

1 such that no point on the marina pier or float system exceeds 150 feet (15 240 mm) from a
standpipe hose connection.)

2 A manual Class I standpipe system in accordance with NFPA 14, or Class III standpipe system in
3 accordance with NFPA 14, if approved by the *fire code official*, shall be provided for *piers,*
4 *wharves* and *floats* if the hose lay distance from the fire apparatus to the most remote accessible
5 portion of the pier, wharf or float exceeds 150 feet (45 720 mm).

6 Approved plastic pipe may be used if installed underwater, or if another approved method of
7 protection from fire is provided.

8 The standpipe piping shall be a minimum of 4 inches (102 mm), sized to provide a minimum of
9 500 gpm (365 L/s) at 130 psi (896 kPa) at the most remote hose connection, with a simultaneous
10 flow of 500 gpm (31.5 L/s) at the third most remote hose connection on the same pier while
11 maintaining a maximum system pressure of 175 psi (1206 kPa).

12 **4504.2.1 Hose connections.** Hose connection stations on required standpipes shall be
13 provided at the water end of the *pier, wharf* or *float*, and along the entire length of the *pier, wharf*
14 or *float* at spacing not to exceed 150 feet (45 720 mm) and as close as practical to the land end.
15 Each hose connection shall consist of a valved 2 1/2-inch (64 mm) fire department hose outlet.
16 Outlet caps shall have a predrilled 1/8-inch (3.2 mm) hole for pressure relief and be secured with
17 a short length of chain or cable to prevent falling after removal. Listed equipment shall be used.

18 **Exception:** The hose connection at the land end of the *pier, wharf* or *float* may be omitted when
19 a hose connection is located within 150 feet (45 720 mm) of the fire apparatus access road.

20 **4504.2.2(1) Identification of standpipe outlets.** Standpipe hose connection locations shall
21 be clearly identified by a flag or other *approved* means designed to be readily visible from the
22 pier accessing the float system.

23 **4504.3 Access and water supply.** Fire department apparatus access lanes, not less than 20 feet
24 wide (6096 mm) and capable of supporting a 50,000-pound (22 700 kg) vehicle or 24,000
25 pounds (10 896 kg) per axle (HS20 loading), shall be provided and so located as to provide fire
26 department apparatus access to within 50 feet (15 240 mm) travel distance to the shore end of all
27 piers, wharves and floats. The apparatus access lane shall meet the requirements of Appendix D.

28 At least two fire hydrants shall be provided. One hydrant shall be located within 500 feet (152
400 mm) of the closest point of fire department apparatus access to the shore end of the marina
piers, wharves or *floats*, or to the fire department connection (FDC) for those *piers, wharves* or
floats that are equipped with standpipes. The second fire hydrant shall be located within 1000
feet (304 800 mm) of the closest point of fire department apparatus access to the shore end of the



1 marina piers, wharves or floats, or to the FDC for those piers, wharves or floats that are equipped
2 with standpipes. All required hydrants shall be capable of delivering not less than 1000 gpm (63
3 L/s) at a minimum residual pressure of 20 psi (138 kPa) each.

4 ~~((Piers and wharves shall be provided with fire apparatus access roads and water supply systems~~
5 ~~with on-site fire hydrants when required by the fire code official. Such roads and water systems~~
6 ~~shall be provided and maintained in accordance with Sections 503.2 and 508.))~~

7 **4504.4 Portable fire extinguishers.** One portable fire extinguisher ~~((of the ordinary (moderate)~~
8 ~~hazard type))~~ having a minimum rating of 2A 20-BC, shall be provided ~~((at each required~~
9 ~~standpipe hose connection))~~ within 75 feet (22 860 mm) of all portions of piers, wharves and
10 floats. If applicable, ((A)) additional fire extinguishers, suitable for the hazards
11 involved, shall be provided. Fire extinguishers shall be maintained in accordance with Section
12 906 and NFPA 10.

13 **4504.5 Communications.** A telephone not requiring a coin to operate or other *approved*, clearly
14 identified means to notify the fire department shall be provided on the site in a location *approved*
15 by the *fire code official*. The street address of the marina and emergency telephone number(s)
16 shall be displayed prominently on a sign at the telephone.

17 ***

18 **4504.7 Automatic sprinkler systems.**

19 **4504.7.1 Covered boat moorage and structures on piers.** Automatic sprinklers shall be
20 provided for covered boat moorage exceeding 500 square feet (46.5 m²) in projected roof area per
21 pier, wharf or float. The sprinkler system shall be designed and installed in accordance with
22 NFPA 13 for Extra Hazard Group 2 occupancy. If sprinklers are required by this chapter for
23 covered boat moorage, the sprinklers shall be extended to any structure on the pier, wharf or float
24 exceeding 500 square feet (46.5 m²) in projected roof area. For the purposes of this chapter, the
25 projected roof area means the footprint of the roof.

26 **4504.7.2 Substructure.** Automatic sprinklers shall be installed under the substructure of
27 every new waterfront structure in accordance with NFPA 307 and as specified in Chapter 9.

28 **Exceptions:**

1. Combustible substructures whose deck area does not exceed 8,000 square feet (743.2 m²) and
2. does not support superstructures.

2. Combustible substructures whose deck area does not exceed 8,000 square feet (743.2 m²) but
3. supports superstructures not required to be provided with an approved automatic sprinkler system
4. as specified in Section 424.9.2 of the Seattle Building Code.

3. Noncombustible substructures with or without superstructures.



1 4. Substructures, over other than tidal water, if sprinkler heads cannot be installed with a
2 minimum clearance of 4 feet (1219 mm) above mean high water.

3 5. Substructures resulting from walkways or finger piers that do not exceed 10 feet (3048 mm) in
4 width.

5 **4504.7.3 Superstructure.** Automatic sprinklers shall be provided in superstructures, other
6 than structures on piers with covered boat moorage in accordance with 4504.7.1, as required in
7 Chapter 9.

8 **4504.7.4 Monitoring.** Sprinkler systems shall be monitored by an approved central station
9 service in accordance with Section 903.4.1.

10 **4504.8 Fire department connections.** Standpipe and sprinkler systems shall be equipped with
11 not less than a two-way 2 1/2-inch (64 mm) fire department connection (FDC), which shall be
12 readily visible and located at the fire department apparatus access.

13 **4504.9 Marina fire protection confidence testing.** Standpipe and sprinkler systems shall be
14 inspected and tested in accordance with Administrative Rule 9.02.09, *Confidence Test*
15 *Requirements for Life Safety Systems* and any future revisions of this rule adopted by the *fire*
16 *code official*. Maintenance and periodic testing are the owner's responsibility, or the
17 responsibility of such other person as may be designated by the owner, and are separate from fire
18 department inspections. The person, firm or corporation performing such work shall have a
19 certificate from the fire department. See Administrative Rule 9.01.09, *Certification for Installing,*
20 *Maintaining and Testing Life Safety Systems and Equipment* and any future revisions of this rule
21 adopted by the *fire code official*.

22 ***

23 Section 29. Chapter 46 of the 2009 International Fire Code is amended as follows:

24 ***

25 **4603.3.3 More than five stories.** In other than Group I occupancies, interior vertical openings
26 connecting more than five stories shall be protected by 1-hour fire-resistance- rated construction.

27 **Exceptions:**

- 28 1. Vertical opening protection is not required for Group R-3 occupancies.
2. Vertical opening protection is not required for open parking garages and ramps.
3. Vertical opening protection is not required for escalators.
4. Vertical opening protection is not required for stairways that are not a portion of the required
means of egress constructed in accordance with the *Seattle Building Code* in effect at the time of
construction.



1 **4603.4.3 Nightclub.** An automatic sprinkler system shall be provided throughout existing
2 nightclubs. No building shall be constructed for, used for, or converted to, occupancy as a
3 nightclub except in accordance with this section.

3 ***

4 **4603.6 Fire alarm systems.** *An approved* fire alarm system shall be installed in existing
5 buildings and structures in accordance with Sections 4603.6.1 through 4603.6.7 and provide
6 occupant notification in accordance with Section 907.6 unless other requirements are provided by
7 other sections of this code.

8 **Exception:** Non-residential ((Θ)) occupancies with an existing, previously *approved* fire
9 alarm system, and residential occupancies with a fire alarm system capable of achieving a
10 minimum sound level in the sleeping rooms of 60 dBa or 15' dBa above ambient noise
11 level.

9 ***

10 ~~**[W]** ((**4603.6.7 Group R-4.** An automatic or manual fire alarm system that activates the
11 occupant notification system in accordance with Section 907.6 shall be installed in existing
12 Group R-4 residential care/assisted living facilities in accordance with Section 907.2.10.~~

12 ~~**Exceptions:**~~

13 ~~1. Where there are interconnected smoke alarms meeting the requirements of Section 907.2.11
14 and there is at least one manual fire alarm box per floor arranged to continuously sound the
15 smoke alarms.~~

16 ~~2. Other manually activated, continuously sounding alarms *approved* by the *fire code official*.)~~

15 ***

16 **4603.8 Emergency responder radio coverage.** Within a timeframe established by the *fire code*
17 *official*, existing buildings that do not have approved radio coverage for emergency responders
18 within the building, and existing buildings that have an existing wired communication system
19 that has been approved by the building official and *fire code official* but cannot be repaired or is
20 replaced, shall be equipped with such coverage using a system in accordance with Appendix J of
21 this code.

21 **Exceptions:**

22 1. Where it is determined by the *fire code official* that the radio coverage system is not
23 needed.

24 2. One and two family dwellings and townhouses.

25 3. Buildings constructed primarily of wood-frame (Type V) construction without below
26 grade storage or parking areas.

27 4. Buildings that are 35 feet high (as defined by the *Seattle Building Code* Section 502) or
28 less without below grade storage or parking areas.

SECTION 4604



MEANS OF EGRESS FOR EXISTING BUILDINGS

1
2 **[W] 4604.1 General.** *Means of egress* in existing buildings shall comply with ~~((the minimum~~
3 ~~egress requirements when specified in Table 4603.1 as further enumerated in Sections 4604.2~~
4 ~~through 4604.21, and the building code that applied at the time of construction. Where the~~
5 ~~provisions conflict, the most restrictive provision shall apply.))~~ Section 1030 and Sections
6 4604.1.1 through 4604.23.

7 **Exception:** Means of egress conforming to the requirements of the building code under
8 which they were constructed and Section 1030 shall not be required to comply with
9 4604.2 through 4604.21.

10 **[W] 4604.1.1 Evaluation.** Existing buildings that were not required to comply with a building
11 code at the time of construction, and that constitute a distinct hazard to life as determined by the
12 fire code official, shall comply with the minimum egress requirements when specified in Table
13 4603.1 as further enumerated in Sections 4604.2 through 4604.2((1))3 ((and, in addition, shall
14 have a life safety evaluation prepared, consistent with the requirements of Section 104.7.2)). The
15 fire code official shall notify the building owner in writing of the distinct hazard and, in addition,
16 shall have authority to require a life safety evaluation be prepared. The life safety evaluation shall
17 identify any changes to the *means of egress* that are necessary to provide safe egress to occupants
18 and shall be subject to review and approval by the *fire code official*. The building shall be
19 modified to comply with the recommendations set forth in the *approved* evaluation.

20 ***

21 **4604.5 Illumination emergency power.** The power supply for *means of egress* illumination
22 shall normally be provided by the premises' electrical supply. In the event of power supply
23 failure, illumination shall be automatically provided from an emergency system for the following
24 occupancies where such occupancies require two or more *means of egress*:

25 1. Group A having 50 or more occupants.

26 **Exception:** Assembly occupancies used exclusively as a place of worship and having an
27 *occupant load* of less than 300.

28 2. Group B buildings three or more stories in height, buildings with 100 or more occupants above
or below a *level of exit discharge* serving the occupants or buildings with 1,000 or more total
occupants.

3. Group E in interior stairs, *corridors*, windowless areas with student occupancy, shops and
laboratories.

4. Group F having more than 100 occupants.

Exception: Buildings used only during daylight hours which are provided with windows
for natural light in accordance with the *International Building Code*.

5. Group I.

6. Group M.



Exception: Buildings less than 3,000 square feet (279m2) in gross sales area on one story only, excluding mezzanines.

7. Group R-1.

Exception: Where each *sleeping unit* has direct access to the outside of the building at grade.

8. Group R-2.

Exception: Where each *dwelling unit* or *sleeping unit* has direct access to the outside of the building at grade.

~~((9. Group R-4.))~~

~~((**Exception:** Where each *sleeping unit* has direct access to the outside of the building at ground level.))~~

Section 30. Chapter 47 of the 2009 International Fire Code is amended as follows:

**CHAPTER 47
 REFERENCED STANDARDS**

This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date and title, and the section or sections of this document that reference the standard. The application of the referenced standards shall be as specified in Section 102.~~((6))~~7.

National Fire Protection Association
 1 Batterymarch Park

NFPA

Quincy, MA 02169-7471

Standard reference number	Title	Referenced in code section number
10-07	Portable Fire Extinguishers	Table 901.6.1, 906.2, 906.3, Table 906.3(1), Table 906.3(2), 906.3.2, 906.3.4, 2106.3, I101.1
11-05	Low-, Medium- and High-expansion Foam	904.7, 3404.2.9.2.2
12-05	Carbon Dioxide Extinguishing Systems	Table 901.6.1, 904.8, 904.11
12A-04	Halon 1301 Fire Extinguishing Systems	Table 901.6.1, 904.9
13-07	Installation of Sprinkler Systems	Table 903.3.1.1, 903.3.2, 903.3.5.1.1, 903.3.5.2, 904.11, 905.3.4, 907.7.3, 2301.1, 2304.2, Table 2306.2, 2306.9, 2307.2, 2307.2.1, 2308.2.2, 2308.2.2.1, 2308.4, 2310.1, 2501.1, 2804.1, 2806.5.7, 3404.3.3.9, Table 3404.3.6.3(7), 3404.3.7.5.1, 3404.3.8.4
13D-07	Installation of Sprinkler Systems in One- and Two-family Dwellings and Manufactured Homes	903.3.1.3, 903.3.5.1.1
13R-07	Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height	903.3.1.2, 903.3.5.1.1, 903.3.5.1.2, 903.4
14-07	Installation of Standpipe and Hose Systems	905.2, 905.3.4, 905.4.2, 905.6.2, 905.8
15-07	Water Spray Fixed Systems for Fire Protection	3404.2.9.2.3
16-07	Installation of Foam-water Sprinkler and Foam-water Spray Systems	904.7, 904.11



1	17—02	Dry Chemical Extinguishing Systems	Table 901.6.1, 904.6, 904.11
	17A—02	Wet Chemical Extinguishing Systems	Table 901.6.1, 904.5, 904.11
	20—07	Installation of Stationary Pumps for Fire Protection	913.1, 913.2, 913.5.1
2	22—03	Water Tanks for Private Fire Protection	507.2.2
	24—07	Installation of Private Fire Service Mains and Their Appurtenances	507.2.1, 1909.5
3	25—08	Inspection, Testing and Maintenance of Water-based Fire Protection Systems	507.5.3, Table 901.6.1, 904.7.1, 912.6, 913.5, I101.1
4	30—08	Flammable and Combustible Liquids Code	3403.6.2, 3403.6.2.1, 3404.2.7, 3404.2.7.1, 3404.2.7.2, 3404.2.7.3.6, 3404.2.7.4, 3404.2.7.6, 3404.2.7.7, 3404.2.7.8, 3404.2.7.9, 3404.2.9.3, 3404.2.9.4, 3404.2.9.6.1.1, 3404.2.9.6.1.2, 3404.2.9.6.1.3, 3404.2.9.6.1.4, 3404.2.9.6.1.5, 3404.2.9.6.2, 3404.2.9.7.4, 3404.2.10.2, 3404.2.11.4, 3404.2.11.5.2, 3404.2.12.1, 3404.3.1, 3404.3.6, Table 3404.3.6.3(1), Table 3404.3.6.3(2), Table 3404.3.6.3(3), 3404.3.7.2.3, 3404.3.8.4, 3406.8.3
5	30A—08	Code for Motor Fuel-dispensing Facilities and Repair Garages	2201.4, 2201.5, 2201.6, 2206.6.3, 2210.1
6	30B—07	Manufacture and Storage of Aerosol Products	2801.1, 2803.1, 2804.1, Table 2804.3.1, Table 2804.3.2, Table 2804.3.2.2, 2804.4.1, 2804.5.2, 2804.6, 2806.2.3, 2806.3.2, Table 2806.4, 2806.5.1, 2806.5.6, 2807.1
7			
8	31—06	Installation of Oil-burning Equipment	603.1.7, 603.3.1, 603.3.3
	32—07	Dry Cleaning Plants	1207.1, 1207.3
9	33—07	Spray Application Using Flammable or Combustible Materials	1504.3.2
	34—07	Dipping and Coating Processes Using Flammable or Combustible Liquids	1505.3, 1505.4.1.1
	35—05	Manufacture of Organic Coatings	2001.3, 2005.4
10	40—07	Storage and Handling of Cellulose Nitrate Film	306.2
	51—07	Design and Installation of Oxygen-fuel Gas Systems for Welding, Cutting and Allied Processes	2601.5, 2607.1, 2609.1
11	51A—06	Acetylene Cylinder Charging Plants	2608.1
	52—06	Vehicular Fuel System Code	3001.1
12	55—05	Standard for the Storage, Use and Handling of Compressed Gases and Cryogenic Fluids in Portable and Stationery Containers Cylinders and Tanks	2209.2.1, 3201.1, 3501.1, 4001.1
13	58—08 as amended	Liquefied Petroleum Gas Code	603.4.2.1.1, 3801.1, 3803.1, 3803.2.1, 3803.2.1.2, 3803.2.1.7, 3803.2.2, 3804.1, 3804.3.1, 3804.4, 3806.2, 3806.3, 3807.2, 3808.1, 3808.2, 3809.11.2, 3811.3
14	59A—06	Production, Storage and Handling of Liquefied Natural Gas (LNG)	3001.1, 3201.1
	61—08	Prevention of Fires and Dust Explosions in Agricultural and Food Products Facilities	Table 1304.1
15	69—08	Explosion Prevention Systems	911.1, 911.3, Table 1304.1
	70—08	National Electrical Code	603.1.3, 603.1.7, 603.5.2, 604.2.15.1, 605.3, 605.4, 605.9, 606.16, 904.3.1, 907.1, 909.11, 909.12.1, 909.16.3, 1106.3.4, 1204.2.3, Table 1304.1, 1404.7, 1503.2.1, 1503.2.1.1, 1503.2.1.4, 1503.2.5, 1504.9.4, 1604.5, 1703.2, 1803.7.1, 1803.7.2, 1803.7.3, 1903.4, 2004.1, 2205.4, 2208.8.1.2.4, 2209.2.3, 2211.3.1, 2211.8.1.2.4, 2403.12.6.1, 2404.15.7, 2606.4, 2703.7.3, 3003.7.6, 3003.8, 3003.16.11, 3003.16.14, 3203.6, 3203.7.2, 3403.1, Table 3403.1.1, 3403.1.3, 3404.2.8.12, 3404.2.8.17, 3406.2.8, 3503.1.5, 3503.1.5.1, 3507.1.10, 3606.5.5, 3606.5.6, 3704.2.2.8
16			
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18			
19	72—07	National Fire Alarm Code	508.1.5, Table 901.6.1, 903.4.1, 904.3.5, 907.2, 907.2.6, 907.2.11, 907.2.13.2, 907.3, 907.4.3, 907.4.4, 907.6.2.1.2, 907.6.2.2, 907.7, 907.7.1, 907.7.2, 907.7.5, 907.8, 907.8.1, 907.8.2, 907.9, 907.9.2, 907.9.5, I101.1, J103.1.4
20			
21	80—07	Fire Doors and Other Opening Protectives	703.1.3, 1008.1.3.3
	85—07	Boiler and Combustion System Hazards Code	Table 1304.1
	86—07	Ovens and Furnaces	2101.1
22	92B—05	Smoke Management Systems in Malls, Atria and Large Spaces	909.8
	96—07	Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations	609.3
	99—05	Health Care Facilities	3006.4
23	101—06	Life Safety Code	1028.6.2
	105—07	Installation of Smoke Door Assemblies and Other Opening Protectives	703.1.2
24	110—05	Emergency and Standby Power Systems	604.1, 604.3, 604.4, 913.5.2, 913.5.3
	111—05	Stored Electrical Energy Emergency and Standby Power Systems	604.1, 604.3, 604.4
	120—04	Coal Preparation Plants	Table 1304.1
25	130-10 as amended	Standard for Fixed Guideway Transit and Passenger Rail Systems	318



