



RULE-MAKING ORDER
(RCW 34.05.360)

CR-103 (10/1/89)

Agency: Washington State Building Code Council

- Permanent Rule
- Emergency Rule

(1) Date of adoption: November 9, 1989 and November 27, 1989

(2) Purpose: To adopt changes to ch 51-10 WAC, ch 51-12 WAC, ch 51-16 WAC, and new ch 51-18 WAC

(3) Citation of existing rules affected by this order:

Repealed:

Amended: ch 51-10 WAC, ch 51-12 WAC, ch 51-16 WAC, and new ch 51-18 WAC added.

Suspended:

(4) Authority for adoption:

Statute: RCW 19.27, RCW 19.27A, RCW 70.92

Other Authority: Chapter 266, Session laws of 1989

(5.1) **PERMANENT RULE ONLY** 90.02.002 12/21/89 W.D.

Pursuant to notice filed as WSR 89-17-138 on 8/23/89 (date).

Describe any changes other than editing from proposed to adopted version:

Amendments proposed by the Article 80 Task Force adopted by reference. Article 80 and UBC ch9 definition of health hazard, and Article 80 requirements for agricultural equipment, chlorine and processes also amended.

(5.2) **EMERGENCY RULE ONLY**

Pursuant to RCW 34.05.350 the agency for good cause finds:

- (a) That immediate adoption, amendment, or repeal of a rule is necessary for the preservation of the public health, safety, or general welfare, and that observing the time requirements of notice and opportunity to comment upon adoption of a permanent rule would be contrary to the public interest.
- (b) That state or federal law or federal rule or a federal deadline for state receipt of federal funds requires immediate adoption of a rule.

Reasons for this finding:

(5.3) Any other findings required by other provisions of law as precondition to adoption or effectiveness of rule?

Yes No If yes, explain: Amendments to the Uniform Codes and the state regulations for Barrier-Free facilities were adopted prior to Dec. 1, 1989 in order to allow for mandated legislative review in accordance with RCW 19.27.074.

(6) Effective date of rule:

Permanent Rules **Emergency Rules**

31 days after filing Immediately

Other (specify) July 1, 1990 Later (specify) _____

*(If less than 31 days after filing, specific finding in 5.3 under RCW 34.05.380(3) is required)

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STATE OF WASHINGTON
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TIME: 4:35

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NAME (TYPE OR PRINT): Marc Sullivan

DATE: 12/21/89

TITLE: Chair, State Building Code Council

AMENDMENTS TO WAC 51-10

Washington State Regulations for Barrier-Free Facilities
Adopted by the State Building Code Council November 9, 1989
To be Effective July 1, 1990

Numbering and organization: The sections are paragraphs of these rules are numbered to conform to the Uniform Building Code, and references to sections and paragraph numbers not found in the State Regulations for Barrier-Free Facilities are to those found in the Uniform Building Code, 1988 Edition.

In utilizing the Uniform Building Code as the backbone of WAC 51-10 language shown as struck through is deleted from UBC code sections and language shown as underlined is added to UBC code sections. The amendments to the third Edition of WAC 51-10 which were adopted November 9, 1989 and are effective July 1, 1990 are indicated by solid vertical lines in the right margin.

Section 511(a) 1. of WAC 51-10 shall be amended to read as follows:

1. ~~((A clear))~~ An unobstructed floor space of not less than 44 inches by 48 inches on ((each side)) the inside and the outside of doors providing access to toilet rooms. ((This distance shall be measured at right angles to the face of the door when in the closed position. Not more than one door may encroach into the 44 inch space.))

An unobstructed floor space shall extend at least 18 inches beyond the strike jamb on the side of the door swing and where the door is equipped with both closer and latch at least 12 inches beyond the strike jamb on the side opposite. Vestibules serving toilet rooms shall be accessible vestibules. See Section 402 Accessible Vestibule.

Section 511(b) 1. of WAS 51-10 shall be amended to read as follows:

~~((1. Except for the projection of bowls and waste piping, a clear unobstructed space 30 inches in width, 29 inches in height and 17 inches in depth shall be provided under at least one lavatory.))~~

1. At least one lavatory shall have a rim height of 33 inches to 34 inches and shall have a 29 inch minimum clearance from the bottom of the apron to the floor. An unobstructed floor space 30 inches wide (as measured parallel to the width of the lavatory) by 60 inches long shall be provided at each accessible lavatory. Faucets

shall be lever type or operable by a closed fist with a force not to exceed 5 pounds. Faucets shall be no more than 17 inches from the front edge of the lavatory or counter. Self closing valves shall remain open for at least 10 seconds per operation.

Where the water temperature exceeds 120 degrees Fahrenheit (49 degrees Celsius), exposed drain pipes and hot water pipes under a lavatory shall be recessed, insulated or guarded to prevent contact.

A new Chapter 17 and Section 1711 shall be added to WAC 51-10 to read as follows:

Guardrails and Barriers

Sec 1711 (a) Guardrails All unenclosed floor and roof openings, open and glazed sides of stairways, landings and ramps, balconies or porches, which are more than 30 inches above grade or floor below, and roofs used for other than service of the building shall be protected by a guardrail.

EXCEPTIONS: Guardrails need not be provided at the following locations:

1. On the loading side of loading docks.
2. On the auditorium side of a stage or enclosed platform.

The top of guardrails shall be not less than 42 inches in height.

EXCEPTIONS:

1. The top of guardrails for Group R, Division 3 and Group M, Division 1 Occupancies and interior guardrails within individual dwelling units and guest rooms of Group R, Division 1 Occupancies may be 36 inches in height.
2. The top of guardrails on a balcony immediately in front of the first row of fixed seats and which are not at the end of an aisle may be 26 inches in height.
3. The top of guardrails for stairways, exclusive of their landings, may have a height as specified in Section 3306(j) for handrails.

Open guardrails shall have intermediate rails or an ornamental pattern such that a sphere 6 inches in diameter cannot pass through.

EXCEPTION: The open space between the intermediate rails or ornamental pattern of guardrails in areas of commercial and industrial-type occupancies which are not accessible to the public may be such that a sphere 12 inches in diameter cannot pass through.

Sec 1711(b) Barriers beneath stairs, ramps, and escalators. Where any stair, ramp, or escalator construction is located more than 27 inches and less than 79 inches in height above a floor a continuous permanent barrier shall be installed to prevent traffic beneath such stair ramp or escalator. Any open space beneath such barrier shall be no higher than 27 inches.

Section 3304(b) of WAC 51-10 Exception 3. item 4. shall be corrected to read as follows:

4. Panic hardware is required or provided on the door.

Section 5503.(b) of WAC 51-10 shall be amended to read as follows:

Sec 5503.(b) PLACEMENT. Visible and tactile signs shall be placed to identify:

(1) Openings to:

- (a) public spaces such as reception rooms or toilet rooms
- (b) stairs
- (c) loading platforms
- (d) stages
- (e) mechanical equipment rooms
- (f) fire escapes
- (g) elevators
- (h) other areas hazardous to visually disabled persons
- (i) hotel and motel guest rooms

Such sign shall be located on the wall adjacent the opening which forms an entrance to every such area. Where a door is installed, the sign shall be placed adjacent the strike jamb.

EXCEPTION: Hotel and motel guest room numbers may be centered on the door.

(2) Warnings and regulations.

AMENDATORY SECTION (Amending Order 85-14, filed 11/26/85)

WAC 51-12-220 SECTION 220. T.

TERMINAL ELEMENT. The means by which the transformed energy from a system is finally delivered; i.e., registers, diffusers, lighting fixtures, faucets, etc.

THERMAL RESISTANCE (R). The resistance of a material to heat flow, measured as the inverse of heat flow per unit area, per unit time, per unit temperature difference across the thickness of material considered. In this Code, R has units of sq. ft. hr. °F/Btu.

THERMAL TRANSMITTANCE (U). Overall coefficient of heat transmission (air to air) expressed in units of Btu per hour per square foot per degree F. It is the time rate of heat flow. The U value applies to combinations of different materials used in series along the heat flow path, single materials that comprise a building section, cavity air spaces, and surface air films on both sides of a building element.

THERMAL TRANSMITTANCE (U_o). Overall ((~~average~~)) heat transmission of a gross area of the exterior building envelope, expressed in units of Btu per hour, per degree F ((~~per-square-foot-of-exterior building-envelope~~)).

The U_o value applies to the combined effect of the time rate of heat flows through the various parallel paths, such as windows, doors, and opaque construction areas, comprising the gross area of one or more exterior building components such as walls, floors, or roof/ceiling.

THERMOSTAT. An instrument which measures changes in temperature and controls device(s) for maintaining a desired temperature.

AMENDATORY SECTION (Amending Order 85-14, filed 11/26/85)

WAC 51-12-403 SECTION 403. THERMAL PERFORMANCE CRITERIA AND ENVELOPE REQUIREMENTS FOR LOW-RISE RESIDENTIAL BUILDINGS.

Criteria for Residential Buildings three (3) stories or less as defined in UBC: Group R-3--detached one and two family dwellings; Group R-Div. 1--All other residential buildings three stories or less.

(a) ~~((The--overatt--average--thermat--transmittance--value--of--the--gross--area--of--the--elements--of--the--exterior--building--envelope--of--a--low--rise--residential--building--shall--not--exceed--the--values--given--in--Table--4-2--;--equations--1--and--2--in--Section--404--shall--be--used--to--determine--acceptable--combinations--of--building--components--and--thermat--properties--to--meet--this--requirement.))~~ The proposed UA as calculated using Equations 2 and 3 shall not exceed the Target UA as calculated using Equation 1. For the purpose of determining equivalent thermal performance, the maximum glazing area shall be fifteen percent of the floor area. Glazing area shall include windows installed in exterior doors.

(b) Floors over unheated spaces, such as unheated basements, unheated garages, or ventilated crawl spaces, shall be constructed to comply with the required values as specified in Table 4-2.

EXCEPTION: Insulation may be omitted from floor areas over heated basements, heated garages, or under floor areas used as HVAC plenums or where operable foundation vents are used and when foundation walls are insulated. When foundation walls are insulated, the insulation shall be attached in a permanent manner.

(c) Slab on Grade Floor: For slab on grade floors, the thermal resistance of the insulation around the perimeter of the floor shall not be less than the value given in Table 4-2. The insulation shall extend downward from the top of the slab for a minimum distance of 24 inches or downward to the bottom of the slab then horizontally beneath the slab for a minimum total distance of 24 inches. Insulation installed outside the foundation shall extend downward a minimum of 6 inches below grade but not less than to the frostline and need not extend deeper than to the top of the footing.

(d) Windows and doors and air leakage: (see Section 405).

(e) Space Heat Type: The following two categories comprise all space heating types:

1. Electric Resistance. Space heating systems which include baseboard units, radiant units, and forced air units as either the primary or secondary heating system.

EXCEPTIONS: Electric resistance elements which are integral to heat pump heating systems or when the total electric heat capacity in each individual dwelling unit does not exceed the greater of: 1) 1,000 watts per dwelling unit, or; 2) 1.0 watt per square foot of the gross floor area.

2. Other. All gas, wood, (not meeting the provisions of Section 102 (a)2), oil, propane, and heat pump space heating systems, unless electric resistance is used as a secondary heating system. (See EXCEPTIONS, Electric Resistance, Section 403 (e) 1. above.)

(f) Walls: Exterior wall sections, walls in finished basements, and interior walls exposed to unheated spaces shall be constructed to comply with the required values as specified in Table 4-2.

EXCEPTION: Concrete or masonry foundation walls of unfinished basements that have one-foot or less of the wall above grade need not be included in the gross wall area nor meet the requirements of Table 4-2 until finished, provided that:

1. Any frame walls meet the requirements of Table 4-2;
 2. The rim-joist are properly insulated; and
 3. All walls that are more than an average of one-foot above grade meet the requirements of Table 4-2.
- (g) Glazing: Where available, U values from Window Thermal Testing results shall be used to calculate total wall U_o . If untested, the following default U values shall be used for all types of glazing, including skylights, ornamental and security glazing.
1. For untested double glazing of any type, $U = .90$; and
 2. For untested single glazing of any type, $U = 1.20$.
- EXCEPTION: U values for site built fixed lites shall use window thermal test results when available. If tested results are unavailable, the Building Official shall require documentation based on a tested value of a comparable window.
- (h) General Insulation Requirements for Loose Fill Insulation: Blown or poured loose fill insulation may be used in attic spaces where the slope of the ceiling is not more than 3 feet in 12 feet and there is at least 30 inches of clear distance from the top of the bottom chord of the truss or ceiling joist to the underside of the roof sheathing at the roof ridge. When eave vents are installed, baffling of the vent openings shall be provided so as to deflect the incoming air above the surface of the insulation.

AMENDATORY SECTION (Amending Order 86-04, filed 5/13/86)

WAC 51-12-404 SECTION 404. THERMAL PERFORMANCE CRITERIA FOR ALL OTHER OCCUPANCIES.

Criteria.

