1008.1.10.1 Installation. Where panic or *fire exit hardware* is installed, it shall comply with the following:
1. Panic hardware shall be *listed* in accordance with UL 305;
2. *Fire exit hardware* shall be *listed* in accordance with UL 10C and UL 305;
3. The actuating portion of the releasing device shall extend at least one-half of the door leaf width; and
4. The maximum unlatching force shall not exceed 15 pounds (67 N).

1008.1.10.2 Balanced doors. If *balanced doors* are used and panic hardware is required, the panic hardware shall be the push-pad type and the pad shall not extend more than one-half the width of the door measured from the latch side.

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SECTION 1009
STAIRWAYS

1009.1 Stairway width. The width of *stairways* shall be determined as specified in Section 1005.1, but such width shall not be less than 44 inches (1118 mm). See Section 1007.3 for *accessible means of egress stairways*.

Exceptions:
1. *Stairways* serving an *occupant load* of less than 50 shall have a width of not less than 36 inches (914 mm).
2. *Spiral stairways* as provided for in Section 1009.9.
3. *Aisle stairs* complying with Section 1028.
4. Where an incline platform lift or stairway chairlift is installed on *stairways* serving occupancies in Group R-3, or within dwelling units in occupancies in Group R-2, a clear passage width not less than 20 inches (508 mm) shall be provided. If the seat and platform can be folded when not in use, the distance shall be measured from the folded position.
5. Stairways that are neither part of a required means of egress nor an accessible route.

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1009.4 Stair treads and risers. *Stair* treads and risers shall comply with Sections 1009.4.1 through 1009.4.5.

1009.4.1 Dimension reference surfaces. For the purpose of this section, all dimensions are exclusive of carpets, rugs or runners.

1009.4.2 Riser height and tread depth. *Stair* riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. The riser height shall be measured vertically between the leading edges of adjacent treads. Rectangular tread depths shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. *Winder* treads shall have a

minimum tread depth of 11 inches (279 mm) measured between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline and a minimum tread depth of 10 inches (254 mm) within the clear width of the *stair*.

Exceptions:

1. *Alternating tread devices* in accordance with Section 1009.10.
2. Ship ladders in accordance with Section 1009.11.
3. *Spiral stairways* in accordance with Section 1009.9.
4. *Aisle stairs* in assembly seating areas where the *stair* pitch or slope is set, for sightline reasons, by the slope of the adjacent seating area in accordance with Section 1028.11.2.
5. In Group R-3 occupancies; within dwelling units in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual dwelling units in Group R-2 occupancies; the maximum riser height shall be 7-3/4 inches (197 mm); the minimum tread depth shall be 10 inches (254 mm); the minimum *winder* tread depth at the walkline shall be 10 inches (254 mm); and the minimum *winder* tread depth shall be 6 inches (152 mm).A *nosing* not less than 3/4 inch (19.1 mm) but not more than 1-1/4 inches (32 mm) shall be provided on *stairways* with solid risers where the tread depth is less than 11 inches (279 mm).
6. See Section 3404.1 of the *International Building Code* for the replacement of existing *stairways*.
7. In Group I-3 facilities, *stairways* providing access to guard towers, observation stations and control rooms, not more than 250 square feet (23 m2) in area, shall be permitted to have a maximum riser height of 8 inches (203 mm) and a minimum tread depth of 9 inches (229 mm).

1009.4.3 Winder treads. *Winder* treads are not permitted in *means of egress stairways* except within a dwelling unit.

Exceptions:

1. Curved *stairways* in accordance with Section 1009.8.
2. *Spiral stairways* in accordance with Section 1009.9.

1009.4.4 Dimensional uniformity. *Stair* treads and risers shall be of uniform size and shape. The tolerance between the largest and smallest riser height or between the largest and smallest tread depth shall not exceed 3/8 inch (9.5 mm) in any *flight* of *stairs*. The greatest *winder* tread depth at the walkline within any *flight* of *stairs* shall not exceed the smallest by more than 3/8 inch (9.5 mm).

Exceptions:

1. Nonuniform riser dimensions of *aisle stairs* complying with Section 1028.11.2.
2. Consistently shaped *winders*, complying with Section 1009.4.2, differing from rectangular treads in the same *stairway flight*.

Where the bottom or top riser adjoins a sloping *public way*, walkway or driveway having an established grade and serving as a landing, the bottom or top riser is permitted to be reduced along the slope. ((~~to less than 4 inches (102 mm) in height, with the variation in height of the bottom or top riser not to exceed one unit vertical in 12 units horizontal (8-percent slope) of stairway width. The nosings or leading edges of treads at such nonuniform height risers shall have a distinctive marking stripe, different from any other nosing marking provided on the stair flight. The distinctive marking stripe shall be visible in descent of the stair and shall have a slip-resistant surface. Marking stripes shall have a width of at least 1 inch (25 mm) but not more than 2 inches (51 mm).~~))

1009.4.5 Profile. The radius of curvature at the leading edge of the tread shall be not greater than 9/16 inch (14.3 mm). Beveling of *nosings* shall not exceed 9/16 inch (14.3 mm). Risers shall be solid and vertical or sloped under the tread above from the underside of the *nosing* above at an angle not more than 30 degrees (0.52 rad) from the vertical. The leading edge (*nosings*) of treads shall project not more than 1-1/4 inches (32 mm) beyond the tread below and all projections of the leading edges shall be of uniform size, including the leading edge of the floor at the top of a *flight*.

Exceptions:

1. Solid risers are not required for *stairways* that are not required to comply with Section 1007.3, provided that the opening between treads does not permit the passage of a sphere with a diameter of 4 inches (102 mm).
2. Solid risers are not required for occupancies in Group I-3 or in Group F, H and S occupancies other than areas accessible to the public. There are no restrictions on the size of the opening in the riser.
3. Solid risers are not required for *spiral stairways* constructed in accordance with Section 1009.9.
4. Solid risers are not required for *alternating tread devices* constructed in accordance with Section 1009.10.

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1009.7 Vertical rise. A *flight* of *stairs* shall not have a vertical rise greater than 12 feet (3658 mm) between floor levels or landings.

Exceptions:

1. *Aisle stairs* complying with Section 1028.
2. *Alternating tread devices* used as a *means of egress* shall not have a rise greater than 20 feet (6096 mm) between floor levels or landings.
3. Stairways that are not part of a required means of egress.

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1009.13 Stairway to roof. In buildings four or more stories above grade plane, one stairway shall extend to the roof surface unless the roof has a slope steeper than four units vertical in 12

units horizontal (33-percent slope). In buildings without an occupied roof, access to the roof from the top story shall be permitted to be by an alternating tread device.

1009.13.1 Roof access. Where a stairway is provided to a roof, access to the roof shall be provided through a penthouse complying with Section 1509.2.
Exception: In buildings without an occupied roof, access to the roof shall be permitted to be a roof hatch or trap door not less than 16 square feet (1.5 m2) in area and having a minimum dimension of 2 feet 6 inches (((~~610~~))762 mm).

***

[W] 1009.15 Stairways in individual dwelling units. Stairs or ladders within individual dwelling units used for access to areas of 200 square feet (18.6 m^2) or less which do not contain the primary bathroom or kitchen are exempt from the requirements of Section 1009.

SECTION 1010
RAMPS

1010.1 Scope. The provisions of this section shall apply to *ramps* used as a component of a *means of egress*.

Exceptions:

1. Other than *ramps* that are part of the *accessible routes* providing access in accordance with Sections 1108.2 through 1108.2.4 and 1108.2.6 of the *International Building Code*, ramped *aisles* within assembly rooms or spaces shall conform with the provisions in Section 1028.11.
2. Curb *ramps* shall comply with ICC A117.1.
3. Vehicle ramps in parking garages for pedestrian *exit access* shall not be required to comply with Sections 1010.3 through 1010.9 when they are not an *accessible route* serving *accessible* parking spaces((,)) or other required accessible elements ((~~or part of an accessible means of egress~~)).
4. In a parking garage where one accessible means of egress serving accessible parking spaces or other accessible elements is provided, a second accessible means of egress serving that area shall be permitted to include a vehicle ramp that does not comply with Sections 1010.4, 1010,5 and 1010.8. A landing complying with Sections 1010.6.1 and 1010.6.4 shall be provided at any change of direction in the accessible means of egress.

***

SECTION 1011
EXIT SIGNS

1011.1 Where required. *Exits* and *exit access* doors shall be marked by an *approved exit* sign readily visible from any direction of egress travel. The path of egress travel to *exits* and within *exits* shall be marked by readily visible *exit* signs to clearly indicate the direction of egress travel

in cases where the *exit* or the path of egress travel is not immediately visible to the occupants. Intervening *means of egress* doors within *exits* shall be marked by *exit* signs. *Exit* sign placement shall be such that no point in an *exit access corridor* or *exit passageway* is more than 100 feet (30 480 mm) or the *listed* viewing distance for the sign, whichever is less, from the nearest visible *exit* sign. Either exit signs or exit placards shall be located at any other location determined by the building official to be necessary to clearly indicate the direction of egress.

Exceptions:

1. *Exit* signs are not required in rooms or areas that require only one *exit* or *exit access* other than in buildings designed with a single exit stairway according to Section 1021.2.1 item 3.
2. Main exterior *exit* doors or gates that are obviously and clearly identifiable as *exits* need not have *exit* signs where *approved* by the *building official*.
3. *Exit* signs are not required in occupancies in Group U and individual sleeping units or dwelling units in Group R-1, R-2 or R-3.
4. *Exit* signs are not required in dayrooms, sleeping rooms or dormitories in occupancies in Group I-3.
5. In occupancies in Groups A-4 and A-5, *exit* signs are not required on the seating side of vomitories or openings into seating areas where *exit* signs are provided in the concourse that are readily apparent from the vomitories. Egress lighting is provided to identify each vomitory or opening within the seating area in an emergency.
6. Exit signs are not required on exterior stairways serving exterior exit balconies.

Interpretation I1011.1: Exit placards are permitted to be used to identify exits in occupancies where exit signs are not required.

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1011.5 Externally illuminated exit signs. Externally illuminated *exit* signs shall comply with Sections 1011.5.1 through 1011.5.3.

1011.5.1 Graphics. Every *exit* sign, exit placard and directional *exit* sign shall have plainly legible letters not less than 6 inches (152 mm) high with the principal strokes of the letters not less than 3/4 inch (19.1 mm) wide. The word "EXIT" shall have letters having a width not less than 2 inches (51 mm) wide, except the letter "I," and the minimum spacing between letters shall not be less than 3/8 inch (9.5 mm). Signs and placards larger than the minimum established in this section shall have letter widths, strokes and spacing in proportion to their height.

The word "EXIT" shall be in high contrast with the background and shall be clearly discernible when the means of *exit* sign illumination is or is not energized. If a chevron directional indicator is provided as part of the *exit* sign or placard, the construction shall be such that the direction of the chevron directional indicator cannot be readily changed.

Exception: Existing exit signs or placards with letters at least 5 inches (127 mm) in height are permitted to be reused.

1011.5.2 Exit sign illumination. The face of an *exit* sign illuminated from an external source shall have an intensity of not less than 5 foot-candles (54 lux).

1011.5.3 Power source. *Exit* signs shall be illuminated at all times. To ensure continued illumination for a duration of not less than 90 minutes in case of primary power loss, the sign illumination means shall be connected to an emergency power system provided from storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Chapter 27 of the *International Building Code*.

Exception: *Approved exit* sign illumination means that provide continuous illumination independent of external power sources for a duration of not less than 90 minutes, in case of primary power loss, are not required to be connected to an emergency ((~~electrical~~)) power system.

1011.6 Not-an-exit warnings. Placards reading "NOT AN EXIT" shall be installed at all doorways, passageways or stairways which are not exits, exit accesses or exit discharges, and which may be mistaken for an exit. A sign indicating the use of the doorway, passageway or stairway, such as "TO BASEMENT", "STORE ROOM", "LINEN CLOSET", is permitted in lieu of the "NOT AN EXIT" sign.

SECTION 1012
HANDRAILS

***

1012.4 Continuity. *Handrail*-gripping surfaces shall be continuous, without interruption by newel posts or other obstructions.

Exceptions:

1. *Handrails* within dwelling units are permitted to be interrupted by a newel post at a turn or landing.
2. Within a dwelling unit, the use of a volute, turnout, starting easing or starting newel is allowed over the lowest tread.
3. *Handrail* brackets or balusters attached to the bottom surface of the *handrail* that do not project horizontally beyond the sides of the *handrail* within 1-1/2 inches (38 mm) of the bottom of the *handrail* shall not be considered obstructions. For each 1/2 inch (12.7 mm) of additional *handrail* perimeter dimension above 4 inches (102 mm), the vertical clearance dimension of 1-1/2 inches (38 mm) shall be permitted to be reduced by 1/8 inch (3 mm).
4. Where *handrails* are provided along walking surfaces with slopes not steeper than 1:20, the bottoms of the *handrail* gripping surfaces shall be permitted to be obstructed along their entire length where they are integral to rash rails or bumper guards.

5. Handrails on stairways that are not part of a required means of egress need not be continuous.

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1012.6 Handrail extensions. *Handrails* shall return to a wall, *guard* or the walking surface or shall be continuous to the handrail of an adjacent *stair flight* or ramp run. Where *handrails* are not continuous between *flights,* the *handrails* shall extend horizontally at least 12 inches (305 mm) beyond the top riser and continue to slope for the depth of one tread beyond the bottom riser. At *ramps* where *handrails* are not continuous between runs, the *handrails* shall extend horizontally above the landing 12 inches (305 mm) minimum beyond the top and bottom of *ramp* runs. The extensions of *handrails* shall be in the same direction of the *stair flights* at *stairways* and the *ramp* runs at *ramps*.

Exceptions:

1. *Handrails* within a dwelling unit that is not required to be *accessible* need extend only from the top riser to the bottom riser.
2. *Aisle handrails* in Group A and E occupancies in accordance with Section 1028.13.
3. *Handrails* for *alternating tread devices* and ship ladders are permitted to terminate at a location vertically above the top and bottom risers. Handrails for *alternating tread devices* and ship ladders are not required to be continuous between *flights* or to extend beyond the top or bottom risers.
4. Handrail extensions are not required on handrails on stairways that are not part of a required means of egress.

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SECTION 1014
EXIT ACCESS

***

1014.2 Egress through intervening spaces. Egress through intervening spaces shall comply with this section.

1. Egress from a room or space shall not pass through adjoining or intervening rooms or areas, except where such adjoining rooms or areas and the area served are accessory to one or the other, are not a Group H occupancy and provide a discernible path of egress travel to an *exit*.

Exception: *Means of egress* are not prohibited through adjoining or intervening rooms or spaces in a Group H, S or F occupancy when the adjoining or intervening rooms or spaces are the same or a lesser hazard occupancy group.