1	160—06	Flame Effects Before an Audience.	308.3.2
	170—06	Standard for Fire Safety and Emergency Symbols	1024.2.6.1
	211—06	Chimneys, Fireplaces, Vents and Solid Fuel-burning Appliances	603.2
2	241—04	Safeguarding Construction, Alteration and Demolition Operations.	1401.1
	253—06	Standard Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source	804.3
3	260—03	Methods of Tests and Classification System for Cigarette Ignition Resistance of Components of Upholstered Furniture	805.1.1.1, 805.2.1.1, 805.3.1.1, 805.4.1.1
	261—03	Method of Test for Determining Resistance of Mock-up Upholstered Furniture Material Assemblies to Ignition by Smoldering Cigarettes	805.2.1.1, 805.3.1.1, 805.4.1.1
4	265—07	Method of Fire Tests for Evaluating Room Fire Growth Contribution of Textile Wall Coverings in Full Height Panels and Walls.	803.5.1, 803.5.1.1, 803.5.1.2, 805.4.1.1
5	286—06	Standard Method of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth	803.1, 803.1.2, 803.1.2.1, 803.5.1
6	303—06	Fire Protection Standard for Marinas and Boatyards.	905.3.7, 4503.5, 4503.6, 4504.2
	385—07	Tank Vehicles for Flammable and Combustible Liquids	3406.5.4.5, 3406.6, 3406.6.1
7	407—07	Aircraft Fuel Servicing.	1106.2, 1106.3
	409—04	Aircraft Hangars	914.8.2, Table 914.8.2, 914.8.2.1, 914.8.5
	430—04	Storage of Liquid and Solid Oxidizers.	4004.1.4
8	484—06	Combustible Metals.	Table 1304.1
	490—02	Storage of Ammonium Nitrate.	3301.1.5
9	495—06	Explosive Materials Code.	911.1, 911.4, 3301.1.1, 3301.1.5, 3302.1, 3304.2, 3304.6.2, 3304.6.3, 3304.7.1, 3305.1, 3306.1, 3306.5.2.1, 3306.5.2.3, 3307.1, 3307.9, 3307.11, 3307.15
10	498—06	Safe Havens and Interchange Lots for Vehicles Transporting Explosives.	3301.1.2
	<u>502 - 08 as amended</u>	<u>Standard for Road Tunnels, Bridges, and Other Limited Access Highways.</u>	<u>319</u>
11	505—06	Powered Industrial Trucks, Including Type Designations, Areas of Use, Maintenance and Operation	2703.7.3
	654—06	Prevention of Fire and Dust Explosions from the Manufacturing, Processing and Handling of Combustible Particulate Solids	Table 1304.1
12	655—07	Prevention of Sulfur Fires and Explosions	Table 1304.1
	664—07	Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities.	Table 1304.1, 1905.3
13	701—04	Methods of Fire Tests for Flame-propagation of Textiles and Films	806.2, 807.1, 807.1.2, 807.2, 807.4.2.2, 1703.5, 2404.2
14	703—06	Fire Retardant Impregnated Wood and Fire Retardant Coatings for Building Materials.	803.4
	704—07	Identification of the Hazards of Materials for Emergency Response	606.7, 1802.1, 2404.2, 2703.2.2.1, 2703.2.2.2, 2703.5, 2703.10.2, 2705.1.10, 2705.2.1.1, 2705.4.4, 3203.4.1, 3404.2.3.2, F101.1, F101.2
15	720—09	Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment	907.2.8, 907.2.9, 907.2.10
16	750—06	Water Mist Fire Protection Systems.	Table 901.6.1
	1122—08	Model Rocketry	3301.1.4
17	1123—06	Fireworks Display	3302.1, 3304.2, 3308.1, 3308.2.2, 3308.5, 3308.6
	1124—06	Manufacture, Transportation, Storage and Retail Sales of Fireworks and Pyrotechnic Articles	3302.1, 3304.2, 3305.1, 3305.3, 3305.4, 3305.5
18	1125—07	Manufacture of Model Rocket and High Power Rocket Motors	3301.1.4
	1126—06	Use of Pyrotechnics Before a Proximate Audience	3304.2, 3305.1, 3308.1, 3308.2.2, 3308.4, 3308.5
19	1127—08	High Power Rocketry	3301.1.4
	1142—07	Water Supply for Suburban and Rural Fire Fighting	B103.3
20	2001—08	Clean Agent Fire Extinguishing Systems	Table 901.6.1, 904.10

Underwriters Laboratories, Inc.
 333 Pfingsten Road
 Northbrook, IL 60062



Standard Reference number	Title	Referenced in code section number
30—95	Metal Safety Cans—with Revisions through December 2004	2703.9.10, 2705.1.10, 3405.2.4
58—96	Steel Underground Tanks for Flammable and Combustible Liquids— with Revisions through July 1998	3404.2.13.1.5



1	199E-04	Outline of Investigation for Fire Testing of Sprinklers and Water Spray Nozzles for Protection of Deep Fat Fryers	904.11.4.1
	217-06	Single and Multiple Station Smoke Alarms—with Revisions through May 2007	907.2.11
2	268-06	Smoke Detectors for Fire Alarm Signaling Systems	907.2.6.2
	300-05	Fire Testing of Fire Extinguishing Systems for Protection of Restaurant Cooking Equipment.	904.11
	325-02	Door, Drapery, Gate, Louver and Window Operators and Systems— with Revisions through February 2006	503.5, 503.6, D103.5
3	710B-04	Recirculating Systems—with Revisions through April 2006.	904.11
4	723-03	Standard for Test for Surface Burning Characteristics of Building Materials— with Revisions through May 2005	802.1, 803.5.1, 803.6.2, 803.9, 804.1, 804.2.4
	793-03	Automatically Operated Roof Vents for Smoke and Heat—with Revisions through April 2004	910.3.1
5	864-03	Control Units and Accessories for Fire Alarm Systems—with Revisions through March 2006	909.12
	900-04	Air Filter Units	1504.7.8
6	924-06	Standard for Safety Emergency Lighting and Power Equipment	1011.4, 2403.12.6.1
	1275-05	Flammable Liquid Storage Cabinets—with Revisions through May 2006	2703.8.7.1, 3404.3.2.1.1
7	1313-93	Standard for Nonmetallic Safety Cans for Petroleum Products—with Revisions through May 2003	2703.9.10
	1315-95	Standard for Safety for Metal Waste Paper Containers—with Revisions through December 2003.	808.1
	1316-94	Glass Fiber Reinforced Plastic Underground Storage Tanks for Petroleum Products, Alcohols, and Alcohol-gasoline Mixtures—with Revisions through May 2006	3404.2.13.1.5
8	1363-07	Relocatable Power Taps	605.4.1
	1975-06	Fire Tests for Foamed Plastics Used for Decorative Purpose	807.4.2.1, 808.2
9	1994-04	Standard for Luminous Egress Path Marking Systems—with Revisions through February 2005.	1024.2.1, 1024.2.3, 1024.2.4, 1024.4
10	2034-08	<u>Single and Multiple Station Carbon Monoxide Alarms.</u>	<u>907.2.8.4.2, 907.2.10.3</u>
	2075-07	Standard for Gas and Vapor Detectors and Sensors	2211.7.2.1
11	2079-04	Tests for Fire Resistance of Building Joint Systems—with Revisions through May 2006	702.1
	2085-97	Protected Aboveground Tanks for Flammable and Combustible Liquids— with Revisions through December 1999	202, 3402.1, 3404.2.9.2.3, 3404.2.9.7.5, 3405.3.8.2
12	2200-04	Stationary Engine Generator Assemblies—with Revisions through July 2004	604.1.1
	2208-05	Solvent Distillation Units—with Revisions through December 2006.	3405.4.1
13	2245-06	Below-grade Vaults for Flammable Liquid Storage Tanks	3404.2.8.1
	2335-01	Fire Tests of Storage Pallets—with Revisions through September 2004	2308.2.1

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Standard Reference number	Title	Referenced in code section number
Fifth Edition, Feb 2007	Biosafety in Microbiological and Biomedical Laboratories (BMBL)	2701.7

Section 31. A new Chapter 90 is adopted as follows:

**CHAPTER 90
 RESIDENTIAL OCCUPANCIES
 FOUR STORIES AND OVER**

Chapter 90 Point of Information



1 The requirements of this Chapter originated in City of Seattle Ordinance 98868, effective June
2 6, 1970. Ordinance 98868, also known as the Ozark ordinance, applied to all existing
apartment houses, apartment hotels, and hotels four stories or more in height.

3 **SECTION 9001**
4 **GENERAL**

5 **9001.1 Definitions.** For the purpose of this chapter, the following words and terms have the
6 meaning specified in Section 9001.1:

7 **APARTMENT HOUSE:** Any building or portion thereof, containing three or more dwelling
8 units.

9 **APARTMENT HOTEL:** A building containing both dwelling units and guest rooms.

10 **GUEST ROOM:** Any room or rooms used or intended to be used for sleeping purposes by a
11 person hiring such room or rooms.

12 **HOTEL:** A building in which is conducted the business of lodging the public and which
13 contains six or more guest rooms.

14 **9001.2 Exit Enclosure Required.** All existing apartment houses, apartment hotels and hotels
15 four stories or more in height, shall have at least two fully enclosed stairways that have a one-
16 hour fire-resistive rating throughout. The interior corridors and egressways thereof, including all
17 doors, transoms and other openings into corridors, shall be constructed or improved to
18 substantially have a one-hour fire-resistive rating throughout. In buildings constructed as
19 apartment houses in accordance with the *International Building Code* and being operated as
apartment houses, walls and ceilings of plaster on wood lath or 1/2-inch plasterboard
construction, and 1-3/8-inch solid core doors or equivalent is sufficient to meet the requirements
of this section.

20 **9001.3 Sprinkler Alternative.** In lieu of compliance with the requirements of Section 9001.2,
21 approved automatic fire sprinkler systems may be installed in all stairways, interior corridors and
22 egressways of existing apartment houses, apartment hotels, and hotels four stories or more in
23 height. Automatic sprinkler systems, if so installed, shall also be installed in all janitor rooms,
24 storage closets, utility rooms, and other usable spaces in which combustible materials are or may
be sorted or kept, unless such rooms or spaces are equipped with self-closing fire doors having a
one-hour fire-resistive rating.

25 **SECTION 9002**
26 **CONFLICTS WITH LATER ADOPTED CODES**



1 **9002.1 Conflicts with Seattle Building and Seattle Fire Codes adopted after June 6, 1970.** If
2 conflicts exist between the requirements of this chapter and Seattle Building Codes and Seattle
3 Fire Codes adopted after June 6, 1970, the provisions of the later adopted codes apply.

4 Section 32. A new Chapter 91 is adopted as follows:

5 **CHAPTER 91**
6 **AUTOMATIC SPRINKLER SYSTEMS**
7 **IN NURSING HOMES**

8 **Point of Information**

9 The requirements of this Chapter originated in City of Seattle Ordinance 94931, effective August
10 5, 1966.

11 **SECTION 9101**
12 **SCOPE**

13 **9101.1 Nursing Home Defined.** For the purpose of this chapter, the term "nursing home"
14 means any home, place, or institution that operates or maintains facilities providing convalescent
15 or chronic care, or both, for a period in excess of 24 consecutive hours for three or more patients
16 not related by blood or marriage to the operator, who by reason of illness or infirmity, are unable
17 properly to care for themselves. Convalescent and chronic care may include, but is not limited to
18 any or all procedures commonly employed in waiting on the sick such as administration of
19 medicines, preparation of dressings and bandages, and carrying out of treatment prescribed by a
20 duly licensed practitioner of the healing arts. It may also include care of mentally incompetent
21 persons if they do not require psychiatric treatment by or under the supervision of a physician
22 specialized in the field of medicine. Nothing in this definition shall be construed to include
23 general hospitals or other places that provide care and treatment for the acutely ill and maintain
24 and operate facilities for major surgery or obstetrics, or both. Nothing in this definition shall be
25 construed to include any boarding home, guest home, hotel or related institution that is held forth
26 to the public as providing, and that is operated to give only board, room and laundry to persons
27 not in need of medical or nursing treatment or supervision, except in the case of temporary acute
28 illness. The mere designation by the operator of any place or institution, which does not provide
care for the acutely ill or maintain and operate facilities for major surgery or obstetrics, as a
hospital, sanitarium, or similar name shall not exclude such place or institution from the
provisions of Section 9102.

23 **SECTION 9102**
24 **INSTALLATION OF EQUIPMENT**



1 **9102.1 Installation Exceptions.** Approved automatic fire sprinkler systems shall be installed in
2 all usable rooms, corridors, and stairways of existing nursing homes with the following
3 exceptions:

- 4 1. Nursing homes that are of Type I or II construction throughout, as defined in the
5 *International Building Code*.
- 6 2. Nursing homes not more than one story in height which have interiors with a one-hour
7 fire resistance rating throughout.

8 **SECTION 9103**
9 **CONFLICTS WITH LATER ADOPTED CODES**

10 **Section 9103.1. Conflicts with Seattle Building and Seattle Fire Codes adopted after August**
11 **5, 1966.** If conflicts exist between the requirements of this chapter and Seattle Building Codes
12 and Seattle Fire Codes adopted after August 5, 1966, the provisions of the later adopted code
13 apply if they are not less stringent.

14 Section 33. A new Chapter 92 is adopted as follows:

15 **CHAPTER 92**
16 **AUTOMATIC SPRINKLER SYSTEMS IN SCHOOLS**

17 **Chapter 92 Point of Information**

18 The requirements of this Chapter originated in City of Seattle Ordinance 94931, effective August
19 5, 1966.

20 **SECTION 9201**
21 **GENERAL**

22 **9201.1 School Buildings Defined.** For the purpose of this chapter, the term "school building,"
23 means:

- 24 1. A public place of instruction operated by public authorities, including elementary and
25 secondary schools.
- 26 2. A place of instruction operated by private persons or private or religious organizations in
27 which the course of study is similar to that in a public school, and which has been authorized by
28 the State as an educational institution.

SECTION 9202
INSTALLATION OF EQUIPMENT



1 **9202.1 Installation Exceptions.** An approved automatic fire sprinkler system shall be installed
2 in all usable rooms, corridors and stairways of existing school buildings, two stories or more in
3 height, with the following exceptions:

- 4 1. School buildings that are of Type I or II construction as defined in the Building Code.
- 5 2. School buildings not over three stories in height that have interiors with one-hour fire
6 resistance rating throughout, and that have egress enclosures with a one-hour fire resistance
7 rating.
- 8 3. School buildings, not over three stories in height, with interiors that substantially have a
9 one-hour fire resistance rating, need only have egress corridors, stairways, janitor rooms,
10 storage rooms and similar spaces equipped with approved automatic sprinkler systems.
11 Classrooms and assembly rooms in such buildings need not be so equipped.

8 **SECTION 9203**
9 **CONFLICTS WITH LATER ADOPTED CODES**

10 **9203.1 Conflicts with Seattle Building and Seattle Fire Codes adopted after August 5, 1966.**
11 If conflicts exist between the requirements of this chapter and Seattle Building Codes and Seattle
12 Fire Codes adopted after August 5, 1966, the provisions of the later adopted code apply.

13 Section 34. A new Chapter 93 is adopted as follows:

14 **CHAPTER 93**
15 **MINIMUM STANDARDS FOR HIGH-RISE BUILDINGS**

16 **Chapter 93 Point of Information**

17 The requirements of this Chapter originated in City of Seattle Ordinance 110299, effective
18 January 23, 1982. Where used in this Chapter, the term "Building Code" shall mean the 1982
19 Seattle Building Code. Where used in this Chapter, the terms "this Code" and "the fire code"
20 shall mean the 1982 Seattle Fire Code.

21 **SECTION 9301**
22 **GENERAL**

23 **9301.1 Purpose.** The main purpose of this chapter is to improve the fire and life safety of
24 existing high-rise buildings that do not conform to current City codes so that the health, safety
25 and welfare of the general public is provided for and promoted. It is recognized that the
26 application of present day fire protection techniques to some existing high-rise buildings is
27 difficult. For this reason, this chapter may permit the use of alternative methods and innovative
28 approaches and techniques to achieve its purpose, if *approved* by the *fire code official* and the
Building Official.



1 **9301.2 Scope.** This chapter applies to all high-rise buildings in existence at the time of its
2 adoption, as well as to all high-rise buildings coming into existence after the adoption thereof.

3 **9301.2.1 Hazards and design features.** If the *fire code official* finds a condition in a high-
4 rise building not specifically addressed in this chapter, which in the *fire code official's* opinion
5 makes fire escape or fire fighting unusually difficult, the *fire code official* is authorized to
6 declare it to be a hazard, notify the owner of such condition and order its correction in a
7 manner consistent with these minimum safeguards.

8 **9301.2.2 Exempt Buildings.** The *fire code official* and the Director of the Department of
9 Planning and Development may exempt high-rise buildings that meet the requirements of
10 Section 403 of the 1982 *Seattle Building Code* from complying with the provisions of this
11 chapter.

12 **9301.2.3 Conflicts.** If there is a conflict between the provisions of this chapter and the
13 provisions of an ordinance or code adopted after January 23, 1982, the provisions of the later
14 adopted ordinance or code apply.

15 **9301.3 Definitions.** For the purpose of this chapter, certain words shall be construed as specified
16 in this section.

17 **CENTRAL STATION:** A fire alarm reporting service listed by the Underwriters Laboratories
18 or authorized by the *fire code official* to report alarms to the Seattle Fire Department Alarm
19 Center. In lieu of connection to a central station listed by Underwriters Laboratories, the *fire*
20 *code official* may approve building staff monitoring of a fire alarm annunciator panel if:

- 21 1. Such staff are properly trained to monitor the annunciator panel and report alarm signals to
22 the fire department alarm center via the 9-1-1 system.
- 23 2. One or more building staff is on duty 24 hours a day and remains in the direct vicinity of
24 the annunciator panel, e.g., a hotel desk clerk if the panel is behind the registration desk.
- 25 3. Staff persons are available in low income high-rise buildings whose primary duty requires
26 them to be at the front desk.

27 **DEAD-END CORRIDOR:** A corridor that permits only one direction of travel from a unit or
28 normally occupied room door to an exit, or that intersects an exit corridor on one end and does
not provide an exit path on the other end. A corridor that has fire escapes directly accessible
from it is not a dead-end corridor.

FLOOR USED FOR HUMAN OCCUPANCY: A floor designed and intended for occupancy
by one or more persons for any part of a day, including a roof garden and an active storage area.
An area that is permanently unoccupied or is occupied for the service of building equipment only
is not included in this definition.



1 **HIGH-RISE BUILDING:** Buildings having floors used for human occupancy located more
2 than 75 feet above the lowest level of fire department vehicle access.