- (a) The overall ((average)) thermal transmittance value (U_o) of the gross area of elements of the exterior building envelope of all buildings other than low-rise residential buildings shall not exceed the values given in Tables 4-3 and 4-4. Equations ((~~1~~ and)) 2 and 3 shall be used to determine acceptable combinations of building components and thermal properties to meet this requirement for heating. U values for windows used to calculate total wall U_o shall be determined in accordance with accepted engineering practice. U_o and U_w are specified in units of

$$\frac{\text{Btu}}{\text{hr. sq. ft. } ^\circ\text{F}}$$

- (b) Floors over unheated spaces shall not exceed the U_o value given in Table 4-3 and 4-4.
- (c) Slab on Grade Floors: For slab on grade floors the thermal resistance of the insulation around the perimeter of the floor shall not be less than the value given in Table 4-3 and 4-4. Insulation installed inside the foundation shall extend downward from the top of the slab for a minimum distance of 24 inches, or downward to the bottom of the slab; then horizontally beneath the slab for a minimum total distance of 24 inches. Insulation installed outside the foundation shall extend downward 12 inches below grade or frostline or to the top of the footing.
- (d) Alternative Wall Allowance for Low-rise Nonresidential Occupancies.
1. For nonresidential occupancy buildings, three stories or less, the maximum allowed value for average

thermal transmittance (U_o) of the exterior walls may be increased to the values given in Table 4-4 provided that at least one of the following criteria is also met:

- A. Mechanical supply of outside air and mechanical exhaust of building air shall be automatically shut off and the duct closed for at least eight hours per day during hours of non-occupancy, or
- B. The primary source of heating for the building shall be one or more heat pumps meeting the provisions of Section 411(b) or gas or oil combustion heating equipment with a minimum combustion efficiency of 85 percent for central heating plants and 80 percent for room and space heaters. This efficiency shall be determined in accordance with the provisions of Section 411(c).

Provided further: that if both criteria are met, the maximum allowed value for average thermal transmittance (U_o) of the exterior walls used in Table 4-4 may be increased by 0.05 in determining compliance with the provisions of the code.

2. For walls with a wall weight of at least 30 lbs. per sq. ft. (provided that walls constructed of hollow masonry units have cores filled with either grout, concrete, or with an insulating material with thermal resistance per inch (R) of at least 2.25 sq. ft./hr.-°F/Btu) the calculated thermal resistance of the wall sections measured face to face on wall units which are exposed to inside air temperatures, not including the thermal resistance of air films or additional exterior wall elements, may be increased by 25 percent in determining compliance with the provisions of the code provided that:

Heating and cooling set-point temperatures in the conditioned spaces or zones of the building shall be separated by at least 5°F. The temperature control shall be designed to prevent new energy from being used to heat the space above the heating set-point temperature or cool the space below the cooling set-point temperature.

EQUATION 1

Target UA

$$UAT = UAW + UGAG + UF + URCARC + UCCACC.$$

Where:

UAT = the target combined thermal transmittance of the gross exterior wall, floor, and roof/ceiling assembly area (excluding slabs on grade).

UW = the thermal transmittance value of the opaque wall area found in Table 4-2.

AW = opaque wall area.

UG = the thermal transmittance value of the glazing area found in Table 4-2.

AG = .15 (total floor area of the conditioned space).

UF = the thermal transmittance value of the floor area found in Table 4-2.

AF = floor area over unconditioned space.

URC = the thermal transmittance value of the roof ceiling area found in Table 4-2.

ARC = roof ceiling area.

UCC = the thermal transmittance value of the cathedral ceiling area found in Table 4-2.

ACC = cathedral ceiling area.

EQUATION 2

$$U = \frac{1}{r_o + R\# + R\# \dots r_i}$$

Where:

U = the thermal transmittance of the assembly

r_o = outside air film resistance,

r_o = .17 for all exterior surfaces in winter

r_o = .25 for all exterior surfaces in summer

r_i = inside air film resistance,

r_i = .51 for interior horizontal surfaces, heat flow up

r_i = .92 for interior horizontal surfaces, heat flow down

r_i = .68 for interior vertical surfaces

R_C = $\frac{1}{K} = X$ = measure of the resistance to the passage of heat for each element

- C = conductance, the heat flow through a specific material of specific thickness
- K = insulation value of a material per inch
- X = the thickness of the material in inches

EQUATION ((2)) 3

Proposed UA

$$((2)) \quad \underline{UA} = U_w A_w + U_g A_g + ((\text{---})) U_f A_f + U_{rc} A_{rc} + \frac{U_{cc} A_{cc}}{((\text{---}))}$$

(*)

Where:

((2)) UA = the ((average-or)) combined thermal transmittance of the gross exterior wall, floor ((or)) and roof/ceiling assembly area (except slabs on grade).

((A---=---the---gross---exterior---wall---floor---or---roof/ceiling assembly---area:))

U_w = the thermal transmittance ((of-the---components)) of the opaque wall((?---floor---or---roof/ceiling---assembly)) area.

A_w = opaque wall((?---floor---or---roof/ceiling---assembly)) area.

U_g = the thermal transmittance of the glazing (window or skylight) area.

A_g = glazing area, including windows in exterior doors.

((U_d---=---the---thermal---transmittance---of---the---door?---or---similar openings=

A_d---=---door---area:))

U_f = the thermal transmittance of the floor area.

A_f = floor area over unconditioned space.

U_{rc} = the thermal transmittance of the roof ceiling area.

A_{rc} = roof ceiling area.

U_{cc} = the thermal transmittance of the cathedral ceiling area.

A_{cc} = cathedral ceiling area.

NOTE: where more than one type of wall, window, roof/ceiling, door and skylight is used, the U and A terms for those items shall be ((expanded)) expanded into sub-elements as:

U_w#A_w# + U_w#A_w# + U_w#A_w# + ...etc.

AMENDATORY SECTION (Amending Order 88-10, filed 1/31/89, effective 7/1/89)

WAC 51-12-426 SECTION 426. LIGHTING POWER BUDGET. A lighting power budget is the upper limit of the power to be available to provide the lighting needs in accordance with the criteria and calculation procedure specified herein.

The lighting power budget for a building shall be the sum of the power limits computed for all lighted interior and exterior spaces and shall be determined in accordance with the procedures specified in this section.

EXCEPTION: One- and two-family detached dwellings and the dwelling portion of multifamily buildings are exempt from the requirements of Section 426.

(a) Budget Development.

The installed lighting wattage for the building project shall not exceed the budget level calculated in this section. The budget wattage level shall be the sum of the interior budget calculated and the exterior budget. Lighting wattage includes lamp and ballast wattage.

(b) Building Interiors.

The interior lighting budget shall be calculated by multiplying the gross conditioned floor area, in square feet, by the appropriate unit power budget, in watts per square foot, specified in Table No. 4-18.

For special conditions when approved by the Building Official, calculation based on Illuminating Engineering Society Unit Power Density or similar nationally recognized standards may be used.

The lighting power budget shall be based on the primary occupancy for which the space within the building is intended. If multiple occupancies are intended, the lighting power budget for each type of occupancy shall be separately calculated and summed to obtain the lighting budget for the interior spaces of the building. If a common circulation area serves multiple occupancies or multiple retail spaces, the lighting power budget for the common circulation area shall be the weighted average of the lighting power budgets for all other areas on that floor. In cases where a lighting plan for only a portion of a building is submitted, the interior lighting budget shall be based on the gross floor area covered by the plan.

EXCEPTIONS:

1. Where the following automatic lighting controls are installed, for calculations used to determine code compliance, the installed lighting wattage may be reduced by the following percentages:
 - A. For occupant-sensing devices, energy savings of 30 percent shall be allowed for any single space up to 400 square feet and enclosed by ceiling height partitions; classrooms, conference rooms, computer rooms, storage areas, corridors, or waiting rooms.
 - B. For daylighting controls, energy savings of 30 percent for continuous dimming and 20 percent for stepped controls shall be allowed for any daylit space.
 - C. For lumen maintenance controls, energy savings of 10 percent shall be allowed for any space.
 - D. For daylighting controls with occupant-sensing devices, energy savings of 44 percent shall be allowed for any single space up to 400 square feet within daylit spaces, and enclosed by ceiling height partitions.
 - E. For occupant-sensing devices with lumen maintenance controls, energy savings of 37 percent shall be allowed for any single space up to 400

- square feet and enclosed by ceiling height partitions.
2. Lighting for the following applications shall be exempted from inclusion in the calculation of lighting power budgets:
 - A. Stage lighting, entertainment, or audiovisual presentations where the lighting is an essential technical element for the function performed.
 - B. Lighting for medical and dental tasks.
 - C. Lighting in areas specifically designed for visually handicapped people.
 - D. For restaurant occupancies, lighting for kitchens and food preparation areas.

(c) Building Exteriors.

The exterior lighting budget shall be calculated by multiplying the building perimeter in feet by 7.5 watts per foot. Lighting for parking structures shall be calculated at 0.3 watts per gross square foot of parking area. An allowance for outdoor surface parking and circulation lighting may be added at 0.05 watts per square foot of area. Lighting for signs that are not an integral part of the building shall be exempted from inclusion in these calculations.

TABLE 4-1
Classification of Building Occupancies

	All Group R Occupancy Space	Other than Group R Occupancy Space
Three conditioned stories and less	Table 4-2	Table 4-3
More than three conditioned stories	Table 4-4	Table 4-4

(TABLE 4-2
Low-rise Residential Buildings
Maximum-Allowed-U-Values
and-Minimum-Allowed-R-Values

Heat-Type	Zone	Watts				Installed R Value
		Roofs	Ceilings	Ceilings	Floors	
Electric-Resistance-I		0.026	0.035	0.144	0.055	7
Other		0.033	0.035	0.203	0.055	7
Electric-Resistance-II		0.026	0.035	0.144	0.043	10

 Watts-----Slab#
 Climatic---Roofs---Cathedral---(includes---on
 Heat-Type---Zone---Ceilings---Ceilings---Glazing)---Floors---Grade

 Other-----II-----0.035-----0.035-----0.203-----0.055-----10

 #Insulation shall be water-resistant material manufactured for this
 use:
 -----))

Table No. 4-2, page 38. Revised to read as follows:

TABLE 4-2

Low-rise Residential Buildings
 Maximum Allowed U_o Values
 and Minimum Allowed R Values

Heat Type	Climatic Zone	Roofs	Cathedral	Opaque	Glazing	Floors	Slab on
		Ceilings	Ceilings	Walls			Grade
		U _o	U _o	U _o	U _o	U _o	Installed R Value
Electric Resistance	I	0.026	0.035	0.062	0.56	0.055	7
Other ≥.65 AFUE or ≥5.60 HSPF	I	0.035	0.035	0.062	0.71	0.055	7
Other ≥.74 AFUE or ≥6.35 HSPF	I	0.035	0.035	0.062	0.92	0.055	7
Electric Resistance	II	0.026	0.035	0.062	0.56	0.043	10
Other <.74 AFUE or <6.35 HSPF	II	0.035	0.035	0.062	0.71	0.055	10
Other ≥.74 AFUE or ≥6.35 HSPF	II	0.035	0.035	0.062	0.92	0.055	10

¹ Insulation shall be water-resistant material manufactured for this use.

TABLE 4-3
 Nonresidential Occupancies
 Buildings 3 Stories or Less
 Maximum Allowed U_o Values and
 Minimum Allowed R Values

Zone	Ceilings	Walls (Includes Glazing)	Floors	Slab# on Grade
	U _o	U _o	U _o	Installed R Value
I	0.035	0.25	0.05	7
II	0.035	0.20	0.05	10

#Insulation shall be water-resistant material manufactured for this use.

TABLE 4-4
 All Occupancies
 Buildings over 3 Stories
 Maximum Allowed Uo Values and
 Minimum Allowed R Values

Zone	Ceilings	Walls (Includes Glazing)	Floors	Slab# on Grade
	Uo	Uo	Uo	Installed R Value
I	0.08	0.30	0.08	7
II	0.06	0.25	0.08	10

#Insulation shall be water-resistant material manufactured for this use.

TABLE 4-5
 Nonresidential HVAC System Heating Equipment- Gas- and Oil-Fired
 Minimum Steady State Combustion Efficiency

Types of Equipment	Furnaces of Capacity of 225,000 Btu/h and Less Boilers of Capacities of 300,000 Btu/h and Less	All Other Commercial/ Industrial Furnaces and Boilers
	Percent#	Percent#
Forced-air furnaces and low-pressure steam or hot-water boilers	74	75
Gravity central furnaces	69	-
All other vented heating equipment	69	-

#Combustion efficiency for furnaces of capacities of 225,000 Btu/h and less and boilers of capacities of 300,000 Btu/h and less shall be tested in accordance with the applicable U.S. Department of Energy furnace test procedures.

#Combustion efficiency of commercial/industrial furnaces and boilers is defined as 100 percent minus stack losses in percent of heat input. Stack losses are:

- Loss due to sensible heat in dry flue gas.
- Loss due to incomplete combustion.
- Loss due to sensible and latent heat in moisture formed by combustion of hydrogen in the fuel.