2. An *exit access* shall not pass through a room that can be locked to prevent egress.
3. *Means of egress* from dwelling units or sleeping areas shall not lead through other sleeping areas, toilet rooms or bathrooms.
4. Egress shall not pass through kitchens, storage rooms, closets or spaces used for similar purposes.

Exceptions:

1. *Means of egress* are not prohibited through a kitchen area serving adjoining rooms constituting part of the same dwelling unit or sleeping unit.

2. *Means of egress* are not prohibited through stockrooms in Group M occupancies when all of the following are met:

2.1. The stock is of the same hazard classification as that found in the main retail area;

2.2. Not more than 50 percent of the *exit access* is through the stockroom;

2.3. The stockroom is not subject to locking from the egress side; and

2.4. There is a demarcated, minimum 44-inch-wide (1118 mm) *aisle* defined by full- or partial-height fixed walls or similar construction that will maintain the required width and lead directly from the retail area to the *exit* without obstructions.

5. Unless approved by the building official, where two or more exits are required, exit travel shall not pass through an exit enclosure as the only way to reach another exit.

1014.2.1 Multiple tenants. Where more than one tenant occupies any one floor of a building or structure, each tenant space, dwelling unit and sleeping unit shall be provided with access to the required *exits* without passing through adjacent tenant spaces, dwelling units and sleeping units.

Exception: The *means of egress* from a smaller tenant space shall not be prohibited from passing through a larger adjoining tenant space where such rooms or spaces of the smaller tenant occupy less than 10 percent of the area of the larger tenant space through which they pass; are the same or similar occupancy group; a discernable path of egress travel to an *exit* is provided; and the *means of egress* into the adjoining space is not subject to locking from the egress side. A required *means of egress* serving the larger tenant space shall not pass through the smaller tenant space or spaces.

[W] 1014.2.2 Group I-2. Habitable spaces and suites in Group I-2 occupancies are permitted to comply with this Section 1014.2.2.

1014.2.2.1 Exit access doors. Habitable ((~~rooms or~~)) spaces and *suites* in Group I-2 occupancies shall have an *exit access* door leading directly to a *corridor*.

Exception: Rooms with *exit* doors opening directly to the outside at ground level.

1014.2.2.2 Exit access through suites. Exit access from areas not classified as a Group I-2 occupancy suite shall not pass through a suite. In a suite required to have more than one exit, one exit access may pass through an adjacent suite if all other requirements of Section 1014.2 are satisfied.

1014.2.2.3 Separation. Suites in Group I-2 occupancies shall be separated from other portions of the building by a smoke partition complying with Section 711 of the *Seattle Building Code*. Partitions within suites are not required to be smoke-resistant or fire-resistance-rated unless required by another section of this code.

((~~1014.2.3~~)) 1014.2.2.4 Suites ((~~in~~)) containing patient sleeping areas. Patient sleeping areas in Group I-2 occupancies shall be permitted to be divided into *suites* with one intervening room if one of the following conditions is met:
1. The intervening room within the *suite* is not used as an *exit access* for more than eight patient beds.
2. The arrangement of the *suite* allows for direct and constant visual supervision by nursing personnel.

((~~1014.2.3.1~~)) 1014.2.2.4.1 Area. *Suites* of sleeping rooms shall not exceed 5,000 square feet (465 m2).

((~~1014.2.3.2~~)) 1014.2.2.4.2 Exit access. Any patient sleeping room, or any *suite* that includes patient sleeping rooms, of more than 1,000 square feet (93 m2) shall have at least two *exit access* doors ((~~remotely~~)) located ((~~from each other~~)) in accordance with Section 1015.2.

((~~1014.2.3.3~~)) 1014.2.2.4.3 Travel distance. The travel distance between any point in a *suite* of sleeping rooms and an *exit access* door of that *suite* shall not exceed 100 feet (30 480 mm). The travel distance between any point in a Group I-2 occupancy patient sleeping room and an exit access door in that room shall not exceed 50 feet (15,240 mm).

((~~1014.2.4~~)) 1014.2.2.5 Suites ((~~in areas other than~~)) not containing patient sleeping areas. Areas other than patient sleeping areas in Group I-2 occupancies shall be permitted to be divided into *suites* that comply with Sections 1014.2.2.5.1 through 1014.2.2.5.4.

((~~1014.2.4.1~~)) 1014.2.2.5.1 Area. *Suites* of rooms, other than patient sleeping rooms, shall not exceed 10,000 square feet (929 m2).

((~~1014.2.4.2~~)) 1014.2.2.5.2 Exit access. Any room or *suite* of rooms, other than patient sleeping rooms, of more than 2,500 square feet (232 m2) shall have at least two *exit access* doors ((~~remotely~~)) located ((~~from each other~~)) in accordance with Section 1015.2.

((~~1014.2.4.3~~)) 1014.2.2.5.3 One intervening room. For rooms other than patient sleeping rooms, *suites* of rooms are permitted to have one intervening room if the travel distance within the *suite* to the *exit access* door is not greater than 100 feet (30 480 mm).

((~~1014.2.4.4~~)) 1014.2.2.5.4 Two intervening rooms. For rooms other than patient sleeping rooms located within a *suite*, *exit access* travel from within the *suite* shall be permitted through two intervening rooms where the travel distance to the *exit access* door is not greater than 50 feet (15 240 mm).

((~~**1014.2.5 Exit access through suites.** *Exit access* from all other portions of a building not classified as a *suite* in a Group I-2 occupancy shall not pass through a *suite.*~~

~~**1014.2.6 Travel distance.** The travel distance between any point in a Group I-2 occupancy patient sleeping room and an *exit access* door in that room shall not exceed 50 feet (15 240 mm).~~

~~**1014.2.7 Separation.** *Suites* in Group I-2 occupancies shall be separated from other portions of the building by a *smoke partition* complying with Section 711.~~))

1014.3 Common path of egress travel. In occupancies other than Groups H-1, H-2 and H-3, the *common path of egress travel* shall not exceed 75 feet (22 860 mm). In Group H-1, H-2 and H-3 occupancies, the *common path of egress travel* shall not exceed 25 feet (7620 mm). For *common path of egress travel* in Group A occupancies and assembly occupancies accessory to Group E occupancies having fixed seating, see Section 1028.8.

Exceptions:

1. The length of a *common path of egress travel* in Group B, F and S occupancies shall not be more than 100 feet (30 480 mm), provided that the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1.
2. Where a tenant space in Group B, S and U occupancies has an *occupant load* of not more than 30, the length of a *common path of egress travel* shall not be more than 100 feet (30 480 mm).
3. The length of a *common path of egress travel* in a Group I-3 occupancy shall not be more than 100 feet (30 480 mm).
4. The length of a common path of egress travel in a Group R-2 or R-3 occupancy shall not be more than 125 feet (38 100 mm), provided that the building is protected throughout with an *approved automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.

SECTION 1015
EXIT AND EXIT ACCESS DOORWAYS

1015.1 Exits or exit access doorways from spaces. Two *exits* or *exit access doorways* from any space shall be provided where one of the following conditions exists:

Exception: Group I-2 occupancies shall comply with Section 1014.2.2 through 1014.2.7.

1. The *occupant load* of the space exceeds one of the values in Table 1015.1.
   Exception: In Group R-2 and R-3 occupancies, one *means of egress* is permitted within and from individual dwelling units with a maximum *occupant load* of 20 where the dwelling unit is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.
2. The *common path of egress travel* exceeds one of the limitations of Section 1014.3.
3. Where required by Section 1015.3, 1015.4, 1015.5, 1015.6 or 1015.6.1.

Where a building contains mixed occupancies, each individual occupancy shall comply with the applicable requirements for that occupancy. Where applicable, cumulative *occupant loads* from adjacent occupancies shall be considered in accordance with the provisions of Section 1004.1.

Note: See Section 1008.1.9.3 for conditions in which exit access doors from elevator lobbies are permitted to be locked.

1015.1.1 Three or more exits or exit access doorways. Three *exits* or *exit access doorways* shall be provided from any space with an *occupant load* of 501 to 1,000. Four *exits* or *exit access doorways* shall be provided from any space with an *occupant load* greater than 1,000.

TABLE 1015.1
SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY

OCCUPANCY	MAXIMUM OCCUPANT LOAD
A, B, E[a], F, M, U	49
H-1, H-2, H-3	3
H-4, H-5, I-1, I-3, I-4, R	10
S	29

a. Day care maximum occupant load is 10.

1015.2 Exit or exit access doorway arrangement. Required *exits* shall be located in a manner that makes their availability obvious. *Exits* shall be unobstructed at all times. *Exit* and *exit access doorways* shall be arranged in accordance with Sections 1015.2.1 and 1015.2.2.

1015.2.1 Two exits or exit access doorways. Where two *exits* or *exit access doorways* are required from any portion of the *exit access*, the *exit* doors or *exit access doorways* shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the building or area to be served measured in a straight line between *exit* doors or *exit access doorways*. Interlocking or *scissor stairs* and stairways that share a wall with other exit enclosures shall be counted as one *exit stairway*.

Exceptions:

1. Where *exit enclosures* are provided as a portion of the required *exit* and are interconnected by a 1-hour fire-resistance-rated *corridor* conforming to the requirements of Section 1018, the required *exit* separation shall be measured along the shortest direct line of travel within the *corridor*.

Interpretation I1015.2: Exception 1 applies only where corridors have a one-hour fire-resistance-rating even where Section 1018 would allow non-rated corridors.

2. Where a building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2, the separation distance of the *exit* doors or *exit access doorways* shall not be less than one-third of the length of the maximum overall diagonal dimension of the area served.

3. Where it is not practical to separate exits by one-half the diagonal dimension, exits from retail and office tenant spaces in Group B and M occupancies and within dwelling units shall be as far apart as reasonably practicable as determined by the building official.

1015.2.2 Three or more exits or exit access doorways. Where access to three or more *exits* is required, at least two *exit* doors or *exit access doorways* shall be arranged in accordance with the provisions of Section 1015.2.1.

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SECTION 1016
EXIT ACCESS TRAVEL DISTANCE

1016.1 Travel distance limitations. *Exits* shall be so located on each *story* such that the maximum length of *exit access* travel, measured from the most remote point within a *story* along the natural and unobstructed path of egress travel to an *exterior exit* door at the *level of exit discharge*, an entrance to a vertical *exit enclosure*, an *exit passageway*, a *horizontal exit*, an *exterior exit stairway* or an exterior *exit ramp*, shall not exceed the distances given in Table 1016.1.

Exceptions:

1. Travel distance in *open parking garages* is permitted to be measured to the closest riser of open *exit stairways*.
2. In outdoor facilities with open *exit access* components and open *exterior exit stairways* or *exit ramps*, travel distance is permitted to be measured to the closest riser of an *exit stairway* or the closest slope of the *exit ramp*.
3. In other than occupancy Groups H and I, the *exit access* travel distance to a maximum of 50 percent of the *exits* is permitted to be measured from the most remote point within a building to an *exit* using unenclosed *exit access stairways* or *ramps* when connecting a maximum of two stories. The two connected stories shall be provided with at least two *means of egress*. Such interconnected stories shall not be open to other stories.
4. In other than occupancy Groups H and I, *exit access* travel distance is permitted to be measured from the most remote point within a building to an *exit* using unenclosed *exit access stairways* or *ramps* in the first and second stories above *grade plane* in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1. The first and second stories above *grade plane* shall be provided with at least two *means of egress*. Such interconnected stories shall not be open to other stories.

Where applicable, travel distance on unenclosed *exit access stairways* or *ramps* and on connecting stories shall also be included in the travel distance measurement. The measurement along *stairways* shall be made on a plane parallel and tangent to the *stair* tread *nosings* in the center of the *stairway*.

Note: Additional exit enclosures or corridors constructed as smoke barriers may be required for standpipe hose connections. See Section 905.4.

TABLE 1016.1
EXIT ACCESS TRAVEL DISTANCE[a]

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER SYSTEM (feet)
A, E, F-1, M, R, S-1	200	250[b]
I-1	Not Permitted	250[c]
B	200	300[c]
F-2, S-2, U	300	400[c]
H-1	Not Permitted	75[c]
H-2	Not Permitted	100[c]
H-3	Not Permitted	150[c]
H-4	Not Permitted	175[c]
H-5	Not Permitted	200[c]
I-2, I-3, I-4	Not Permitted	200[c]

For SI: 1 foot = 304.8 mm.

a. See the following sections for modifications to exit access travel distance requirements:
Section 402.4 of the *International Building Code*: For the distance limitation in malls.
Section 404.9 of the *International Building Code*: For the distance limitation through an atrium space.
Section 407.4 of the *International Building Code*: For the distance limitation in Group I-2.
Sections 408.6.1 and 408.8.1 of the *International Building Code*: For the distance limitations in Group I-3.
Section 411.4 of the *International Building Code*: For the distance limitation in special amusement buildings.
Section 1014.2.2: For the distance limitation in Group I-2 hospital suites.
Section 1015.4: For the distance limitation in refrigeration machinery rooms.
Section 1015.5: For the distance limitation in refrigerated rooms and spaces.
Section 1021.2: For buildings with one exit.
Section 1028.7: For increased limitation in assembly seating.
Section 1028.7: For increased limitation for assembly open-air seating.
((~~Section 3103.4: For temporary structures.~~))

Section 3104.9 of the *International Building Code*: For pedestrian walkways.
b. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.2.
c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

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SECTION 1018
CORRIDORS

1018.1 Construction. *Corridors* shall be fire-resistance rated in accordance with Table 1018.1. The *corridor* walls required to be fire-resistance rated shall comply with Section 709 of the *International Building Code* for *fire partitions*.

Exceptions:

1. A *fire-resistance rating* is not required for *corridors* in an occupancy in Group E where each room that is used for instruction has at least one door opening directly to the exterior and rooms for assembly purposes have at least one-half of the required *means of egress* doors opening directly to the exterior. Exterior doors specified in this exception are required to be at ground level.
2. A *fire-resistance rating* is not required for *corridors* contained within a dwelling or sleeping unit in an occupancy in Group R.
3. A *fire-resistance rating* is not required for *corridors* in *open parking garages*.
4. A *fire-resistance rating* is not required for *corridors* in an occupancy in Group B which is a space requiring only a single *means of egress* complying with Section 1015.1.
5. In office areas located in buildings of Types IA or IB construction, corridor walls need not be of fire-resistance-rated construction where the corridor side of the corridor walls is finished with materials having a maximum Class B rating as defined in Chapter 8 of the *Seattle Building Code*. This exception does not apply to outpatient clinics and medical offices.
6. The occupant load of Group B conference rooms, lunch rooms without grease-producing cooking and other assembly rooms with an occupant load of less than 50 in each room need not be considered when determining whether corridor construction is required, provided such rooms are accessory to an office tenant located in a building of Type IA or IB construction. This provision is permitted to be used in other construction types when the floor on which the assembly room is located is equipped with an automatic sprinkler system.