3 **LOW INCOME RESIDENTIAL BUILDINGS:** Those buildings that meet the following
4 requirements:

5 1. At least 50 percent of the dwelling or housing units as defined in the Seattle Housing and
6 Building Maintenance Code (Seattle Municipal Code Ch. 22.204) are rented to non-transient
7 persons at a rent at or below .9% of the current median income for all families in the Seattle area
8 as determined by the United States Department of Housing and Urban Development; and

9 2. The average monthly rent for all dwelling or housing units in the building does not exceed
10 1.4% of the Median Income Limit.

11 For purposes of calculating the average monthly rent, a room that is rented on a hostel-style
12 basis to three or more non-related persons is considered as one room rented for \$200 per month.

13 Monthly rent includes all charges for shelter and provision of items normally associated with
14 such use, but does not include board, health care, telephone charges and other such items.

11 SECTION 9302

12 EXITS

13 **9302.1 General.** All exits in high-rise buildings shall be illuminated as required in Section 1211
14 of this Code and enclosed with a minimum of one-hour fire resistive construction. Every high-
15 rise building shall have at least one such exit. If existing exterior fire escapes are used for
16 additional exits, they shall be tested and identified as required in Section 9302.3.

17 **9302.2 Smokeproof enclosure.** Where a high-rise building has a single, enclosed exit, the
18 enclosure shall be continued to the exterior of the building, the exit shall be smoke-proof by
19 mechanical ventilation in accordance with Section 3310 of the 1982 *Seattle Building Code*, or
20 mechanically pressurized with fresh air to 0.15 inches water column and shall have a concurrent
21 2500 cubic feet per minute (CFM) exhaust to atmosphere in an emergency, in accordance with
22 the provisions of the Building Code.

23 **Exceptions:**

- 24 1. Pressurization may be omitted if the building has an *approved* automatic sprinkler
25 system, all corridor openings are self-closing, all occupied areas have access to a second
26 means of egress or a fire escape and the omission is *approved* by the *fire code official*.
- 27 2. A single stair may exit through a building lobby, if the lobby is of non-combustible
28 construction, does not contain combustible furnishings, and is separated from the rest of
the building by one-hour fire-resistive construction. Wire-glass protected by sprinklers
on both sides may be accepted as one-hour fire-resistive construction. If the lobby
contains no combustible materials, wire-glass need only be protected by sprinklers on
the side opposite the lobby.



1 **9302.3 Fire Escapes.** Exterior fire escapes shall be accessible and structurally safe at all times.
2 Owners of high-rise buildings shall load test fire escapes at least once every five years with a
3 weight of not less than 100 lb/sq. foot. The results of such a load test shall be submitted in
4 writing to the *fire code official*. In lieu of such a test, the *fire code official* may accept the
5 opinion of a structural engineer licensed by the State of Washington describing his inspection
6 and/or tests and stating that the fire escape is structurally safe and will support a load of 100
7 lb/sq. foot. There shall be signs *approved* by the *fire code official* clearly identifying the route of
8 access to the fire escape from every public corridor. Fire escapes that are not maintained
9 structurally safe and not otherwise required by provisions of the Fire Code shall be removed.
10 Locked doors or windows are prohibited between public corridors and fire escapes.

11 **Exceptions:** If all of the following criteria are met and *approved* by the *fire code official*:

- 12 1. An identified tool or device for opening the locked door or window is permanently
- 13 affixed in close proximity to the locked point.
- 14 2. The area around the locked door or window is served by emergency illumination.
- 15 3. Clearly understandable directions indicating the use of the tool and the route to the fire
- 16 escape are posted at the locked door or window.

17 **9302.4 Doors.** All exit doors in the path of exit travel shall be self-closing or automatic closing
18 in accordance with Section 713.6 of the 1982 Building Code. Doors held open by fusible links,
19 and sliding or vertical doors are prohibited in exit-ways. Stairway doors shall be self-latching.

20 **9302.5 Unlocking of doors.** Stairway doors, including the doors between any stairway and the
21 roof, shall not have locks or shall unlock automatically whenever a fire alarm is activated in the
22 high-rise building. Such locks shall unlock automatically when power is off (fail safe). If the
23 only locked door in a stair shaft is the one that leads to the roof, it may be locked by panic
24 hardware or *approved* alarm lock-paddle bars.

25 **9302.6 Egress from stairways.** Enclosed stairways serving more than six floors shall have two
26 means of egress from the stairway. Enclosed stairways serving ten or more floors shall have re-
27 entry into the building at approximately 5-story intervals. Re-entry signs shall be posted in the
28 stair.

Exceptions:

1. Jails.
2. If telephones connected to a 24-hour manned location are provided in the stairway in each 5-floor increment that does not have a means of egress.
3. If any door serving as an entrance to the stair does not automatically lock behind a person entering the stair.
4. If alternate means of alerting building management to persons trapped in a stairwell are *approved* by the Building Official.



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**SECTION 9303
DEAD-END CORRIDORS**

9303.1 Dead-end corridors. Dead-end corridors are limited to 75 feet in length in office occupancies and 30 feet in length in all other occupancies. If such limits are exceeded, automatic sprinkler protection meeting the requirements of the Fire Code and the Building Code shall be provided for the entire dead-end corridor, with one head on the room side of each door opening onto the corridor. Domestic water systems may be used to supply such sprinklers when *approved* by the *fire code official*.

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Exceptions:

1. In high-rise buildings, inactive doors leading from the dead-end corridor into spaces that are not in normal use may be covered with 5/8(~~"~~)inch type "x" gypsum board or its equivalent, in lieu of installing a sprinkler head over the door or smoke detector in the room.
2. In office occupancies, sprinkler heads on the room side of each door opening onto the corridor need not be installed.
3. In residential buildings, if corridors and each guest room are equipped with electrically supervised ~~heat((smoke))~~ detectors connected to the building fire alarm system, sprinkler heads, or any combination thereof. If ~~heat((smoke))~~ detectors are used in rooms in lieu of sprinklers, doors must be rated at 20 minutes and must be self-closing.
4. In office occupancies, sprinkler systems are not required in a dead-end corridor if the corridor is equipped with smoke detectors and each room opening onto the corridor is equipped with at least one smoke detector. Such detector shall be electrically supervised and connected to the building fire alarm system.
5. If there is a fire escape not directly accessible from the corridor and the exit route is protected by electrically supervised smoke detection.
6. Corridors within residential units are exempt.
7. Corridors within private offices may have corridor only smoke detection connected to the building alarm systems.

**SECTION 9304
FIRE RESISTIVE CONSTRUCTION**

9304.1 Fire separation. Any space larger than 1,500 square feet shall be separated from building stair shafts, elevator shafts and air handling shafts by non-combustible smoke resistive separation (glass walls with wood stops are acceptable) and equipped with smoke detectors connected to the building fire alarm system.

Exceptions:

1. Spaces that have *approved* automatic sprinkler systems.
2. Building lobbies or corridors which are equipped with an *approved* smoke control system that includes shaft pressurization and automatic smoke removal.



1 3. Building lobbies or corridors of any size that do not contain combustible furnishings
2 (other than carpet) or commercial spaces and have non-combustible interior finish
throughout.

3 **NOTE:** To qualify for exception 3, all spaces adjacent to the building lobby must be
4 separated and equipped with smoke detectors as outlined in this section, and all doors
leading into the lobby must be self-closing or automatically closing upon activation of
the building fire alarm system.

5 4. Office areas above the main lobby, including open space design areas.

6 **NOTE:** This exception does not apply to retail or wholesale stores, display rooms,
7 restaurants, cocktail lounges and bars, banquet rooms, meeting rooms, storage rooms
and spaces that, because of unusual fuel load or other conditions, pose an unusual
hazard in the opinion of the *fire code official*.

8 5. Smoke detectors are not required in spaces that are separated by one-hour fire-resistive
9 construction, with openings protected by one-hour self-closing doors.

10 Domestic water systems may be used to supply the sprinkler system referred to in this section
if *approved* by the *fire code official*.

11 **9304.2 Shaft enclosures.** All openings that connect three or more floors shall be enclosed with a
12 minimum of one-hour fire resistive construction.

13 **Exception:** Openings complying with Sections 304.6 or 402 of the 1982 Seattle Building
Code.

14 **SECTION 9305**
15 **HEATING, VENTILATION AND AIR CONDITIONING SYSTEM (HVAC)**
16 **SHUTDOWN**

17 **9305.1 Air moving systems.** Air moving systems that serve more than the floor on which they
18 are located shall automatically shut down on any high-rise building fire alarm, or shall be
provided with a manual shutdown switch located at the fire alarm panel in the main building
lobby.

19 **Exception:** Air moving systems of:

- 20 1. Less than 2,000 CFM.
21 2. Exhaust only systems of less than 15,000 CFM, such as toilet, range hood, kitchen, fume
hood, etc.
22 3. HVAC systems of less than 15,000 CFM with automatic shut-down on smoke detectors
in the area served, which are connected to the building fire alarm system.
23 4. Life safety pressurization systems as provided in the Building Code.
24 5. Buildings with *approved* automatic smoke control pursuant to Section 1807 of the 1982
edition of the Seattle Building Code.

25 **SECTION 9306**



FIRE ALARM AND DETECTION SYSTEMS

1
2 **9306.1 General.** Every high-rise building, except a residential occupancy with a system installed
3 under Ordinance 106107 as now or hereafter amended, shall have an electrically supervised fire
4 alarm and detection system *approved* by the *fire code official*, as follows:

5 A manual pull station shall be located at every floor exit door, except in office occupancies.

6 The alarm system for the high-rise building shall be monitored by a central station, or other
7 such means *approved* by the *fire code official*.

8 The alarm systems shall be electrically supervised and have battery emergency power
9 sufficient to operate for a period of 24 hours and sound the alarm for 10 minutes at the end of
10 that period.

11 **9306.2 Automatic smoke detection.** There shall be electrically supervised automatic smoke
12 detection in elevator landings, public corridors, and on the corridor or floor side of each exit
13 stairway.

14 **Exception:** If a corridor has an *approved* automatic sprinkler system, smoke detectors may be
15 omitted from the corridor.

16 There shall be electrically supervised automatic smoke detectors within 50 feet of building
17 perimeter walls and at standard spacing (approximately 30 feet) to the center of the floor.

18 **Exceptions:**

- 19 1. Interior of residential units.
- 20 2. Floors that have an *approved* automatic sprinkler system.
- 21 3. Parking garages.
- 22 4. Building Mechanical Spaces.
- 23 5. Any space above the top occupied floor.

24 **9306.3 Rooms without sprinklers.** There shall be electrically supervised automatic heat or
25 smoke detection in rooms used for storage, shops, handicraft, janitor, trash and similar purposes
26 where the fuel load may be significantly higher than the average floor fuel load and no automatic
27 sprinkler system exists.

28 **Exceptions:**

1. Rooms with an *approved* automatic sprinkler system.
2. Rooms under 10 square feet opening onto exit corridors.
3. Rooms under 100 square feet not opening onto exit corridors.
4. Rooms within residential units.
5. Rooms where the storage is in closed metal containers.
6. Rooms other than those opening onto a corridor and within 30 ft. of an electrically supervised automatic smoke detector.



1 **9306.4 Audibility.** Alarm systems shall have audible devices producing a slow "whoop" sound
2 audible at 15 dBA above ambient sound levels with a minimum of 60 dBA throughout residential
3 occupancies and 10 dBA above ambient sound levels with a minimum of 55 dBA throughout
4 other occupancies, and shall have a microphone capable of making voice announcements
5 simultaneously to all floors.

6 The alarm shall sound at a minimum on the floor where the fire is occurring and the floor
7 above, and the alarm system shall be capable of sounding a general alarm throughout the high
8 rise building. The alarm system shall be designed so that a general alarm may be activated from
9 two separate locations.

10 **9306.4.1 Zones.** Fire alarm systems shall be zoned per floor.

11 **9306.4.2 Panels.** There shall be an annunciator panel in the main lobby of a high rise
12 building or in such other areas *approved by the fire code official* as an emergency control
13 center.

14 **9306.5 Automatic sprinklers.** If an automatic sprinkler system has been installed for fire
15 protection, the water flow alarm shall be connected to the building fire alarm.

16 **Exception:** Where automatic smoke detectors are installed in the area and zoned, a single
17 water flow alarm may be used.

18 **9306.6 Elevator shafts.** For purposes of Section 9306, wiring for fire alarm and fire detection
19 systems may be installed in elevator shafts, if:

- 20 1. Such wiring shall not interfere with the safe operation of the elevator.
- 21 2. Such wiring shall be enclosed within metal conduit and all junction boxes shall be located
22 outside the shaft.
- 23 3. All wiring work shall be done under applicable permit obtained from the Department of
24 Planning and Development.

25 **9306.7 Elevator recall.** A fire alarm originating on a floor other than the main lobby floor shall
26 cause all elevators to be returned to the main floor in accordance with Chapter 30 of the 1982
27 *Seattle Building Code*. Whenever new elevator controllers are installed, they shall meet
28 provisions of the current *Seattle Building and Elevator Codes*. Newly installed controllers shall
have the capability of selecting alternate recall floors.

Exception: Freight elevators with manually operated doors.

SECTION 9307 EMERGENCY POWER

9307.1 General. High-rise buildings not meeting the Building Code in effect at the time of the
original adoption of this article shall have, as a minimum, emergency power as follows:



- 1 1. Stairway pressurization emergency power shall be provided by an on-site diesel engine
2 generator set. Such power shall start automatically on fire alarm and the generator set shall
3 have a two-hour fuel supply.
- 4 2. Exit signs and pathway illumination shall have emergency power by trickle charged storage
5 batteries. Such batteries shall have a capacity to provide required illumination for 90
6 minutes.
- 7 3. Fire alarm emergency power shall be provided as required in Section 9306.

SECTION 9308 SIGN REQUIREMENTS

8 **9308.1 General.** All signs in this section shall be *approved* by the *fire code official* and have
9 graphic symbols if possible. In hotels, signs must have graphic symbols. Sign lettering shall
10 follow Appendix I-C of the 1982 *Seattle Fire Code*.

11 A sign shall be posted on the room side of every hotel guest room indicating the relationship
12 of that room to the exits and fire extinguishers, and giving basic information on what to do in the
13 event of fire in the building.

14 **9308.2 Stairs.** Signs shall be provided on the stairway side of every stair door indicating the
15 number of the stair, the floor that the door serves, the high-rise building re-entry points, and stair
16 termination.

17 **9308.3 Elevators.** A sign shall be posted in every elevator lobby above each call switch noting
18 that the elevators will be recalled to the building lobby on fire alarm. This sign shall warn
19 persons not to use the elevator in the event of fire and direct them to use the stairway.

20 If exit signs are not clearly visible from the elevator lobby, signs shall be installed to indicate
21 the direction to stair and fire escape exits.

22 **9308.4 Emergency illumination.** Emergency illumination shall be provided at the elevator
23 lobby sign location.

24 **9308.5 Exit identification.** "NOT AN EXIT" signs shall be installed at all doorways,
25 passageways, or stairways that are not exits, exit accesses or exit discharges, and that may be
26 mistaken for an exit. A sign indicating the use of the doorway, passageway, or stairway, such as
27 "to basement," "storeroom," or "linen closet," is permitted in lieu of the "NOT AN EXIT" sign.

SECTION 9309 EMERGENCY PREPAREDNESS

28 **9309.1 Emergency plan.** Owners of high-rise buildings shall prepare an emergency operations
plan in accordance with Section 403 of the 1982 Seattle Building Code. In addition to the



1 requirements of Section 403 of the 1982 Seattle Building Code, the emergency operations plan
2 shall specify the duties during a fire emergency of the building management and staff, the
3 building fire safety directors and floor wardens as identified in Section 9309.2.

4 **9309.2 Building staff training.** Owners of high-rise buildings shall designate from existing
5 staff a building fire safety director who shall be responsible for the operation of the building fire
6 protection equipment. Owners of high-rise buildings and/or tenants employing over 100 persons
7 shall designate a floor warden for each floor to be responsible for evacuating the people on their
8 respective floors in emergencies. The names and work locations of the director and the floor
9 wardens shall be maintained on a roster contained in the building emergency operations plan.

7 **Exceptions:**

- 8 1. Residential condominiums and apartment occupancies not employing staff.
9 2. Office and retail occupancies after normal business hours.

10 **NOTE:** In residential buildings employing staff, if there are not enough staff to appoint
11 a floor warden for each floor, wardens shall be appointed to the fire floor, the floor
12 above and as many additional floors as possible. In buildings where only one staff
13 person is available, that person will be the Fire Safety Director.

12 **9309.3 Fire drills.** The staff of high-rise buildings shall conduct, and the occupants thereof
13 shall participate in, fire drills on a regular basis as established in Chapter 4 of the 2009 Seattle
14 Fire Code.

15 Section 35. A new Chapter 94 is adopted as follows:

16 **CHAPTER 94**
FIRE PROTECTION FOR COVERED BOAT MOORAGE

17 **Chapter 94 Point of Information**

18 The requirements of this chapter originated in City of Seattle Ordinance 121773, effective May
19 18, 2005. The requirements of this ordinance apply to all covered moorage marina facilities
20 in existence on the effective date of May 18, 2005.

21 **SECTION 9401**
GENERAL

22 **9401.1 Scope.** This chapter applies to covered portions of all marinas with covered boat moorage
23 in existence at the time of its adoption.

24 **Exceptions:**

- 25 1. *Approved* designated facilities and shipyards in accordance with Administrative Rule
26 26.02.04, *Designated Hot Work Facilities and Shipyards*.
27 2. Boathouses.



1 **9401.2 Intent.** This Chapter is intended to promote the health, safety and welfare of life and
2 property from fire at covered boat moorage.

3 **9401.3 Modifications.** The retroactive requirements of this chapter may be modified if their
4 application clearly would be impractical for economic or physical reasons in the judgment of
5 the *fire code official*, and only if it is clearly evident that a reasonable degree of safety is
6 provided.

7 **9401.4 Signage.** Conspicuous signage shall be located at the fire apparatus access road
8 termination point and the shore end of piers, wharves and floats. Signage shall indicate the
9 address, directions and maps if required by the *fire code official*. For those structures that are
10 designed to support vehicles, signage shall indicate the weight limit. Numbers and letters shall be
11 easily legible and have high contrast with the color of the sign background. Numbers and letters
12 shall not be less than 5 inches (127 mm) in height and shall have a minimum stroke of 0.5 inches
13 (12.7 mm).

14 **9401.5 Smoking Restrictions.** Smoking is prohibited in all areas where fuels and other
15 flammable and combustible liquids and gases are stored or dispensed, in battery rooms, and in
16 other such locations as management or the *fire code official* designate. "No Smoking" signs shall
17 be conspicuously posted.

18 **9401.6 Transmittal of Fire Emergency.** All marinas and boatyards shall have a means to notify
19 the fire department rapidly in the event of an emergency. If a telephone is used for this purpose, it
20 shall be available for use at all times and shall not require the use of a coin. The street address of
21 the facility and the emergency telephone number(s) shall be displayed prominently on a sign at
22 the telephone.

23 **9401.7 Labeling electrical shutoffs.** Electrical transformers, control panels, and breaker panels
24 shall be readily accessible, clearly labeled and indicate the areas they service. See also SFC
25 605.3.

26 **9401.8 Fire extinguishers.** One portable fire extinguisher having a minimum rating of 2A 20-
27 BC shall be provided within 75 feet (22,860 mm) of all portions of piers, wharves, and floats, or
28 at each required hose station. Additional fire extinguishers, suitable for the hazards involved,
shall be provided and maintained in accordance with SFC 906 and NFPA Standard 10.