TABLE 4-6
(Reserved)

TABLE 4-7
(Reserved)

TABLE 4-8
Allowable Air Infiltration Rates

Windows (cfm per lineal foot of operable sash crack	Residential Doors		Commercial Doors
	cfm per sq. ft. of door area		cfm per lin. ft. of crack
	sliding glass	entrance glass	swinging, revolving
0.5	0.5	1.00	11.0

TABLE 4-9
HVAC System Heating Equipment (Heat Pumps)
Standard Rating Conditions

Conditions	°F	Type		
		Air Source		Water Source
Air entering equipment	°F	70 db	70 db	70 db
Outdoor unit ambient	°F	47 db/ 43 wb	17 db/ 15 wb	--
Entering water temperature	°F	--	--	60
Water flow rate		--	--	as used in cooling mode

TABLE 4-10
HVAC System Equipment
Standard Rating Conditions -- Cooling

	°F	Temperatures			
		DB	WB	Inlet	Outlet
Air Entering Equipment	°F	80	67	--	--
Condenser Ambient (Air Cooled)	°F	95	75	--	--

		Temperatures			
		DB	WB	Inlet	Outlet
Condenser Water (Water Cooled)	°F	--	--	85	95

Standard ratings are at sea level.

Note: db = dry bulb
wb = wet bulb

TABLE 4-11
Applied HVAC System Components
Standard Rating Conditions -- Cooling

Item		Centrifugal or Self-Contained Reciprocating Water-Chiller	Condenserless Reciprocating Water-Chiller
Leaving chilled Water temperature	°F	44	44
Entering chilled Water temperature	°F	54	54
Leaving condenser Water temperature	°F	95	--
Entering water temp.	°F	85	--
Fouling factor, water			
Non-ferrous tubes	*	0.0005	0.0005
Steel tubes	*	0.0010	0.0010
Fouling factor, Refrigerant	*	0.0000	0.0000
Condenser ambient			
Air or evap. cooled	°F	95 dB/75 wb	--
Compressor Water cooled Saturated (or evap. Discharge cooled)	°F	--	105
Temperature			
Air cooled	°F	--	120

Standard ratings are at sea level.
* h ft# F/Btu.

TABLE 4-12
HVAC-System Heating Equipment (Heat Pumps)
Minimum COP & HSPF for Heat Pumps, Heating Mode

Source and Outdoor Temperature(°F)	Minimum COP	Minimum HSPF
Air source -- 47 dB/43 WB	2.7	
Air source -- 17 dB/15 WB	1.8	
Air source		6.35
Water source -- 60 entering	3.0	
Ground source	3.0	

TABLE 4-13
Minimum EER and COP-Cooling for
Electrically Driven HVAC System Equipment-Cooling#

Standard Rating Capacity	Air Cooled		Evaporative or Water Cooled	
	EER	COP	EER	COP
Under 65,000 Btu/hr (19,050 watts)	7.8	2.28	8.8	2.58
65,000 Btu/hr (19,060 watts) and over	8.2	2.4	9.2	2.69

#The U.S. Department of Energy has established required test procedures for single-phase, air-cooled, residential central air conditioners under 19 KW (65,000 Btu/h) capacity, which have been incorporated into ARI Standard 210-79. EER and COP values in Table 4-13 are based on Test A of DOE Test Procedures.

TABLE 4-14
Minimum EER and COP for Electrically
Driven HVAC-System Components#

Water Chilling Packages							
Component	Type	Condensing Means					
		Air		Water		Evap.	
		EER	COP	EER	COP	EER	COP
Condenser included	Centrifugal or rotary	8.00	2.34	13.80	4.04		
Condenser included	Reciprocating	8.40	2.46	12.00	3.51		
Condenserless	Reciprocating	9.90	2.90	12.00	3.51		
Compressor & condenser units 65,000 Btu/hr (19,050 watts) and over#	Positive displacement	9.50	2.78	12.50	3.66	12.50	3.66

Hydronic Heat Pumps			
Component	Type	EER	COP
Water source under 65,000 Btu/h (19,000 watts)	Centrifugal or rotary	9.00	2.64
Water source 65,000 Btu/h (19,000 watts) and over	Centrifugal or rotary	9.40	2.75

#When tested at the standard rating conditions specified in Table No. 4-9, 4-10, and 4-11.

#Ratings in accordance with Standard for Positive Displacement Refrigerant Compressor and Condensing Units, ARI Standard 520-74 as applicable. COP based on condensing unit standard rating capacity and energy input to the unit, all at sea level.

TABLE 4-15
HVAC-System Heat-Operated Cooling Equipment

Heat Source	Minimum COP = $\frac{\text{Net Cooling Output}}{\text{Total Heat Input (Electrical Auxiliary Inputs Excluded)}}$
Direct fired (gas, oil)	0.48
Indirect fired (steam, hot water)	0.68

TABLE 4-16
Insulation of Ducts

Duct Location	Insulation Types Mechanically Cooled	Climate Zone	Insulation Types Heating Only
On roof or on exterior of building	C, V# and W D, V# and W	I II	C and W D and W
Attics, garages and crawl spaces, in walls#, within floor-ceiling spaces#	B and V# C and V#	I II	B C
Within the conditioned space or in basements	None Required		None Required
Cement slab or within ground	A		B

Note: Where ducts are used for both heating and cooling, the minimum insulation shall be as required for the most restrictive condition.

Insulation may be omitted on that portion of a duct which is located within a wall or floor-ceiling space where both sides of this space are exposed to conditioned air and where this space is not ventilated or otherwise exposed to unconditioned air.

Vapor barriers shall be installed on conditioned air supply ducts in geographic areas where the average of the July, August, and September mean dewpoint temperature exceeds 60°F.

INSULATION TYPES: Minimum densities and out-of-package thicknesses.

A. 0.5-inch 1.5 to 2 lb/cu. ft. duct liner, mineral or glass fiber planket or equivalent to provide an installed total thermal resistance of at least R-2

- B. 2-inch 0.60 lb/cu. ft. mineral or glass fiber blanket
 1.5-inch 1.5 to 2 lb/cu. ft. duct liner, mineral or glass fiber blanket
 1.5-inch 3 to 7 lb/cu. ft. mineral or glass fiber board or equivalent to provide an installed total thermal resistance of at least R-5
- C. 3-inch 0.60 lb/cu. ft. mineral or glass fiber blanket
 2-inch 1.5 to 2 lb/cu. ft. duct liner, mineral or glass fiber blanket
 2-inch 3 to 7 lb/cu. ft. mineral or glass fiber board or equivalent to provide an installed total thermal resistance of at least R-7
- D. 4-inch 0.60 lb/cu. ft. mineral or glass fiber blanket
 3-inch 1.5 to 2 lb/cu. ft. duct liner, mineral or glass fiber blanket
 3-inch 3 to 7 lb/cu. ft. mineral or glass fiber board or equivalent to provide an installed total thermal resistance of at least R-10
- V. Vapor barrier, with perm rating not greater than 0.5 perm, all joints sealed.
- W. Approved weatherproof barrier.

TABLE 4-17
 Minimum Pipe Insulation

Piping System Types	Fluid temperature range, °F	Run-outs up to 2" #	Insulation Thickness In Inches for Pipe Sizes#				
			1" and less	1.25" to 2"	2.5" to 4"	5" to 6"	8" and larger
HEATING AND HOT WATER SYSTEMS							
Steam and hot water							
High pressure/temperature	306-450	1.5	2.5	2.5	3.0	3.5	3.5
Med. pressure/temperature	251-305	1.5	2.0	2.5	2.5	3.0	3.0
Low pressure/temperature	201-250	1.0	1.5	1.5	2.0	2.0	2.0
Low temperature	100-200	.5	1.0	1.0	1.5	1.5	1.5
Steam condensate (for feed water)	Any	1.0	1.0	1.5	2.0	2.0	2.0
COOLING SYSTEMS							
Chilled water	40-55	.5	.5	.75	1.0	1.0	1.0
Refrigerant, or brine	Below 40	1.0	1.0	1.5	1.5	1.5	1.5

#Runouts not exceeding 12 feet in length to individual terminal units.

#For piping exposed to outdoor air, increase thickness by .5 inch.

TABLE 4-18
Interior Lighting Power Budget#

Group	Occupancy Description	Lighting Power Budget# (W/sq ft)
A	Assembly w/stage	1.1
	Stage Lighting	Exempt
	Assembly w/o stage: other than B and E	1.1
B	Gasoline service station	1.7
	Storage garages	0.3
	Office buildings	1.7
	Wholesale stores	2.0
	Police and fire stations	1.7
	Retail Stores:	
	Less than 6000 s.f.	4.0
	6000 to 20,000 s.f.	3.0
	over 20,000 s.f.	2.0
	Drinking and dining establishments	1.85
	Food preparation task light	Exempt
	Aircraft hangars - storage	0.7
	Process plants#	1.0
	Factories and work shops#	1.7
	Storage structures	0.7
E	Schools and daycare centers	1.7
	Audio-visual presentation lighting	Exempt
H	Storage structures	0.7
	Handling areas	1.7
	Paint shops	2.5
	Auto repair shops	1.7
	Aircraft repair hangars	1.7
I	Institutions	1.7
	Administrative support areas	1.7
	Diagnostic, treatment, food service task lighting	Exempt
R	Dwelling units	Exempt
	Food preparation task lighting	Exempt

#Watts/sq. ft. of room may be increased by two percent per foot of height above 20 feet.

#Emergency exit lighting is exempt from interior lighting budget.

#Lighting that is part of machines or equipment is exempt from this budget.

AMENDATORY SECTION (Amending Order 88-10, filed 1/31/89, effective 7/1/89)

WAC 51-12-601 SECTION 601. LOW-RISE RESIDENTIAL BUILDING ENVELOPE REQUIREMENTS.

For all components, except for walls, the R values specified in Table 6-1 are for installed insulation material only. R values for construction are defined as any combination of rigid-sheathing, loose fill, or batt insulation that achieves the prescribed R value. Where insulation is installed in a continuous manner and is not interrupted

by occasional framing members, its R value may be increased by 20% in determining compliance with the requirements of this table. This allowance does not apply to insulation of slab on grade or walls.

- (a) Walls. The total assembly of opaque exterior wall sections, walls in finished basements, and the interior walls exposed to unheated spaces shall have a minimum average thickness specified in Table 6-6 for log/solid timber walls and a thermal resistance R value not less than the values specified in Table 6-1 for other wall types. Total wall assembly R values include values for insulation, sheathing, gypsum-board, air-films, concrete, etc. The following walls shall be considered to meet the R-19 total assembly criteria without additional documentation:

1. 2" x 6" with installed R-19 batt.
2. 2" x 4" with an installed R-13 batt and R-3.7 insulating sheathing.
3. 2" x 4" with an installed R-11 batt and R-5.0 insulating sheathing.

EXCEPTION: Concrete or masonry foundation walls of unfinished basements that have one foot or less of the wall above grade need not be insulated until finished, provided that:

- A. Any frame walls comply with the requirements of Table 6-1;
- B. The rim-joists are properly insulated;
- C. All walls that are more than an average of one foot above grade are insulated to meet the requirements of Table 6-1.

- (b) Roof/ceiling. The roof/ceiling assembly shall have a thermal resistance R value not less than the value specified for the indicated type of construction in Table 6-1 or Table 6-6.

EXCEPTION: Insulation levels in the case of single rafter or joist vaulted ceilings. These types of ceilings may be insulated to a level of R-30, regardless of space heat type.

- (c) Thermal Design Standards for Floors.

1. Slab on Grade Floors. For slab on grade floors, the thermal resistance of the insulation around the perimeter of the floor shall not be less than the value given in Table 6-1 or Table 6-6.

Insulation installed inside the foundation shall extend downward from the top of the slab for a minimum distance of 24 inches; or downward to the bottom of the slab, then horizontally beneath the slab for a minimum total distance of 24 inches. Insulation installed outside the foundation shall extend downward a minimum of 6 inches below grade but not less than to the frostline and need not extend deeper than to the top of the footing.

2. Floor Sections. Floor sections over unheated spaces, such as unheated basements, unheated garages or ventilated crawl spaces, shall be constructed to comply with the required values as specified in Table 6-1 or Table 6-6.

EXCEPTION: Insulation may be omitted from floor areas over heated basements, heated garages, or under floor areas used as HVAC plenums or where operable foundation vents are used and when foundation walls are insulated. When foundation walls are insulated in accordance with Section 601(a), the insulation shall be attached in a permanent manner.

- (d) Thermal Design Standards for Openings.

1. At a minimum, all windows must be double glazed, and are classed according to U values as shown on Table 6-2. Glazing requirements are listed in

Table 6-6 for loc/solid timber walls and Table 6-4 for other wall types.