TABLE 1018.1
CORRIDOR FIRE-RESISTANCE RATING

		REQUIRED FIRE-RESISTANCE RATING (hours)

OCCUPANCY	OCCUPANT LOAD SERVED BY CORRIDOR	Without sprinkler system	With sprinkler system[c]
H-1, H-2, H-3	All	Not Permitted	1
H-4, H-5	Greater than 30	Not Permitted	1
A, B, E, F, M, S, U	Greater than 30	1	0
R	((~~Greater than 10~~)) All	Not Permitted	((~~0.5~~)) 1
I-2[a], I-4	All	Not Permitted	0
I-1, I-3	All	Not Permitted	1[b]

a. For requirements for occupancies in Group I-2, see Section 407.3 of the *International Building Code*.

b. For a reduction in the fire-resistance rating for occupancies in Group I-3, see Section 408.7 of the *International Building Code*.

c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 where allowed.

***

1018.4 Dead ends. Where more than one *exit* or *exit access doorway* is required, the *exit access* shall be arranged such that there are no dead ends in *corridors* more than ((~~20 feet (6096 mm) in length.~~)) 25 feet (7620 mm) in length.

Exceptions:

1. In occupancies in Group I-3 of Occupancy Condition 2, 3 or 4 (see Section 308.4), the dead end in a *corridor* shall not exceed 50 feet (15 240 mm).
2. In occupancies in Groups B, E, F, I-1, M, R-1, R-2, ((~~R-4,~~)) S and U, where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, the length of the dead-end *corridors* shall not exceed 50 feet (15 240 mm).
3. A dead-end *corridor* shall not be limited in length where the length of the dead-end *corridor* is less than 2.5 times the least width of the dead-end *corridor*.
4. Dead ends are permitted to be 75 feet (22 860 mm) in length in areas containing Group B offices in buildings of Types IA and IB construction, where the cumulative occupant load does not exceed 50 for all areas for which the dead end serves as the only means of egress.

1018.5 Air movement in corridors. *Corridors* shall not serve as supply, return, exhaust, relief or ventilation air ducts or plenums except as allowed by *Seattle Mechanical Code* Section 601.2.

((~~**Exceptions:**~~

~~1. Use of a *corridor* as a source of makeup air for exhaust systems in rooms that open directly onto such *corridors*, including toilet rooms, bathrooms, dressing rooms, smoking lounges and~~

~~janitor closets, shall be permitted, provided that each such *corridor* is directly supplied with outdoor air at a rate greater than the rate of makeup air taken from the *corridor*.~~
~~2. Where located within a dwelling unit, the use of *corridors* for conveying return air shall not be prohibited.~~
~~3. Where located within tenant spaces of 1,000 square feet (93 m2) or less in area, utilization of *corridors* for conveying return air is permitted.~~
~~4. Incidental air movement from pressurized rooms within health care facilities, provided that the *corridor* is not the primary source of supply or return to the room.~~))

1018.5.1 Corridor ceiling. Use of the space between the *corridor* ceiling and the floor or roof structure above as a return air plenum is permitted for one or more of the following conditions:
1. The *corridor* is not required to be of fire-resistance-rated construction;
2. The *corridor* is separated from the plenum by fire-resistance-rated construction;
3. The air-handling system serving the *corridor* is shut down upon activation of the air-handling unit *smoke detectors* required by the *International Mechanical Code*;
4. The air-handling system serving the *corridor* is shut down upon detection of sprinkler waterflow where the building is equipped throughout with an *automatic sprinkler system*; or
5. The space between the *corridor* ceiling and the floor or roof structure above the *corridor* is used as a component of an *approved* engineered smoke control system.

1018.6 Corridor continuity. Fire-resistance-rated corridors shall be continuous from the point of entry to an *exit*, and shall not be interrupted by intervening rooms.

Exceptions:

1. Foyers, lobbies or reception rooms constructed as required for *corridors* shall not be construed as intervening rooms.

[W] 2. In Group R-2 boarding homes and residential treatment facilities licensed by Washington state, seating areas shall be allowed to be open to the corridor provided:

2.1 The seating area is constructed as required for the corridor;

2.2 The floor is separated into at least two compartments complying with Section 407.4;

2.3 Each individual seating area does not exceed 150 square feet (13.9 m^2), excluding the corridor width;

2.4 The combined total space of seating areas per compartment does not exceed 300 square feet, excluding the corridor width;

2.5 Combustible furnishings located within the seating area shall be in accordance with Section 805; and

2.6 Emergency means of egress lighting is provided as required by Section 1006 to illuminate the area.

SECTION 1019
EGRESS BALCONIES

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1019.2 Wall separation. Exterior egress balconies shall be separated from the interior of the building by walls and opening protectives as required for *corridors*.

Exceptions:

1. Separation is not required where the exterior egress balcony is served by at least two *stairs* and a dead-end travel condition does not require travel past an unprotected opening to reach a *stair*.
2. Separation is not required in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.

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SECTION 1020
EXITS

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1020.2 Exterior exit doors. Buildings or structures used for human occupancy shall have at least one exterior door that meets the requirements of Section 1008.1.1, Section 1008.1.2 and Section 1008.1.3.

1020.2.1 Detailed requirements. Exterior *exit* doors shall comply with the applicable requirements of Section 1008.1.

1020.2.2 Arrangement. Exterior *exit* doors shall lead directly to the *exit discharge* or the *public way*.

SECTION 1021
NUMBER OF EXITS AND CONTINUITY

1021.1 Exits from stories. All spaces within each *story* shall have access to the minimum number of ((~~*approved* independent~~)) *exits* as specified in Table 1021.1 based on the *occupant load* of the *story*. For the purposes of this chapter, occupied roofs shall be provided with *exits* as required for stories.

Exceptions:

1. As modified by Section 403.5.2 of the *International Building Code*.
2. As modified by Section 1021.2.
3. *Exit access stairways* and *ramps* that comply with Exception 3 or 4 of Section 1016.1 shall be permitted to provide the minimum number of *approved* independent *exits* required by Table 1021.1 on each *story*.
4. In Group R-2 and R-3 occupancies, one *means of egress* is permitted within and from individual dwelling units with a maximum *occupant load* of 20 where the dwelling unit is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.

5. Within a *story*, rooms and spaces complying with Section 1015.1 with *exits* that discharge directly to the exterior at the *level of exit discharge*, are permitted to have one *exit*.

1021.1.1 Exits maintained. The required number of *exits* from any *story*, including basements, shall be maintained until arrival at grade or the *public way*.

1021.1.2 Parking structures. Parking structures shall not have less than two *exits* from each parking tier, except that only one *exit* is required where vehicles are mechanically parked. Vehicle ramps shall not be considered as required *exits* unless pedestrian facilities are provided.

1021.1.3 Helistops. The *means of egress* from helistops shall comply with the provisions of this chapter, provided that landing areas located on buildings or structures shall have two or more *exits*. For landing platforms or roof areas
less than 60 feet (18 288 mm) long, or less than 2,000 square feet (186 m2) in area, the second *means of egress* is permitted to be a fire escape, *alternating tread device* or ladder leading to the floor below.

TABLE 1021.1
MINIMUM NUMBER OF EXITS FOR OCCUPANT LOAD

OCCUPANT LOAD (persons per story)	MINIMUM NUMBER OF EXITS (per story)
1-500	2
501-1,000	3
More than 1,000	4

1021.2 Single exits. ((~~Only one *exit* shall be required from Group R-3 occupancy buildings or from stories of other buildings as indicated in Table 1021.2.~~)) Occupancies shall be permitted to have a single *exit* in buildings otherwise required to have more than one *exit* if the areas served by the single *exit* do not exceed the limitations of Table 1021.2 or Section 1021.2.1. ((~~Mixed occupancies shall be permitted to be served by single *exits* provided each individual occupancy complies with the applicable requirements of Table 1021.2 for that occupancy. Where applicable, cumulative *occupant loads* from adjacent occupancies shall be considered in accordance with the provisions of Section 1004.1.~~)) Basements with a single *exit* shall not be located more than one *story* below *grade plane*.

Mixed occupancies shall be permitted to be served by single exits provided each individual occupancy complies with the applicable requirements of Table 1021.2 for that occupancy. Where occupants from accessory spaces egress through a primary space, the occupant load of the primary space shall be calculated in accordance with Section 1004.1. In each story of a mixed occupancy building, the maximum number of occupants served by a single exit shall be such that

the sum of the ratios of the calculated number of occupants of the space divided by the allowable number of occupants for each occupancy shall not exceed one.

1021.2.1 Single exits allowed. Only one *exit* is required from the following:

1. Group R-3 occupancy buildings are permitted to have one exit.
2. Occupied roofs with an occupant load of 10 or less are permitted to have one exit.
3. Not more than 5 stories of Group R-2 occupancy are permitted to be served by a single exit under the following conditions:

3.1 The building has not more than 6 stories above grade plane.

3.2 The building does not contain a boarding house.

3.3 There shall be no more than four dwelling units on any floor.

3.4 The building shall be of not less than one-hour fire-resistive construction and shall also be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1. Residential-type sprinkler heads shall be used in all habitable spaces in each dwelling unit.

3.5 There shall be no more than two single exit stairway conditions on the same property.

3.6 An exterior stairway or exit enclosure shall be provided. The exit enclosure, including any related exit passageway, shall be pressurized in accordance with Section 909.21. Doors in the exit enclosure shall swing into the exit enclosure regardless of the occupant load served, provided that doors from the exit enclosure to the building exterior are permitted to swing in the direction of exit travel.

3.7 A corridor shall separate each dwelling unit entry/exit door from the door to an exit enclosure, including any related exit passageway, on each floor. Dwelling unit doors shall not open directly into an enclosed stairway. Dwelling unit doors are permitted to open directly into an exterior stairway.

3.8 There shall be no more than 20 feet (6096 mm) of travel to the exit stairway from the entry/exit door of any dwelling unit.

3.9 Travel distance measured in accordance with Section 1016.1 shall not exceed 125 feet.

3.10 The exit shall not terminate in an exit court where the court depth exceeds the court width unless it is possible to exit in either direction to the public way.

3.11 Elevators shall be pressurized in accordance with Section 708.14.2 of the *Seattle Building Code* or shall open into elevator lobbies. Elevator lobbies shall be separated from the remainder of the building and from the exit stairway with fire partitions. Doors shall be automatic closing actuated by smoke detector. Where approved by the building official, natural ventilation is permitted to be substituted for pressurization where the ventilation would prevent the accumulation of smoke or toxic gases.

3.12 Other occupancies are permitted in the same building provided they comply with all the requirements of this code. Other occupancies shall not communicate with the Group R occupancy portion of the building or with the single-exit stairway.

Exception: Parking garages accessory to the Group R occupancy are permitted to communicate with the exit stairway.

3.13 The exit serving the Group R occupancy shall not discharge through any other occupancy, including an accessory parking garage.

3.14 There shall be no openings within 10 feet (3048 mm) of unprotected openings into the stairway other than required exit doors having a one-hour fire-resistance rating.

TABLE 1021.2
STORIES WITH ONE EXIT

STORY	OCCUPANCY	MAXIMUM OCCUPANTS (OR DWELLING UNITS) PER FLOOR AND TRAVEL DISTANCE
First story or basement	A, B[d], E[e], F[d], M, U, S[d]	49 occupants and 75 feet travel distance
	H-2, H-3	3 occupants and 25 feet travel distance
	H-4, H-5, I, R	10 occupants and 75 feet travel distance
	S[a]	29 occupants and 100 feet travel distance
Second story	B[b], F, M, Sa	29 occupants and 75 feet travel distance
	R-2	4 dwelling units and 50 feet travel distance
Third story	R-2[c]	4 dwelling units and 50 feet travel distance

For SI: 1 foot = 304.8 mm.

a. For the required number of exits for parking structures, see Section 1021.1.2.

b. For the required number of exits for air traffic control towers, see Section 412.3 of the *International Building Code*.

c. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1029.

d. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 shall have a maximum travel distance of 100 feet.

e. Day care occupancies shall have a maximum occupant load of 10.

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SECTION 1022
EXIT ENCLOSURES

1022.1 Enclosures required. *Interior exit stairways* and interior *exit ramps* shall be enclosed with *fire barriers* constructed in accordance with Section 707 of the *International Building Code* or *horizontal assemblies* constructed in accordance with Section 712 of the *International Building Code*, or both. *Exit enclosures* shall have a *fire-resistance rating* of not less than 2 hours where connecting more than four stories ((~~or more~~)) and not less than 1 hour where connecting ((~~less than~~)) four stories and less. The number of stories connected by the *exit*

enclosure shall include any basements but not any *mezzanines*. *Exit enclosures* shall have a *fire-resistance rating* not less than the floor assembly penetrated, but need not exceed 2 hours. *Exit enclosures* shall lead directly to the exterior of the building or shall be extended to the exterior of the building with an *exit passageway* conforming to the requirements of Section 1023, except as permitted in Section 1027.1. An *exit enclosure* shall not be used for any purpose other than *means of egress*, circulation and access.

Exceptions:

1. In all occupancies, other than Group H and I occupancies, a *stairway* is not required to be enclosed when the *stairway* serves an *occupant load* of less than 10 and the *stairway* complies with either Item 1.1 or 1.2. In all cases, the maximum number of connecting open stories shall not exceed two.
    1.1. The *stairway* is open to not more than one *story* above its *level of exit discharge*; or
    1.2. The *stairway* is open to not more than one *story* below its *level of exit discharge*.
2. *Exits* in buildings of Group A-5 where all portions of the *means of egress* are essentially open to the outside need not be enclosed.
3. *Stairways* serving and contained within a single residential dwelling unit or sleeping unit in Group R-1, R-2 or R-3 occupancies are not required to be enclosed.
4. *Stairways* in open parking structures that serve only the parking structure are not required to be enclosed.
5. *Stairways* in Group I-3 occupancies, as provided for in Section 408.3.8 of the *International Building Code*, are not required to be enclosed.
6. *Means of egress stairways* as required by Sections 410.5.3 of the *International Building Code* and 1015.6.1 are not required to be enclosed.
7. *Means of egress stairways* from balconies, galleries or press boxes as provided for in Section 1028.5.1 are not required to be enclosed.

1022.2 Termination. *Exit enclosures* shall terminate at an *exit discharge* or a *public way*.

Exception: An *exit enclosure* shall be permitted to terminate at an *exit passageway* complying with Section 1023, provided the *exit passageway* terminates at an *exit discharge* or a *public way*.

1022.2.1 Extension. Where an *exit enclosure* is extended to an *exit discharge* or a *public way* by an *exit passageway*, the *exit enclosure* shall be separated from the *exit passageway* by a *fire barrier* constructed in accordance with Section 707 of the *International Building Code* or a *horizontal assembly* constructed in accordance with Section 712 of the *International Building Code*, or both. The *fire-resistance rating* shall be at least equal to that required for the *exit enclosure*. A *fire door assembly* complying with Section 715.4 of the *International Building Code* shall be installed in the *fire barrier* to provide a *means of egress* from the *exit enclosure* to

the *exit passageway*. Openings in the *fire barrier* other than the *fire door assembly* are prohibited. Penetrations of the *fire barrier* are prohibited.