SECTION 9402 DEFINITIONS



1 **9402.1 Definitions.** The following words and terms shall, for the purposes of this chapter, have
2 the meanings shown here.

3 **BERTH** is the water space to be occupied by a boat or other vessel alongside or between
4 bulkheads, piers, piles, fixed and floating docks, or any similar access structure. (See also
5 definition for Slip.)

6 **BOATHOUSE** is an independently floating structure designed to be moored to a main float
7 system to enclose and protect a vessel or vessels. A boathouse is capable of being moved on
8 water, but is typically moored to a float system for long periods of time.

9 **COVERED BOAT MOORAGE** is a pier or system of floating or fixed accessways to which
10 vessels on water may be secured and is covered by a roof.

11 **DRAFT CURTAIN.** A structure arranged to limit the spread of smoke and heat along the
12 underside of the ceiling or roof.

13 **FIRE PARTITION** is a vertical assembly of materials designed to restrict the spread of fire in
14 which openings are protected.

15 **FLOAT** is a floating structure normally used as a point of transfer for passengers and goods, or
16 both, for mooring purposes.

17 **GRAVITY-OPERATED DROP OUT VENTS.** Automatic smoke and heat vents containing
18 heat-sensitive glazing designed to shrink and drop out of the vent opening when exposed to fire.

19 **MARINA** is any portion of the ocean or inland water, either naturally or artificially protected, for
20 the mooring, servicing, or safety of vessels and includes artificially protected works, the public
21 or private lands ashore, and structures or facilities provided within the enclosed body of water
22 and ashore for the mooring or servicing of vessels or the servicing of their crews or passengers.

23 **MARINE MOTOR FUEL-DISPENSING FACILITY.** That portion of property
24 where flammable or combustible liquids or gases used as fuel for watercraft are stored and
25 dispensed from fixed equipment on shore, piers, wharves, floats, or barges into the fuel tanks of
26 watercraft and includes all other facilities used in connection therewith.

27 **PIER** is a structure, usually of greater length than width, of timber, stone, concrete or other
28 material, having a deck and projecting from the shore into waters so that vessels may be moored
alongside for loading, unloading, storage, repairs or commercial uses.



1 **SLIP** is a berthing space between or adjacent to piers, wharves, or docks; the water areas
2 associated with boat moorage. (See also definition for Berth.)

3 **WHARF OR QUAY** is a structure of timber, stone, concrete or other material having a platform
4 built along and parallel to waters so that vessels may be moored alongside for loading, unloading,
5 storage, repairs or commercial uses.

6 **SECTION 9403**
7 **PLANS AND APPROVALS**

8 **9403.1 Plans.** Plans for marina fire-protection shall be *approved* prior to installation. The work
9 shall be subject to final inspection and approval after installation.

10 **SECTION 9404**
11 **ACCESS AND WATER SUPPLY**

12 **9404.1 Fire apparatus access roads.** Fire apparatus access roads shall be provided and so
13 located as to provide fire department apparatus access to within 150 feet (45,720 mm) travel
14 distance to the shore end of all marina piers, wharves, and floats. Fire apparatus access roads
15 shall be in accordance with Appendix D of the 2003 Seattle Fire Code.

16 **Exception:** If *approved* by the *fire code official*, a Class I standpipe system may be
17 installed on piers, wharves, or floats if conditions are such that providing fire department
18 access lanes to within 150 feet (45,720 mm) to the shore end of the piers, wharves, and
19 floats is not practical. Additional standpipe requirements are found in SFC 9405.1.

20 **9404.2 Premises access.** The fire department shall have access to fenced, gated, or locked
21 grounds, piers, wharves or floats. Appropriate means of access (including keys and cardkeys)
22 shall be provided in an *approved* secured lock box (Knox Box) on the premises in an *approved*
23 location. The fire department shall be notified immediately of any changes in the means of
24 access.

25 **9404.3 Fire hydrants.** At least two fire hydrants shall be provided. One hydrant shall be located
26 within 500 feet (152,400 mm) of the closest point of fire department apparatus access to the
27 shore end of the marina piers, wharves or floats, or to the fire department connection (FDC) for
28 those piers, wharves or floats that are equipped with standpipes. The second fire hydrant shall be
located within 1000 feet (304,800 mm) of the closest point of fire department apparatus access to
the shore end of the marina piers, wharves, or floats, or to the FDC for those piers, wharves or
floats that are equipped with standpipes.

Exception: The requirements for fire hydrants may be modified if alternate arrangements
are *approved* by the *fire code official*.



1 **9404.4 Water supply.** All required hydrants shall be capable of delivering not less than 1,000
2 gpm at a minimum residual pressure of 20 psi each.

3 **Exception:** The requirements for water supply may be modified if alternate arrangements
4 are *approved* by the *fire code official*.

5 **SECTION 9405**
6 **FIRE PROTECTION EQUIPMENT**

7 **9405.1 Standpipe systems.** A manual Class I standpipe system (or class III standpipe system if
8 *approved* by the *fire code official*) in accordance with NFPA Standard 14 shall be provided for
9 piers, wharves, and floats if the hose lay distance from the fire apparatus to the most remote
10 accessible portion of the pier, wharf, or float exceeds 150 feet (45,720 mm). *Approved* plastic
11 pipe may be used if installed underwater, or other *approved* method of protection from fire
12 is provided. The standpipe piping shall be a minimum of 4 inches (102 mm), sized to provide a
13 minimum of 500 gpm at 130 psi at the most remote hose connection, with a simultaneous flow of
14 500 gpm at the third most remote hose connection on the same pier while maintaining
15 a maximum system pressure of 175 psi. Existing standpipe systems providing equivalent
16 performance to the specification listed above may be acceptable if *approved* by the *fire code*
17 *official*.

18 **9405.1.1 Hose connections.** Hose connections on required standpipes shall be provided at the
19 water end of the pier, wharf, or float, and along the entire length of the pier, wharf, or float at
20 spacing not to exceed 150 feet (45,720 mm) and as close as practical to the land end.

21 **Exception:** The hose connection at the land end of the pier, wharf or float may be omitted
22 if a hose connection is located within 150 feet (45,720 mm) of the fire apparatus access
23 road.

24 Each hose connection shall consist of a valved 2 1/2-inch (64 mm) fire department hose outlet.
25 Outlet caps shall have a predrilled 1/8-inch (3.2 mm) hole for pressure relief and be secured with
26 a short length of chain or cable to prevent falling after removal. Listed equipment shall be used.

27 **9405.2 Automatic sprinkler systems.** Automatic sprinklers shall be provided for each separate
28 covered boat moorage area exceeding 8,000 sq. ft. (743 m²) in projected roof area, excluding
29 roof overhangs. A separate covered boat moorage area is one that has at least 16 feet uncovered
30 horizontal separation from any part of any adjacent covered boat moorage area.

31 The sprinkler system shall be designed and installed in accordance with NFPA Standard 13 for
32 Extra Hazard Group 2 occupancy.

33 **Exception:** Covered boat moorage already protected by an automatic sprinkler system is
34 not required to be upgraded to Extra Hazard Group 2 criteria.

1 **9405.2.1 Monitoring.** Sprinkler systems shall be monitored by an *approved* central station.

2 **9405.3 Smoke and heat vents:** *Approved* automatic smoke and heat vents shall be provided in
3 covered boat moorage areas exceeding 2,500 sq. ft. (232 m²) in area, excluding roof overhangs.

4 **Exception:** Smoke and heat vents are not required in areas protected by automatic
5 sprinklers.

6 **9405.3.1 Design and installation.** If smoke and heat vents are required they shall be installed
7 near the roof peak, evenly distributed and arranged so that at least one vent is over each covered
8 berth. The effective vent area shall be calculated using a ratio of one square foot of vent to every
9 15 square feet of covered berth area (1:15). Each vent shall provide a minimum opening size of 4
10 ft. x 4 ft.

11 **9405.3.1.1** Smoke and heat vents shall operate automatically by actuation of a heat-
12 responsive device rated at between 100 degrees F (56 degrees C) and 220 degrees F (122 degrees
13 C) above ambient.

14 **Exception:** Gravity-operated drop out vents.

15 **9405.3.1.2 Gravity-operated drop out vents.** Gravity operated dropout vents shall fully
16 open within 5 minutes after the vent cavity is exposed to a simulated fire represented by a time-
17 temperature gradient that reaches an air temperature of 500 degrees F (260 degrees C) within 5
18 minutes.

19 **9405.4 Draft curtains.** Draft curtains shall be provided in covered boat moorage areas exceeding
20 2,500 sq. ft. (232 m²) in area, excluding roof overhangs.

21 **Exception:** Draft curtains are not required in areas protected by automatic sprinklers.

22 **9405.4.1 Draft curtain construction.** Draft curtains shall be constructed of sheet metal,
23 gypsum board or other *approved* materials that provide equivalent performance to resist the
24 passage of smoke. Joints and connections shall be smoke tight.

25 **9405.4.2 Draft curtain location and depth.** The maximum area protected by draft curtains
26 shall not exceed 2,000 sq. ft. (186 m²) or two slips or berths, whichever is smaller. Draft curtains
27 shall not extend past the piling line. Draft curtains shall have a minimum depth of 2 feet (609
28 mm) below the lower edge of the roof and shall not extend closer than 8 feet (2438 mm) to the
walking surface on the pier.

9405.5 Fire department connections. Standpipe and sprinkler systems shall be equipped with
not less than one two-way 2 1/2-inch (64 mm) fire department connection (FDC), which shall be
readily visible and located at the fire apparatus access road or other *approved* location. The FDC
for class I standpipe systems may be located at the shore end of the pier, wharf, or float if the



1 distance between the fire apparatus access road and FDC is less than 150 feet (45,720 mm).
2 See also SFC 9404.3 Fire hydrants.

3 **9405.6 Marina fire protection confidence testing.** Standpipe and sprinkler systems shall be
4 inspected and hydrostatically tested at least annually. Reports of inspections and tests shall be
5 submitted to the Seattle Fire Department Confidence Testing Unit in accordance
6 with Administrative Rule 9.02.07 *Confidence Test Requirements for Life Safety Systems*.
7 Notwithstanding fire department inspections, maintenance and periodic testing are the owner's
8 responsibility. All persons performing such work shall have a certificate from the fire department
9 to perform such work. See Administrative Rule 9.01.07 *Certification for Installing, Maintaining
10 and Testing Life Safety Systems and Equipment*.

11 **9405.7 Moorage in intervening moorage space.** Vessels moored in open spaces between
12 covered moorage shall not exceed 7 feet (2,133.6 mm) from the top of the vessel superstructure
13 to the waterline, unless protected by an *approved* fire partition.

14 **SECTION 9406**
15 **EMERGENCY PLANS AND TRAINING**

16 **9406.1 Emergency plan.** Owners or operators of piers, wharves, floats and marinas shall prepare
17 and maintain a current emergency plan for the facility. The plan shall include procedures for fire
18 department notification, fire evacuation, and include location of portable fire extinguishers and
19 hose cabinets, sprinkler and standpipe system control valves, fire department connections and
20 electrical disconnects.

21 **9406.2 Signage.** Signs, posters, or posted instructions shall be provided where practicable to
22 remind the public of basic fire safety practices and to warn of unusual or extreme fire hazards.
23 All boat owners at the marina shall be provided with written instructions for reporting fires and
24 other emergencies and actions to be taken in the event of a fire.

25 **9406.2 Point of Information**

26 For examples of emergency plans, see information bulletins located at www.seattle.gov/fire titled
27 Emergency Procedures for Public Occupancies and Fire Evacuation Planning.

28 **9406.3 Employee training.** Practice drills shall be held a minimum of twice a year.

9406.3.1 All employees shall know the location of fire-fighting equipment, and shall be
instructed in the procedures for response to a fire or other emergency, response to a fire alarm,
reporting a fire or other emergency to the proper authorities (and to designated
facility employees), and in the employees' designated role(s) in emergency situations. See SFC
9406.



1 to the owners of all non-complying marinas. Within 120 days of the date of notification
2 by the *fire code official*, the owner shall submit to the *fire code official* a concept design
and firm schedule for complying with the requirements of this chapter.

3 (b) The *fire code official* shall review the concept design and firm schedule and respond in
4 writing. The time schedule for compliance shall be measured from the date of the *fire*
5 *code official's* response to the concept design and firm schedule for each marina, and shall
not exceed the time limits set forth in subsection (c) of this section.

6 (c) The time limits for complying with the requirements of this Chapter are as follows:

7 Fire Extinguishers	1 year
8 Signage	1 year
9 Emergency Plan	1 year
10 Smoke and Heat Vents and Draft Curtains	7 years
11 Fire Hydrants	5 years
Standpipes	7 years
12 Sprinkler Systems	10 years

13 (d) Marinas will not be deemed to be in violation of this Chapter until the time limits set forth in
14 subsection (c) above have expired. Appeals to compliance with this section shall be in
accordance SFC 108.

15 Section 36. Appendix B of the 2009 International Fire Code is amended as follows:

16 ***

17 **B101.1 Scope.** The procedure for determining fire-flow requirements for buildings or portions of
18 buildings hereafter constructed and for buildings undergoing a substantial alteration as
19 determined by the Department of Planning and Development shall be in accordance with this
appendix. This appendix does not apply to structures other than buildings.

20 ***

21 SECTION B103 22 MODIFICATIONS

23 **B103.1 Decreases.** The *fire code official* ~~((chief))~~ is authorized to reduce the fire-flow
24 requirements for isolated buildings or a group of buildings in rural areas or small communities
25 where the development of full fire-flow requirements is impractical.



1 **B103.2 Increases.** The *fire code official* ~~((chief))~~ is authorized to increase the fire-flow
2 requirements where conditions indicate an unusual susceptibility to group fires or conflagrations.
An increase shall not be more than twice that required for the building under consideration.

3 **B103.3 Areas without water supply systems.** For information regarding water supplies for fire-
4 fighting purposes in rural and suburban areas in which adequate and reliable water supply
5 systems do not exist, the *fire code official* is authorized to utilize NFPA 1142 or the *International
Wildland-Urban Interface Code*.

6 **B103.4 Deferment.** The *fire code official* is authorized to defer enforcement of fire flow
7 requirements to allow time for infrastructure upgrades to occur. Temporary mitigation measures
8 as approved by the fire code official may be required for projects in areas with deficient fire flow.

9 ***

10 **SECTION B105**
FIRE-FLOW REQUIREMENTS FOR BUILDINGS

11 **B105.1 One- and two-family dwellings and townhouses.** The minimum fire-flow and flow
12 duration requirements for one- and two-family *dwellings and townhouses* having a fire-flow
13 calculation area that does not exceed 3,600 square feet (344.5m²) shall be 1,000 gallons per
14 minute (3785.4 L/min) for 1 hour. Fire-flow and flow duration for *dwellings and townhouses*
having a fire-flow calculation area in excess of 3,600 square feet (344.5m²) shall not be less than
that specified in Table B105.1.

15 **Exception:** A reduction in required fire-flow ~~((of 50 percent,))~~ as *approved by the fire code*
16 *official*, is allowed when the building is equipped with an *approved automatic sprinkler system*.

17 **B105.2 Buildings other than one- and two-family dwellings and townhouses.** The minimum
18 fire-flow and flow duration for buildings other than one- and two-family *dwellings and*
townhouses shall be as specified in Table B105.1.

19 **Exceptions:**

20 1. A reduction in required fire-flow of up to 75 percent, as *approved*, is allowed when the
21 building is provided with an *approved automatic sprinkler system* installed in accordance with
Section 903.3.1.1 or 903.3.1.2. The resulting fire-flow shall not be less than 1,500 gallons per
22 minute (5678 L/min) for the prescribed duration as specified in Table B105.1.

23 2. The resulting fire-flow shall not be less than 1,000 gallons per minute for the prescribed
24 duration as specified in Table B105.1 for a building that consists only of Group R-1 or R-2
25 occupancies and their associated parking.

26 ***

27 Section 37. Appendix D of the 2009 International Fire Code is amended as follows:
28

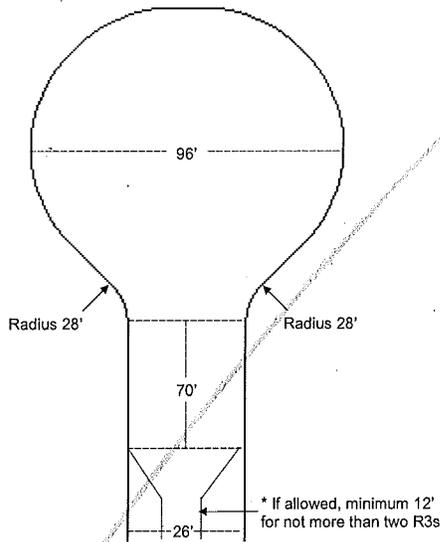


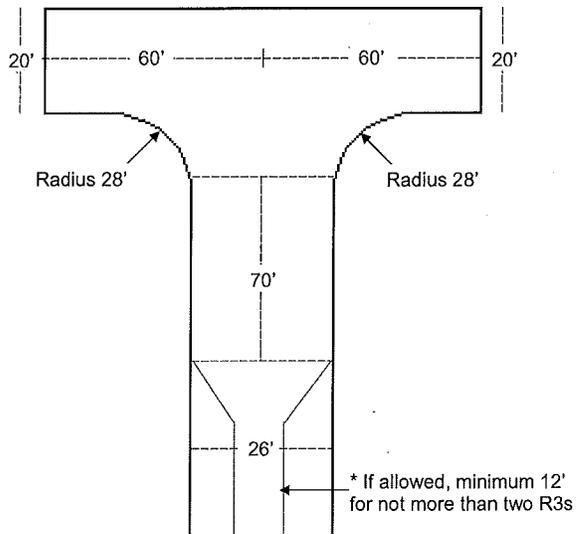
APPARATUS ACCESS ROADS

[Table D103.4 not reproduced here. No amendments are proposed for the table, other than renumbering (editorial) to reflect Section D103.3 which it supports.]

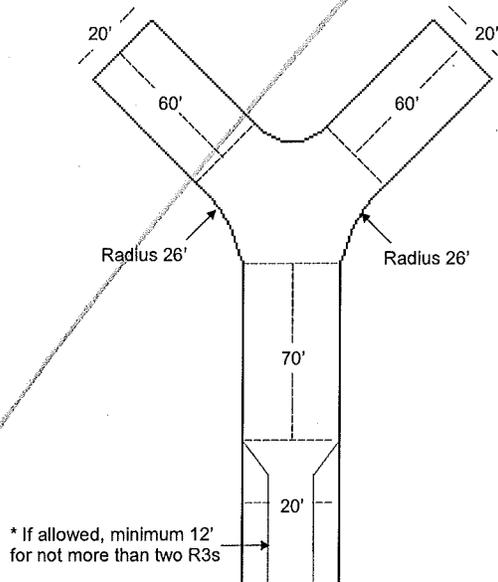
FIGURE D103.3 DEAD-END FIRE APPARATUS ACCESS ROAD TURNAROUND

96 Foot Cul-de-sac



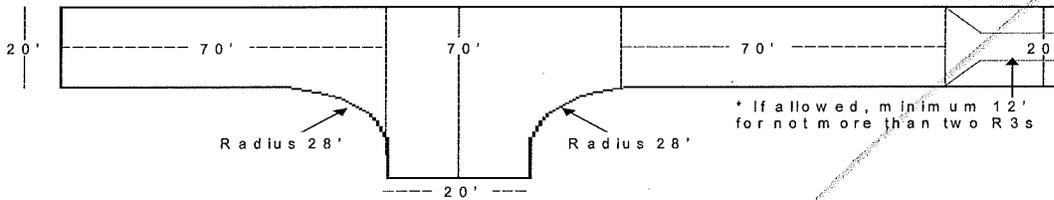


120 Foot Hammerhead



60 Foot Y – Acceptable Alternative to 120 Foot Hammerhead





Acceptable Alternative to 120 Foot Hammerhead

D103.4((5)) Fire apparatus access road gates. Gates securing the fire apparatus access roads shall comply with all of the following criteria:

1. The minimum gate width shall be 20 feet (6096 mm).

Exception: Access roads serving not more than two Group R-3 or Group U occupancies shall have an unobstructed width of not less than 12 feet.