2. At a minimum, all skylights must be double glazed. The area of Class 90 skylights and Class 90 exterior windows sloped more than 30° from the vertical shall be doubled and this area included in the percentage of the total glazing area as allowed for in Table 6-4. Class 75 or Class 60 glazing in skylights or Class 75 or Class 60 windows sloped more than 30° from the vertical need not be doubled.
3. Single glazing for ornamental, security or architectural purposes shall have its area doubled and shall be included in the percentage of the total glazing area as allowed for in Table 6-4. The maximum area (before doubling) allowed for the total of all single glazing is 1% of the floor area.

(e) Air Leakage.

1. Windows and Doors. All windows within a wall and doors shall conform to the air infiltration requirements specified in Section 405. Site built windows shall be constructed to minimize leakage.
EXCEPTION: Openings required to be protected by fire resistive assemblies are exempt from this section.
2. Exterior joints around windows and door frames, openings between walls and foundations, between walls and roof and between wall panels; openings at penetrations of utility services through walls, floors and roofs; and all other such openings in the building envelope shall be sealed, caulked, gasketed, or weatherstripped to limit air leakage.

(f) Moisture Control. Vapor retarders shall be installed on the warm side (in winter) of insulation as specified in the following cases:

1. Walls separating conditioned space from unconditioned space shall have a vapor retarder installed when thermal insulation is installed. The vapor retarder shall have a one perm dry cup rating or less. Inset stapled batts with a facing with a perm rating less than one may be installed if staples are placed not more than (8) inches on center and gaps between the facing and the framing do not exceed (1/16) of an inch.
2. Roof/ceilings:
 - A. Roof/ceiling assemblies where the ventilation space above the insulation is less than an average of twelve (12) inches shall be provided with a vapor retarder having a dry cup perm rating of 1.0 or less.
 - B. Vapor retarders shall not be required in roof/ceiling assemblies where the ventilation space above the insulation averages twelve (12) inches or greater.
 - C. Vapor retarders shall not be required where all of the insulation is installed between the roof membrane and the structural roof deck.
 - D. Vapor retarders with a 1.0 or less dry cup perm rating shall be installed in roof/ceiling assemblies where the insulation is comprised of insulation between the roofing membrane and the structural roof decking and insulation below the structural roof decking.
3. Ground Cover.
A ground cover of 4 mil (0.004 inch thick) polyethylene or approved equal shall be laid over the ground within crawl spaces. The ground cover shall be overlapped twelve (12) inches minimum at joints and shall extend over the top of the footing.

EXCEPTION: The ground cover may be omitted in

unheated crawl spaces if the crawl space has a concrete slab floor with a minimum thickness of 3-1/2 inches.

(g) General Requirements for Loose Fill Insulation. Blown or poured loose fill insulation may be used in attic spaces where the slope of the ceiling is not more than 3 feet in 12 feet and there is at least 30 inches of clear distance from the top of the bottom chord of the truss or ceiling joist to the underside of the roof sheathing at the roof ridge. Where eave vents are installed, baffling of the vent openings shall be provided so as to deflect the incoming air above the surface of the insulation.

(h) Space Heat Type. The following four categories comprise all space heating types:

1. Electric Resistance. Space heating systems which include baseboard units, radiant units, and forced air units as either the primary or secondary heating system.

EXCEPTIONS: Electric resistance elements which are integral to either heat pump or passive solar heating systems (as defined below), or when the total electric heat capacity in each individual dwelling unit does not exceed the greater of: 1) 1,000 watts per dwelling, or; 2) 1.0 watt per square foot of the gross floor area.

2. Electric, Passive Solar. Electric resistance space heating systems which utilize solar energy to provide a portion of the building's heating load. A Passive Solar System is required to have at least ten (10) percent of the building's gross floor area in glazing that meets the specifications of Section 601(i).

3. Other. Includes all gas, wood (not meeting the provisions of Section 102 (a)2), oil, propane, and electric heat pump space heating systems, unless electric resistance is used as a secondary heating system. (See EXCEPTIONS, Electric Resistance, Section 601 (h) 1. above.) Nonelectric heat pump heating systems are also included in this category.

4. Other, Passive Solar. Other types of space heating systems which utilize solar energy to provide a portion of the building's heating load. A Passive Solar System is required to have at least ten (10) percent of the building's gross floor area in glazing that meets the specifications of Section 601(i).

(i) Passive Solar Glazing. Glazing areas are required to meet the following criteria in order to be considered Passive Solar Glazing.

1. Glazing areas are required to meet the "Electric, Passive Solar" and "Other, Passive Solar" glazing requirements of Table 6-4.

2. The south glazing shall be oriented within 45 degrees of true south.

3. The glazing shall be mounted at least 60 degrees up from the horizontal.

4. The glazing shall have a transmission coefficient greater than or equal to 0.80 for visible light or greater than or equal to 0.73 for total solar radiation.

5. Documentation shall be provided in the form of a sun chart, a photograph, or approved evidence, demonstrating that the glazing area shall not be shaded for at least 4 hours between 8 a.m. and 4 p.m. standard time on January 21 and March 21.

6. The building shall contain a heat capacity equal to a four inch concrete slab. The heat capacity shall be equivalent to at least 20 Btu/degree F for each square foot of south glazing when the south glazing area is between 10% and 14% of the building's gross floor area.

and at least 45 Btu/degree F for each square foot of south glazing when the south area glazing exceeds 14 percent of gross floor area. In buildings with south glazing area between 10% and 14% of gross floor area, the heat capacity provided by a four inch concrete slab shall be deemed sufficient. This heat storage capacity shall be located inside the insulated shell of the structure and not covered with insulation materials, such as carpet, which yield an R value of 1.0 or greater. If the storage medium is not within the space containing the south glazing, an approved natural or mechanical means of transferring the heat to the heat storage medium shall be provided. Heat storage capacity shall be calculated using the below equation and/or accepted analytical methods:

$$HS = D \times SH \times V$$

Where:

HS = Heat Storage. The heat storage capacity available inside the insulated space.

V = Volume of heat storage components.

D = Density of material inside the insulated shell of the building to a depth yielding a thermal resistance of R-1, except in the case of slab floors where only the slab itself is credited. Mass located in conditioned or unconditioned basements without solar glazing shall not be counted (lbs/cu ft).

SH = Specific heat of the material (Btu/lb/°F).

- (j) Ventilation: Enclosed joist or rafter spaces formed where ceilings are applied directly to the under side of roof joists or rafters must have joists or rafters of sufficient size to provide a minimum of one inch clear vented air space above the insulation (see also Section 3205 (c) of UBC). Ceiling insulation may be tapered or compressed at the perimeter to permit proper venting.

AMENDATORY SECTION (Amending Order 88-10, filed 1/31/89, effective 7/1/89)

WAC 51-12-608 SECTION 608. ELECTRICAL POWER AND LIGHTING REQUIREMENTS FOR OTHER THAN LOW-RISE RESIDENTIAL BUILDINGS. All electrical power and lighting systems shall comply with the requirements of Sections 424 to 426, inclusive.

TABLE 6-1
Low-rise Residential Buildings
Minimum (average) Allowed R Values#

Space Heat Type	Climatic Zone	Roof				Slab on# Grade
		Ceilings#	Decks	Walls	Floors	
Electric Resistance	I	38	38	19	19	7
Electric, Passive Solar	I	30	30	19	19	7
Other	I	30	30	19	19	7
Other, Passive Solar	I	30	30	19	19	7
Electric Resistance	II	38	38	19	25	10
Electric, Passive Solar	II	30	30	19	19	10

Space Heat Type	Climatic Zone	Ceilings#	Roof Decks	Walls	Floors	Slab on# Grade
Other	II	30	30	19	19	10
Other, Passive Solar	II	30	30	19	19	10

#R values, except for walls, are for installed insulation material only.

#R-30 in single rafter, joist vaulted ceilings.

#Insulation shall be water-resistant material manufactured for this use.

TABLE 6-2
Low-rise Residential Buildings
Classes of Glazing

Class	U-Value	Window Thermal Testing Requirement#
90	.90	Untested
90	Greater than .75	Tested
75	.61 to .75	Tested
(60)	Less than .61	Tested
60	.60 to .51	Tested
50	.50 to .41	Tested
40	.40 to .31	Tested
30	Less than .31	Tested

#See DEFINITIONS, Section 223. WINDOW THERMAL TESTING.

TABLE 6-3
Low-rise Residential Buildings
Heat Pump Minimum Efficiencies

Source and Outdoor Temperature (°F)	Class 1		Class 2	
	COP	HSPF	COP	HSPF
Air Source - 47 dB/43 WB	2.7		2.5	
Air source - 17 dB/15 WB	1.8		1.5	
Air Source		6.35		5.60
Water Source - 60 entering	3.0		2.5	
Ground Source	3.0		3.0	

TABLE 6-4
Low-rise Residential Buildings
Glazing and Furnace
Efficiency Requirements

Space Heat Type	Climate Zone	Maximum Percentage		AFUE*	Heat Pump Class
		of Floor Area in Glazing	Glazing Class		
Electric Resistance	I	21%	60	n/a	n/a
Electric, Passive Solar	I	21%	60	n/a	n/a
Other	I	21%	75	.65	2
Other	I	21%	90	.74	1
Other, Passive Solar	I	21%	90	.65	2
Electric Resistance	II	17%	60	n/a	n/a
Electric, Passive Solar	II	17%	60	n/a	n/a
Other	II	17%	75	.65	2

Space Heat Type	Climate Zone	Maximum Percentage of Floor Area in Glazing	Glazing Class	AFUE*	Heat Pump Class
Other	II	17%	90	.74	1
Other, Passive Solar	II	17%	90	.65	2

*AFUE applies only to central heating equipment. All other types of heating equipment fueled by gas, oil, or propane must be equipped with an intermittent ignition device in order to use Class 90 glazing.

TABLE NO. 6-5
All Other than Low-rise Residential Buildings
Component Requirements

Component	Zone I	Zone II
Space Conditioning System Type	Any	Any
Opaque Envelope Minimum Nominal R Value		
Roof/Ceilings	R-30	R-30
Exterior Walls	R-11	R-11
Floors over Unconditioned Space	R-11	R-11
Below Grade Walls#	R-4	R-5
Slab on Grade Floors#	R-7	R-10

Component	Zone I	Zone II
Glazing		
Type	Double	Double
Maximum Total Area (Percent of Gross Exterior Wall)	32%	22%

#Insulation shall be water-resistant material manufactured for this use.

TABLE 6-6

LOW-RISE RESIDENTIAL BUILDINGS¹
WITH SOLID TIMBER AND LOG WALLS OF SPECIFIED MINIMUM THICKNESS
MINIMUM (AVERAGE) ALLOWED R-VALUES,² FURNACE EFFICIENCY AND GLAZING REQUIREMENTS

	MINIMUM AVERAGE ALLOWED R-VALUES					AVERAGE GLAZING CLASS ⁵
	MINIMUM AVG. LOG THICKNESS	CEILINGS ³	ROOF DECKS	FLOORS	SLAB ON GRADE ⁴	
CLIMATE ZONE I	3.5"	59	38	38	10	40
ELECTRIC RESISTANCE	3.8"	38	38	38	10	40
SPACE HEAT	4.6"	38	38	25	10	40
	5.4"	38	38	19	7	40
MAXIMUM GLAZING AREA	6.9"	38	38	19	7	50
IS 21% OF THE FLOOR AREA	9.3"	38	38	19	7	60
	16.2"	38	38	19	7	75
CLIMATE ZONE I	2.5"	38	38	30	10	40
OTHER SPACE HEAT	2.7"	38	38	25	10	40
MINIMUM AFUE IS 0.74	2.9"	38	38	19	10	40
HEAT PUMP CLASS IS 1	3.2"	30	30	19	7	40
	3.6"	30	30	19	7	50
MAXIMUM GLAZING AREA	4.3"	30	30	19	7	60
IS 21% OF THE FLOOR AREA	5.7"	30	30	19	7	75
	8.5"	30	30	19	7	90
CLIMATE ZONE II	3.5"	59	38	38	10	30
ELECTRIC RESISTANCE	4.6"	38	38	38	10	40
SPACE HEAT	5.7"	38	38	25	10	40
	6.9"	38	38	19	10	40
MAXIMUM GLAZING AREA	7.3"	38	38	25	10	50
IS 17% OF THE FLOOR AREA	10.2"	38	38	25	10	60
	14.0"	38	38	19	10	60
CLIMATE ZONE II	2.5"	38	38	30	10	40
OTHER SPACE HEAT	2.7"	38	38	25	10	40
MINIMUM AFUE IS 0.74	3.0"	38	38	19	10	40
HEAT PUMP CLASS IS 1	3.2"	30	30	19	10	40
	3.8"	30	30	19	10	50
MAXIMUM GLAZING AREA	4.5"	30	30	19	10	60
IS 17% OF THE FLOOR AREA	6.1"	30	30	19	10	75
	9.2"	30	30	19	10	90

¹ For buildings with a portion of the floor area using log/solid timber walls use Table 6-6 in that portion only. In other areas use Tables 6-1 and 6-4.

² R-values are for installed insulation material only.

³ R-30 in single rafter, joist vaulted ceilings.

⁴ Insulation shall be water-resistant material manufactured for this use.