Exceptions:

1. Penetrations of the *fire barrier* in accordance with Section 1022.4 shall be permitted.
2. A fire barrier and fire door assembly are not required to separate an exit passageway from a pressurized stairway.

1022.3 Openings ((~~and penetrations~~)). *Exit enclosure* opening protectives shall be in accordance with the requirements of Section 715 of the *International Building Code*.

Openings in *exit enclosures* other than unprotected exterior openings shall be limited to those necessary for *exit access* to the enclosure from normally occupied spaces and for egress from the enclosure.

Elevators shall not open into an *exit enclosure*.

Interpretation I1022.3: Accessory rooms such as restrooms, storage closets, laundry rooms, electrical, communication closets and similar spaces shall not open into an exit enclosure.

1022.4 Penetrations. Penetrations into and openings through an *exit enclosure* are prohibited except for the following:

1. required *exit* doors,
2. equipment and ductwork necessary for independent ventilation or pressurization,
3. sprinkler piping, standpipes,
4. electrical raceway for fire department communication systems and sprinkler monitoring terminating at a steel box not exceeding 16 square inches (0.010 m2),
5. electrical raceway serving the *exit enclosure* and terminating at a steel box not exceeding 16 square inches (0.010 m2)
6. piping used exclusively for the drainage of rainfall runoff from roof areas, provided the roof is not used for a helistop or heliport.
7. Unfired unit heaters required for freeze protection of fire protection equipment are permitted to penetrate one membrane; the conduit serving the heater is permitted to penetrate both membranes.
8. Equipment necessary for electrically-controlled stairway door locks and security cameras are permitted to penetrate one membrane; the conduit serving the equipment is permitted to penetrate both membranes.

Such penetrations shall be protected in accordance with Section 713 of the *International Building Code*. There shall be no penetrations or communication openings, whether protected or not, between adjacent *exit enclosures*.

Interpretation I1022.4: Ducts passing through exit enclosures shall be separated from the enclosure by construction having a fire-resistance rating at least equal to the exit enclosure walls. At least one side of the duct enclosure shall about the exit enclosure.

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1022.8 Floor identification signs. A sign shall be provided at each floor landing in *exit enclosures* connecting more than three stories designating the floor level, the terminus of the top and bottom of the *exit enclosure* and the identification of the *stair* or *ramp*. The signage shall also state the *story* of, and the direction to, the *exit discharge*, ((~~and the availability of~~)) whether there is roof access from the enclosure for the fire department, and whether the roof access is accessed by roof hatch. The sign shall be located 5 feet (1524 mm) above the floor landing in a position that is readily visible when the doors are in the open and closed positions. Floor level identification signs in tactile characters complying with ICC A117.1 shall be located at each floor level landing adjacent to the door leading from the enclosure into the corridor to identify the floor level.

1022.8.1 Signage requirements. *Stairway* identification signs shall comply with all of the following requirements:
1. The signs shall be a minimum size of 18 inches (457 mm) by 12 inches (305 mm).
2. The letters designating the identification of the stair enclosure shall be a minimum of 11/2 inches (38 mm) in height.
3. The number designating the floor level shall be a minimum of 5 inches (127 mm) in height and located in the center of the sign.
4. All other lettering and numbers shall be a minimum of 1 inch (25 mm) in height.
5. Characters and their background shall have a nonglare finish. Characters shall contrast with their background, with either light characters on a dark background or dark characters on a light background.
6. When signs required by Section 1022.8 are installed in interior *exit enclosures* of buildings subject to Section 1024, the signs shall be made of the same materials as required by Section 1024.4.

1022.9 ((~~Smokeproof enclosures and p~~))Pressurized stairways. ((~~In buildings~~)) Where required by Sections 403.5.4 or 405.7.2 of the *Seattle Building Code*, ((~~to comply with Section 403 or 405, each of the~~)) *exit enclosures* ((~~serving a *story* with a floor surface located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access or more than 30 feet (9144 mm) below the finished floor of a *level of exit discharge* serving such stories~~)) shall be ((~~*smokeproof enclosure* or~~)) pressurized *stairways* in accordance with Section 909.20.

1022.9.1 Termination and extension. A ((~~*smokeproof enclosure* or~~)) pressurized *stairway* shall terminate at an *exit discharge* or a *public way*. The ((~~*smokeproof enclosure* or~~)) pressurized

stairway shall be permitted to be extended by an *exit passageway* in accordance with Section 1022.2. The *exit passageway* shall be without openings other than ((~~the *fire door assembly* required by Section 1022.2 and~~)) those necessary for egress from the *exit passageway*. The *exit passageway* shall be separated from the remainder of the building by 2-hour *fire barriers* constructed in accordance with Section 707 of the *International Building Code* or *horizontal assemblies* constructed in accordance with Section 712 of the *International Building Code*, or both. The exit passageway shall be protected and pressurized in the same manner as the pressurized stairway.

Exception((s)):

((~~1. Openings in the *exit passageway* serving a *smokeproof enclosure* are permitted where the *exit passageway* is protected and pressurized in the same manner as the *smokeproof enclosure*, and openings are protected as required for access from other floors.~~

~~2. Openings in the *exit passageway* serving a pressurized *stairway* are permitted where the *exit passageway* is protected and pressurized in the same manner as the pressurized *stairway*.~~

~~3 The *fire barrier* separating the *smokeproof enclosure* or pressurized *stairway* from the *exit passageway* is not required, provided the *exit passageway* is protected and pressurized in the same manner as the *smokeproof enclosure* or pressurized *stairway*.~~

4)) A ((~~*smokeproof enclosure* or~~)) pressurized *stairway* shall be permitted to egress through areas on the level of discharge or vestibules as permitted by Section 1027.

((~~**1022.9.2 Enclosure access.** Access to the *stairway* within a *smokeproof enclosure* shall be by way of a vestibule or an open exterior balcony.~~

~~**Exception:** Access is not required by way of a vestibule or exterior balcony for *stairways* using the pressurization alternative complying with Section 909.20.5.~~))

1022.10 Equipment in exit enclosures. Equipment is prohibited in exit enclosures except for equipment necessary for independent pressurization, lighting of the exit enclosure, sprinkler piping, standpipes, electrical equipment for fire department communication and sprinkler monitoring, and unit heaters required to protect fire protection equipment from freezing.

SECTION 1023
EXIT PASSAGEWAYS

1023.1 Exit passageway. *Exit passageways* serving as an *exit* component in a *means of egress* system shall comply with the requirements of this section. An *exit passageway* shall not be used for any purpose other than as a *means of egress*, circulation and access.

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1023.5 Openings and penetrations. *Exit passageway* opening protectives shall be in accordance with the requirements of Section 715 of the *International Building Code*.

Except as permitted in Section 402.4.6 of the *International Building Code*, openings in *exit passageways* other than exterior openings shall be limited to those necessary for *exit access* to the *exit passageway* from normally occupied spaces and for egress from the *exit passageway*.

Where an *exit enclosure* is extended to an *exit discharge* or a *public way* by an *exit passageway*, the *exit passageway* shall also comply with Section 1022.2.1.

Elevators shall not open into an *exit passageway*.

Interpretation I1023.5: Accessory rooms such as restrooms, storage closets, laundry rooms, electrical, communication closets and similar spaces shall not open into exit passageways.

Code Alternate CA1023.5: An elevator is permitted to open into an exit passageway when the following conditions are met:

1. A lobby shall separate the elevator from the exit passageway. This is allowed at only one location in the building. The lobby is required whether the elevator hoistway is pressurized or not.
2. The separation shall be constructed as a fire barrier having a fire-resistive rating and opening protectives as for the exit passageway. The door between the lobby and the exit passageway shall also comply with Section 715.4.3. The door shall have listed gaskets installed at head, jambs and meeting edges. This only applies to the walls common with the exit passageway.
3. The lobby shall have a minimum depth of 36 inches. (Note that areas of refuge may require a larger dimension).
4. An elevator lobby constructed as a smoke partition shall be provided at every floor below the level of the exit passageway served by the elevator. Hoistway pressurization is permitted to be used in lieu of the lobbies on floors below the level of the exit passageway.
5. A door as required by Section 1022.2.1 between an exit enclosure and the exit passageway shall be provided.
6. An automatic sprinkler system in accordance with Section 903.3.1.1 shall be provided throughout the floor on which the exit passageway is located.

This alternate does not apply to vertical exit enclosures.

1023.6 Penetrations. Penetrations into and openings through an *exit passageway* are prohibited except for required *exit* doors, equipment and ductwork necessary for independent pressurization, sprinkler piping, standpipes, electrical raceway for fire department communication and electrical raceway serving the *exit passageway* and terminating at a steel box not exceeding 16 square inches (0.010m2). Such penetrations shall be protected in accordance with Section 713 of the *International Building Code*. There shall be no penetrations or communicating openings, whether protected or not, between adjacent *exit passageways*.

Exception: Unfired unit heaters allowed by Section 1022.10 to be installed in exit enclosures are permitted to penetrate one membrane. The conduit serving the heater is permitted to penetrate both membranes.

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SECTION 1026
EXTERIOR EXIT RAMPS AND STAIRWAYS

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1026.3 Open side. *Exterior exit ramps* and *stairways* serving as an element of a required *means of egress* shall be at least 50 percent open on at least one side. An open side shall have a minimum of ((~~35~~)) 28 square feet (((~~3.3~~)) 2.6 m2) of aggregate open area adjacent to each floor level. ((~~and the level of each intermediate landing. The required open area shall be located not less than 42 inches (1067 mm) above the adjacent floor or landing level.~~)) The open area shall be distributed to prevent accumulation of smoke or toxic gases.

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SECTION 1027
EXIT DISCHARGE

1027.1 General. *Exits* shall discharge directly to the exterior of the building. The *exit discharge* shall be at grade or shall provide direct access to grade. The *exit discharge* shall not reenter a building except into an exit or as otherwise approved by the building official. The combined use of Exceptions 1 and 2 below shall not exceed 50 percent of the number and capacity of the required *exits*.

Exceptions:

1. A maximum of 50 percent of the number and capacity of the *exit enclosures* is permitted to egress through areas on the level of discharge provided all of the following are met:
   - 1.1. Such *exit enclosures* egress to a free and unobstructed path of travel to an exterior *exit* door and such *exit* is readily visible and identifiable from the point of termination of the *exit* enclosure.
   - 1.2. The entire area of the *level of exit discharge* is separated from areas below by construction conforming to the *fire-resistance rating* for the *exit enclosure*.
   - 1.3. The egress path from the *exit enclosure* on the *level of exit discharge* is protected throughout by an *approved automatic sprinkler system*. All portions of the *level of exit discharge* with access to the egress path shall either be protected throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, or separated from the egress path in accordance with the requirements for the enclosure of *exits*.
2. A maximum of 50 percent of the number and capacity of the *exit enclosures* is permitted to egress through a vestibule provided all of the following are met:

2.1. The entire area of the vestibule is separated from areas below by construction conforming to the *fire-resistance rating* for the *exit enclosure*.
2.2. The depth from the exterior of the building is not greater than 10 feet (3048 mm) and the length is not greater than 30 feet (9144 mm).
2.3. The area is separated from the remainder of the *level of exit discharge* by construction providing protection at least the equivalent of *approved* wired glass in steel frames.
2.4. The area is used only for *means of egress* and *exits* directly to the outside.
3. *Stairways* in *open parking garages* complying with Section 1022.1, Exception 4, are permitted to egress through the *open parking garage* at their *levels of exit discharge*.
4. *Horizontal exits* complying with Section 1025 shall not be required to discharge directly to the exterior of the building.

***

1027.5 Egress courts. *Egress courts* serving as a portion of the *exit discharge* in the *means of egress* system shall comply with the requirements of Section 1027.

1027.5.1 Width. The width of *egress courts* shall be determined as specified in Section 1005.1, but such width shall not be less than 44 inches (1118 mm), except as specified herein. *Egress courts* serving Group R-3 and U occupancies shall not be less than 36 inches (914 mm) in width. The required width of *egress courts* shall be unobstructed to a height of 7 feet (2134 mm).

Exception: Doors complying with Section 1005.2.

Where an *egress court* exceeds the minimum required width and the width of such *egress court* is then reduced along the path of *exit* travel, the reduction in width shall be gradual. The transition in width shall be affected by a guard not less than 36 inches (914 mm) in height and shall not create an angle of more than 30 degrees (0.52 rad) with respect to the axis of the *egress court* along the path of egress travel. In no case shall the width of the *egress court* be less than the required minimum.

1027.5.2 Construction and openings. Where an *egress court* serving a building or portion thereof is less than 10 feet (3048 mm) in width, the *egress court* walls shall have not less than 1-hour *fire-resistance-rated* construction for a distance of 10 feet (3048 mm) above the floor of the *court*. Openings within such walls shall be protected by opening protectives having a *fire protection rating* of not less than ¾ hour.

Exceptions:
1. *Egress courts* serving an *occupant load* of less than 10.
2. *Egress courts* serving Group R-3.
3. In buildings other than those which have a single means of egress under Section 1021.2.1 item 3, opening protection need not be provided where it is possible to exit in two directions from the court.

***

SECTION 1028
ASSEMBLY

***

1028.13 Handrails. Ramped *aisles* having a slope exceeding one unit vertical in 15 units horizontal (6.7-percent slope) and *aisle stairs* shall be provided with *handrails* located either at the side or within the *aisle* width.

Exceptions:

1. *Handrails* are not required for ramped *aisles* having a gradient no greater than one unit vertical in eight units horizontal (12.5-percent slope) and seating on both sides.
2. *Handrails* are not required if, at the side of the *aisle*, there is a *guard* that complies with the graspability requirements of *handrails*.
3. *Handrail* extensions are not required at the top and bottom of *aisle stairs* and *aisle ramp* runs to *permit* crossovers within the *aisles*.

1028.13.1 Discontinuous handrails. Where there is seating on both sides of the *aisle*, the *handrails* shall be discontinuous with gaps or breaks at intervals not exceeding five rows to facilitate access to seating and to permit crossing from one side of the *aisle* to the other. These gaps or breaks shall have a clear width of at least 22 inches (559 mm) and not greater than 36 inches (914 mm), measured horizontally, and the *handrail* shall have rounded terminations or bends.

~~((**1028.13.2 Intermediate handrails.** Where *handrails* are provided in the middle of *aisle stairs*, there shall be an additional intermediate *handrail* located approximately 12 inches (305 mm) below the main *handrail*.))~~

***

Section 12. Chapter 12 of the 2009 International Fire Code is amended as follows:

***

1207.3 Solvent storage tanks. Solvent storage tanks for Class II, IIIA and IIIB liquids shall conform to the requirements of Chapter 34 and be located underground or outside, above ground.
Exceptions: 1. As provided in NFPA 32 for inside storage o~~r~~f treatment tanks.
2. Solvent tanks located within *approved* rooms or buildings in accordance with Section 3405.3.7 for use, mixing and dispensing of flammable and combustible liquids.