2. Gates shall be of the swinging or sliding type.

3. Construction of gates shall be of materials that allow manual operation by one person.

4. Gate components shall be maintained in an operative condition at all times and replaced or repaired when defective.

5. Electric gates shall be equipped with a means of opening the gate by fire department personnel for emergency access. Emergency opening devices shall be approved by the fire code official.

6. Manual opening gates shall not be locked with a padlock or chain and padlock unless they are capable of being opened by means of forcible entry tools or when a key box containing the key(s) to the lock is installed at the gate location.

7. Locking device specifications shall be submitted for approval by the fire code official.

Exception: Bollards are an approved alternate if they can be readily removed by one person, and they shall not be locked with a padlock or chain unless they are capable of being removed by means of a forcible entry tool or approved locking device.

8. Electric gate operators, where provided, shall be listed in accordance with UL 325.

9. Gates intended for automatic operation shall be designed, constructed and installed to comply with the requirements of ASTM F 2200.

1 **D103.5((6)) Signs.** Where required by the *fire code official*, fire apparatus access roads shall be
2 marked with permanent NO PARKING—FIRE LANE signs complying with Figure D103.5((6)).
3 Signs shall have a minimum dimension of 12 inches (305 mm) wide by 18 inches (457 mm) high
4 and have red letters on a white reflective background. Signs shall be posted on one or both sides
5 of the fire apparatus road as required by Section D103.5((6)).1 or D103.5((6)).2.

6 **FIGURE D103.5((6))**
7 **FIRE LANE SIGNS**

8 [Figure D103.6 not reproduced here. No amendments are proposed for the FIGURE, other
9 than renumbering (editorial) to reflect Section D103.5 which it supports.]

10 ***

11 **D103.5((6)).1 Roads 12((20)) to 26 feet in width.** Fire apparatus access roads 12((20)) to 26
12 feet wide (6096 to 7925 mm) shall be posted on both sides as a *fire lane*.

13 **D103.5((6)).2 Roads more than 26 feet in width.** Fire apparatus access roads more than 26
14 feet wide (7925 mm) to 32 feet wide (9754 mm) shall be posted on one side of the road as a *fire*
15 *lane*.

16 **SECTION D104**
17 **COMMERCIAL AND INDUSTRIAL DEVELOPMENTS**

18 ~~((D104.1 Buildings exceeding three stories or 30 feet in height. Buildings or facilities
19 exceeding 30 feet (9144 mm) or three stories in height shall have at least two means of fire
20 apparatus access for each structure.))~~

21 **D104.1((2)) Buildings exceeding 62,000 square feet in area.**

22 Buildings or facilities having a gross *building area* of more than 62,000 square feet (5760 m2)
23 shall be provided with two separate and *approved* fire apparatus access roads.

24 **Exception:** Projects having a gross *building area* of up to 124,000 square feet (11 520m2) that
25 have a single *approved* fire apparatus access road when all buildings are equipped throughout
26 with *approved automatic sprinkler systems*.

27 **D104.2((3)) Remoteness.** Where two access roads are required, they shall be placed a distance
28 apart equal to not less than one half of the length of the maximum overall diagonal dimension of
the property or area to be served, measured in a straight line between accesses.

SECTION D105
AERIAL FIRE APPARATUS ACCESS ROADS

1 **D105.1 Where required.** Buildings or portions of buildings or facilities exceeding 30 feet (9144
2 mm) in height above the lowest level of fire department vehicle access shall be provided with
3 approved fire apparatus access roads capable of accommodating fire department aerial apparatus.
4 Overhead utility and power lines shall not be located in areas between the access road and the
5 buildings or portions of buildings that would impede safe deployment of the aerial
6 ladders.((within the aerial fire apparatus access roadway.))

7 **Exceptions:**

- 8 1. Buildings that are equipped throughout with an approved automatic sprinkler
9 system.
- 10 2. One and two family dwellings.

11 ***

12 Section 38. Appendix J of the 2009 International Fire Code is amended as follows:

13 ***

14 **J103.1.1 Radio signal strength.** The building shall be considered to have acceptable
15 emergency responder radio coverage if signal strength measurements in 95 percent of all areas on
16 each floor of the building meet the signal strength requirements of Sections J103.1.1.1 and
17 J103.1.1.2.

18 **Exception:** Critical areas, such as the emergency command center(s), the fire pump
19 room(s), exit stairs, exit passageways, elevator lobbies, standpipe cabinets, sprinkler
20 sectional valve locations, and other areas required by the *fire code official*, shall be
21 provided with 99 percent floor area radio coverage.

22 **J103.1.1.1 Minimum signal strength into the building.** A minimum signal strength of
23 three micro-volts shall be receivable within the building when transmitted from the King County
24 Regional 800 MHz Radio System.

25 **J103.1.1.2 Minimum signal strength out of the building.** A minimum signal strength of
26 one-half (.5) micro-volts shall be received by the King County Regional 800 MHz Radio System
27 when transmitted from 95 percent of all areas of the building.

28 **J103.1.((1))2 Amplification systems allowed.** ((Buildings and structures that cannot support
the required level of radio coverage shall be equipped with a radiating cable system, a distributed
antenna system with Federal Communications Commission (FCC)-certified signal boosters or
other system approved by the *fire code official* in order to achieve the required adequate radio
coverage.))Buildings and structures that cannot support the required level of radio coverage as
listed above shall be equipped with either or both of the following in order to achieve the
required adequate radio coverage:

- 1) A radiating cable system;



1 2) An internal multiple antenna system with FCC type accepted bi-directional 800 MHz
2 amplifiers.

3 **J103.1.((2))3** (~~**Technical criteria.** The fire code official shall maintain a document providing~~
4 ~~the specific technical information and requirements for the emergency responder radio coverage~~
5 ~~system. This document shall contain, but not be limited to, the various frequencies required, the~~
6 ~~location of radio sites, the effective radiated power of radio sites and other supporting technical~~
7 ~~information.))~~

8 **Frequency range.** The frequency range that must be supported is 806 MHz to 824 MHz and 851
9 MHz to 869 MHz and such other frequencies as determined by the King County Regional
10 800MHz Radio System in all areas of the building.

11 **J103.1.3.1 Additional frequencies and change of frequencies.**

12 The emergency responder radio coverage system shall be capable of modification or expansion in
13 the event frequency changes are required by the FCC or additional frequencies are made
14 available by the FCC. The building owner shall modify or expand the emergency responder radio
15 coverage system at the owner's expense if frequency changes are required by the FCC or
16 additional frequencies are made available by the FCC. Prior approval of a public safety radio
17 coverage system on previous frequencies does not exempt the building owner from complying
18 with this section.

19 **J103.1.3.1 Point of Information**

20 There is currently an ongoing national effort to eliminate current interference issues between
21 cellular carriers and public safety bands in the 800 MHz band. This effort could revise the actual
22 frequencies for public agencies within this band. The public safety radio enhancement system
23 design shall be capable of being changed to accommodate updated frequencies in order to allow
24 maintenance of the minimum system design criteria.

25 **J103.1.4 Power Supplies.** At least two independent and reliable power supplies shall be
26 provided, one primary and one secondary.

27 **J103.1.4.1 Primary Power Source.** The primary power source shall be supplied from a
28 dedicated branch circuit and comply with NFPA 72, National Fire Alarm Code.

J103.1.((3)) 4.2 Secondary power. The emergency responder radio coverage system shall
be equipped with a secondary source of power. The secondary source of power shall be either a
battery system or an emergency generator. The secondary power supply shall supply power
automatically when the primary power source is lost. The secondary source of power shall be
capable of operating the emergency responder radio coverage system for a period of at least 12
hours.



1 **J103.1.((3)).4.2.1 Battery systems.** The active components of the installed system or
2 systems shall be capable of operating on an independent battery system for a period of at least 12
3 hours without external power input. The battery system shall automatically charge in the
4 presence of external power input. The battery system shall be contained in one NEMA 4 or 4X
5 type enclosure.

6 **J103.1.4.2.2 Generator.** An engine-driven generator shall be arranged in accordance
7 with NFPA 72, *National Fire Alarm Code.*

8 **J103.1.5 System Monitoring.**

9 **J103.1.5.1 Fire Alarm System.** The public safety radio enhancement system shall include
10 automatic supervisory and trouble signals for malfunctions of the signal booster(s) and power
11 supplies that are annunciated by the fire alarm system, as follows:

12 (1)The integrity of the circuit monitoring signal booster(s) and power supply(ies) shall comply
13 with NFPA 72, *National Fire Alarm Code.*

14 (2)System and signal booster supervisory signals shall include the following:

15 (a)Antenna malfunction

16 (b)Signal booster failure

17 (3)Power supply supervisory signals shall include the following for each signal booster:

18 (a)Loss of normal ac power

19 (b)Failure of battery charger

20 (c)Low battery capacity, alarming at 70 percent of battery capacity

21 **J103.1.4 Signal booster requirements.** If used, signal boosters shall meet the following
22 requirements:

23 1. All signal booster components shall be contained in a NEMA4-type waterproof cabinet.

24 2. The battery system shall be contained in a NEMA4- type waterproof cabinet.

25 3. The system shall include automatic alarming of malfunctions of the signal booster and battery
26 system. Any resulting trouble alarm shall be automatically transmitted to an approved central
27 station or proprietary supervising station as defined in NFPA 72 or, when approved by the *fire*
28 *code official*, shall sound an audible signal at a constantly attended location.

 4. Equipment shall have FCC certification prior to installation.

~~**(J103.1.5 Additional frequencies and change of frequencies.**~~

~~The emergency responder radio coverage system shall be capable of modification or expansion in
the event frequency changes are required by the FCC or additional frequencies are made
available by the FCC.))~~

J103.2 Installation requirements. The installation of the public safety radio coverage system
shall be in accordance with Sections J103.2.1 through J103.2.5.



1 instruments must have been calibrated within one year) of the date of the acceptance test. Field
2 strength testing instruments must be of the frequency selective type incorporating a flexible
3 antenna similar to the ones used on the hand held transceivers.

4 The City of Seattle's Radio System Manager may designate alternate methods of measuring the
5 signal level, that satisfy appropriate levels of public safety grade coverage.

6 A representative of the Seattle Fire Department will oversee the acceptance test.

7 3. A maximum of two nonadjacent areas shall be allowed to fail the test.

8 4. In the event that three of the areas fail the test, in order to be more statistically accurate, the
9 floor may be divided into ((40)) 80 equal areas. A maximum of four nonadjacent areas shall be
10 allowed to fail the test. If the system fails the ((40))80 area test, the system shall be altered to
11 meet the 90-percent coverage requirement.

12 5. A test location approximately in the center of each grid area shall be selected for the test, then
13 the radio shall be enabled to verify two-way communications to and from the outside of the
14 building through the King County Regional 800 MHz Radio System (~~public agency's radio~~
15 ~~communications system.~~) Once the test location has been selected, that location shall represent
16 the entire area. If the test fails in the selected test location, that grid area shall fail, and
17 prospecting for a better spot within the grid area shall not be allowed.

18 6. The gain values of all amplifiers shall be measured and the test measurement results shall be
19 kept on file with the building owner so that the measurements can be verified during annual tests.
20 In the event that the measurement results become lost, the building owner shall be required to
21 rerun the acceptance test to reestablish the gain values.

22 7. As part of the installation a spectrum analyzer or other suitable test equipment shall be utilized
23 to insure spurious oscillations are not being generated by the subject signal booster. This test
24 shall be conducted at time of installation and subsequent annual inspections.

25 **J103.2.5 FCC compliance.** The emergency responder radio coverage system installation and
26 components shall also comply with all applicable federal regulations, including but not limited
27 to, FCC 47 CFR 90.219.

28 **J103.2.6 Continuing Operation/ Supervision.** The occurrence of any fault in this radio
system where the system function is decreased will result in the transmission of a supervisory
signal to the central station. If the system cannot be fully restored within one hour, the fire code
official will be notified.

J103.3 Maintenance. The emergency responder radio coverage system shall be maintained in
accordance with Sections J103.3.1 through J103.3.~~(5))~~6.

J103.3.1 Maintenance. The public radio coverage system shall be maintained operational at
all times.



1 **J103.3.2 Permit required.** A construction permit, as required by Section 105.7.5 of the
2 *International Fire Code*, shall be obtained prior to the modification or alteration of the
emergency responder radio coverage system.

3 **J103.3.3 Testing and proof of compliance.** The emergency responder radio coverage system
4 shall be inspected and tested annually or whenever structural changes occur including additions
5 or remodels that could materially change the original field performance tests. Testing shall
consist of the following:

- 6 1. In-building coverage test as described in Section J103.2.4.
- 7 2. Signal boosters shall be tested to ensure that the gain is the same as it was upon initial
8 installation and acceptance.
- 9 3. Backup batteries and power supplies shall be tested under load for a period of one hour to
10 verify that they will properly operate during an actual power outage. If within the one-hour test
period the battery exhibits symptoms of failure, the test shall be extended for additional one-hour
11 periods until the integrity of the battery can be determined.
- 12 4. Amplifiers shall be tested to ensure that the gain is the same as it was upon initial installation
and acceptance.

11 ~~((4.))~~ 5. All other active components shall be checked to verify
12 operation within the manufacturer's specifications.

12 ~~((5.))~~ 6. At the conclusion of the testing a report which shall verify compliance with Section
13 J103.3.4 shall be submitted to the *fire code official*.

14 ~~((J103.3.4 Additional frequencies. The building owner shall modify or expand the emergency
15 responder radio coverage system at his or her expense in the event frequency changes are
required by the FCC or additional frequencies are made available by the FCC. Prior approval of a
16 public safety radio coverage system on previous frequencies does not exempt this section.))~~

17 **J103.3.4 Five-year tests.** In addition to the annual test, it shall be the building owner's
18 responsibility to perform a radio coverage test a minimum of once every five years to ensure that
the radio system continues to meet the requirements of the original acceptance test.

19 **J103.3.5 Field testing.** Agency personnel shall have the right to enter onto the property at any
20 reasonable time to conduct field testing to verify the required level of radio coverage.

21 **J103.3.6 Qualifications of testing personnel.** Personnel conducting radio system tests shall
22 be qualified to perform the work. All tests shall be documented and signed by a person in
23 possession of a current FCC General Radiotelephone Operator license, or a current technician
24 certification issued by the

25 Associated Public-Safety Communications Officials International (APCO) or the National
26 Association of Business and Education Radio (NABER).



1 ***

2 Section 39. The National Fire Protection Association (NFPA) Standard 58, Liquefied
3 Petroleum Gas Code, 2008 edition, is amended as follows:

4 ***

5 **6.5.1.3** The transfer of liquid into containers on the roofs of structures ~~((shall be permitted,~~
6 ~~provided that the installation conforms to the requirements contained in 6.6.7 through 6.17.11))~~
7 is prohibited.

8 ***

9 **6.6.3.4** ~~((Where))~~ If a single ASME container complying with Table 6.6.3.3 is installed ~~((in~~
10 ~~isolated locations))~~ with ~~((non fire proofed))~~ steel supports resting on concrete pads or footings
11 and the outside bottom of the container shell is ~~((not))~~ more than ~~((5 ft (1.5 m)))~~ 24 inches above
12 the ~~((ground level))~~ foundation the ~~((approval of the authority having jurisdiction shall be~~
13 ~~obtained.))~~ steel supports shall be protected against fire exposure with a material having a fire
14 resistance rating of at least 2 hours. See Seattle Fire Code Chapter 447, ASTM Standard E 1529
15 for the performance requirements for fire-resistive assemblies.

16 ***

17 **6.6.4.3** Steel supports shall be protected against fire exposure with a material that has a fire
18 resistance rating of at least 2 hours. ~~((except that continuous steel skirts that have only one~~
19 ~~opening that is 18 in. (460 mm) or less in diameter shall have fire protection applied to the~~
20 ~~outside of the skirts.))~~

21 ***

22 **6.6.7.1** Installation of containers on roofs of buildings, including parking garages, ~~((shall~~
23 ~~be))~~ is prohibited ~~((, unless approved by the authority having jurisdiction and the fire department)).~~

24 ***

25 **6.19.1.2** Cylinders in use shall mean connected for use.
26 (A) The use of cylinders indoors shall be only for the purposes specified in 6.19.4 through 6.19.9.
27 (B) The use of cylinders indoors shall be limited to those conditions where operational
28 requirements make the indoor use of cylinders necessary and location outside is impractical.
29 ~~((C) The use of cylinders on roofs shall be limited to those conditions where operational~~
30 ~~requirements make use of cylinders necessary and location other than on roofs of buildings or~~
31 ~~structures is impractical.~~
32 ~~((D))~~ (C) Liquid LP-Gas shall be piped into buildings or structures only for the purposes specified
33 in 6.9.1.1(4).

34 ***

35 **6.17.3.5** ~~((Where))~~ If located on a floor, ~~((roof,))~~ or balcony, cylinders shall be secured to
36 prevent falling over the edge.

37 ***



1 **6.19.4.8** If heaters are connected to cylinders manifolded together for use in an
2 unpartitioned area on the same floor, the total water capacity of cylinders manifolded together
3 serving any one heater shall not be greater than 735 lb (333 kg) [nominal 300 lb (136 kg) LP-Gas
4 capacity]. If there is more than one such manifold, it shall be separated from any other by at least
5 20 ft (6.1 m).

6 Maximum individual LP-Gas cylinder capacities and aggregate quantities of LP-Gas allowed
7 within buildings undergoing construction or renovation or used for temporary heating shall be in
8 accordance with the Seattle Fire Code Section 3803.2.1.2.

9 ***

10 **6.19.6.1** Cylinders used in buildings housing industrial occupancies for processing,
11 research, or experimental purposes shall comply with 6.19.6.1(A) and 6.19.6.1(B).

12 (A) If cylinders are manifolded together, the total water capacity of the connected cylinders shall
13 be not more than 735 lb (333 kg) [nominal 300 lb (136 kg) LP-Gas capacity]. If there is more
14 than one such manifold in a room, it shall be separated from any other by at least 20 ft (6.1 m).

15 (B) The amount of LP-Gas in cylinders for research and experimental use in the building shall be
16 limited to the smallest practical quantity and shall not exceed the quantity limits set forth in
17 Seattle Fire Code Section 3803.2.1.3.

18 ***

19 **6.19.7.2** ~~((Where))~~ If cylinders are used in ~~((buildings housing educational and~~
20 ~~institutional))~~ Group B, E and I laboratory occupancies for research and experimental purposes,
21 the following ~~((shall))~~ apply:

22 (1) The maximum water capacity of individual cylinders used ~~((shall be))~~ is 50 lb (23 kg)
23 [nominal 20 lb (9.1 kg) LP-Gas capacity] if used in ~~((educational))~~ Group B and E occupancies
24 and 12 lb (5.4 kg) [nominal 5 lb (2 kg) LP-Gas capacity] if used in ~~((institutional))~~ Group I
25 occupancies.

26 (2) If more than one such cylinder is located in the same room, the cylinders shall be separated by
27 at least 20 ft (6.1 m).

28 (3) Cylinders not connected for use shall be stored in accordance with Chapter 8.

(4) Cylinders shall not be stored in a laboratory room.