⁵ When windows fall in more than one class, the Average Glazing Class is determined by the area weighted U-Value of the glazing (See Table 6-2).

AMENDATORY SECTION (Amending Orders 88-11 and 88-11A, filed 12/1/88 and 5/23/89, effective 7/1/89)

WAC 51-16-030 UNIFORM BUILDING CODE AND UNIFORM BUILDING CODE STANDARDS. The 1988 edition of the Uniform Building Code, and the 1988 edition of the Uniform Building Code Standards as published by the International Conference of Building Officials is hereby adopted by reference with the following additions, deletions and exceptions:

(1) Revise the paragraph in Sec. 409 defining health hazard as follows:

Health Hazard is a classification of a chemical for which there is statistically significant evidence based on at least one reproducible study conducted in accordance with established scientific principles that acute health effects may occur in exposed persons. The term "health hazard" includes chemicals which are toxic or highly toxic agents, irritants, corrosives, hepatotoxins, nephrotoxins, neurotoxins, agents which can have an acute effect on the hematopoietic system, and agents that have acute effects on the lungs, skin, eyes or mucous membrane.

(2) The following definition shall be added to section 420, chapter 4 of the Uniform Building Code:

SINGLE FAMILY RESIDENTIAL BUILDING is a dwelling containing only one dwelling unit.

~~((2))~~ (3) The following definition shall be added to section 414, chapter 4 of the Uniform Building Code:

MULTIFAMILY RESIDENTIAL BUILDING is a common wall dwelling or apartment house that consists of four or fewer dwelling units that do not exceed two stories in height and that are less than five thousand square feet in total area.

~~((3))~~ (4) Chapter 9 of the 1988 edition of the Uniform Building Code is ~~((hereby not adopted and chapter 9 of the 1985 edition of the Uniform Building Code is hereby adopted in its place.~~

The changes made between the 1985 edition of the Uniform Building Code and the 1988 edition of the Uniform Building Code for the purposes of integrating chapter 9 of the Uniform Building Code into other sections of the 1988 edition of the Uniform Building Code are also not adopted.

The sections and tables listed below contain changes to the 1988 edition of the Uniform Building Code made for this purpose.

-----Definitions:

- Sec. 404, Control Area (added) page 22
- Sec. 404, Corrosive (added) page 22
- Sec. 406, Emergency Control Station
- (changed) page 23
- Sec. 409, Handling (added) page 25
- Sec. 409, Health Hazard (added) page
- 25
- Sec. 409, Highly Toxic Material (added)
- page 25
- Sec. 407, Irritant (added) page 26
- Sec. 437, Liquid Storage Room
- (changed) page 27
- Sec. 437, Liquid Storage Warehouse
- (changed) page 27

-----Sec.-420,-Sensitizer-(added)-page-29
 -----Sec.-422,-Use-(specifics-added)-page-30

-----Code-Body-Changes:

-----Sec.-503-(a),-page-32-&-33
 -----Sec.-506-(c),-page-38
 -----Sec.-507,-page-38-&-39
 -----Table-No.-5-A,-page-43,-44-&-45
 -----Table-No.-5-B,-page-46
 -----Table-No.-5-C,-page-47
 -----Table-No.-5-D,-page-48
 -----Sec.-702-(b),-page-55-&-56
 -----Sec.-802-(d),-page-63
 -----Sec.-3309-(a),-page-648
 -----Sec.-3320,-page-657
 -----Sec.-3802-(f),-page-682
 -----Sec.-5207-(a),-page-784
 -----Appendix--Table--No.--++-B-page-832)) amended with the following additions, deletions, and exceptions.

(a) Revise Sec. 901(a) as follows:

Sec. 901. (a) General. For definitions, identification and control of hazardous materials, display of nonflammable solid and nonflammable or noncombustible liquid hazardous materials in Group B, Division 2 Occupancies used for retail sales, and storage and use of Class 3 solid and liquid oxidizers in Groups I, M and R Occupancies, see the Fire Code. For application and use of control areas, see Footnote 1 of Tables Nos. 9-A and 9-B. The primary use of a building will be considered as a Group H, Division 1, 2, or 3 or 7 Occupancy when its primary use is for storage, and the aggregate quantity of hazardous materials in the building is in excess of Tables Nos. 9-A or 9-B. Group H Occupancies shall be:

(b) Revise Sec. 901(a) Division 2. 6. Exception as follows:

EXCEPTIONS: 1. Rooms or areas used for woodworking where no more than three fixed in-place woodworking appliances are utilized may be classified as a Group B, Division 2 Occupancy, provided the appliances are equipped with dust collectors sufficient to remove dust generated by the appliance.

(c) Revise Sec. 901(a) Division 7. as follows:

Occupancies having quantities of materials in excess of those listed in Table No. 9-B that are health hazards, including but not limited to:

1. Corrosives.
2. Highly toxic materials.
3. Irritants.

(d) Delete Sec. 901(d) 2. and renumber Sec. 901(d) 3., 4. and 5. as Sec. 901(d) 2., 3. and 4.

(e) Add an exception to Sec. 901(f) as follows:

EXCEPTION: When an HMMP is required, the applicant may submit the report(s) used for compliance with requirements of 40 CFR "Hazardous Chemical Reporting and Community Right-to-Know Regulations" under Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA).

(f) Revise Sec. 902(g) as follows:

(g) Standby Power. A standby power system shall be provided for required mechanical exhaust ventilation, treatment, temperature control, liquid-level limit control, pressure control, alarm, and detection or other required electrically operated systems in Group H, Divisions 1, 2 and 3 Occupancies, and in Group H, Division 7 Occupancies in which there is use or storage of corrosives, highly toxic solids and liquids, irritants, sensitizers or other health hazard materials. For required systems, see the Fire Code. The standby power system shall be designed and installed in accordance with the Electrical Code to automatically supply power to all electrical equipment required by the Fire Code when the normal electrical supply system is interrupted.

(g) Revise Sec. 902(h) as follows:

(h) Emergency Power. An emergency power system shall be provided for required mechanical exhaust ventilation, treatment, temperature control, liquid-level limit control, pressure control, alarm and detection or other required electrically operated systems in Group H, Division 6 Occupancies, and in Group H, Division 7 Occupancies in which highly toxic or toxic gases are stored or used. For required systems, see the Fire Code. The emergency power system shall be designed and installed in accordance with the Electrical Code to automatically supply power to the exhaust ventilation system when the normal electrical supply system is interrupted.

(h) Delete Sec. 902(k) Exception.

(i) Revise Sec. 903 first paragraph as follows:

Group H Occupancies shall be located on property in accordance with Section 504, Tables Nos. 9-C and 9-D and other provisions of this chapter. In Group H, Division 2 or Division 3 Occupancies, not less than 25 percent of the perimeter wall of the occupancy shall be an exterior wall.

(j) Revise Sec. 904(b) first paragraph as follows:

(b) Ventilation in Hazardous Locations. Areas or spaces in which explosive, corrosive, combustible, flammable or highly toxic dusts, mists, fumes, vapors or gases are or may be emitted due to the processing, use, handling or storage of materials shall be mechanically ventilated as required by the Fire Code and the Mechanical Code.

(k) Revise Sec. 906 title as follows:

Shaft and Exit Enclosures

(l) Add to Sec. 906 a new fourth paragraph as follows:

In buildings with Group H, Division 6 Occupancies, a fabrication area may have mechanical, duct and piping penetrations which extend through not more than two floors within that fabrication area. The annular space around penetrations for cables, cable trays, tubing, piping, conduit or ducts shall be sealed at the floor level to restrict the movement of air. The fabrication area, including the areas through which the ductwork and piping extend, shall be considered a single conditioned environment.

(m) Revise Sec. 908 paragraph 5 as follows:

Combustible fiber storage rooms with a fiber storage capacity not exceeding 500 cubic feet, shall be separated from the remainder of the building by a one-hour fire-resistive occupancy separation. Combustible fiber storage vaults having a fiber storage capacity of more than 500 cubic feet, shall be separated from the remainder of the building by a two-hour fire-resistive occupancy separation.

(n) Revise Sec. 909 as follows:

Sec. 909. An approved fire alarm system shall be installed in Group H Occupancies as specified in the Fire Code.

(o) Revise Sec. 910 first paragraph as follows:

Explosion Control

Sec. 910. Explosion control; equivalent protective devices, suppression systems or barricades shall be provided to control or vent the gases resulting from deflagrations of dusts, gases or mists in rooms, buildings or other enclosures as required by the Fire Code so as to minimize structural or mechanical damage. If detonation rather than deflagration is considered likely, protective devices or systems such as fully contained barricades shall be provided, except that explosion venting to minimize damage from less than 2.0 grams of TNT (equivalence) is permitted. Walls, floors and roofs separating a use from an explosion exposure shall be designed to resist a minimum internal pressure of 100 pounds per square foot in addition to the loads required by Chapter 23.

(p) Revise Sec. 911(f) 1. as follows:

(f) Piping and Tubing. 1. General. HPM piping and tubing shall comply with this subsection and shall be installed in accordance with nationally recognized standards. Piping and tubing systems shall be metallic unless the material being transported is incompatible with such system. Systems supplying gaseous HPM having a health hazard ranking of 3 or 4 shall be welded throughout, except for connections, valves and fittings, to the systems which are within a ventilated enclosure. HPM supply piping or tubing in service corridors shall be exposed to view.

(q) Revise Table No. 9-A as follows:

Delete all--(dash marks) in the columns and replace with N.A.
Add a reference at the end of the table before "N.L." as follows:
N.A. = Not Applicable.

Change Footnote No. 5 as follows:

5 Quantities may be increased 100 percent when stored in approved storage cabinets, gas cabinets, fume hoods, exhausted enclosures or safety cans as specified in the Fire Code. When Footnote No. 4 also applies, the increase for both footnotes may be applied.

Add new Footnotes Nos. 11 and 12 as follows:

Solid	Liquid
Lbs. ¹¹	and Gallons ¹¹

11 The aggregate quantity of nonflammable solid and nonflammable or noncombustible liquid hazardous materials within a single control area of a Group B, Division 2 Occupancies used for retail sales may exceed the exempt amounts when such areas are in compliance with the Fire Code.

Oxidizer, Class 3¹²

12 A maximum quantity of 200 pounds of solid or 20 gallons of liquid Class 3 oxidizers may be permitted in Groups I, M and R Occupancies when such materials are necessary for maintenance purposes or operation of equipment. See the Fire Code.

(r) Revise Table 9-B as follows:

Delete all--(dash marks) in the right hand column and replace with 0 (zeros).

Change Footnote No. 6 as follows:

- 6 Quantities may be increased 100 percent when stored in approved storage cabinets, gas cabinets, fume hoods, exhausted enclosures or safety cans as specified in the Fire Code. When Footnote No. 5 also applies, the increase for both footnotes may be applied.

Under USE³--CLOSED SYSTEMS--Gas, add Footnote No. 6 to all items, except for Highly Toxics.

Add a new Footnote No. 9 as follows:

Solid (Lbs.)⁴{⁵}⁹ Liquid and Gallons⁴{⁵}⁹

- 9 The aggregate quantity of nonflammable solid and nonflammable or noncombustible liquid health hazard materials within a single control area of a Group B, Division 2 Occupancies used for retail sales may exceed the exempt amounts when such areas are in compliance with the Fire Code.

(s) Revise Table No. 9-C in part as follows:

OCCUPANCY GROUP	MINIMUM DISTANCE FROM PROPERTY LINE ¹	FIRE RESISTANCE OF EXTERIOR WALLS	OPENINGS IN EXTERIOR WALLS ²
H-2-J Not in a detached building	When area does not exceed 1,000 sq. ft.	4 hours less than 5 feet, 2 hours less than 10 feet, 1 hour less than 20 feet	Not permitted less than 5 feet, protected less than 20 feet
H-2-J Not in a detached building	30 feet when the area exceeds 1,000 sq. ft. ³	No requirement based on location ¹	No requirement based on location ¹

(4) The amendments, revisions and changes to Chapter 9 of the Uniform Building Code which are contained in the 1989 Supplement to the Uniform Building Code are hereby adopted.

(5) Section 2312(h) 2.I. Diaphragms. (iv) of the Uniform Building Code is hereby amended to read as follows:

(iv) Where wood diaphragms are used to laterally support concrete or masonry walls, the anchorage shall conform to Section 2312(h) 2. H above. In Seismic Zones Nos. 2, 3 and 4 anchorage shall not be accomplished by use of toe nails or nails subject to withdrawal, nor shall wood ledgers or framing be used in cross-grain bending or cross-grain tension, and the continuous ties required by paragraph (iii) above shall be in addition to the diaphragm sheathing.

((+5+)) (6) Uniform Building Code Section 2722(f) 6 item 1 of the exception is hereby amended to read as follows:

EXCEPTION: This requirement need not apply in any of the following cases, provided the compactness limitations for beams given in Section 2722 (f) 4 shall apply to columns as well:

1. For columns with f_a less than $0.4F_y$ for all load combinations, except for loads specified in Section 2722(d) 1.

Such columns shall have allowable stresses reduced 25 percent when one end frames into a joint not complying with Formula 22-3, and 50 percent when both ends frame into joints not complying with Formula 22-3.