***

Section 13. Chapter 13 of the 2009 International Fire Code is amended as follows:

***

1303.1.1 Static accumulation. If processes or conditions exist where combustible dust could be ignited by static electricity, means shall be provided to prevent the accumulation of a static charge.

***

1303.3 Dust collection equipment and interlocks. Suitable dust-collecting equipment shall be installed on all dust producing machinery and interlocked with the machinery power supply so that the machinery cannot be operated without the dust-collection equipment also operating.

[M] 1303.4 Model shops and other intermittent use facilities. Equipment or machinery located inside buildings that emit dust but are used on an intermittent basis, including, but not limited to, model shops, research and development facilities, hobby, and other non-production uses, shall be provided with a local, point of use dust collection system. The dust collector can be a portable type with high efficiency filters to allow exhaust air to be discharged back into the space. Such collectors are not required to be provided with an approved explosion-control system. Such systems shall be limited to no more than 1,000 cfm.

***

Section 14. Chapter 14 of the 2009 International Fire Code is amended as follows:

CHAPTER 14
FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION

SECTION 1401
GENERAL

1401.1 Scope. This chapter shall apply to structures in the course of construction, *alteration* or demolition, including those in underground locations. Compliance with NFPA 241 is required for items not specifically addressed herein.

Construction, alteration and demolition of fixed guideway transit and passenger rail systems tunnels shall comply with NFPA 130 as amended and WAC 296-155, Part Q, underground Construction.

1401.1.1 Point of Information
Adopted local amendments to NFPA 130 can be accessed at http://www.seattle.gov/fire/FMO/firecode/nfpaAmendments.htm

Construction, alteration and demolition of road tunnels shall comply shall comply with NFPA 502 as amended and WAC 296-155, Part Q, Underground Construction.

1401.1.2 Point of Information

Adopted local amendments to NFPA 502 can be accessed at http://www.seattle.gov/fire/FMO/firecode/nfpaAmendments.htm

***

1404.5 Fire watch. Fire watch for buildings under construction or alteration shall be provided in accordance with the Administrative Rule 9.06.07, *Out-Of-Service Fire Alarm, Standpipe, Fire Sprinkler and Emergency Alarm Systems* and any future revisions of this rule adopted by the *fire code official*. When required by the *fire code official* for building demolition that is hazardous in nature, qualified personnel shall be provided to serve as an on-site fire watch. Fire watch personnel shall be provided with at least one *approved* means for notification of the fire department and their sole duty shall be to perform constant patrols and watch for the occurrence of fire.

1404.6 ((~~**Cutting and welding.** Operations involving the use of cutting and welding shall be done~~))**Hot work.** Hot work operations shall be conducted in accordance with Chapter 26.

***

[B] 1411.3 Stairway floor number signs. Temporary stairway floor number signs shall be provided in accordance with the requirements of Section 1022.8.1.

***

1413.1 Where required. In buildings required to have standpipes by Section 905.3.1, not less than one Class I standpipe shall be provided, in accordance with Section 905, for use during construction. Such standpipes shall be installed when the progress of construction is not more than 40 feet (12 192 mm) in height above the lowest level of fire department ((~~vehicle~~)) access. Such standpipe shall be provided with fire department hose connections at accessible locations adjacent to usable stairs. Such standpipes shall be extended as construction progresses to within one floor of the highest point of construction having secured decking or flooring.

***

1414.1 Completion before occupancy. In buildings where an *automatic sprinkler system* is required by this code or the *International Building Code*, it shall be unlawful to occupy any portion of a building or structure until the *automatic sprinkler system* installation has been tested and *approved*, except as provided in Section 105.3.4, and Administrative Rule 9.07.07,

Partial/Phased Occupancy, Occupancy During Construction and Temporary Certificates of Occupancy and any future revisions of this rule adopted by the *fire code official*.

Section 15. Chapter 15 of the 2009 International Fire Code is amended as follows:

***

1501.2 Nonapplicability. This chapter shall not apply to:

1. S((s))pray finishing utilizing flammable or *combustible liquids* which do not sustain combustion, including:

1.1 Liquids that have no fire point when tested in accordance with ASTM D 92.

1.2((.)) Liquids with a flashpoint greater than 95°F (35°C) in a water-miscible solution or dispersion with a water and inert (noncombustible) solids content of more than 80 percent by weight.

2. Mobile spray coaters registered with, and meeting the requirements of, the Puget Sound Clean Air Agency.

1501.2 Point of Information

Details relating to the Puget Sound Clean Air Agency's (PSCAA) rules and requirements can be obtained online at:
www.pscleanair.org/regulated/mobilespraycoaters/assistance.aspx
or by contacting PSCAA at (206) 434-8800.

***

1504.2 Location of spray-finishing operations. Spray finishing operations conducted in buildings used for Group A, E, I or R occupancies shall be located in a spray room protected with an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1 and separated vertically and horizontally from other areas in accordance with the *International Building Code*. In other occupancies, spray-finishing operations shall be conducted in a spray room, spray booth or spraying space *approved* for such use.

Exceptions:

1. Automobile undercoating spray operations and spray-on automotive lining operations conducted in areas with *approved* natural or mechanical ventilation shall be exempt from the provisions of Section 1504 when *approved* and where utilizing Class IIIA or IIIB *combustible liquids*.
2. In buildings other than Group A, E, I or R occupancies, *approved* limited spraying space in accordance with Section 1504.9.

3. Resin application areas used for manufacturing of reinforced plastics complying with Section 1509 shall not be required to be located in a spray room, spray booth or spraying space.

Spray-finishing operations are allowed in basements only if confined to either an *approved* spray booth or an *approved* spray room protected by an *approved* automatic fire sprinkler system and if such basement is protected throughout by an *approved* automatic sprinkler system in accordance with Chapter 9.

***

1504.7.8.5 Filter disposal. Discarded filter pads shall be immediately ((~~removed to a safe, detached location or~~)) placed in a noncombustible container with a tight-fitting lid and disposed of ((~~properly~~)) in accordance with local and state hazardous waste regulations.

***

1504.9 Limited spraying spaces. Limited spraying spaces shall comply with Sections 1504.9.1 through 1504.9.4.

Limited spraying spaces are prohibited if they are used as the exclusive location for spray finishing operations and auto refinishing and collision repair are the primary business.

1504.9.1 Job size. The aggregate surface area to be sprayed shall not exceed 9 square feet (0.84 m2).

1504.9.2 Frequency. Spraying operations shall not be of a continuous nature.

1504.9.3 Ventilation. Positive mechanical ventilation providing a minimum of six complete air changes per hour shall be installed. Such system shall meet the requirements of this code for handling flammable vapor areas. Explosion venting is not required.

Exception: Negative mechanical ventilation, providing a minimum of six complete air changes per hour, is allowed if a fan rated for Class I, Division 2 hazardous locations in accordance with the Electrical Code is installed.

1504.9.4 Electrical wiring and equipment. Electrical wiring and equipment within 10 feet (3048 mm) of the floor and 20 feet (6096 mm) horizontally of the limited spraying space shall be designed for Class I, Division 2 locations in accordance with NFPA 70.

***

Section 16. Chapter 17 of the 2009 International Fire Code is amended as follows:

***

1703.2.1 Electricity. Electricity shall be shut off.

Exception: Circulating fans that have been specifically designed for utilization in hazardous atmospheres and installed in accordance with NFPA 70 and temporary remote control power leads with control switches located outside the fumigant space for powering such fans.

***

Section 17. Chapter 21 of the 2009 International Fire Code is amended as follows:

CHAPTER 21
((~~INDUSTRIAL~~)) OVENS, DRYERS, AND FURNACES

SECTION 2101
GENERAL

2101.1 Scope. This chapter shall apply to the installation and operation of Class A, Class B, and Class C ((~~industrial~~))ovens, dryers and furnaces operating at approximately atmospheric pressure and used for commercial or industrial processing of materials and Class D ovens and furnaces operating above ambient temperatures to over 5,000 °F (2,670 °C) and at pressures normally below atmospheric to 10^{-8} torr (1.33 x 10^{-6} Pa). This chapter does not apply to listed equipment with a heating system that supplies a total input not exceeding 150,000 Btu/hr (44kW) or to coal or solid fuel-fired food service equipment. ~~Industrial~~ Ovens, dryers and furnaces shall comply with the applicable provisions of NFPA 86, the *International Fuel Gas Code*, *International Mechanical Code* and this chapter. The terms "ovens", "dryers" and "furnaces" are used interchangeably in this chapter.

***

2102.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

FURNACE CLASS A. An oven or furnace that has heat utilization equipment operating at approximately atmospheric pressure wherein there is a potential explosion or fire hazard that could be occasioned by the presence of flammable volatiles or combustible materials processed or heated in the furnace.

2102.1.1 Point of Information

((~~Note:~~))Such flammable volatiles or combustible materials can, for instance, originate from the following:
1. Paints, powders, inks, and adhesives from finishing processes, such as dipped, coated, sprayed and impregnated materials.
2. The substrate material.
3. Wood, paper and plastic pallets, spacers or packaging materials.

4. Polymerization or other molecular rearrangements.
Potentially flammable materials, such as quench oil, water-borne finishes, cooling oil or cooking oils that present a hazard are ventilated according to Class A standards.

FURNACE CLASS B. An oven or furnace that has heat utilization equipment operating at approximately atmospheric pressure wherein there are no flammable volatiles or combustible materials being heated.

FURNACE CLASS C. An oven or furnace that has a potential hazard due to a flammable or other special atmosphere being used for treatment of material in process.

2101.1.2 Point of Information

This type of furnace can use any type of heating system and includes a special atmosphere supply system. Also included in the Class C classification are integral quench furnaces and molten salt bath furnaces.

FURNACE CLASS D. An oven or furnace that is a pressure vessel that operates under vacuum for all or part of the process cycle, operates at temperatures from above ambient to over 5,000°F (2760°C) and at pressures normally below atmospheric using any type of heating system. These furnaces can include the use of special processing atmospheres.

2101.1.3 Point of Information

Class D furnaces operate at or below atmospheric pressure (vacuum) and do not fall into the jurisdiction of the Boiler and Pressure Vessel Code.

***

2103.1 Ventilation. Enclosed rooms or *basements* containing ((~~industrial~~)) ovens or furnaces shall be provided with combustion air in accordance with the *International Mechanical Code* and the *International Fuel Gas Code*, and with ventilation air in accordance with the *International Mechanical Code.*

***

2103.3 Ignition source. ((~~Industrial o~~))Ovens, dryers, and furnaces shall be located so as not to pose an ignition hazard to flammable vapors or mists or *combustible dusts*.

***

SECTION 2104
FUEL PIPING

2104.1 Fuel-gas piping. Fuel-gas piping serving ((~~industrial~~))ovens shall comply with the *International Fuel Gas Code*. Piping for other fuel sources shall comply with this section.

2104.2 Shutoff valves. Each ((~~industrial~~))oven, dryer or furnace shall be provided with an *approved* manual fuel shutoff valve in accordance with the *International Mechanical Code* or the *International Fuel Gas Code*.

***

Section 18. Chapter 22 of the 2009 International Fire Code is amended as follows:

CHAPTER 22
MOTOR FUEL-DISPENSING FACILITIES AND REPAIR GARAGES

SECTION 2201
GENERAL

2201.1 Scope. Automotive motor fuel-dispensing facilities, marine motor fuel-dispensing facilities, fleet vehicle motor fuel-dispensing facilities, aircraft motor-vehicle fuel-dispensing facilities and repair garages shall be in accordance with this chapter and the *International Building Code*, *City of Seattle Source Control Technical Requirements Manual (DPD Director's Rule 15-2009)*, *International Fuel Gas Code* and *International Mechanical Code*. Such operations shall include both those that are accessible to the public and private operations.

2201.1 Point of Information
For provisions relating to the transfer of flammable and combustible liquids directly from tank vehicles into the fuel tanks of motor vehicles located at commercial, industrial, governmental or manufacturing establishments, see Section 3406.5.4.5.

***

FIRE DISTRICT. Shall consist of that part of the city within the boundary described in Section 401 of the *Seattle Building Code* as follows:
Beginning at the intersection of the center line of Alaskan Way and Clay Street; thence northeasterly along the center line of Clay Street to an intersection with the center line of Denny Way; thence easterly along the center line of Denny Way to an intersection with the center line of Yale Avenue; thence southeasterly along the center line of Yale Avenue to an intersection with the center line of Interstate Highway 5; thence southerly and southeasterly along the center line of Interstate 5 to an intersection with the center line of 7th Avenue South; thence southerly along the center line of 7th Avenue South to an intersection with the center line of Dearborn Street;

thence westerly along the center line of Dearborn Street to an intersection with the center line of Airport Way; thence northwesterly along the center line of Airport Way to an intersection with the center line of 4th Avenue South; thence southerly along the center line of 4th Avenue south to an intersection with the center line of South Royal Brougham Way; thence westerly along said center line of South Royal Brougham Way to an intersection with the center line of South Alaskan Way; thence southerly along the center line of South Alaskan Way to an intersection with the center line of South Massachusetts Street; thence westerly along the centerline of South Massachusetts Street to the Outer Harbor Line in Elliott Bay; thence northerly and northwesterly along said Outer Harbor Line to an intersection with the center line of West Harrison Street; thence easterly along the center line of West Harrison Street to an intersection with the center line of Alaskan Way; then southeasterly along the center line of Alaskan Way to the point of beginning.

2202.1.1 Point of Information

For a map of the City of Seattle *Fire District*, see the *Seattle Building Code*.

***

2202.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

***

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

2202.1.2 Point of Information

Marine motor fuel-dispensing facilities are not to be confused with marine bulk plants that transfer fuel by way of flange-to-flange connections. Marine motor fuel-dispensing facilities use automotive-type dispensing equipment for fueling primarily pleasure craft.

MOTOR VEHICLE Includes, but is not limited to, a vehicle, machine, tractor, trailer or semitrailer, or any combination thereof, propelled or drawn by mechanical power and used upon the highways in the transportation of passengers or property. It does not include a vehicle, locomotive or car operated exclusively on a rail or rails, or a trolley bus operated by electric power derived from a fixed overhead wire, furnishing local passenger transportation similar to street-railway service. The term "motor vehicle" also includes freight containers or cargo tanks used, or intended for use, in connection with motor vehicles.

2202.1.3 Point of Information

For reference, see 49 CFR Pt. 171.8 (October 2009).

MOTOR VEHICLE, UNATTENDED A motor vehicle in such a condition that the driver cannot see the motor vehicle or hear noises in or near the motor vehicle.