6.19.11.1 ~~((Where cylinders are installed permanently on roofs of buildings, the buildings~~
~~shall be of fire resistant construction or noncombustible construction having essentially~~
~~noncombustible contents, or other construction or contents that are protected with automatic~~
~~sprinklers.~~

(A) ~~The total water capacity of cylinders connected to any one manifold shall be not greater~~
~~than 980 lb (445 kg) [nominal 400 lb (181 kg) LP-gas capacity]. If more than one~~



manifold is located on the roof, it shall be separated from any other by at least 50 ft. (15m).

(B) ~~Cylinders shall be located in areas where there is free air circulation, at least 10 ft (3m) from building openings such as windows and doors), and at least 20 ft (6.1 m) from air intakes of air conditioning and ventilating systems.~~

(C) ~~Cylinders shall not be located on roofs that are entirely enclosed by parapets more than 18 in. (460 mm) high unless the parapets are breached with low level ventilation openings no more than 20 ft (6.1 m) apart, or all openings communicating with the interior of the building are at or above the top of the parapets.~~

(D) ~~Piping shall be in accordance with 6.17.2.4 through 6.17.2.6.~~

(E) ~~Hose shall not be used for connection to cylinders.~~

(F) ~~The fire department shall be advised of each installation.)~~

LP-gas containers are prohibited on the roofs of buildings including parking garages.

Exceptions:

1. Temporary installations allowed in accordance with Section 6.19.2.

2. A single LP-gas container having an individual water capacity not exceeding 48 lbs. (nominal 20 lbs. LP-gas) connected to a LP-gas grill if a portable fire extinguisher having a minimum rating of 20-B is located within 30 feet of the grill.

6.25.3.1 Fire protection shall be provided for installations with an aggregate water capacity of more than 4000 gal (15.1 m³) ~~((and of ASME containers on roofs)).~~

8.4.1.1. Storage outside of buildings for cylinders awaiting use, resale, or part of a cylinder exchange point shall be located as follows:

(1) At least 5 ft (1.5 m) from any one doorway or opening in a building frequented by the public ~~((where))~~ if occupants have at least two means of egress as defined by NFPA 101, Life Safety Code. A minimum 10 ft (3 m) setback is required from the second doorway or opening in the building.

(2) At least 10 ft (3 m) from any doorway or opening in a building or sections of a building that has only one means of egress.

(3) At least 20 ft (6.1 m) from any automotive service station fuel dispenser.

Section 40. The National Fire Protection Association (NFPA) Standard 130, Standard for Fixed Guideway Transit and Passenger Rail Systems, 2010 edition, is amended as follows:

1.3.4 This standard ~~((shall apply))~~ applies as a basis for fixed guideway transit and passenger rail systems ~~((where))~~ if nonelectric and combination electric/other (such as diesel) vehicles are used. ~~((Where))~~ If such vehicles are not passenger-carrying vehicles or are buses ~~((or trolley~~

1 coaches)), the standard ((shall)does not apply to those vehicles, but ((shall)does apply to the
2 fixed guideway transit and passenger rail system in which such vehicles are used.

3 ***

3 **3.2.2* Authority Having Jurisdiction (AHJ).** ~~An organization, office, or individual responsible~~
4 ~~for enforcing the requirements of a code or standard, or for approving equipment, materials, an~~
5 ~~installation, or a procedure. The fire chief or other designated authority charged with the~~
6 ~~administration of the fire code, or a duly authorized representative.~~

7 ***

7 **4.4.1 Emergency power assumptions.** The emergency power requirements addressed in this
8 standard assume a fire or other emergency event within the station or trainway concurrent with a
9 power outage of the primary source of electrical power unrelated to the event within the transit
10 system.

11 ***

10 **4.6* Fire Scenarios.** Design scenarios shall consider the location and size of a fire or a fire-
11 related emergency and shall be approved.

12 ***

12 5.1.1.1.1 Fixed guideway transit and passenger rail stations are classified as Group A,
13 Division 3 occupancies in accordance with the 2009 Seattle Building Code and 2009 Seattle Fire
14 Code.

14 5.1.1.1.2 Enclosed fixed guideway transit and passenger rail stations shall be posted
15 with the occupancy load in accordance with Section 1004.3 of the 2009 Seattle Fire Code.

16 ***

17 5.1.1.4 Fixed guideway transit and passenger rail stations shall comply with the
18 applicable provisions of Section 1113 of the 2009 Seattle Building Code.

19 ***

19 **5.2.1 Safeguards During Construction.** During the course of construction or major
20 modification of any structure, provisions of ((NFPA 241, *Standard for Safeguarding*
21 *Construction, Alteration, and Demolition Operations*)) Chapter 14 of the 2009 Seattle Fire Code
22 and Chapter 33 of the 2009 Seattle Building Code ((shall-))apply.

23 ***

23 **5.2.2.1 Building construction** for all new enclosed stations shall be not less than Type I or
24 Type II or combinations of Type I and Type II noncombustible construction as defined in Chapter
25 6 of the 2009 Seattle Building Code ((NFPA 220, in accordance with the requirements of NFPA



1 ~~101, Chapter 12~~)), for the station configuration, or as determined by an engineering analysis of
2 potential fire exposure hazards to the structure.

3 ***

4 **5.2.2.2** Other types of construction (~~as defined in NFPA 220 shall be~~) is permitted for
5 open stations in accordance with the provisions of (~~NFPA 101, Chapter 12~~) Chapter 6 of the
6 2009 Seattle Building Code, for corresponding station configurations.

7 ***

8 **5.2.3.1.1* Stair and Escalator Enclosure.** Stairs and escalators regularly used by
9 passengers for circulation during normal revenue service in enclosed stations equipped
10 throughout with an automatic sprinkler system (~~shall not be~~) are not required to be enclosed if
11 the station is constructed in accordance with Chapter 7 of the 2009 Seattle Building Code. All
12 required exit stairs shall be enclosed in accordance with Chapter 10 of the 2009 Seattle Building
13 Code.

14 ***

15 **5.2.3.3 Ancillary Spaces.** Fire resistance ratings of separations between ancillary
16 occupancies shall be established (~~as required by NFPA 101~~) in accordance with Chapter 7 of
17 the 2009 Seattle Building Code (~~NFPA 251~~).

18 ***

19 **5.3.1 Smoke control system.** A smoke control system shall be provided in underground fixed
20 guideway transit and passenger rail stations in accordance with Section 909 of the 2009 Seattle
21 Fire Code. Smoke control shall restrict movement of smoke to the general area of fire origin and
22 non-occupied exhaust areas and maintain tenability in the means of egress.

23 ***

24 (~~5.4.11 Emergency Power. Emergency power in accordance with Article 700 of NFPA 70, and~~
25 ~~Chapter 4 of NFPA 110 shall be provided for enclosed stations.~~)

26 **5.4.11* Emergency Power Supply System (EPSS).** Underground and enclosed stations shall
27 be provided with a Class 2, Type 60, Level 1 Emergency Power Supply System (EPSS) in
28 accordance with Article 700 of NFPA 70 and Chapter 4 of NFPA 110.

A.5.4.11 The class defines the minimum time, in hours, that the Emergency Power Supply
System (EPSS) is designed to operate at its rated load without being refueled or recharged. The
type defines the maximum time, in seconds, that the EPSS will permit the load terminals of the
transfer switch to be without acceptable electrical power. NFPA 110 recognizes two levels of
EPSS equipment installation, performance and maintenance. Level 1 systems shall be installed
where failure of the EPSS to perform could result in loss of human life or serious injuries.



1 **5.4.11.4** The following systems shall be connected to the emergency power supply
2 system:

- 3 ~~((1)Emergency lighting~~
4 ~~(2)Protective signaling systems~~
5 ~~(3)Emergency communication system~~
6 ~~(4)Fire command center))~~
7 (1) Exit signs and means of egress illumination
8 (2) Elevator car lighting.
9 (3) Emergency voice/alarm communications systems.
10 (4) Automatic fire detection systems.
11 (5) Fire alarm systems.
12 (6) Power and lighting for the fire command center.
13 (7) Lighting for mechanical rooms.
14 (8) Electrically powered fire pumps.
15 (9) Ventilation and automatic fire detection equipment for smoke proof enclosures.
16 (10) Smoke control systems.
17 (11) A selected elevator in each bank of elevators in accordance with *Seattle Building*
18 *Code* Section 3016.7. A bank of elevators is a group of elevators or a single elevator
19 controlled by a common operating system—all elevators that respond to a single call
20 button constitute a bank of elevators. All elevators shall be transferable to emergency
21 power.

22 **5.5.1 General.** The provisions for means of egress for a station shall comply with ~~((Chapter 7~~
23 and Chapter 12 of NFPA-101)) Chapter 10 of the 2009 *Seattle Building Code*, except as herein
24 modified.

25 **5.5.1.3.3** Every required stairway in enclosed stations serving floor levels more than 30
26 feet (9144 mm) below its level of exit discharge, except those regularly used by passengers shall
27 comply with the requirements for a smokeproof enclosure in Section 1020.1.7 of the 2009 *Seattle*
28 *Building Code*.

29 **5.5.5.1** The occupant load for a station shall be based on whichever is greater:

- 30 (1) T~~(t)~~he train load of trains simultaneously entering the station on all tracks in normal
31 traffic direction plus the simultaneous entraining load awaiting a train or;
32 (2) The number of occupants computed at the rate of one occupant per unit of area as follows:
33 • 7 sq. ft. for underground structures
34 • 15 sq. ft. for surface structures and elevated structures.

35 **5.5.5.5** ~~((Where))~~ If an area within a station is intended for use by other than passengers or
36 employees, the occupant load for that area shall be determined in accordance with the provisions



1 of Chapter 10 of the 2009 *Seattle Building Code* ((NFPA-101)) as appropriate for the class of
2 occupancy.

3 **5.5.6.1 Platform Evacuation Time.** There shall be sufficient egress capacity to evacuate the
4 platform occupant load as defined in 5.5.2.8 from the station platform in 4 minutes or less, but in
5 no case shall the required egress width (excluding escalators) be less than prescribed by Section
6 1005 of the 2009 *Seattle Building Code*.

7 **5.5.6.3.2.4*** Escalators ((shall not))may account for ((more than)) up to one half of the
8 required means of egress capacity at any one level for purposes of calculating platform
9 evacuation time if the following criteria are met:

10 (1) The escalators are capable of being remotely brought to a stop in accordance with the
11 requirements of 5.5.2.1(3)(b), 5.5.2.1(4), and 5.5.2.1(5).

12 (2) A portion of the means of egress capacity from each station level is comprised of stairs.

13 **5.5.6.3.2.5** ((Escalators shall be permitted to account for more than one half of the
14 required means of egress capacity at any one level where the following criteria are met:

15 (1) ~~The escalators are capable of being remotely brought to a stop in accordance with the~~
16 ~~requirements of 5.5.2.1(3)(b), 5.5.2.1(4), and 5.5.2.1(5).~~

17 (2) ~~A portion of the means of egress capacity from each station level is comprised of stairs.~~

18 (3)) ~~For enclosed stations, at least one enclosed exit stair or exit passageway shall provide~~
19 ~~continuous access from the platforms to ((the)) a public way.~~

20 ~~((5.5.6.3.3 Elevators.—~~

21 ~~5.5.6.3.3.1—Elevators meeting the requirements of sections 5.5.6.3.3.2 through 5.5.6.3.3.4 shall be~~
22 ~~permitted to account for part of the means of egress capacity in stations.~~

23 ~~5.5.6.3.3.2 Capacity and Numbers. Where elevators are counted as contributing to the means~~
24 ~~of egress capacity, the following shall apply:~~

25 (1) ~~They shall comprise no more than 50 percent of the required egress capacity.~~

26 (2) ~~*At least one elevator shall be considered out of service, and one elevator shall be reserved~~
27 ~~for fire service.~~

28 (3) ~~*The capacity of each elevator shall be the carrying capacity of the elevator within 30~~
minutes.

5.5.6.3.3.3 Holding Area. Elevators counted as contributing to the means of egress capacity
shall be accessed via holding areas or lobbies that shall be designed as follows:

(1) ~~The holding areas or lobbies shall be separated from the platform by a smoke-tight fire~~
separation having a fire resistance rating of at least 1 hour, but not less than the time required
to evacuate the holding area occupant load.

(2) ~~At least one stair shall be accessible from the holding area.~~

(3) ~~The holding area shall be sized to accommodate one person per 0.46 m² (5 ft²).~~



1 (4) If the holding area includes portions of the platform, the area within 460 mm (18 in.) of
the trainway shall not be considered in the calculation.

2 (5) Upon activation of smoke control in the platform or adjacent trainway areas, the holding
area shall be pressurized to a minimum of 25 Pa (or 0.051 in. of water gauge).

3 (6) The holding area shall be provided with emergency voice alarm devices with two way
4 communication to the system operations control center.

5 **5.5.6.3.3.4 Design Features.** Elevators counted as contributing to the means of egress capacity
shall be designed as follows:

6 (1) Shaft enclosures shall be constructed as smoketight fire separations having a 2-hour fire
resistance rating.

7 (2) *The design shall limit water flow into the shaft.

8 (3) No more than two elevators used for means of egress or fire department access shall share
the same machine room.

9 (4) Machine rooms shall be separated from each other by fire separations having a minimum
fire resistance rating of 2 hours.

10 (5) The elevators shall be connected to emergency power.

11 (6) *During emergency evacuation, the elevators shall travel only between the incident
platform level and a point of safety.)

12 ***

13 **5.5.6.3.4.3** Emergency exit gates shall comply with Chapter 10 of the 2009 Seattle
Building Code. ((be in accordance with NFPA 101.)) and the clear width of the exit walkway
shall be maintained.

14 ***

15 **5.5.6.3.5.2** Turnstile-type fare collection equipment shall be permitted in accordance
with ((NFPA 101)) Chapter 10 of the 2009 Seattle Building Code and shall account for a capacity
16 of 25 ppm for egress calculations.

17 ***

18 **5.6.1** Stations shall be provided with a system of emergency lighting in accordance with
((NFPA 101.)) Section 1006 of the 2009 *Seattle Building Code*, except as otherwise noted herein.

19 ***

20 **5.6.2** Means of egress shall be provided with a system of emergency lighting in accordance
with Chapter 10 of the 2009 Seattle Building Code ((Section 7.9 of NFPA 101)), except as
21 otherwise noted in this standard.

22 ***

23 **5.7.3.1** An automatic sprinkler ((protection)) system shall be provided ((in)) throughout all
24 areas of enclosed fixed guideway transit and passenger rail stations ((used for concessions, in
storage areas, in trash rooms, and in the steel truss area of all escalators and other similar areas
with combustible loadings, except trainways)).

25 ***

1 ~~((5.7.3.1.1 Sprinkler protection shall be permitted to be omitted in areas of open stations~~
2 ~~remotely located from public spaces.))~~

3 **5.7.3.4** Other fire suppression systems, if *approved*, ~~((shall be permitted to))~~ may be
4 substituted for automatic sprinkler systems ~~((in the areas listed in 5.7.3.1)).~~

5 **5.7.4.1.1** ~~((Class of service shall be determined by the authority having jurisdiction.~~
6 ~~(See A.5.7.4.30))~~ Elevated transit stations shall be equipped throughout with a Class I standpipe
7 system.

8 **5.7.4.2.1** Hydraulic design information signs shall be provided at each fire department
9 connection indicating the residual inlet pumping pressure(s) required for the hydraulically most
10 remote and/or other selected hose connection outlet location(s).

11 **5.7.4.3*** Fire department connections for fire department use in supplying the standpipe
12 system shall be located ~~((as follows:))~~ in accordance with Seattle Fire Department Administrative
13 Rule 9.03.09, *Automatic Sprinkler and Standpipe Systems* and any future revisions of this rule
14 adopted by the fire code official.

15 ~~((1. within 30.5 m (100 ft) of vehicular access and~~
16 ~~2. within operating distance of fire hydrants as determined by the local authority having~~
17 ~~jurisdiction)).~~

18 **5.7.6.1** Underground stations shall be provided with a fire command center in accordance
19 with NFPA 72 and Section 509 of the 2009 *Seattle Fire Code*.

20 **5.9.1.1** Interior wall and ceiling finish materials in enclosed stations shall be either
21 noncombustible or shall comply with Chapter 8 of the 2009 *Seattle Fire Code* ~~((one of the~~
22 ~~following:~~

- 23 (1) Interior wall and ceiling finish materials shall be noncombustible materials.
24 (2) Interior wall and ceiling finish materials, other than textile wall coverings or foam
25 plastic insulation, shall exhibit a flame spread index not exceeding 25 and a smoke
26 developed index not exceeding 450, when tested by ASTM E 84.)

27 ~~((5.9.1.2 Interior wall and ceiling finish materials, when tested in accordance with NFPA 286,~~
28 ~~shall comply with the following:~~

- (1) Flames shall not spread to the ceiling during the 40 kW (135 kBtu/hr) exposure.
(2) During the 160 kW (545 kBtu/hr) exposure, the following criteria shall be met:

1 (a) Flame shall not spread to the outer extremities of the sample on the 2.45 m × 3.7 m (8 ft × 12 ft) wall.

2 (b) The peak heat release rate shall not exceed 800 kW (2730 kBtu/hr).

3 (c) Flashover shall not occur.

4 (3) The total smoke released throughout the test shall not exceed 1000 m² (10,764 ft².)

5 ***

6 **5.9.2.1** Interior finish in open stations shall comply with the requirements of ((NFPA 101, Chapter 12)) Chapter 8 of the 2009 *Seattle Fire Code*.

7 ***

8 **5.10 Rubbish Containers.** Rubbish containers shall ((be manufactured of noncombustible materials.)) comply with Section 304 of the 2009 *Seattle Fire Code*.

9 ***

10 **6.2.1.2** System egress ((points)) walk surfaces shall be illuminated at a level of not less than 2.69 lx (0.25 ft-candles) or as approved by the authority having jurisdiction.

11 ***

12 **6.2.1.9*** The means of egress within the trainway shall be provided with an unobstructed clear width graduating from the following:

13 (1) ~~610 mm (24 in.)~~ 760 mm (30 in.) at the walking surface to

14 (2) ~~760 mm (30 in.)~~ 910 mm (36 in.) at 1420 mm (56 in.) above the walking surface to

15 (3) ~~610 mm (24 in.)~~ 760 mm (30 in.) at 2025 mm (80 in.) above the walking surface

16 ***

17 **6.2.2.1 General.** Exit stairs and doors shall comply with Chapter 10 of the 2009 *Seattle Building Code* ((7 of NFPA 101)), except as herein modified.

18 ***

19 ((**6.2.2.2** For exit stairs serving underground or enclosed trainways, the width of exit stairs shall not be required to exceed 1120 mm (44 in.))

20 ***

21 ((**6.2.2.5 Exit Hatches.**

22 **6.2.2.5.1** Exit hatches shall be permitted in the means of egress, provided the following conditions are met:

23 (1) Hatches shall be equipped with a manual opening device that can be readily opened from the egress side.

24 (2) Hatches shall be operable with not more than one releasing operation.



1 (3) The force required to open the hatch when applied at the opening device shall not exceed 130
2 N (30 lb).

3 (4) The hatch shall be equipped with a hold-open device that automatically latches the door in the
4 open position to prevent accidental closure.

5 ~~6.2.2.5.2 Exit hatches shall be capable of being opened from the discharge side to permit access
6 by authorized personnel.~~

7 ~~6.2.2.5.3* Exit hatches shall be conspicuously marked on the discharge side to prevent possible
8 blockage.))~~

9 ***

10 6.2.5.2 Lighting systems for enclosed trainways described in 6.2.5.1 shall be installed in
11 accordance with ((Sections 7.8 and 7.9 of NFPA 101)) Chapter 10 of the 2009 *Seattle Building
12 Code*, except as otherwise noted in this standard.