((+6+)) (7) Uniform Building Code Section 2722(f) 7. is hereby amended to read as follows:

7. Trusses in SMRSF. Trusses may be used as horizontal members in SMRSF if the sum of the truss seismic force flexural strength exceeds the sum of the column seismic force flexural strength immediately above and below the truss by a factor of at least 1.25. For this determination the strengths of the members shall be reduced by the gravity load effects. In buildings of more than one story, the column axial stress shall not exceed $0.4F_y$ and the ratio of the unbraced column height to the least radius of gyration shall not exceed 60. Columns shall have allowable stresses reduced 25 percent when one end frames into a truss, and 50 percent when both ends frame into trusses. The connection of the truss chords to the column shall develop the lesser of the following:

- A. The strength of the truss chord.
- B. The chord force necessary to develop 125 percent of the flexural strength of the column.

((+7+)) (8) The following section shall be added to the Uniform Building Code:

Section 3801(e) when sprinklers are installed in an insulated ceiling cavity not meeting exceptions of UBC Standard 38-1 or where blocked by ducts or other similar obstructions, a space 6 inches or greater in depth with not less than 12 inches clearance from ducts or other similar obstructions shall be provided under all sprinklers.

((+8+)) (9) Section 3802(h) of the Uniform Building Code is hereby amended to read as follows:

(h) Group R Division 1 Occupancies. An automatic sprinkler system shall be installed throughout every apartment house three or more stories in height or containing more than 15 dwelling units and every hotel three or more stories in height or containing 20 or more guest rooms. Residential or quick response standard sprinkler heads shall be used in the dwelling unit and guest room portions of the building. The sprinkler system shall comply with the requirements of Washington State Building Code Standard No. 38-3W.

((+9+)) (10) Section 5103 of the Uniform Building Code is hereby not adopted in order to eliminate conflict with chapter 296-81 WAC as adopted by the Washington state department of labor and industries pursuant to chapter 70.87 RCW.

((+10+)) (11) Section 5105 of the Uniform Building Code shall be amended to read as follows:

Elevator Machine Room Floors

Section 5105. Elevator hoistways shall not be vented through an elevator machine room unless such venting is accomplished by an approved duct system installed through the elevator machine room. Cable slots entering the machine room ~~shall be sleeved beneath the machine room floor and extend to not less than 12 inches below the shaft vent to~~ must be installed in a manner that inhibits the passage of smoke into the machine room.

((+++)) (12) A New Standard No. 38-3W shall be added to Chapter 38 of the Uniform Building Code Standards as follows:

WASHINGTON STATE BUILDING CODE STANDARD
NO. 38-3W

INSTALLATION OF SPRINKLER SYSTEMS IN
RESIDENTIAL OCCUPANCIES

Sec. 38.301W. Except for the limitations, deletions, modifications or amendments set forth in Section 38.302W of this standard, the installation of sprinkler systems in residential occupancies of four stories or less when required by the Uniform Building Code shall be in accordance with the "Standard for the Installation of Sprinkler Systems in Residential Occupancies, NFPA 13R-1988", published by the National Fire Protection Association, copyright 1988, Batterymarch Park, Quincy, Massachusetts 02269, as if set out at length herein.

Sec. 38.302W. The National Fire Protection Association standard adopted by section 38.301W applies to the selection, installation, inspection, maintenance and testing of residential sprinkler systems, except as follows:

1. Table 1-5.1 is amended to read as follows:

Table 1-5.1

<u>Materials and Dimensions</u>	<u>Standard</u>
<u>Spec. for Black and Hot-Dipped Zinc Coated (Galvanized) Welded and Seamless Steel Pipe for Fire Protection Use</u>	ASTM A795
<u>Specification for Welded and Seamless Steel Pipe</u>	ASTM A53
<u>Wrought-Steel Pipe</u>	ANSI B36.10
<u>Specification for Electric-Resistance Welded Steel Pipe</u>	ASTM A135
<u>Copper Tube (Drawn, Seamless)</u>	
<u>Specification for Seamless Copper Tube</u>	ASTM B88
<u>Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tube</u>	ASTM B251
<u>Brazing Filler Metal (Classification BCuP-3 or BCuP-4)</u>	AWS A5.8
<u>Specification for Solder Metal, 9-5 (Tin-Antimony-Grade 95TA)</u>	ASTM B32
<u>Specifications for CPVC Pipe</u>	ASTM F437
	ASTM F438
	ASTM F439
	ASTM F442

Table 1-5.1

Materials and DimensionsStandard

<u>Specification for Polybutylene Tube</u>	<u>ASTM D 3309</u>
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2. Table 1-5.5 is amended to read as follows:

Table 1-5.5Materials and DimensionsStandard

<u>Cast Iron</u>	
<u>Cast Iron Threaded Fittings</u>	
<u>Class 125 and 250</u>	<u>ANSI B16.4</u>

<u>Cast Iron Pipe Flanges and</u>	
<u>Flanged Fittings</u>	<u>ANSI B16.1</u>

<u>Malleable Iron</u>	
<u>Malleable Iron Threaded Fittings</u>	
<u>Class 150 and 300</u>	<u>ANSI B16.3</u>

<u>Steel</u>	
<u>Factory-made Threaded Fittings</u>	
<u>Class 150 and 300</u>	<u>ANSI B16.9</u>

<u>Buttwelding ends for Pipe, Valves</u>	
<u>Flanges and Fittings</u>	<u>ANSI B16.25</u>

<u>Spec. for Piping Fittings of Wrought</u>	
<u>Carbon Steel and Alloy Steel for</u>	
<u>Moderate and Elevated Temperatures</u>	<u>ASTM A234</u>

<u>Pipe Flanges and Flanged Fittings,</u>	
<u>Steel Nickel Alloy and Other</u>	
<u>Special Alloys</u>	<u>ANSI B16.5</u>

<u>Forged Steel Fittings, Socket</u>	
<u>Welded and Threaded</u>	<u>ANSI B16.11</u>

<u>Copper</u>	
<u>Wrought Copper and Copper Alloy-</u>	
<u>Solder-Joint Pressure Fittings</u>	<u>ANSI B16.22</u>

<u>Cast Copper Alloy Solder-joint</u>	
<u>Pressure fittings</u>	<u>ANSI B16.18</u>

<u>Plastic Fittings for CPVC Pipe</u>	<u>ASTM F437</u>
	<u>ASTM F438</u>
	<u>ASTM F439</u>
	<u>ASTM F442</u>

<u>Plastic Fittings for Polybutylene tube</u>	<u>ASTM D 3309</u>
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((+2)) (13) EXCEPTION: In the case of conflict between the ventilation requirements of sections 605, section 705, section 905 and section 1205 of this code and the ventilation requirements of chapter 51-12 WAC, the Washington State Energy Code, or where applicable, a local jurisdiction's energy code, the provisions of such energy codes shall govern.

AMENDATORY SECTION (Amending Orders 88-11 and 88-11A, filed 12/1/88 and 5/23/89, effective 7/1/89)

WAC 51-16-050 UNIFORM FIRE CODE AND UNIFORM FIRE CODE STANDARDS. The 1988 edition of the Uniform Fire Code and the 1988 edition of the Uniform Fire Code Standards published by the International Conference of Building Officials, and the Western Fire Chiefs Association is hereby adopted by reference((~~7~~)) with the following additions, deletions and exceptions:

(1) Section 10.306(h) of the Uniform Fire Code is hereby amended to read as follows:

(h) Group R Division 1 Occupancies. An automatic sprinkler system shall be installed throughout every apartment house three or more stories in height or containing more than 15 dwelling units and every hotel three or more stories in height or containing 20 or more guest rooms. Residential or quick response standard sprinkler heads shall be used in the dwelling unit and guest room portions of the building. The sprinkler system shall comply with the requirements of Washington State Building Code Standard No. 38-3W.

(2) Article 80 of the 1988 edition of the Uniform Fire Code is hereby ((not-adopted-and-Article-80-of-the-1985-edition-of-the-Uniform-Fire-Code-is-hereby-adopted-in-its-place-

The--changes--made--between--the--1985-edition-of-the-Uniform-Fire-Code-and-the-1988-edition-of-the-Uniform-Fire-Code--for-the--purposes--of-integrating-Article-80-into-other-sections-of-the-1988-edition-of-the-Uniform-Fire-Code--are--also--not-adopted.

The--sections-and-tables-listed-below-contain-changes-to-the-1988-edition-of-the-Uniform-Fire-Code-made-for-this-purpose.

~~-----Standards:~~

~~-----Sec. 2.304-(b), page-9~~

~~-----Permits:~~

~~-----Sec. 4.108~~

~~-----c.6.-Compressed-Gases,~~

~~-----page-15~~

~~-----h.1.-Hazardous-materials,~~

~~-----page-16-&-17~~

~~-----h.2.-Highly-toxic-pesticides,~~

~~-----page-18~~

~~-----Definitions:~~

~~-----Sec. 9.105~~

~~-----CFR, page-23~~

~~-----Carcinogen, page-23~~

~~-----Sec. 9.117:~~

~~-----Group-H-Occupancies,~~

~~-----pages-36-&-37~~

~~-----Organic-Peroxide, page-39~~

~~-----Oxidizer, page-39~~

~~-----Sec. 9.118:~~

~~-----Peroxide-Forming-Chemical,~~

~~-----page-39~~

~~-----Primary-Containment, page-40~~

~~-----Proprietary-Information,~~

~~-----page-40~~

~~-----Pyrophoric, page-40~~

-----Sec.-9.+21-

-----Secondary-Containment,
-----page-4+

-----Segregated-Storage,-page-4+
-----Sensitizer,-page-4+

-----Sec.-9.+22-

-----Toxic-Material,-page-43

-----Sec.-9.+23-

-----Unauthorized-Discharge,
-----page-44

-----Unstable-(Reactive)-Liquid,
-----page-44

-----Sec.-9.+25-

-----Water-Reactive-Materials,
-----page-45

-----Appendices:

-----II-E-Hazardous-Materials-Management-Plan-&
-----Hazardous-Materials-Inventory--State-
-----ment,-page-4+5

-----VI-A-Hazardous--Materials-Classifications,
-----page-436)) amended as follows:

(a) Revise Sec. 80.101 as follows:

The purpose of this article is to provide requirements for the prevention, control and mitigation of physical hazards and health hazards related to hazardous materials and to provide information needed by emergency response personnel. Hazardous materials are those chemicals or substances defined as such in Article 9. See Appendix VI-A for the classification of hazard categories and hazard evaluations.

The general provisions and requirements in Division I shall apply to all hazardous materials, including those materials regulated elsewhere in this code, except that when specific requirements are provided in other articles, those specific requirements shall apply. When a material has multiple hazards, all hazards shall be addressed.

The provisions of this article are waived when such provisions are preempted by other codes, statutes or ordinances. Notwithstanding any other provision of this article the chief or other enforcing official charged with enforcement of this code, shall waive the requirements of this article when: 1) there exist other federal, state or local laws or regulations which regulate the same hazard or conditions as this article, and 2) such other laws or regulations address those physical hazards or health hazards for which the fire service is charged with prevention or response. The details of any action granting any such waiver shall be recorded and entered in the files of the code enforcement agency.

The classification system referenced in Division II shall apply to all hazardous materials, including those materials regulated elsewhere in this code.

EXCEPTIONS:

1. The off-site transportation of hazardous materials when in conformance with the Department of Transportation (DOT) regulations.

2. The quantities of alcoholic beverages, medicines, foodstuffs and cosmetics, containing not more than 50 percent by volume of water-miscible liquids and with the remainder of the solutions not being flammable, in retail sales occupancies are unlimited when packaged in individual containers not exceeding 4 liters.

For retail display of nonflammable solid and nonflammable or non-combustible liquid hazardous materials in Group B, Division 2 retail sales occupancies, see Section 80.108.

Notwithstanding any other language to the contrary, Article 80 is adopted in the State of Washington for the purpose to provide requirements for the prevention, control and mitigation of physical hazards and health hazards only.

(b) Revise Sec. 80.102(b) paragraph six as follows:

CONTROL AREA is space within a building where the exempt amounts specified in Division III may be stored or the exempt amounts specified in Division IV may be dispensed, used or handled. Storage or use of quantities in excess of those listed in the tables are required by UBC 901 to be rated as the appropriate Group H occupancy.

(c) Revise the paragraph in Sec. 80.102(b) defining health hazard as follows:

Health Hazard is a classification of a chemical for which there is statistically significant evidence based on at least one reproducible study conducted in accordance with established scientific principles that acute health effects may occur in exposed persons. The term "health hazard" includes chemicals which are toxic or highly toxic agents, irritants, corrosives, hepatotoxins, nephrotoxins, neurotoxins, agents which can have an acute effect on the hematopoietic system, and agents that have acute effects on the lungs, skin, eyes or mucous membranes.