Exceptions:

1. Necessary absence in connection with loading and unloading the motor vehicle.
2. Stops for meals during the day or night, if the point of parking is well lighted.
3. If in case of accident or other emergency, the driver must leave to obtain assistance.

***

2203.2 Emergency disconnect switches. An *approved*, clearly identified and readily accessible emergency disconnect switch shall be provided at an *approved* location, to stop the transfer of fuel to the fuel dispensers in the event of a fuel spill or other emergency. An emergency disconnect switch for exterior fuel dispensers shall be located within 100 feet (30 480 mm) of, but not less than 20 feet (6096 mm) from, the fuel dispensers. For interior fuel-dispensing operations, the emergency disconnect switch shall be installed at an *approved* location. Such devices shall be distinctly *labeled* as: EMERGENCY FUEL SHUTOFF. Signs shall be provided in *approved* locations and letters shall not be less than 3 inches (76.2 mm) in height and 1/2 inch (12.7 mm) in stroke.

***

2204.4.1 Approved containers required. Class I, II and IIIA liquids shall not be dispensed into a portable container unless such container does not exceed a 6-gallon (22.7 L) capacity, is *listed* or of *approved* material and construction, and has a tight closure with a screwed or spring-loaded cover so designed that the contents can be dispensed with-out spilling. Liquids shall not be dispensed into portable or cargo tanks.

It is unlawful to sell, offer for sale or distribute any container for the storage and/or handling of flammable liquids, unless such container has been approved for such purpose under applicable provisions of this code.

***

2205.1 Tank filling operations for Class I, II ((~~or~~)) IIIA liquids, or IIIB liquids. Delivery operations to tanks for Class I, II, ((~~or~~))IIIA, or IIIB liquids shall comply with Sections 2205.1.1 through 2205.1.3 and the applicable requirements of Chapter 34.

***

2206.2 Method of storage. *Approved* methods of storage for Class I, II, ((~~and~~))IIIA, and IIIB liquid fuels at motor fuel-dispensing facilities shall be in accordance with Sections 2206.2.1 through 2206.2.5.

***

2206.2.2 Above-ground tanks located inside buildings. Above-ground tanks for the storage of Class I, II, ((~~and~~)) IIIA, and IIIB liquid fuels are allowed to be located in buildings. Such tanks shall be located in special enclosures complying with Section 2206.2.6, in a liquid storage room or a liquid storage warehouse complying with Chapter 34((~~, or shall be *listed* and *labeled* as protected above-ground tanks~~)).

Exceptions:

1. Above-ground tanks listed and labeled as protected above-ground tanks containing Class I flammable liquids and having an individual capacity not exceeding 120 gallons (454 L) are not required to be located in special enclosures or in a liquid storage room or warehouse.

2. Above-ground tanks listed and labeled as protected above-ground tanks containing Class II or III-A combustible liquids and having an individual capacity not exceeding 660 gallons (908 L) are not required to be located in special enclosures or in a liquid storage room or warehouse.

3. Aboveground tanks for Class III-B liquids not exceeding a maximum individual capacity of 13,200 in unsprinklered buildings.

4. Aboveground tanks for Class III-B liquids in sprinklered buildings.

2206.2.3 Above-ground tanks located outside, above grade. Above-ground tanks shall not be used for the storage of Class I, II, ((~~or~~)) IIIA, and IIIB liquid motor fuels except as provided by this section.

1. Above-ground tanks used for outside, above-grade storage of Class I liquids shall be *listed* and *labeled* as *protected above-ground tanks* and be in accordance with Chapter 34. Such tanks shall be located in accordance with Table 2206.2.3.

2. Above-ground tanks used for outside, above-grade storage of Class II or IIIA liquids ((~~are allowed to~~)) shall be *protected above-ground tanks* ((~~or, when approved by the fire code official, other above-ground tanks that comply~~)) and shall be in accordance with Chapter 34. Tank locations shall be in accordance with Table 2206.2.3.

3. Above-ground tanks containing Class I liquids for fueling motor vehicles are prohibited in the fire district.

4. Above-ground tanks containing Class I liquids for fueling motor vehicles are allowed outside the fire district only if located within an industrial [I] zone, as defined in the *Seattle Land Use Code.*

5. ((~~3~~)). Tanks containing Class I fuels shall not exceed 12,000 gallons (45 420 L) in individual capacity or ((~~48,000~~))12,000 gallons (((~~181 680~~))45 420 L) in aggregate capacity. Tanks containing Class II or III-A liquid fuels shall not exceed 12,000 gallons (45 420 L) in individual capacity or 48,000 gallons (181 680 L) in aggregate capacity. The total maximum aggregate quantity of all flammable and combustible liquids in above-ground storage tanks on site shall not exceed 48,000 gallons (181 680 L).

Installations with the maximum allowable aggregate capacity shall be separated from other such installations by not less than 100 feet (30 480 mm).

6((~~4~~)). Tanks located at farms, construction projects, or rural areas shall comply with Section 3406.2.

7. Above-ground tanks used for outside, above-grade storage of Class III-B liquid motor fuels shall be listed and labeled as protected aboveground tanks or listed and labeled in accordance with UL 142, *Standard for Steel Aboveground Tanks.*

2206.2.4 Above-ground tanks located in above-grade vaults or below-grade vaults. Above-ground tanks used for storage of Class I, II or IIIA liquid motor fuels are allowed to be installed in vaults located above grade or below grade in accordance with Section 3404.2.8 and shall comply with Sections 2206.2.4.1 and 2206.2.4.2. Tanks in above-grade vaults shall also comply with Table 2206.2.3.

2206.2.4.1 Tank capacity limits. Tanks storing Class I liquids are limited to maximum individual capacity of 12,000 gallons (45 420 L) and an aggregate capacity at an individual site of 12,000 gallons (45 420 L). Tanks storing ((~~and~~)) Class II and Class III-A liquids at an individual site shall be limited to a maximum individual capacity of ((~~15,000~~)) 12,000 gallons (((~~56 775~~)) 45 420 L) and an aggregate capacity of 48,000 gallons (181 680 L).

2206.2.4.2 Above-ground tanks located in vaults at ((~~F~~))fleet vehicle motor fuel-dispensing facilities. Vaulted ((~~T~~))tanks storing Class II and Class IIIA liquids at a fleet vehicle motor fuel-dispensing facility shall be limited to a maximum individual capacity of 20,000 gallons (75 700 L) and an aggregate capacity of 80,000 gallons (302 800 L).

2206.2.5 Portable tanks. Where *approved* by the *fire code official*, portable tanks are allowed to be temporarily used in conjunction with the dispensing of Class I, II, ((~~or~~)) IIIA, or IIIB liquids

into the fuel tanks of motor vehicles or motorized equipment on premises not normally accessible to the public. The approval shall include a definite time limit.

***

2206.6.2 Piping, valves, fittings and ancillary equipment for above-ground tanks for Class I, II, ((~~and~~))IIIA, and IIIB liquids. Piping, valves, fittings and ancillary equipment for above-ground tanks shall comply with Sections 2206.6.2.1 through 2206.6.2.6.

***

2206.7.6.1 Special requirements for nozzles. Where dispensing of Class I, II,((~~or~~)) IIIA, or IIIB liquids is performed, a *listed* automatic-closing-type hose nozzle valve shall be used incorporating all of the following features:

1. The hose nozzle valve shall be equipped with an integral latch-open device.
2. When the flow of product is normally controlled by devices or equipment other than the hose nozzle valve, the hose nozzle valve shall not be capable of being opened unless the delivery hose is pressurized. If pressure to the hose is lost, the nozzle shall close automatically.

   Exception: Vapor recovery nozzles incorporating insertion interlock devices designed to achieve shutoff on disconnect from the vehicle fill pipe.
3. The hose nozzle shall be designed such that the nozzle is retained in the fill pipe during the filling operation.
4. The system shall include *listed* equipment with a feature that causes or requires the closing of the hose nozzle valve before the product flow can be resumed or before the hose nozzle valve can be replaced in its normal position in the dispenser.

***

2207.1.1 Prohibited locations. Motor fuel-dispensing facilities for liquefied petroleum gas (LP-gas) fuel are prohibited in the *fire district.*

***

2209.1.1 Prohibited locations. Hydrogen motor fuel-dispensing and generation facilities are prohibited in the *fire district.*

***

Section19. Chapter 24 of the 2009 International Fire Code is amended as follows:

***

2403.2 Approval required. Tents and membrane structures having an area in excess of 400 square feet (37 m2) shall not be erected((~~, operated~~)) or maintained for any purpose without first obtaining a permit and approval from the *fire code official.*

Exceptions:

1. Tents used exclusively for recreational camping purposes.
2. Funeral tents and curtains or extensions attached thereto, when used for funeral services.

((2))3. Tents open on all sides which comply with all of the following:

((2))3.1. Individual tents having a maximum size of 700 square feet (65 m2).

((2))3.2. The aggregate area of multiple tents placed side by side without a fire break clearance of 12 feet (3658 mm), not exceeding 700 square feet (65 m2) total.

((2))3.3. A minimum clearance of 12 feet (3658 mm) to all structures and other tents.

***

2404.2 Flame propagation performance treatment. Before a permit is granted, the *owner* or agent shall file with the fire code official a certificate executed by an approved testing laboratory certifying that the tents and membrane structures and their appurtenances; sidewalls, drops and tarpaulins; floor coverings, bunting and combustible decorative materials and effects, including sawdust when used on floors or passageways, are composed of material meeting the flame propagation performance criteria of NFPA 701 or other *approved* standard, or shall be treated with a flame retardant in an *approved* manner and meet the flame propagation performance criteria of NFPA 701, and that such flame propagation performance criteria are effective for the period specified by the permit.

2404.2 Point of Information

Accepted flame certificates for decorative materials include:
1. Certificates indicating compliance with NFPA 701.
2. Certificates verifying approval through the California State Fire Marshal.
3. Certificates indicating compliance with CPAI-84 (*Canvas Products Association International*).

***

Section 20. Chapter 25 of the 2009 International Fire Code is amended as follows:

***

2505.4 Distance from lot lines and buildings. Tire storage piles shall be located at least 50 feet (15 240 mm) from *lot lines* and buildings.

Exception: When stored on a single rack having dimensions not exceeding 68 inches by 48 inches by 76 inches (1727 mm by 1219 mm by 1930 mm) for commercial display, the distance to property lines that can be built upon may be reduced to 10 feet (3048 mm) and no separation is required from buildings on the same property.

***

Section 21. Chapter 26 of the 2009 International Fire Code is amended as follows:

CHAPTER 26
WELDING AND OTHER HOT WORK

SECTION 2601
GENERAL

2601.1 Scope. Welding, cutting, open torches and other hot work operations and equipment shall comply with this chapter.

Exception: Hot work on board marine vessels at dock or under construction or repair shall be in accordance with Administrative Rules 26.01.09, *Cutting, Welding and Other Hot Work on Marine Vessels* and 26.02.09 *Designated Marine Hot Work Facilities and Shipyards* and any future revisions of this rule adopted by the *fire code official.*

***

2601.5 Design and installation of oxygen-fuel gas systems. ((~~The design and installation of~~)) A((a))n oxygen-fuel gas system with two or more manifolded cylinders of oxygen shall be in accordance with NFPA 51.

***

2602.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

HOT WORK. Operations including cutting, welding, Thermit welding, brazing, soldering, grinding, thermal spraying, thawing pipe, installation of torch-applied roof systems, glass blowing, weed burning, or any other similar spark, arc or flame-producing activity.

***

P_F DEVICE. A wet or dry device (or assembly of devices) in a fuel gas line designed to perform the following three functions:
(a) Prevent backflow of oxygen into the fuel gas supply system;
(b) Prevent the passage of flame into the fuel gas supply system (flashback);
(c) Prevent the development of a fuel gas-oxygen mixture at sufficient pressure so that its ignition would achieve combustion pressures that could cause failure to perform functions (a) and (b).

This device is given a diagram symbol, P_F. A wet P_F device is commonly known as a hydraulic seal, hydraulic valve or hydraulic back-pressure valve.

***

2604.2.2 Location. The fire watch shall include the entire hot work area and be positioned so that the extinguishment of a spot fire is not delayed. Hot work conducted in areas with vertical or horizontal fire exposures that are not observable by a single individual shall have additional personnel assigned to fire watches to ensure that exposed areas are monitored.

2604.2.3 Duties. Individuals designated to fire watch duty shall have no other duties except to watch for fire, ((~~fire-extinguishing equipment readily available and shall be trained in the use of such equipment. Individuals assigned to fire watch duty shall be responsible for~~))extinguish((~~ing~~)) spot fires and communicate((~~ing~~)) an alarm.

2604.2.4 Fire extinguishing equipment training. The individuals responsible for performing the hot work and individuals responsible for providing the fire watch shall ((~~be trained in the use of portable fire extinguishers~~))have fire-extinguishing equipment readily available and shall be trained in the use of such equipment.

2604.2.5 Fire hoses. Where hoselines are required, they shall be connected, charged and ready for operation.

2604.2.6 Fire extinguisher. A minimum of one portable fire extinguisher complying with Section 906 and with a minimum ((~~2~~))3-A:((~~20~~))40-B:C rating shall be readily accessible within 30 feet (9144 mm) of the location where hot work is performed.

***

2605.4 Fuel gases and liquid oxygen.

2605.4.1 Acetylene gas and other nonliquefied flammable gases.

2605.4.1.1 Prohibitions. Acetylene gas shall not be:
1. ((~~p~~)) Piped except in approved cylinder manifolds and cylinder manifold connections, or
2. ((~~u~~)) Utilized at a pressure exceeding 15 pounds per square inch gauge (psig) (103 kPa) unless dissolved in a suitable solvent in cylinders manufactured in accordance with DOTn 49 CFR Part 178.

2605.4.1.2 Unalloyed copper. Acetylene gas shall not be brought in contact with unalloyed copper, except in a blowpipe or torch.

2605.4.1.3 Maximum acetylene and other nonliquefied flammable gas quantities inside buildings. The maximum quantity of acetylene and other nonliquefied flammable gas used and stored inside buildings in conjunction with hot work operations shall be in accordance with this section.

2605.4.1.3.1 Group A, B, E, I, M and R occupancies.
Acetylene gas and other nonliquefied flammable gas shall not be stored or used in Group A, B, E, I, M or R occupancies.
Exceptions:

1. Individual cylinders not exceeding 150 cubic feet (4m3) each at normal temperature and pressure (NTP). Aggregate quantity of flammable gas shall not exceed 1,000 cubic feet (28 m3) in unsprinklered buildings and 2,000 cubic feet (57m3) in sprinklered buildings.
2. Buildings under construction or demolition where individual acetylene gas and other nonliquefied flammable gas cylinders do not exceed 300 cubic feet (8 m3) each at normal temperature and pressure and the aggregate storage quantity inside the building does not exceed 1,000 cubic feet (28 m3).