13 ***

14 6.3.3.2.11* Emergency Power Supply System (EPSS). Enclosed trainways shall be
15 provided with a Class 2, Type 60, Level 1 Emergency Power Supply System (EPSS) ((such that,
16 in the event of failure of the normal supply to, or within, the system, emergency power shall be
17 provided with emergency power)) in accordance with Article 700 of *NFPA 70*, and Chapter 4 of
18 *NFPA 110*. The supply system for emergency purposes, in addition to the normal services to the
19 trainway, shall be one or more of the types of systems described in subsections 700.12(A)
20 through 700.12(E) of *NFPA 70*.

21 A.6.3.3.2.11 The class defines the minimum time, in hours, that the Emergency Power
22 Supply System (EPSS) is designed to operate at its rated load without being refueled or
23 recharged. The type defines the maximum time, in seconds, that the EPSS will permit the load
24 terminals of the transfer switch to be without acceptable electrical power. *NFPA 110* recognizes
25 two levels of EPSS equipment installation, performance and maintenance. Level 1 systems shall
26 be installed where failure of the EPSS to perform could result in loss of human life or serious
27 injuries.

28 6.3.3.2.11.1 The following systems shall be connected to the emergency power
supply system:

- 29 ~~((1)Emergency lighting~~
- 30 ~~(2)Protective signaling systems~~
- 31 ~~(3)Emergency communication system~~
- 32 ~~(4)Fire command center))~~

- 33 (1) Exit signs and means of egress illumination
- 34 (2) Elevator car lighting.
- 35 (3) Emergency voice/alarm communications systems.
- 36 (4) Automatic fire detection systems.



1 (5) Fire alarm systems.

2 (6) Power and lighting for the fire command center.

3 (7) Lighting for mechanical rooms containing critical equipment.

4 (8) Electrically powered fire pumps.

5 (9) Ventilation and automatic fire detection equipment for smoke proof enclosures.

6 (10) Smoke control systems.

7 (11) A selected elevator in each bank of elevators in accordance with *Seattle Building Code*
8 Section 3016.7. A bank of elevators is a group of elevators or a single elevator controlled by a
9 common operating system—all elevators that respond to a single call button constitute a bank of
10 elevators. All elevators shall be transferable to emergency power.

11 ***

12 6.5.2.1 An *approved* fire standpipe system shall be provided ~~((in))~~ for ~~((underground))~~
13 fixed guideway transit and passenger rail system trainways where physical factors prevent or
14 impede access to the water supply or fire apparatus, ~~((where))~~ if required by the *authority having*
15 *jurisdiction*.

16 ***

17 6.5.2.4.3 Hydraulic design information signs shall be provided at each fire department
18 connection indicating the residual inlet pumping pressure(s) required for the hydraulically most
19 remote and/or other selected hose connection outlet location(s).

20 ***

21 6.5.2.6 Four-way 2.5 inch fire department connections shall be provided at all emergency
22 access points.

23 6.5.2.7 Standpipes shall be sized to provide 1000 gpm. Hydraulic calculations shall be
24 based on 500 gpm at 130 psi at the hydraulically most remote hose connection, with a
25 simultaneous flow of 500 gpm at the next hydraulically most remote hose connection. The
26 maximum calculated pressure at any point in the system shall not exceed 350 psi.

27 6.5.2.8 Standpipes shall be interconnected at all tunnel cross passageways and within the
28 stations, with isolation valves provided for each interconnection.

6.5.2.9 Hose connection outlets shall be provided at maximum 200 feet spacing.

6.6.7.6 Tanks shall be abandoned in accordance with the provisions of Chapter 34 of the
2009 *Seattle Fire Code*. ~~((Annex C of NFPA 30.))~~



1 7.2.4 ((Criteria for the system reliability analysis in 7.2.3(6) shall be established and
2 approved.)) The design analysis shall address the performance of the system with one fan out-of-
3 service.

4 ~~((7.2.4.1 The analysis shall consider as a minimum the following events:~~

5 ~~(1) Fire in trainway or station~~

6 ~~(2) Local incident within the electrical utility that interrupts power to the emergency ventilation~~
7 ~~system~~

8 ~~(3) Derailment))~~

9 ***

10 ~~((7.7.1 The design of the power for the emergency ventilation system shall comply with the~~
11 ~~requirements of Article 700 of NFPA 70.))~~

12 7.7.1* The emergency ventilation system shall be provided with a Class 2 , Type 60, Level 1
13 Emergency Power Supply System (EPSS) in accordance with Article 700 of NFPA 70, and
14 Chapter 4 of NFPA 110.

15 A.7.7.1 The class defines the minimum time, in hours, for the Emergency Power Supply
16 System (EPSS) is designed to operate at its rated load without being refueled or recharged. The
17 type defines the maximum time, in seconds, that the EPSS will permit the load terminals of the
18 transfer switch to be without acceptable electrical power. NFPA 110 recognizes two levels of
19 EPSS equipment installation, performance and maintenance. Level 1 systems shall be installed
20 where failure of the EPSS to perform could result in loss of human life or serious injuries.

21 ~~7.7.1.1 Alternatively, the design of the power for the emergency ventilation system shall be~~
22 ~~permitted to be based upon the results of the electrical reliability analysis as per 7.2.3(6), as~~
23 ~~approved.~~

24 ***

25 8.8.2.1 A means to allow passengers to safely board the vehicle (rescue train) from a walk
26 surface or other suitable area under the supervision of authorized employees in case of an
27 emergency shall be provided.

28 ***

1 10.3.2 ((Wherever necessary for reliable communications, a separate))If required by the
2 authority having jurisdiction, an emergency responder radio ((network capable of two-way radio
3 communication for fire department personnel to the fire department communication center))
4 system shall be provided in accordance with Section 510 of the 2009 Seattle Fire Code.

5 ***

6 10.6.1.1 If required by the authority having jurisdiction, stations shall be provided with an
7 approved Emergency Communication System in accordance with the 2010 edition of NFPA 72.



1 Section 41. The National Fire Protection Association (NFPA) Standard 502, Standard for
2 Road Tunnels, Bridges, and other Limited Access Highways, 2008 edition, is amended as
3 follows:

4 **3.2.2* Authority Having Jurisdiction (AHJ).** ~~An organization, office, or individual~~
5 ~~responsible for enforcing the requirements of a code or standard, or for approving equipment,~~
6 ~~materials, an installation, or a procedure.~~ The fire chief or other designated authority charged
7 with the administration of the fire code, or a duly authorized representative.

8 **4.2 Safeguards During Construction.** During the course of construction or alteration of any
9 facility addressed in this standard, the provisions of ~~((NFPA 241))~~ Chapter 14 of the 2009 Seattle
10 Fire Code and Chapter 33 of the 2009 Seattle Building Code shall apply, except as modified
11 herein.

12 **4.3.2* Limited Access Highways.** Fire protection for limited access highways shall comply
13 with the requirements of Chapter 5 and Chapter 9.

14 **4.3.3 Bridges and Elevated Highways.** Fire protection for bridges and elevated highways
15 shall comply with the requirements of Chapter 6 and Chapter 9.

16 **4.3.4* Depressed Highways.** ~~((Standpipe systems or fire extinguishers, or both, shall be~~
17 ~~installed on depressed highways where physical factors prevent or impede access to the water~~
18 ~~supply or fire apparatus.))~~ Fire protection for depressed highways shall comply with the
19 requirements of Chapter 5 and Chapter 9.

20 **4.3.5* Road Tunnels.** Fire protection for road tunnels shall comply with the requirements of
21 Chapter 7 and Chapter 9.

22 **4.3.6* Roadway Beneath Air-Right Structures.** Fire protection for roadways that are
23 located beneath air-right structures shall comply with the requirements of Chapter 8 and Chapter
24 9.

25 **4.5 Emergency Communications.**

26 Emergency communications, ~~((where))~~ if required by the authority having jurisdiction, shall be
27 provided by the installation of outdoor-type emergency telephone boxes, ~~((coded alarm telegraph~~
28 ~~stations,))~~ radio transmitters, or other approved devices that meet the following requirements:

(1) They shall be made conspicuous by means of indicating lights or other approved markers.



- (2) They shall be identified by a readily visible number plate or other approved device.
- (3) They shall be posted with instructions for use by motorists.
- (4) Where practicable, they shall be located in approved locations so that motorists can park vehicles clear of the travel lanes.
- (5) Emergency communication devices shall be protected from physical damage from vehicle impact.
- (6) Emergency communication devices shall be connected to an approved constantly attended location.

Chapter 5 Limited Access and Depressed Highways

~~(5.3* Fire Hydrants. (Reserved))~~***

6.3* (Standpipe) Fire Hydrants and Water Supply. Where the distance from an ~~acceptable water supply source as defined in 9.2.3 to~~ any point on the bridge or elevated highway exceeds 120 m (400 ft) to a fire hydrant, the bridge or elevated highway shall be provided with a ~~(standpipe)~~ hydrant system in accordance with the requirements of Chapter 9.

6.5 Control of Hazardous Materials. Where required by the authority having jurisdiction, control of hazardous materials shall be in accordance with the requirements of Chapter 13.

7.4 Fire Alarm and Detection.

7.4.1 ~~(At least two systems to detect, identify, or locate a fire in a tunnel shall be provided, including one manual means meeting the requirements of 7.4.1.2 and either a closed circuit television (CCTV) system in accordance with 7.4.1.3 or an automatic fire detection system in accordance with 7.4.1.4.))~~ All fire alarm, detection, supervisory, and trouble signals shall be distinctly different and shall be automatically transmitted to a central station service that is listed in the current edition of the Underwriters Laboratories FIRE PROTECTION EQUIPMENT DIRECTORY under the category Central Station (UUFX) as a Full Service Company or as a Fire Alarm Service - Local Company which subcontracts the monitoring, retransmission and associated record keeping and reporting to a listed Full Service Company or Monitoring Company. The listing shall indicate that the Full Service Company or Fire Alarm Service - Local Company provides service to the Seattle area.

Exception: The operations control center may serve as a proprietary supervising station in accordance with NFPA 72 where approved by the authority having jurisdiction.



1 7.4.1.1* ~~((For systems other than manual systems, the performance of such systems shall~~
2 ~~include details of the fire signature required to initiate alarm.))~~ At least one automatic fire
3 detection system to identify and locate a fire in a tunnel shall be provided.

4 7.4.1.2 Automatic fire detectors, including fixed water-based fire-fighting system water
5 flow alarm-initiating devices, shall be installed in accordance with the requirements of NFPA 72.

6 7.4.1.3 Automatic fire detectors and fixed water-based fire-fighting system water flow
7 alarm-initiating devices protecting the roadway and ancillary spaces within tunnels (pump
8 stations, utility rooms, cross-passages, ventilation structures) and other areas shall be supervised
9 by automatic fire alarm systems.

10 7.4.1.4 Spot detectors shall have a light that remains on until the device is reset, or shall be
11 provided with remote alarm or supervisory indication in a location acceptable to the authority
12 having jurisdiction.

13 7.4.1.5 Automatic fire detection systems for zoned deluge fixed water-based fire-fighting
14 systems within a tunnel shall be zoned to correspond with the fixed water-based fire-fighting
15 system zones.

16 7.4.1.6 Automatic fire detection systems within a tunnel shall be zoned to correspond with
17 the tunnel ventilation zones if tunnel ventilation is provided.

18 ~~**((7.4.1.2 Manual Fire Alarm Boxes**~~

19 ~~**7.4.1.2.1 Manual fire alarm boxes mounted in NEMA Enclosure Type 4 (IP 65) or equivalent**~~
20 ~~**boxes shall be installed at intervals of not more than 90 m (300 ft) and at all cross-passages, and**~~
21 ~~**means of egress from the tunnel.**~~

22 ~~**7.4.1.2.2 The manual fire alarm boxes shall be accessible to the public and the tunnel personnel.**~~

23 ~~**7.4.1.2.3 The location of the manual fire alarm boxes shall be approved.**~~

24 ~~**7.4.1.2.4 The alarm shall indicate the location of the manual fire alarm boxes at the monitoring**~~
25 ~~**station.**~~

26 ~~**7.4.1.2.5 The system shall be installed, inspected, and maintained in compliance with NFPA 72.**~~

27 ~~**7.4.1.3 Closed-Circuit Television (CCTV) Systems.**~~



1 ~~7.4.1.3.1 CCTVs with or without traffic flow indication devices shall be permitted to identify~~
2 ~~fires in tunnels with 24-hour supervision.~~

3 ~~7.4.1.3.2* Ancillary spaces within tunnels (pump stations, utility rooms, cross passages,~~
4 ~~ventilation structures) and other areas shall be supervised by automatic fire alarm systems.))~~

5 ~~((A.7.4.1.3.2 Examples of these areas include the following:~~

6 ~~(1) Pump stations~~

7 ~~(2) Utility rooms~~

8 ~~(3) Cross passages~~

9 ~~(4) Ventilation structures))~~

10 ~~((7.4.1.4 Automatic Fire Detection Systems.~~

11 ~~7.4.1.4.1 Automatic fire detection installed in accordance with the requirements of NEPA 72~~
12 ~~shall be installed in tunnels where 24-hour supervision is not provided.~~

13 ~~7.4.1.4.2 Where a fire detection system is installed in accordance with the requirements of~~
14 ~~7.4.1.4.1, signals for the purpose of evacuation and relocation of occupants shall not be required.~~

15 ~~7.4.1.4.3 Where a fire detection system is installed in accordance with the requirements of~~
16 ~~7.4.1.4.1, the system shall be for fire detection only.—~~

17 ~~7.4.1.4.4 Automatic fire detection systems shall be capable of identifying the location of the fire~~
18 ~~within 15 m (50 ft).~~

19 ~~7.4.1.4.5 Spot detectors shall have a light that remains on until the device is reset~~

20 ~~7.4.1.4.6 CCTV systems used for automatic fire detection shall be permitted when listed for the~~
21 ~~intended purpose and installed in accordance with the manufacturers' requirements and NEPA~~
22 ~~72.~~

23 ~~7.4.1.4.7 Automatic fire detection systems within a tunnel shall be zoned to correspond with the~~
24 ~~tunnel ventilation zones where tunnel ventilation is provided.))~~

25 ***

26 **7.4.3 Closed-Circuit Television (CCTV) Systems.**

27 7.4.3.1 CCTVs shall be provided, and shall be capable of identifying the location of the fire
28 within 15 m (50 ft).



1 7.4.3.2 CCTVs with or without traffic-flow indication devices may automatically identify
2 fires in tunnels if all of the components of the video image fire detection system, including
3 hardware and software, are listed for the purpose of fire detection.

4 **7.4.4 Emergency Telephones.**

5 7.4.4.1 Emergency telephones shall be installed at intervals of not more than 90 m (300 ft)
6 and at all cross-passages, standpipe hose connection locations, and means of egress from the
7 tunnel.

8 7.4.4.2 The location of the emergency telephones during off-hook condition shall be
9 indicated at the monitoring station:

10 **7.4.5 Emergency Communication System**

11 7.4.5.1 An approved Emergency Communication System in accordance with the 2010
12 edition of NFPA 72 shall be provided within the tunnel.

13 7.4.5.2 The Emergency Communication System shall include fire alarm system strobes at
14 all tunnel egress doors.

15 **7.4.6 Fire Command Center.** If required by the authority having jurisdiction, road tunnels
16 shall be provided with a fire command center in accordance with Section 509 of the 2009 *Seattle*
17 *Fire Code.*

18 **7.5((*) Communication Systems.**

19 ~~((A.7.5 Radio communications systems, such as highway advisory radio (HAR) and AM/FM
20 commercial station overrides, can be provided to give motorists information regarding the nature
21 of the emergency and the actions the motorist should take. All messaging systems should be
22 capable of real-time composition. The communications system can also feature a selection of
23 prerecorded messages for broadcasting by the emergency response authority. Areas of refuge or
24 assembly, if available, should be provided with reliable two-way voice communications to the
25 emergency response authority.))~~

26 **7.5:1** If required by the authority having jurisdiction, ((In)) new and existing tunnels and
27 ancillary structures((, wherever necessary for dependable and reliable communications, a separate
28 radio network capable of two-way radio communication for fire department personnel to the fire
department communication center)) shall be provided with an emergency responder radio system
in accordance with Section 510 of the 2009 Seattle Fire Code.



1 7.9.1 Fixed water-based fire-fighting systems ((shall be permitted))are required in road tunnels
2 as part of an integrated approach to the management of fire and life safety.

3 7.9.1.1 Fixed water-based fire-fighting systems in road tunnels shall be designed and
4 installed in accordance with NFPA 13.

5 7.9.1.2 Minimum protection of the roadway shall be in accordance with NFPA 13 for Extra
6 Hazard Group 2. If flammable liquids and/or hazardous materials will be present, protection shall
7 be based on an engineering analysis and approved by the authority having jurisdiction.

8 7.9.1.3 Protection of electrical rooms and mechanical spaces shall be in accordance with
9 NFPA 13 for Ordinary Hazard Group 1.

10 7.9.1.4 Protection of exit enclosures shall be in accordance with NFPA 13 for Light Hazard.

11 ***

12 7.14.3 Maintenance. The means of egress shall be maintained in accordance with ((NFPA
13)) Chapter 10 of the 2009 Seattle Fire Code.

13 ***

14 7.14.6.3* Egress Pathway.

15 A.7.14.6.3 The maximum means of egress travel speed shall be computed for reduced
16 visibility due to a smoke filled environment. The travel speed for such environment is in the
17 range of 0.5 – 1.5 m/s (100 – 300 fpm) depending on visibility, illuminance, design of exit signs
18 and egress pathway.

19 7.14.6.3.1 The tunnel roadway surface, if supported by a traffic management system,
20 shall be considered part of the egress pathway.

21 7.14.6.3.2 If walkways are provided for egress purposes, the walkway egress path shall
22 have a minimum clear width of 1.12 m (3.6 ft), lead directly to an emergency exit, and be
23 protected from traffic.

24 7.14.6.4 The emergency exits shall be separated from the tunnel by a minimum of a 2-hour
25 fire-rated construction enclosure having a Class A interior finish as defined in the 2009 Seattle
26 Building Code.

27 7.14.6.5 Emergency exits shall be pressurized in accordance with NFPA 92A, 2009 edition,
28 with doors meeting the requirements of Section 7.14.5.



1 7.14.6.6 If portals of the tunnel are below surface grade, surface grade shall be accessible by
2 a stair, vehicle ramp, or pedestrian ramp.

3 7.14.6.7 If cross-passageways are to be used as emergency exits, provisions shall be to stop
4 all traffic operation in the adjacent tunnel when the cross-passageways are in use.

5 ***

6 **Chapter 9 Standpipe, Fire Hydrants, and Water Supply**

7 ***

8 9.1.4.3 ((Heat trace material shall be listed for the intended purpose and supervised for
9 power loss.))Heat tracing systems for freeze protection for standpipes shall be in accordance with
10 Seattle Fire Department Administrative Rule 9.03.09, *Automatic Sprinkler and Standpipe*
11 *Systems* and any future revisions of this rule adopted by the authority having jurisdiction.

12 ***

13 **9.2 Standpipe Water Supply**

14 ***

15 9.2.3 ((Acceptable water supplies shall include the following:
16 (1) Municipal or privately owned waterworks systems that have adequate pressure and flow rate
17 and a level of integrity acceptable to the authority having jurisdiction
18 (2) Automatic or manually controlled fire pumps that are connected to an approved water source
19 (3) Pressure type or gravity type storage tanks that are installed, inspected, and maintained in
20 accordance with NFPA 22))
21 Standpipes shall be sized to provide 1000 gpm. Hydraulic calculations shall be based on 500 gpm
22 at 130 psi at the hydraulically most remote hose connection, with a simultaneous flow of 500
23 gpm at the next hydraulically most remote hose connection. The maximum calculated pressure at
24 any point in the system shall not exceed 350 psi.