(d) Revise Sec. 80.103(a) paragraphs one, two and three as follows:

Sec. 80.103. (a) General. In those jurisdictions which require permits under this article:

1. No person, firm or corporation shall store, dispense, use or handle hazardous material in excess of quantities specified in Section 4.108 unless and until a valid permit has been issued pursuant to this article.

2. A permit shall be obtained when a material is classified as having more than one hazard category if the quantity limits are exceeded in any category.

3. No person, firm or corporation shall install, abandon, remove, close or substantially modify a storage facility or other area regulated by this article until a permit has been issued. (See also Sections 80.107 and 80.108.)

EXCEPTIONS: 1. Routine maintenance.

2. For work performed on an emergency basis, application for permit shall be made within two working days of commencement of work.

(e) Revise Sec. 80.103(c) as follows:

(c) Hazardous Materials Management Plan. When required by the chief, each application for a permit pursuant to this article shall include a Hazardous Materials Management Plan (HMMP) in accordance with Appendix II-E.

EXCEPTION: Compliance with requirements of 40 CFR "Hazardous Chemical Reporting and Community Right-To-Know Regulations" under Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) will satisfy the requirement of this subsection.

(f) Revise Sec. 80.103(d) as follows:

(d) Hazardous Materials Inventory Statement. When required by the chief, each application for a permit pursuant to this article shall include a Hazardous Materials Inventory Statement (HMIS) in accordance with Appendix II-E.

EXCEPTION: Compliance with requirements of 40 CFR "Hazardous Chemical Reporting and Community Right-To-Know Regulations" under Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) will satisfy the requirement of this subsection.

(g) Revise 80.104(b) Exception 1. as follows:

1. Materials intended for use in weed abatement, erosion control, soil amendment or similar applications, when applied in accordance with the manufacturer's instructions or nationally recognized practices, including: a) pesticides used according to registered label directions, and b) fertilizers and soil amendments used according to manufacturers directions.

(h) Revise 80.104(e) as follows:

(e) Identification. Visible hazard identification signs as specified in U.F.C. Standard No. 79-3 shall be placed at entrances to locations where hazardous materials are stored, dispensed, used or handled in quantities requiring a permit.

EXCEPTION: The chief may waive this requirement in special cases when consistent with safety, if the owner or operator has submitted a hazardous materials management plan and a hazardous materials inventory statement. See Appendix II-E.

Individual containers, cartons or packages shall be conspicuously marked or labeled in accordance with nationally recognized standards or other approved equivalent systems. See also Section 80.301(d).

(i) Revise 80.105 paragraph one as follows:

Sec. 80.105. Buildings or portions thereof in which hazardous materials are stored, handled or used shall be constructed in accordance with the Building Code, as specified in U.B.C. Chapter 9.

(j) Add an exception to Sec. 80.106 as follows:

EXCEPTION: Compliance with requirements of 40 CFR "Hazardous Chemical Reporting and Community Right-To-Know Regulations" under Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) will satisfy the requirements of this section.

(k) Revise 80.107 as follows:

Facility Closure or Placement out of Service Notification.

Sec. 80.107. The permit holder or applicant shall notify the fire department of its intent to terminate storage, dispensing, handling or use of hazardous materials at least 30 days prior to facility closure or placing facility out of service.

(l) Delete Sec. 80.108 entirely.

(m) Add a new section 80.108 as follows:

Retail Display

Sec. 80.108. When in accordance with this section, the aggregate quantity of nonflammable solid and nonflammable or noncombustible liquid hazardous materials permitted within a single control area of a Group B, Division 2 retail sales occupancy may exceed the exempt amounts specified in Division III, Tables Nos. 80.306-A, 80.309-A, 80.310-A, 80.312-A, 80.314-A and 80.315-A. The maximum allowable quantity in pounds or gallons permitted within a single control area of a retail sales occupancy shall be the amount derived from the formula:

$$ER = E \times p \times A$$

WHERE:

ER = exempt amount permitted in a single control area of a retail sales occupancy.

E = exempt amount specified in Division III exempt amount tables.

p = density factor from Table No. 80.109.

A = square footage area of the hazardous material retail display or storage.

The maximum aggregate floor area for hazardous material retail display or storage over which the density factor may be applied shall not exceed 1500 square feet per control area.

The area of storage or display shall also comply with the following requirements:

1. Display of solids shall not exceed 200 pounds per square foot of floor area actually occupied by the solid merchandise.
2. Display of liquids shall not exceed 20 gallons per square foot of floor area actually occupied by the liquid merchandise.
3. Display height shall not exceed 6 feet.
4. Individual containers less than 5 gallons or less than 25 pounds shall be stored on pallets, racks or shelves.
5. Storage racks and shelves shall be in accordance with the provisions of Section 80.301(i).
6. Containers shall be approved for the use intended.
7. Individual containers shall not exceed 100 pounds or 5-gallon capacity.
8. Incompatible materials shall be separated in accordance with the provisions of Section 80.301(n).
9. Floors shall be in accordance with the provisions of Section 80.301(z).
10. Aisles 4 feet in width shall be maintained on three sides of the display area.
11. Hazard identification signs shall be provided in accordance with the provisions of Section 80.104(e).

Table No. 80.108. Add a table as follows:

TABLE NO. 80.108
DENSITY FACTORS FOR EXEMPT AMOUNTS IN RETAIL SALES

HAZARD CATEGORIES ¹	CLASS	DENSITY FACTOR ρ
Physical Hazards: Oxidizers; unstable (reactive) materials; water-reactive materials	Class 4	N.P.
	Class 3	0.075
	Class 2	0.006
	Class 1	0.003
Health Hazards: Highly toxic solids and liquids; corrosives; other health hazard solids, liquids and gases	All	0.0013

NP = Not permitted

¹Hazard categories are as specified in Division II. Density factors shall not apply to categories other than those listed.

(n) Add a new section as follows:

Sec. 80.109. Notwithstanding Section 1.103(b) conditions in existence at the time of the adoption of this article may continue if such condition was legal at the time of the adoption of this code, provided such condition is not dangerous to life or does not present a distinct and substantial hazard to property.

(o) Add a new section as follows:

Sec. 80.110. The intent of this article is to promote compliance with nationally recognized standards, including those identified in Appendix V-A and any guidance or directives from nationally recognized standards development organizations. Compliance with such standards shall be considered by the chief in judging compliance with the intent of this article.

(p) Delete Sec 80.202(b) 4. entirely.

(q) Add a new exception to Sec. 80.301(a) as follows:

3. Underground Storage Tanks regulated by 40 CFR 280 or state law.

(r) Amend Sec. 80.301(a) by adding a new second paragraph as follows:

The provisions for toxic compressed gases shall apply only after consideration of the hazard potential, alternatives for controlling the hazard, and the cost and benefits of the alternatives.

(s) Revise Sec 80.301(b) 1. as follows:

(b) Containers and Tanks. 1. Design and construction. Containers and tanks shall be designed and constructed in accordance with nationally recognized standards. See Section 2.304(b).

(t) Revise Sec. 80.301(b) 2. to read as follows:

2. Tanks out-of-service 90 days. Any stationary tank not used for a period of 90 days shall be properly maintained or removed in a manner approved by the chief. Such tanks shall have the fill line, gauge opening and pump connection secured against tampering. Vent lines shall be properly maintained.

Tanks which are to be placed back in service shall be tested in a manner approved by the chief.

(u) Revise Sec. 80.301(b) 3. to read as follows:

3. Defective containers and tanks. Defective containers and tanks shall be removed from service, repaired, or disposed of in accordance with nationally recognized standards of good practice such as the American Petroleum Institute (API) or American Society of Mechanical Engineers (ASME). See Section 2.304(b).

(v) Revise Sec. 80.301(b) 5. to read as follows:

5. Underground tanks. Underground tanks not otherwise excepted by this section used for the storage of hazardous materials shall be located and protected in accordance with Sections 79.601 and 79.603 of this code. Secondary containment shall be provided for all new installations of underground tanks.

(w) Revise the second paragraph of Sec 80.301(d) to read as follows:

Signs prohibiting smoking shall be provided in accordance with the provisions of Article 13.

(x) Revise Sec. 80.301(e) to read as follows:

(e) Security. The storage of hazardous materials shall be protected against tampering or trespassers by fencing or other control measures.

(y) Revise Sec. 80.301(f) to read as follows:

(f) Ignition Sources.

Smoking, use of open flames or high-temperature devices in a manner which creates a hazardous condition shall not be permitted.

EXCEPTION: Energy-consuming equipment listed for use with the hazardous material stored.

(z) Amend Sec. 80.301(k) by adding a third sentence as follows:

Compliance with requirements of 40 CFR "Hazardous Chemical Reporting and Community Right-To-Know Regulations" under Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) will satisfy the requirements of this subsection.

(aa) Amend Sec. 80.301(m) by adding a second sentence as follows:

Threshold Limit Values (TLV) as established by the American Conference of Governmental & Industrial Hygienists (ACGIH), OSHA or Washington Industrial Safety and Health Act - chapter 296-62 WAC will be utilized for establishing minimum standards where ventilation is required.

(bb) Amend Sec. 80.301(o) 2. by deleting the first complete sentence.

(cc) Revise the second sentence of Sec. 80.301(q) to read as follows:

The design shall be engineered and recognize the nature of the stored material and its likely behavior in an explosion.

(dd) Revise Sec. 80.301(r) to read as follows:

(r) Electrical Wiring and Equipment. Electrical wiring and equipment shall be installed in accordance with the Washington State Electrical Code chapter 296-46 WAC.

(ee) Revise Sec. 80.301(s) to read as follows:

(s) Standby Power. When mechanical ventilation, treatment systems, temperature control, alarm, detection or other electrically operated systems are required, such systems shall be connected to a secondary source of power to automatically supply electrical power in the event of loss of power from the primary source. See the Washington State Electrical Code chapter 296-46 WAC.

(ff) Revise Sec. 80.301(u) to read as follows:

(u) Manual Alarm. A local fire alarm manual pull station or approved emergency signal device shall be installed outside of each interior exit door of approved storage buildings, rooms or areas. Activation of the manual alarm shall sound a local alarm.

(gg) Revise Sec. 80.301(y) 1. to read as follows:

1. Fire access roadways. See The Building Code Act, RCW 19.27.060(5).

(hh) Amend Sec. 80.303(a) 3. by adding an exception as follows:

Exception: Where water is incompatible with the hazardous material stored, the Chief may approve alternate fire suppression methods to an automatic sprinkler system.

(ii) Revise Sec. 80.303(a) 4. to read as follows:

4. Explosion venting or suppression. When flammable gases which are toxic or highly toxic are stored in rooms outside of gas cabinets or exhausted enclosures, the storage rooms shall be provided with explosion venting or suppression in accordance with the provisions of Section 80.301(q).

(jj) Amend Sec. 80.303(b) 3. adding two exceptions as follows:

Exceptions: 1. Anhydrous ammonia (fertilizer grade) portable tanks and cylinders.

2. Where water is incompatible with the hazardous material stored, the Chief may approve alternate fire suppression methods to an automatic sprinkler system.

(kk) Revise the exception in Sec. 80.303(c) 3. B. as follows:

EXCEPTIONS:

1. A cabinet or exhausted enclosure need not be provided for leaking cylinders if all cylinders are stored within gas cabinets or exhausted enclosures.

2. A cabinet or exhausted enclosure need not be provided for leaking cylinders if a U.S. DOT approved cylinder containment vessel is provided.

(ll) Amend the title before Sec. 80.305 to read as follows:

Flammable Solids and Combustible Dusts

(mm) Revise Sec. 80.305(a) 4. to read as follows:

4. Explosion venting or suppression. Rooms, buildings or equipment used for the storage of combustible dusts shall be provided with explosion venting, equivalent protective devices or suppression in accordance with the provisions of Section 80.301(q).

(nn) Amend Sec. 80.306(a) 1. by adding the following exception:

EXCEPTION: For retail display of nonflammable solid and nonflammable or noncombustible liquid Class 1, Class 2 and Class 3 oxidizers, see Section 80.108.

(oo) Revise the footnotes following Table No. 80.306-A as follows:

1 For liquid oxidizers, a conversion of 10 pounds per gallon shall be used.

2 No exempt amounts of Class 4 oxidizers are permitted in Group R Occupancies, offices or retail sales portions of Group B Occupancies.

3 No exempt amounts of Class 4 oxidizers are permitted in Group A, E, I, or M Occupancies, or in classrooms of Group B Occupancies unless storage is within a hazardous material storage cabinet containing no other storage.

4 A maximum quantity of 200 pounds of solid or 20 gallons of liquid Class 3 oxidizers may be permitted in Groups I, M and R Occupancies when such materials are necessary for maintenance purposes or operation of equipment. The oxidizers shall be stored in approved containers and in a manner approved by the chief.

(pp) Revise Sec 80.306(a) 8. as follows:

8. Explosion venting or suppression. Explosion venting or suppression shall not be required in storage areas for Class 1, 2, and 3 oxidizers.