2605.4.1.3.2 Group F and S occupancies. Acetylene and other nonliquefied flammable gas shall not be stored or used in Group F and S occupancies in excess of the maximum allowable quantities set forth in Table 2703.1.1 (1).

2605.4.1.3.3 Mixed use occupancies. Individual fuel gas cylinders within F or S occupancies in buildings having any other use shall be limited to 250 cubic feet (7 m3) at normal temperature and pressure and shall be limited to a total aggregate gas capacity of 1,000 cubic feet (70.8 m3) at normal temperature and pressure of acetylene or other nonliquefied flammable gas.

2605.4.2 Liquefied petroleum gas (LP-gas) and methylacetylenepropadiene (MAPP gas).

2605.4.2.1 Maximum LP-gas and MAPP gas quantities inside buildings. The maximum quantity of LP-gas and MAPP gas used and stored inside buildings in conjunction with hot work operations shall be in accordance with this section.

2605.4.2.1.1 Group A, B, E, I, M and R occupancies. LP-gas and MAPP shall not be stored or used in Group A, B, E, I, M or R occupancies.

Exceptions:

1. A single LP-gas or a single MAPP gas cylinder not exceeding 50-pounds (22.7 kg) water capacity [nominal 20 pounds (9 kg) LP-gas] in Group E and M occupancies.
2. Individual LP-gas or MAPP gas cylinders not exceeding 12-pounds (5.4 kg) water capacity [nominal 5 pounds (2.3 kg) LP-gas] in Group I occupancies.
3. Unoccupied buildings under construction or demolition where individual LP-gas or MAPP gas cylinders do not exceed 240-pounds (109 kg) water capacity [nominal 100 pounds (45.4 kg) LP-gas] and the aggregate quantity inside the building does not exceed an aggregate water capacity of 735 pounds (333.4 kg) [nominal 300 pounds (136 kg) LP-gas] on the site.
4. Occupied buildings under construction or demolition where individual LP-gas or MAPP gas cylinders do not exceed 104-pounds (47 kg) water capacity [nominal 43.5 pounds (19.7 kg) LP-gas] and the aggregate quantity inside the building does not exceed 357-pounds (162 kg) water capacity [nominal 150 pounds (68 kg) LP-gas].
5. Approved self-contained torch assemblies fueled by LP-gas containers having an individual water capacity not exceeding 2.7 pounds (1.2 kg).

2605.4.2.1.2 Group F and S occupancies. LP-gas and MAPP gas shall not be stored or used in excess of 735 pounds (333.4 kg) aggregate water capacity [nominal 300 pounds (136 kg) LP-gas] in Group F and S occupancies.

2605.4.2.1.3 Mixed use occupancies. LP-gas and MAPP gas storage and use inside Group F and S occupancies within buildings having any other use shall be limited to cylinders having an individual water capacity not exceeding 50 pounds (22.7 kg) [nominal 20 pounds (9 kg) LP-gas] and a total aggregate water capacity not to exceed 144 pounds (65 kg) [nominal 60 pounds (27 kg) LP-gas].

2605.4.3 Liquid oxygen (LOX). Liquid oxygen shall not be stored or used in an unsprinklered building in an aggregate quantity exceeding 45 gallons (170 L) per control area or an aggregate quantity of 90 gallons (340 L) per control area in a sprinklered building.

2605.4.4 Separation of cylinders in storage. Fuel gas cylinders shall be separated from compressed oxygen cylinders and liquid oxygen containers by a minimum of 20 feet (6096 mm) or by a barrier of noncombustible construction at least 5 feet (1524 mm) high having a fire-resistive rating of at least 1/2 hour. The barrier shall interrupt all lines of sight between oxygen and fuel gas cylinders within 20 feet (6096 mm) of each other.

2605.5 Remote locations. Oxygen and fuel-gas cylinders and acetylene generators shall be located away from the hot work area to prevent such cylinders or generators from being heated by radiation from heated materials, sparks or slag, or misdirection of the torch flame.

2605.6 Cylinders shutoff. The torch valve shall be closed and the gas supply to the torch completely shut off when gas ((~~welding or cutting~~))hot work operations are discontinued for a period of 1 hour or more.

***

2609.8 PF devices. PF devices shall be designed and installed in fuel gas lines in accordance with NFPA 51.

Section 22. Chapter 27 of the 2009 International Fire Code is amended as follows:

CHAPTER 27
HAZARDOUS MATERIALS—GENERAL PROVISIONS

SECTION 2701
GENERAL

2701.1 Scope. Prevention, control and mitigation of dangerous conditions related to storage, dispensing, use and handling of hazardous materials and notification of biosafety level 3 and biosafety level 4 operations shall be in accordance with this chapter. This chapter shall apply to all hazardous materials, including those materials regulated elsewhere in this code, except that when specific requirements are provided in other chapters, those specific requirements shall apply in accordance with the applicable chapter. Where a material has multiple hazards, all hazards shall be addressed.

Exceptions:

1. The quantities of alcoholic beverages, medicines, foodstuffs, cosmetics and consumer or industrial products containing not more than 50 percent by volume of water-miscible liquids and with the remainder of the solutions not being flammable, in retail or wholesale sales occupancies, are unlimited when packaged in individual containers not exceeding 1.3 gallons (5 L).
2. Application and release of pesticide and agricultural products and materials intended for use in weed abatement, erosion control, soil amendment or similar applications when applied in accordance with the manufacturers' instructions and label directions.
3. The off-site transportation of hazardous materials when in accordance with Department of Transportation (DOTn) regulations.
4. Building materials not otherwise regulated by this code.
5. Refrigeration systems (see Section 606).
6. Stationary storage battery systems regulated by Section 608.
7. The display, storage, sale or use of fireworks and *explosives* in accordance with Chapter 33.
8. *cryogenics* utilized in personal and household products in the manufacturers' original consumer packaging in Group M occupancies.
9. The storage of distilled spirits and wines in wooden barrels and casks.
10. The use of wall-mounted dispensers containing alcohol-based hand rubs classified as Class I or II liquids when in accordance with Section 3405.5.
11. Hazardous materials handled at marine terminals in accordance with Section 2701.1.2.

2701.1.1Waiver. The provisions of this chapter are waived when the *fire code official* determines that such enforcement is preempted by other codes, statutes or ordinances. The details of any action granting such a waiver shall be recorded and entered in the files of the ((~~code enforcement agency~~))*fire code official*.

2701.1.2 Hazardous materials at marine terminals. Hazardous materials that are handled and temporarily located at marine terminals and are incidental to transportation shall be in accordance with the Administrative Rule 27.01.09, *Marine Terminals* and any future revisions of this rule adopted by the *fire code official.*

2701.1.3 Underground storage tanks. Pursuant to Section 106.5.1, the *fire code official approves* permits to install underground tanks issued by and inspections of underground tanks conducted by the Washington State Department of Ecology.

***

2701.5.2 Hazardous Materials Inventory Statement (HMIS). Where required by the *fire code official*, ((~~an~~)) each application for a permit shall include a HMIS((~~, such as Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III, Tier II Report or other approved statement~~)). Where required by the *fire code official*, ((~~T~~))the HMIS shall be in an *approved* format, updated annually and include the following information:

1. Product name.
2. Component.
3. Chemical Abstract Service (CAS) number.
4. Location where stored or used.
5. Container size.
6. Hazard classification.
7. Amount in storage.
8. Amount in use-*closed systems*.
9. Amount in use-*open systems*.

2701.5.2 Point of Information
Prior to developing a HMIS, please contact the Special Hazards Unit of the Fire Prevention Division for specific guidelines, format and assistance.

***

2701.6.1 Temporarily out-of-service facilities. Facilities that are temporarily out of service shall continue to maintain a permit and be monitored and inspected. Facilities for which a closure plan is required in accordance with Section 2701.5 shall notify the *fire code official* when the facility out-of-service period exceeds 15 days.

***

2701.7 Biosafety level 3 and biosafety level 4 operations. The *fire code official* shall be notified in writing annually of locations where biosafety level 3 (BSL-3) or biosafety level 4 (BSL-4) operations as defined by the U.S. Department of Health and Human Services Centers for Disease Control and Prevention and National Institutes of Health (CDC/NIH) are being performed. Such notification shall identify the specific location(s) within the building where BSL-3 and BSL-4 operations are conducted and shall certify compliance with the CDC/NIH's recommended practices for such operations.

***

2703.2.2.2 Additional regulations for supply piping for health-hazard materials. Supply piping and tubing for gases and liquids having a health-hazard ranking of 3 or 4 in accordance with NFPA704 shall be in accordance with ASME B31.3, the *Seattle Mechanical Code* and the following:

1. Piping and tubing utilized for the transmission of highly toxic, toxic or highly volatile *corrosive* liquids and gases shall have welded, threaded or flanged connections throughout except for connections located within a ventilated enclosure if the material is a gas, or an *approved* method of drainage or containment is provided for connections if the material is a liquid.
2. Piping and tubing shall not be located within *corridors*, within any portion of a *means of egress* required to be enclosed in fire-resistance-rated construction or in concealed spaces in areas not classified as Group H occupancies.

Exception: Piping and tubing within the space defined by the walls of *corridors* and the floor or roof above or in concealed spaces above other occupancies when installed in accordance with Section 415.8.6.3 of the *International Building Code* for Group H-5 occupancies.

***

2703.2.4.1 Underground tanks.

2703.2.4.1.1 General. Underground tanks used for the storage of liquid hazardous materials shall be located, installed and protected in accordance with this code and applicable state and federal regulations. Pursuant to Section 106.5.1, the *fire code official approves* permits to install underground tanks issued by and inspections of underground tanks conducted by the Washington State Department of Ecology.

2703.2.4.1.2 Secondary containment for underground tanks. Underground tanks used for the storage of liquid hazardous materials shall be provided with secondary containment. In lieu of providing secondary containment for an underground tank, an above-ground tank in an underground vault complying with Section 3404.2.8 shall be permitted.

***

2703.2.6 Maintenance. In addition to the requirements of Section 2703.2.3, equipment, machinery and required detection and alarm systems associated with hazardous materials shall be maintained as specified by the manufacturer and in an operable condition. Defective containers, cylinders and tanks shall be removed from service, repaired or disposed of in an *approved* manner. Defective equipment or machinery shall be removed from service and repaired or replaced. Required detection and alarm systems shall be replaced or repaired where defective.

***

2703.2.9.1 Equipment, devices and systems requiring testing. The following equipment, systems and devices shall be tested in accordance with Sections 2703.2.9 and 2703.2.9.2.

1. Gas detection systems, alarms and automatic emergency shutoff valves required by Section 3704.2.2.10 for highly toxic and toxic gases.
2. Limit control systems for liquid level, temperature and pressure required by Sections 2703.2.7, 2704.8 and 2705.1.4.
3. Emergency alarm systems and supervision required by Sections 2704.9 and 2705.4.4.
4. Monitoring and supervisory systems required by Sections 2704.10 and 2705.1.6.
5. Manually activated shutdown controls required by Section 4103.1.1.1 for *compressed gas* systems conveying pyrophoric gases.
6. Gas detectors installed in repair garages for vehicles using lighter-than-air fuels in accordance with Section 2211.7.
7. Refrigerant equipment required in accordance with Section 606.

***

2703.3.1 Unauthorized discharges. The *fire code official* shall be immediately notified and the requirements in Section 2703.3.1.1 through 2703.3.1.4 shall be complied with ((~~W~~))when hazardous materials are released in quantities reportable under state, federal or local regulations, or when any spill or accidental release, inside or outside of a building, could present a fire safety hazard. ((~~the fire code official shall be notified and the following procedures required in accordance with Sections 2703.3.1.1 through 2703.3.1.4.~~))

2703.3.1 Point of Information

Spill emergencies should be immediately reported to the Fire Department via 911. See also Section 401.3.

***

2704.7 Standby or emergency power. Where mechanical ventilation, treatment systems, temperature control, alarm, detection or other electrically operated systems are required, such systems shall be provided with an emergency or *legally required standby power* system in accordance with NFPA 70 and Section 604.

Exceptions:

1. Mechanical ventilation for storage of Class IB and Class IC flammable and *combustible liquids* in closed containers not exceeding 61/2 gallons (25 L) capacity.
2. Storage areas for Class 1 and 2 oxidizers.
3. Storage areas for Class II, III, IV and V organic peroxides.
4. Storage areas for asphyxiant, irritant and radioactive gases.
5. For storage areas for highly toxic or toxic materials, see Sections 3704.2.2.8 and 3704.3.4.2.
6. *Legally required ((S))standby power* for mechanical ventilation, treatment systems and temperature control systems shall not be required where an *approved* fail-safe engineered system is installed.

***

2704.13 Weather protection. Where overhead noncombustible construction is provided for sheltering outdoor hazardous material storage areas, such storage shall not be considered indoor storage when the area is constructed in accordance with the requirements for weather protection as required by Section 414.6 of the *International Building Code.*

Exception: Storage of *explosive* materials shall be considered as indoor storage.

2704.13 Point of Information

When this code allows for the reduction of the set back distance required from outdoor storage areas to adjacent buildings by the construction of a fire-resistive wall in specific chapters elsewhere in this code, that reduction allowance is not considered to meet the intent of the requirement for distance in Item 2 of Section 414.6.1 in the *Seattle Building Code*. The fire-resistive wall and the reduction in distance combined with a weather protection canopy are considered to be indoor storage.

***

2705.1.5 Standby or emergency power. Where mechanical ventilation, treatment systems, temperature control, manual alarm, detection or other electrically operated systems are required, such systems shall be provided with an emergency or *legally required standby power* system in accordance with NFPA 70 and Section 604.

Exceptions:

1. *Legally required* ~~((S))~~*standby power* for mechanical ventilation, treatment systems and temperature control systems shall not be required where an *approved* fail-safe engineered system is installed.
2. Systems for highly toxic or toxic gases shall be provided with emergency power in accordance with Sections 3704.2.2.8 and 3704.3.4.2.

***

2705.3.9 Weather protection. Where overhead noncombustible construction is provided for sheltering outdoor hazardous material use areas, such use shall not be considered indoor use when the area is constructed in accordance with the requirements for weather protection as required in Section 414.6 of the *International Building Code.*

Exception: Use of *explosive* materials shall be considered as indoor use.

2705.3.9 Point of Information

When this code allows for the reduction of the set back distance required from outdoor storage areas to adjacent buildings by the construction of a fire-resistive wall in specific chapters elsewhere in this code, that reduction allowance is not considered to meet the intent of the requirement for distance in Item 2 of Section 414.6.1 in the *Seattle Building Code*. The fire-resistive wall and the reduction in distance combined with a weather protection canopy are considered to be indoor storage.