25 ***

26 9.3.1 Fire department connections shall be of the threaded ((two-way or three-way))65-mm
27 (2½-in) four-way type((or shall consist of one 100 mm (4 in.) quick-connect coupling that is
28 accessible)).

9.4 Standpipe Hose Connections

9.4.2 ((Hose connection spacing shall not exceed more 85 m (275 ft.))Dual 65-mm (2½-in)
hose connection outlets having separate valves shall be provided at each hose connection
location.



1 **9.7 Fire Hydrants and Water Supply.**

2 9.7.1 Fire hydrants for limited access and depressed highways shall be provided at spacing not
3 to exceed 1,000 feet to provide for transportation hazards.

4 9.7.2 Fire hydrants for roadways beneath air-right structures, bridges, and elevated highways
5 shall be provided so that no location on the protected roadway is more than 90 m (300 ft) from a
6 fire hydrant.

7 9.7.3 Fire hydrants for road tunnels shall be provided so that no location on the protected
8 roadway is more than 45 m (150 ft) from a fire hydrant.

9 9.7.4 The water supply for fire hydrants shall provide a minimum of 1,000 gpm (63 L/s) at 20
10 psi (138 kPa) flowing independently, and a minimum of 1,500 gpm (34 L/s) at 20 psi (138 kPa)
11 with two fire hydrants flowing simultaneously.

12 **9.8 Bridges and Elevated Highways.**

13 9.8.1 Fire hydrants for bridges and elevated highways shall be provided in accordance with
14 this section and Section 9.7.

15 9.8.2 If median dividers and/or four or more traffic lanes are present, fire hydrants for bridges
16 and elevated highways shall be provided on both sides of the roadway at the required spacing or
17 installed in the median divider at the required spacing.

18 9.8.3 Fire hydrants for bridges and elevated highways shall have two 100 mm (4 in) hose
19 connection outlets, with external threads in accordance with City of Seattle Standard Plan No.
20 310a, and each outlet provided with a hand-operable valve readily accessible from the roadway.

21 9.8.4 The hose connection outlets shall be oriented parallel to the roadway and face in both
22 directions of travel.

23 Exception: The outlets may be angled in towards the roadway at an angle not exceeding 22.5
24 degrees.

25 9.8.5 Hose connection outlets shall be positioned such that the centerline of each outlet is
26 installed/not more than 400 mm (16 in) horizontally from the inside edge of the top and not less
27 than 200 mm (8 in) above the top of the guardrail or edge barrier, and not more than 1370 mm
28 (54 in) above the roadway.



1 9.8.6 Hose connection outlets shall be provided with caps that are removable with a standard
2 hydrant wrench.

3 9.8.7 Hose connection outlet caps shall be provided with a 3 mm (1/8 in) hole and be secured
4 with a short length of chain or cable to prevent falling after removal.

5 9.8.8 Water shall be supplied to bridge and elevated highway hydrants by the use of approved
6 manually actuated preaction or deluge valves installed in locations not subject to freezing, such
7 as in underground vaults or other approved locations.

8 9.8.9 Access to the preaction or deluge valves and manual actuation capability at the valve
9 locations shall be provided, including access key box if the water supply vault will be locked.

10 9.8.10 A preaction or deluge valve actuation device (such as an electrical switch, push button,
11 manual pull station, etc.) shall be installed at each hydrant location and be protected from
12 damage in a weatherproof enclosure that can be opened without the use of tools or special
13 knowledge, or with a standard hydrant wrench, or other approved method.

14 9.8.11 The location of the preaction or deluge valve actuation switch installed at each hydrant
15 shall be readily visible and have approved signage.

16 9.8.12 A means to indicate that the system is in the tripped condition such as a light beacon or
17 remote monitoring of the system shall be provided.

18 9.8.13 Hydrant systems for bridges and elevated highways shall have provisions for complete
19 draining after use.

20 9.8.14 Combination air relief/vacuum valves shall be installed at each high point on the
21 system.

22 9.8.15 Water supply vault location information, vault access instructions, and a phone number
23 for road crew to drain the system shall be provided at the roadway control panel push button
24 location.

25 9.8.16 If used, heat tracing systems for freeze protection for hydrant systems shall be in
26 accordance with Seattle Fire Department Administrative Rule 9.03.09, *Automatic Sprinkler and*
27 *Standpipe Systems* and any future revisions of this rule adopted by the authority having
28 jurisdiction.

9.9 Maintenance and Confidence Testing



1 9.9.1 Standpipe and hydrant systems shall be inspected and tested at least annually.

2 9.9.2 Reports of inspections and tests shall be submitted to the Seattle Fire Department
3 Confidence Testing Unit. Maintenance and periodic testing are the owner's responsibility, or the
4 responsibility of such other person as may be designated by the owner, and are separate from fire
5 department inspections.

6 9.9.3 The person, firm or corporation performing such work shall have a Type STP-1
7 certificate from the fire department. See Administrative Rules 9.01.09, *Certification for*
8 *Installing, Maintaining and Testing Life Safety Systems and Equipment* and Administrative Rule
9 9.02.09, *Confidence Test Requirements for Life Safety Systems.*

10 **9.10 Standpipe Installations in Tunnels Under Construction.**

11 9.10.1 A standpipe system shall be installed in tunnels under construction in accordance with
12 9.10.1.1 and 9.10.1.2.

13 9.10.1.1 A standpipe system shall be installed before the tunnel under construction has
14 exceeded a length of 61 m (200 ft) beyond any access shaft or portal and shall be extended as
15 work progresses to within 61 m (200 ft) of the most remote portion of the tunnel.

16 9.10.1.2 Standpipes shall be sized for approved water flow and pressure at the outlet, based
17 upon the maximum predicted fire load.

18 ***

19 10.1.1.1 If an engineering analysis is not conducted, or does not support the use of natural
20 ventilation for the configurations described in 10.1.1, a mechanical emergency ventilation system
21 shall be provided.

22 10.1.1.2 The engineering analysis of the ventilation system shall include a validated subway
23 analytical simulation program augmented as appropriate by a quantitative analysis of airflow
24 dynamics produced in the fire scenario, such as would result from the application of validated
25 computational fluid dynamics (CFD) techniques.

26 10.1.1.3 The results of the analysis shall include the no-fire (or cold) air velocities that can
27 be measured during commissioning to confirm that a mechanical ventilation system as built
28 meets the requirements determined by the analysis.

10.5.1* The design fire size [heat-release rate] shall consider the types of vehicles that are
expected to use the tunnel.



1 **Table A.10.5.1 Fire Data for Typical Vehicles**

Vehicles	Peak Fire Heat-Release Rates (MW)
Passenger car	((5-)) 10
Multiple passenger cars (2-4 vehicles)	((10-)) 20
Bus	((20-)) 30
Heavy goods truck	((70-)) 200
Tanker*	((200-)) 300

7 ***

8
9 **11.4* Emergency Power Supply System (EPSS).** Road tunnels shall be provided with a Class 2
10 ((F)), Type 60, Level 1 ((emergency power)) Emergency Power Supply System (EPSS) in
accordance with Article 700 of NFPA 70 and ((with)) Chapter 4 of NFPA 110.

11 **A.11.4** It is expected that the operations of all systems within the vicinity of a fire can fail.
12 Section 11.4 is intended to limit the area of such failure. The class defines the minimum time, in
13 hours, that the Emergency Power Supply System (EPSS) is designed to operate at its rated load
14 without being refueled or recharged. The type defines the maximum time, in seconds, that the
15 EPSS will permit the load terminals of the transfer switch to be without acceptable electrical
16 power. NFPA 110 recognizes two levels of EPSS equipment installation, performance and
17 maintenance. Level 1 systems shall be installed if failure of the EPSS to perform could result in
18 loss of human life or serious injuries.

19 **11.4.1** The following systems shall be connected to the emergency power supply system:

- 20 (1) Emergency voice/alarm communication systems ((lighting))
- 21 (2) Traffic control system(s)
- 22 (3) Exit signs and means of egress illumination
- 23 (4) ((Communication)) Lighting for mechanical rooms.
- 24 (5) Tunnel drainage system(s)
- 25 (6) Ventilation and automatic fire detection equipment for smoke proof enclosures.
- 26 (7) Automatic Fire detection systems
- 27 (8) Security system(s)
- 28 (9) Closed-circuit television or video system(s)
- (10) Smoke control systems.
- (11) Electrically powered fire pumps.
- (12) Power and lighting for the fire command center.
- (13) Fire alarm systems.
- (14) Elevator car lighting.



1 **12.3* Emergency Response Plan.**

2 The emergency response plan shall be submitted for acceptance and approval by the authority
3 having jurisdiction and shall include, as a minimum, the following:

- 4 (1) Name of plan and the specific facility(s) the plan covers
5 (2) Name of responsible agency
6 (3) Names of responsible individuals
7 (4) Dates adopted, reviewed, and revised
8 (5) Policy, purpose, scope, and definitions
9 (6) Participating agencies, senior officials, and signatures of executives authorized to sign
10 for each agency
11 (7) Safety during emergency operations
12 (8) Purpose and operation of operations control center (OCC) and alternative location(s) as
13 applicable
14 a. Procedure for staffing the backup location(s) shall be specified
15 b. Procedure to control risk while the OCC does not have staff until the backup facility
16 can take over.
17 (9) Purpose and operation of command post and auxiliary command post
18 (10) Communications (e.g., radio, telephone, and messenger service) available at central
19 supervising station and command post; efficient operation of these facilities
20 (11) Fire detection, fire protection, and fire-extinguishing equipment; access/egress and
21 ventilation facilities available; details of the type, amount, location, and method of
22 ventilation
23 (12) Procedures for fire emergencies, including a list of the various types of fire
24 emergencies, the agency in command, and the procedures to follow
25 (13) Maps and plans of the roadway system, including all local streets
26 (14) Any additional information that the participating agencies want to include

18 12.5.1.1* The OCC may serve as a proprietary supervising station to allow direct receipt
19 of alarms where approved by the authority having jurisdiction.

20 A.12.5.1.1 Expanding the OCC functions to be a proprietary supervising station will
21 allow faster and more coordinated control and monitoring of the various fire and life safety
22 systems. This will expedite emergency functioning by eliminating delays from a central
23 supervising station company. A proprietary station has significant requirements under NFPA 72
24 that should be fully understood before adopting this as a policy and practice.

24 12.5.1.2 For the OCC to be a proprietary supervising station, it shall meet the relevant
25 requirements of NFPA 72.



12.8.4 Limited Access Highways and Road Tunnels.

13.1* General. This chapter applies to the transportation of hazardous materials through road tunnels as follows:

(1) If the tunnel length equals or exceeds 240 m (800 ft) and if the maximum distance from any point within the tunnel to an area of safety exceeds 120 m (400 ft).

(2) If tunnel length equals or exceeds 300 m (1000 ft).

Exceptions:

(1) The existing Mount Baker Tunnel (Interstate-90) and the Washington State Convention and Trade Center lid (Interstate-5) if the foam-water fire protection system(s) are fully functional and in-service.

(2) Fuel contained in the fuel system of the transporting vehicle, or in the fuel systems of vehicles and equipment being towed or carried.

A.13.1 Hazardous Material. A substance or material, including a hazardous substance, that has been determined by the Secretary of Transportation for the United States Department of Transportation (U.S.D.O.T.) to be capable of posing an unreasonable risk to health, safety and property when transported in commerce and which has been so designated.

13.1.1 ~~(The authority having jurisdiction shall adopt rules and regulations that apply to the transportation of regulated and unregulated cargoes.)~~ Flames used for heating vehicles or loads shall be extinguished before the vehicle enters the road tunnel or its approaches.

13.1.2 ~~(Design and planning of the facility shall address the potential risk presented by regulated and unregulated cargoes as permitted by 13.1.1.)~~ Vehicles transporting hazardous materials in quantities that require DOT placards in accordance with 49 CFR are prohibited in road tunnels.

TABLE A.13.1.2

The following classes of hazardous materials are defined in the United States Department of Transportation Regulations, 49 CFR 173, which is incorporated by reference:

<u>Name of Class or Division</u>	<u>Class Number</u>	<u>Division Number (if any)</u>	<u>49 CFR Reference for Definitions</u>
<u>Explosives (with a mass explosion hazard)</u>	<u>1</u>	<u>1.1</u>	<u>173.50</u>
<u>Explosives (with a projection hazard)</u>	<u>1</u>	<u>1.2</u>	<u>173.50</u>
<u>Explosives (with predominantly a fire)</u>	<u>1</u>	<u>1.3</u>	<u>173.50</u>



1	<u>hazard)</u>			
2	<u>Explosives (with no significant blast hazard)</u>	<u>1</u>	<u>1.4</u>	<u>173.50</u>
3	<u>Very insensitive explosives; blasting agents</u>	<u>1</u>	<u>1.5</u>	<u>173.50</u>
4	<u>Extremely insensitive detonating substances</u>	<u>1</u>	<u>1.6</u>	<u>173.50</u>
5	<u>Flammable gas</u>	<u>2</u>	<u>2.1</u>	<u>173.115</u>
6	<u>Nonflammable compressed gas</u>	<u>2</u>	<u>2.2</u>	<u>173.115</u>
7	<u>Poisonous gas</u>	<u>2</u>	<u>2.3</u>	<u>173.115</u>
8	<u>Flammable and combustible liquid</u>	<u>3</u>	<u>---</u>	<u>173.120</u>
9	<u>Flammable solid</u>	<u>4</u>	<u>4.1</u>	<u>173.124</u>
10	<u>Spontaneously combustible materials</u>	<u>4</u>	<u>4.2</u>	<u>173.124</u>
11	<u>Dangerous when wet material</u>	<u>4</u>	<u>4.3</u>	<u>173.124</u>
12	<u>Oxidizers</u>	<u>5</u>	<u>5.1</u>	<u>173.127</u>
13	<u>Organic peroxides</u>	<u>5</u>	<u>5.2</u>	<u>173.128</u>
14	<u>Poisonous materials</u>	<u>6</u>	<u>6.1</u>	<u>173.132</u>
15	<u>Infectious substances (Etiological agents)</u>	<u>6</u>	<u>6.2</u>	<u>173.134</u>
16	<u>Radioactive materials</u>	<u>7</u>	<u>---</u>	<u>173.403</u>
17	<u>Corrosive materials</u>	<u>8</u>	<u>---</u>	<u>173.136</u>
18	<u>Miscellaneous hazardous materials</u>	<u>9</u>	<u>---</u>	<u>173.140</u>
19	<u>Other regulated materials: ORM-D</u>	<u>None</u>	<u>---</u>	<u>173.144</u>

13.1.4 Tank vehicles that are empty, or that have a residue, or vehicles transporting empty containers are prohibited from entering road tunnels if they previously transported the following hazardous materials:

- (1) Class 1 explosives, division 1.1, 1.2, and 1.3;
- (2) Class 2, division 2.3 poisonous gas;
- (3) Class 4, division 4.3 dangerous when wet materials;
- (4) Class 6, division 6.1 poisonous materials marked PG I (Inhalation Hazard), or PG III (Stow Away From Foodstuffs)

Exceptions:



1 1. Tank vehicles or containers that have been sufficiently cleaned of residue and purged of vapor
2 to remove any potential hazard;

3 2. Tank vehicles or containers that have been reloaded with a material not classified as a
4 hazardous material;

5 13.1.5 Alternative-fuel vehicles powered by liquefied petroleum gas (LPG), liquefied natural
6 gas (LNG) or compressed natural gas (CNG) are permitted if the:

7 (1) Vehicle has a dedicated alternative-fuel system installed by the manufacturer of the vehicle.

8 (2) Vehicle has a fuel system that has been properly converted to an alternative fuel system.

9 (3) Vehicle alternative-fuel system conforms to applicable industry standards, including:

10 (a) NFPA 52 - Standard for Compressed Natural Gas (CNG) Vehicular Fuel Systems, which is
11 incorporated by reference; or

12 (b) NFPA 58 - Standard for the Storage and Handling of Liquefied Petroleum Gases (LPG),
13 which is incorporated by reference.

14 (4) Vehicle alternative-fuel system conforms to applicable federal regulations.

15 (5) Fuel capacity of the vehicle does not exceed 300 pounds water capacity.

16 13.1.5.1 Alternative-fuel vehicles shall display all markings and symbols required by law to
17 identify the alternative-fuel system.

18 ***

19 Section 42. Sections 2 through 426 of Ordinance 122491 are hereby repealed.

20 Section 43. Severability. The provisions of this ordinance are declared to be separate and
21 severable. The invalidity of any clause, sentence, paragraph, subdivision, section or portion of
22 this ordinance, or the invalidity of its application to any person or circumstance, shall not affect
23 the validity of the remainder of this ordinance, or the validity of its application to other persons
24 or circumstances.

25 Section 44. This ordinance shall take effect and be in force 30 days from and after its
26 approval by the Mayor, but if not approved and returned by the Mayor within ten days after
27 presentation, it shall take effect as provided by Seattle Municipal Code Section 1.04.020.



1 Passed by the City Council the ____ day of _____, 2010, and
2 signed by me in open session in authentication of its passage this
3 ____ day of _____, 2010.

4
5
6 President _____ of the City Council

7
8 Approved by me this ____ day of _____, 2010.

9
10
11 _____
12 Michael McGinn, Mayor

13 Filed by me this ____ day of _____, 2010.

14
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16 _____
17 City Clerk

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27 (Seal)





City of Seattle
Office of the Mayor

July 6, 2010

Honorable Richard Conlin
President
Seattle City Council
City Hall, 2nd Floor

Dear Council President Conlin:

I am pleased to transmit the attached proposed ordinance adopting the 2009 Seattle Fire Code. The proposed code establishes the regulations for safeguarding of life and property from fire and explosion hazards, and from conditions hazardous to life or property in the occupancy of buildings and premises. It includes requirements for general fire prevention, fire sprinklers and fire alarm systems, permits for hazardous materials and processes, and fire safety and evacuation planning. The 2009 Seattle Fire Code is comprised of the 2009 International Fire Code, adopted for use statewide by the Washington State Building Code Council, along with local amendments addressing the unique characteristics and requirements of our community.

The International Fire Code, on which the Seattle Fire Code is based, is updated every three years to incorporate code changes developed and approved at the national level including new technology and revisions to national standards. The 2009 Seattle Fire Code is generally comparable to the 2006 Seattle Fire Code presently in use. Notable changes are few, but include increased fire protection controls for ambulatory health care facilities, installation of school alerting systems for all schools, sprinkler protection for certain furniture and mattress stores and for institutional occupancies used for medical care on a 24-hour basis, installation of carbon monoxide alarms in most residential occupancies, annual notification requirement of the location of laboratories where activities involving certain infectious and communicable diseases are conducted, and marking exit paths in high-rise buildings with self-luminous tape or paint. New provisions in the 2009 code also require a system to be installed in most buildings that will ensure radio coverage for emergency responders and high-rise buildings more than 120 feet are required to have an elevator dedicated for use by the fire service.

The 2009 Seattle Fire Code will help protect the people who live, work, and visit in the City of Seattle. The proposed code has been extensively reviewed and approved by the Seattle Fire Code Advisory Board whose members represent the public, labor, business, industry, and technical and professional fields. Thank you for your consideration of this legislation. Should you have questions, please contact Assistant Chief John Nelsen at 386-1064 or Lynne Kilpatrick at 386-1373.

Sincerely,

Michael McGinn
Mayor of Seattle

cc: Honorable Members of the Seattle City Council

Michael McGinn, Mayor
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