(qq) Revise the footnotes following Table No. 80.307-A as follows:

1 For organic peroxide liquids, a conversion of 10 pounds per gallon shall be used.

2 No exempt amounts of unclassified detonatable or Class I organic peroxides are permitted in Group R Occupancies or offices or retail sales portions of Group B Occupancies.

3 No exempt amounts of unclassified detonatable or Class I organic peroxides are permitted in Group A, E, I or M Occupancies or in classrooms of Group B Occupancies unless storage is within a hazardous material storage cabinet containing no other storage.

(rr) Revise the exception in Sec. 80.309(a) 1. as follows:

EXCEPTIONS:

1. Detonatable, unstable (reactive) materials shall be stored in accordance with Article 77.

2. For retail display of nonflammable solid and nonflammable or noncombustible liquid unstable (reactive) materials, see Section 80.108.

(ss) Amend Sec 80.310(a) by adding an exception as follows:

EXCEPTION: For retail display of nonflammable solid and nonflammable or noncombustible liquid water-reactive materials, see Section 80.108.

(tt) Amend the title of Table No. 80.310-A to read as follows:

WATER-REACTIVES EXEMPT AMOUNTS POUNDS¹

(uu) Revise Sec 80.312(a) 1. and 2. and the section title to read as follows:

Highly Toxic or Toxic Solids and Liquids

Sec. 80.312. (a) Indoor Storage. 1. General. Indoor storage of highly toxic or toxic solids and liquids shall be in accordance with the provisions specified in Subsections 80.312(a) and (c) and Section 80.301.

EXCEPTION: For retail display of nonflammable solid and nonflammable or noncombustible liquid highly toxic materials, see Section 80.108.

2. Exempt amounts. When the amount of highly toxic or toxic solids or liquids stored in one control area exceeds that specified in Table No. 80.312-A, such storage shall be within a room or building conforming to the Building Code requirements for a Group H, Division 7 Occupancy.

(vv) Revise the title of Table No. 80.312-A as follows:

HIGHLY TOXIC OR TOXIC SOLIDS AND LIQUIDS EXEMPT AMOUNTS¹

(ww) Revise the footnote of Table No. 80.312-A as follows:

¹For highly toxic or toxic liquids, a conversion of 10 pounds per gallon shall be used.

(xx) Add a second footnote to Table No. 80.312-A as follows:

² Toxic liquids with vapor pressure greater than one psia shall be treated as highly toxic liquids.

(yy) Delete Sec. 80.312(c) entirely.

(zz) Delete Sec. 80.313(c) entirely.

(aaa) Amend Sec. 80.314(a) 1. adding an exception as follows:

EXCEPTION: For retail display of nonflammable solid and nonflammable or noncombustible liquid corrosive materials, see Section 80.108.

(bbb) Delete Sec. 80.315 Other Health Hazard Solids, Liquids and Gases entirely.

(ccc) Amend Sec 80.401(a) revising the exception as follows:

EXCEPTIONS: 1. Hazardous materials regulated by other articles in this code.

2. Underground Storage Tanks regulated by 40 CFR 280 or state law.

(ddd) Amend Sec. 80.401(a) by adding a new second paragraph as follows:

The provisions for toxic compressed gases shall apply only after consideration of the hazard potential, alternatives for controlling the hazard, and the cost and benefits of the alternatives.

(eee) Revise Sec. 80.401(b) 3. as follows:

3. Tanks out of service 90 days. Any stationary tank not used for a period of 90 days shall be properly maintained or removed in accordance with nationally recognized standards of good practice. Such tanks shall have the fill line, gauge opening and pump connection secured against tampering. Vent lines shall be properly maintained.

(fff) Revise Sec. 80.401(b) 4. as follows:

4. Defective containers, cylinders and tanks. Defective containers, cylinders and tanks shall be removed from service, repaired or disposed of in accordance with nationally recognized standards of good practice.

(ggg) Revise Sec. 80.401(b) 6. as follows:

6. Underground tanks. Underground tanks not otherwise excepted by this section containing hazardous materials shall be located and protected in accordance with Sections 79.601 and 79.603 of this code. Secondary containment shall be provided for all new underground tanks.

(hhh) Amend Sec. 80.401(c) 3. A. revising the exception as follows:

EXCEPTIONS: 1. Nonmetallic piping with approved connections.

2. Nationally recognized standards shall be deemed to be in compliance with this section.

(iii) Amend Sec. 80.401(c) 3. C. by adding an exception as follows:

EXCEPTION: Where excess flow control is not appropriate according to nationally recognized standards of good practice.

(jjj) Revise Sec. 80.401(j) as follows:

(j) Electrical Equipment and Wiring. Electrical equipment and wiring in dispensing and use areas shall be installed in accordance with the provisions of the Washington State Electrical Code chapter 296-46 WAC.

(kkk) Revise Sec. 80.401(l) as follows:

(l) Standby power. When mechanical ventilation, treatment systems, temperature control, manual alarm, detection or other electrically operated systems are required by other provisions of this division, such systems shall be connected to a standby source of power to automatically supply electrical power in the event of loss of power from the primary source. (See the Washington State Electrical Code chapter 296-46 WAC.)

(lll) Revise Sec. 80.401(n) 1. as follows:

1. Signs prohibiting smoking shall be provided in accordance with the provisions of Article 13.

(mmm) Revise Sec. 80.401(o) as follows:

(o) Security. Dispensing, use and handling areas shall be protected against tampering or trespassing by fencing or other control measures.

(nnn) Revise Sec. 80.402(b) 2. A. as follows:

A. Dispensing. When liquids having a hazard ranking of 3 or 4 in accordance with U.F.C. Standard No. 79-3 are dispensed from tanks or drums, dispensing shall be only by approved pumps taking suction from the top or by other methods in accordance with nationally recognized standards of good practice.

(ooo) Revise Sec. 80.402(b) 2. B. as follows:

B. Ventilation. When gases, liquids or solids having a hazard ranking of 3 or 4 in accordance with U.F.C. Standard No. 79-3 are dispensed or used, approved ventilation shall be provided to control fumes, mists or vapors at the point of generation.

EXCEPTION: Gases, liquids or solids which can be demonstrated not to create harmful fumes, mists or vapors based on applicable recognized standards.

(ppp) Revise Sec. 80.402(b) 2. D. as follows:

D. Explosion venting or suppression. Explosion venting or suppression shall be provided in accordance with the provisions of Section 80.301(q) when an explosion hazard can occur because of the characteristics or nature of the hazardous materials dispensed or used, or as a result of the dispensing or use process.

(qqq) Revise Sec. 80.402(b) 3. D. as follows:

D. Explosion venting or suppression. Explosion venting or suppression shall be provided in accordance with the provisions of Section 80.301(q) when an explosion hazard can occur because of the hazardous materials dispensed or used, or as a result of the dispensing or use process.

(rrr) Amend Sec. 80.402(b) 3. F. (v) by adding the following exception:

EXCEPTION: Automatic shutdown need not be provided for reactors utilized for the production of toxic or highly toxic gas when such reactors are:

1. Operated at pressure less than 15 psig.
2. Constantly attended.
3. Provided with readily accessible emergency shutoff valves.

(sss) Delete Sec. 80.402(b) 3. F. (viii) Process equipment entirely.

(ttt) Revise Sec. 80.402(c) 2. as follows:

2. Dispensing. When liquids having a hazard ranking of 3 or 4 in accordance with U.F.C. Standard No. 79-3 are dispensed from tanks or drums, dispensing shall be by approved pumps taking suction from the top or by other methods in accordance with nationally recognized standards of good practice.

(uuu) Revise Sec. 80.402(c) 6. A. as follows:

A. Fire access roadways. See the Building Code Act, RCW 19.27.060(5).

(vvv) Amend Sec. 80.402(c) 8. C. by adding an exception as follows:

EXCEPTION: Automatic shutdown need not be provided for reactors utilized for the production of toxic or highly toxic gas is when such reactors are:

1. Operated at pressure less than 15 psig.
2. Constantly attended.
3. Provided with readily accessible emergency shutoff valves.

(www) Revise Table No. 80.402-A by adding a new Item 1.3 as follows, renumbering current Section 1 materials and revising Item 5.1 as follows:

TABLE NO. 80.402-A—EXEMPT AMOUNTS OF HAZARDOUS MATERIALS PRESENTING A PHYSICAL HAZARD—MAXIMUM QUANTITIES PER CONTROL AREA
Values within parentheses are in cubic feet (cu. ft.) or pounds (lbs.)

MATERIAL	CLASS	CLOSED SYSTEMS			OPEN SYSTEMS		
		Solid lbs. (cu. ft.)	Liquid gallons (lbs.)	Gas cu. ft.	Solid lbs. (cu. ft.)	Liquid gallons (lbs.)	Gas cu. ft.
1.3 Combustible Fiber	Loose	(100)	NA	NA	(20)	NA	NA
	Baled	(1,000)	NA	NA	(200)	NA	NA
5.1 Pyrophoric		1 ⁴	(1) ⁴	10 ^{4.5}	0	0	0

(xxx) Revise Table No. 80.402-A revising footnote 5 to read as follows:

⁵The amount may be doubled when dispensed or used inside approved exhausted gas cabinets, exhausted enclosures or fume hoods. When Footnote 1 also applies, the increase for both footnotes may be applied.

(yyy) Revise Table No. 80.402-A by adding a new footnote 7 after the word AREA in Table title. Insert new footnote 7 language as follows:

⁷The aggregate quantity in use and storage shall not exceed the quantity listed for storage. See Division III.

(zzz) Revise Table No. 80.402-A by replacing all references to footnote 2 with footnote 7.

(aaaa) Revise Table No. 80.402-A by adding a footnote 8 to 1.1, 1.2, 1.3 "Combustible Fiber", 1.4, 2.1, 3.1, 3.2, 3.3, and 4.3. Also insert footnote 8 language after existing footnotes as follows:

⁸For use of any amount, see Articles 28, 30, 45, 46, 48, 50, 74, 75, 76, 77, 78, and 79 as applicable for the hazard category of the material in use.

(bbbb) Revise Table No. 80.402-B by adding a footnote 6 after AREA in Table title. Also insert new footnote 6 language after existing footnotes as follows:

⁶The aggregate quantity in use and storage shall not exceed the quantity listed for storage. See Division III.

(cccc) Amend Uniform Fire Code Appendix V-A by adding the following:

The Chlorine Institute, Inc. 2001 L Street, NW, Washington, D.C.
20036

The Chlorine Manual
Instruction Booklet Chlorine Institute Emergency Kit "A" for 100-
pound and 150-pound Chlorine cylinders
Instruction Booklet Chlorine Institute Emergency Kit "B" for
Chlorine Ton Containers
Instruction Booklet Chlorine Institute Emergency Kit "C" for
Chlorine Tank Cars/Tank Trucks
Chlorine Institute Drawing 188, Chlorine Cylinder Recovery Vessel

Chapter 51-18 WAC

WASHINGTON STATE WATER CONSERVATION PERFORMANCE STANDARDS

WAC

51-18-010	Declaration of purpose.
51-18-020	Application.
51-18-030	Water efficiency standards.
51-18-040	Exceptions.
51-18-050	Implementation.

NEW_SECTION

WAC 51-18-010 DECLARATION OF PURPOSE. The purpose of this chapter shall be to implement water conservation performance standards in accordance with section 8, chapter 348, Laws of 1989.

NEW_SECTION

WAC 51-18-020 APPLICATION. This chapter shall apply to all new construction and all remodeling involving replacement of plumbing fixtures in all residential, hotel, motel, school, industrial, commercial use, or other occupancies determined by the council to use significant quantities of water.

NEW_SECTION

WAC 51-18-030 WATER EFFICIENCY STANDARDS. (1) Standards for waterclosets. The guideline for maximum water use allowed in gallons per flush (gpf) for any of the following waterclosets is the following:

Tank-type toilets.....	3.5 gpf
Flushometer-valve toilets.....	3.5 gpf
Flushometer-tank toilets.....	3.5 gpf
Electromechanical hydraulic toilets.....	3.5 gpf

(2) Standard for urinals. The guideline for maximum water use allowed for any urinal is 3.0 gallons per flush.

(3) Standard for showerheads. The guideline for maximum water use allowed for any showerhead is 3.0 gallons per minute.

(4) Standards for faucets. The guideline for maximum water use allowed in gallons per minute (gpm) for any of the following faucets and replacement aerators is the following:

Bathroom faucets.....	3.0 gpm
Lavatory faucets.....	3.0 gpm
Kitchen faucets.....	3.0 gpm
Replacement aerators.....	3.0 gpm

(5) No urinal or watercloset that operates on a continuous flow or continuous flush basis shall be permitted.

NEW SECTION

WAC 51-18-040 EXCEPTIONS. Except where designed and installed for use by the physically handicapped, lavatory faucets located in restrooms intended for use by the general public must be equipped with a metering valve designed to close by spring or water pressure when left unattended (self-closing).

NEW SECTION

WAC 51-18-050 IMPLEMENTATION. The standards for water efficiency contained in WAC 51-18-030 shall be in effect as of July 1, 1990, as provided in section 8, chapter 348, Laws of 1989.