use applies when both a general use and a specific use are listed.

Chap. 17 Standards Moved to Chapter 7.

Chap. 20 Defaults Moved to Chapter 10.

RS-29, 2.4 Procedure Eliminates exception for simplified modeling tools for projects less than 25,000 sf.

RS-29, 3.4.4 Fans Clarifies that this section applies to all fan systems.

RS-29, 3.4.5 Water htg. Editorial updating of reference.

RS-29, 4 Software List of acceptable software for annual energy analysis updated and revised for consistency with change to 2.4.



STATE OF WASHINGTON – KING COUNTY

--SS.

132076
City of Seattle, Clerk's Office

No. FULL ORDINANCE

Affidavit of Publication

The undersigned, on oath states that he is an authorized representative of The Daily Journal of Commerce, a daily newspaper, which newspaper is a legal newspaper of general circulation and it is now and has been for more than six months prior to the date of publication hereinafter referred to, published in the English language continuously as a daily newspaper in Seattle, King County, Washington, and it is now and during all of said time was printed in an office maintained at the aforesaid place of publication of this newspaper. The Daily Journal of Commerce was on the 12th day of June, 1941, approved as a legal newspaper by the Superior Court of King County.

The notice in the exact form annexed, was published in regular issues of The Daily Journal of Commerce, which was regularly distributed to its subscribers during the below stated period. The annexed notice, a

CT:120378 ORD.IN FULL

was published on

06/07/01

J. Stedman

Subscribed and sworn to before me on

06/07/01

M. M. Pascoe

Notary public for the State of Washington
residing in Seattle

Affidavit of Publication