***

Section 23. Chapter 28 of the 2009 International Fire Code is amended as follows:

***

2802.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

***

AEROSOL CONTAINER. A metal can, or a glass or plastic bottle designed to dispense an aerosol. ((~~Metal cans shall be limited to a maximum size of 33.8 fluid ounces (1000 ml). Glass or plastic bottles shall be limited to a maximum size of 4 fluid ounces (118 ml).~~))

***

2804.1.1 Aerosol container size limits. Metal cans are limited to a maximum size of 33.8 fluid ounces (1000 ml). Glass or plastic bottles are limited to a maximum size of 4 fluid ounces (118 ml).

***

Section 24. Chapter 30 of the 2009 International Fire Code is amended as follows:

CHAPTER 30
COMPRESSED GASES

SECTION 3001
GENERAL

3001.1 Scope. Storage, use and handling of *compressed gases* in *compressed gas* containers, cylinders, tanks and systems shall comply with this chapter, including those gases regulated elsewhere in this code. ((~~Partially full *compressed gas* containers, cylinders or tanks containing residual gases shall be considered as full for the purposes of the controls required.~~))

Exceptions:

1. Gases used as refrigerants in refrigeration systems (see Section 606).
2. Compressed natural gas (CNG) for use as a vehicular fuel shall comply with Chapter 22, NFPA 52 and the *International Fuel Gas Code*.

Partially full *compressed gas* containers, cylinders or tanks containing residual gases shall be considered as full for the purposes of the controls required.

((~~Cutting and welding~~))Hot work gases shall also comply with Chapter 26. *Cryogenic fluids* shall comply with Chapter 32.

Liquefied natural gas for use as a vehicular fuel shall also comply with NFPA 52 and NFPA 59A.

Compressed gases classified as hazardous materials shall also comply with Chapter 27 for general requirements and chapters addressing specific hazards, including Chapters 35 (Flammable Gases), 37 (Highly Toxic and Toxic Materials), 40 (Oxidizers, Oxidizing Gases and Oxidizing Cryogenic Fluids) and 41 (Pyrophoric Materials).

LP-gas shall also comply with Chapter 38 and the *International Fuel Gas Code*.

***

((**~~3006.4 Medical gas systems.~~** ~~Medical gas systems including, but not limited to, distribution piping, supply manifolds, connections, pressure regulators and relief devices and valves, shall comply with NFPA 99 and the general provisions of this chapter.~~))

***

Section 25. Chapter 33 of the 2009 International Fire Code is amended as follows:

CHAPTER 33
EXPLOSIVES AND FIREWORKS

SECTION 3301
GENERAL

3301.1 Scope. The provisions of this chapter shall govern the possession, manufacture, storage, handling, sale and use of *explosives*, *explosive materials*, fireworks and small arms ammunition. The manufacture, storage, handling, sale and use of fireworks are governed by Chapter 70.77 RCW and by Chapter 212-17 WAC.

Exceptions:

1. The Armed Forces of the United States, Coast Guard or National Guard.
2. *Explosives* in forms prescribed by the official United States Pharmacopoeia.
3. The possession, storage and use of small arms ammunition when packaged in accordance with DOTn packaging requirements.
4. The possession, storage and use of not more than 1 pound (0.454 kg) of commercially manufactured sporting black powder, 20 pounds (9 kg) of smokeless powder and 10,000 small arms primers for hand loading of small arms ammunition for personal consumption. For the purposes of this code, the term "for personal consumption" means for use by private individuals and not for resale.
5. The use of *explosive materials* by federal, state and local regulatory, law enforcement and fire agencies acting in their official capacities.
6. Special industrial *explosive* devices which in the aggregate contain less than 50 pounds (23 kg) of *explosive materials*.

7. The possession, storage and use of blank industrial-power load cartridges when packaged in accordance with DOTn packaging regulations.
8. Transportation in accordance with DOTn 49 CFR Parts 100-185.
9. Items preempted by federal regulations.
10. Explosive material, fireworks, pyrotechnic special effect material and small arms ammunition located at permitted marine terminals in accordance with Administrative Rule 27.01.09, *Marine Terminals* and any future revisions of this rule adopted by the *fire code official.*

3301.1.1 Explosive material standard. In addition to the requirements of this chapter, NFPA 495 shall govern the manufacture, transportation, storage, sale, handling and use of *explosive* materials. See also Chapter 70.74 RCW and Chapter 296-52 WAC.

3301.1.2 Explosive material terminals. In addition to the requirements of this chapter, the operation of *explosive material* terminals shall conform to the provisions of NFPA 498.

3301.1.3 Fireworks. The possession, manufacture, storage, sale, handling and use of fireworks are prohibited.

Exceptions:

1. Storage and handling of fireworks as allowed in Section 3304.
((~~2. Manufacture, assembly and testing of fireworks as allowed in Section 3305.~~))
((~~3~~))2. The use of fireworks for fireworks displays as allowed in Section 3308.
((~~4. The possession, storage, sale, handling and use of specific types of Division 1.4G fireworks where allowed by applicable laws, ordinances and regulations, provided such fireworks comply with CPSC 16 CFR, Parts 1500 and 1507, and DOTn 49 CFR, Parts 100-185, for consumer fireworks.~~))

3301.1.4 Rocketry. The storage, handling and use of model and high-power rockets shall comply with the requirements of NFPA 1122, NFPA 1125 and NFPA 1127.

Manufacturing and firing of model rockets is prohibited.

Display of model rocket motors shall be in accordance with Section 3306.5.

A permit is not required for model rocket motors stored in Group R-3 Occupancies meeting the requirements of NFPA 1122, 1125 and 1127 and in accordance with the United States Bureau of Alcohol, Tobacco, Firearms and Explosives.

***

3301.2.4 Financial responsibility. Before a permit is issued, as required by Section 3301.2, ((~~the applicant shall file with the jurisdiction a corporate surety bond in the principal sum of $100,000 or a public liability insurance policy for the same amount, for the purpose of the~~

~~payment of all damages to *persons* or property which arise from, or are caused by, the conduct of any act authorized by the permit upon which any judicial judgment results. The *fire code official* is authorized to specify a greater or lesser amount when, in his or her opinion, conditions at the location of use indicate a greater or lesser amount is required. Government entities shall be exempt from this bond requirement.~~))liability insurance in accordance with Section 105.3.7 of this code shall be obtained.

***

((~~**3301.2.4.2 Fireworks display.** The permit holder shall furnish a bond or certificate of insurance in an amount deemed adequate by the *fire code official* for the payment of all potential damages to a *person* or *persons* or to property by reason of the permitted display, and arising from any acts of the permit holder, the agent, employees or subcontractors.~~))

3301.3 Prohibited explosives and activities.

3301.3.1 Prohibited explosives. Permits shall not be issued or renewed for possession, manufacture, storage, handling, sale or use of the following materials and such materials currently in storage or use shall be disposed of in an *approved* manner.

1. Liquid nitroglycerin.
2. Dynamite containing more than 60-percent liquid *explosive* ingredient.
3. Dynamite having an unsatisfactory absorbent or one that permits leakage of a liquid *explosive* ingredient under any conditions liable to exist during storage.
4. Nitrocellulose in a dry and uncompressed condition in a quantity greater than 10 pounds (4.54 kg) of net weight in one package.
5. Fulminate of mercury in a dry condition and fulminate of all other metals in any condition except as a component of manufactured articles not hereinafter forbidden.
6. *Explosive* compositions that ignite spontaneously or undergo marked decomposition, rendering the products of their use more hazardous, when subjected for 48 consecutive hours or less to a temperature of 167°F(75°C).
7. New *explosive materials* until *approved* by DOTn, except that permits are allowed to be issued to educational, governmental or industrial laboratories for instructional or research purposes.
8. *Explosive materials* condemned by DOTn.
9. *Explosive materials* containing an ammonium salt and a chlorate.
10. *Explosives* not packed or marked as required by DOTn

49 CFR, Parts 100-185.

Exception: Gelatin dynamite.

3301.3.2 Prohibited activities. The following activities are prohibited:

1. The manufacture, assembly and testing of explosives, ammunition, blasting agents and fireworks.

Exceptions:

1. The hand loading of small arms ammunition prepared for personal use and not offered for sale.
2. The mixing and loading of blasting agents at blasting sites in accordance with NFPA495.
3. The use of binary explosives or plosphoric materials in blasting or pyrotechnic special effects applications in accordance with NFPA 495 or 1126.

2. The storage of explosive materials for more than 24 hours unless under permit from the Seattle Fire Department.

3. The construction of Class 1 magazines.

***

3305.1 General. The manufacture, assembly and testing of *explosives*, ammunition, blasting agents and fireworks ((~~shall comply with the requirements of this section and NFPA 495 or NFPA 1124.~~)) are prohibited.

Exceptions:

1. The hand loading of small arms ammunition prepared for personal use and not offered for resale.
2. The mixing and loading of blasting agents at blasting sites in accordance with NFPA 495.
3. The use of binary *explosives* or plosophoric materials in blasting or pyrotechnic special effects applications in accordance with NFPA 495 or NFPA 1126.

***

3305.3 Intraplant separation of operating buildings. *Explosives* manufacturing buildings and fireworks manufacturing buildings, including those where *explosive* charges are assembled, manufactured, prepared or loaded utilizing Division 1.1, 1.2, 1.3, 1.4 or 1.5 *explosives*, shall be separated from all other buildings, including magazines, within the confines of the manufacturing plant, at a distance not less than those shown in Table 3305.3 or 3304.5.2(3), as appropriate. ((~~**Exception:** Fireworks manufacturing buildings separated in accordance with NFPA 1124.~~))

***

3305.4 Separation of manufacturing operating buildings from inhabited buildings, public traffic routes and magazines. When an operating building on an *explosive* materials plant site is designed to contain *explosive* materials, such a building shall be located away from inhabited buildings, public traffic routes and magazines in accordance with Table 3304.5.2(2) or 3304.5.2(3) as appropriate, based on the maximum quantity of *explosive* materials permitted to be in the building at one time (see Section 3301.8).
((~~**Exception:** Fireworks manufacturing buildings constructed and operated in accordance with NFPA 1124.~~))

***

3305.5 Buildings and equipment. Buildings or rooms that exceed the *maximum allowable quantity per control area* of *explosive materials* shall be operated in accordance with this section

and constructed in accordance with the requirements of the *International Building Code* for Group H occupancies.

((~~**Exception:** Fireworks manufacturing buildings constructed and operated in accordance with NFPA 1124.~~))

***

SECTION 3306
SMALL ARMS AMMUNITION, MODEL ROCKET MOTORS, AND MARINE FLARES

3306.1 General. Indoor storage and display of black powder, smokeless propellants and small arms ammunition shall comply with this section and NFPA 495. Indoor display of model rocket motors and marine flares shall comply with this section.

***

3306.5.1.2 Black powder. No ((~~more than 1 pound (0.454 kg) of~~))black powder shall be displayed in Group M occupancies.

3306.5.1.3 Small arms primers. No more than 10,000 small arms primers shall be displayed in Group M occupancies.

3306.5.1.4 Model rocket motors. Model rocket motors on display in Group M Occupancies shall not exceed an individual motor weight of 1 pound (0.45 kg). The maximum aggregate motor weight on display shall not exceed 20 pounds (9.1 kg). Model rocket motors shall be located a minimum of 15 feet (4572 mm) from exits.

3306.5.1.5 Marine flares. U.S. Coast Guard approved marine flares on display in Group M Occupancies shall not exceed an individual device weight of 2 pounds (0.90 kg). The maximum aggregate device weight on display shall not exceed 40 pounds (18.2 kg). Marine flares shall be located a minimum of 15 feet (4572 mm) from exits.

3306.5.1.5 Point of Information
Device weight of U.S. Coast Guard approved marine flares means the gross weight of the smokeless propellant, other chemical components and the primary casing of the flare. The device weight is not to include carrying cases, manufacturer's packaging, detachable handles or unattached activating devices that may also be present and sold with the flare as a unit.

3306.5.2 Storage. Storage of small arms ammunition shall comply with Sections 3306.5.2.1 through 3306.5.2.3.

3306.5.2.1 Smokeless propellant. Commercial stocks of smokeless propellants shall be stored as follows:

1. Quantities exceeding 20 pounds (9 kg), but not exceeding 100 pounds (45 kg) shall be stored in portable wooden boxes having walls of at least 1 inch (25 mm) nominal thickness.
2. Quantities exceeding 100 pounds (45 kg), but not exceeding ((~~800~~))400 pounds (((~~363~~))181.5 kg), shall be stored in nonportable storage cabinets having walls at least 1 inch (25 mm) nominal thickness. Not more than ((~~400~~))200 pounds (((~~182~~))91 kg) shall be stored in any one cabinet, and cabinets shall be separated by a distance of at least 25 feet (7620 mm) or by a fire partition having a fire-resistance rating of at least 1 hour.
3. Storage of quantities exceeding ((~~800~~))400 pounds (((~~363~~))181.5 kg), but not exceeding 5,000 pounds (2270 kg) in a building shall comply with all of the following:
    3.1. The warehouse or storage room is unaccessible to unauthorized personnel.
    3.2. Smokeless propellant shall be stored in nonportable storage cabinets having wood walls at least 1 inch (25 mm) nominal thickness and having shelves with no more than 3 feet (914 mm) of separation between shelves.
    3.3. No more than ((~~400~~))200 pounds (((~~182~~))91 kg) is stored in any one cabinet.
    3.4. Cabinets shall be located against walls of the storage room or warehouse with at least 40 feet (12 192 mm) between cabinets.
    3.5. The minimum required separation between cabinets shall be 20 feet (6096 mm) provided that *barricades* twice the height of the cabinets are attached to the wall, midway between each cabinet. The *barricades* must extend a minimum of 10 feet (3048 mm) outward, be firmly attached to the wall and be constructed of steel not less than 1/4 inch thick (6.4 mm), 2-inch (51 mm) nominal thickness wood, brick or concrete block.
    3.6. Smokeless propellant shall be separated from materials classified as *combustible liquids*, flammable liquids, flammable solids or oxidizing materials by a distance of 25 feet (7620 mm) or by a *fire partition* having a *fire-resistance rating* of 1 hour.
    3.7. The building shall be equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1.
4. Smokeless propellants not stored according to Item 1, 2, or 3 above shall be stored in a Type 2 or 4 magazine in accordance with Section 3304 and NFPA 495.

3306.5.2.2 Black powder. Commercial stocks of black powder in quantities less than 5((~~0~~)) pounds (((~~23~~))2.3 kg) shall be allowed to be stored in Type 2 or 4 indoor or outdoor magazines. Quantities greater than 5((~~0~~)) pounds (((~~23~~))2.3 kg) shall be stored in outdoor Type 2 or 4 magazines. When black powder and smokeless propellants are stored together in the same magazine, the total quantity shall not exceed that permitted for black powder.

3306.5.2.3 Small arms primers. Commercial stocks of small arms primers shall be stored as follows:
1. Quantities not to exceed ((~~750,000~~))20,000 small arms primers stored in a building shall be arranged such that not more than ((~~100,000~~))20,000 small arms primers are stored in any one pile and piles are at least 15 feet (4572 mm) apart.

2. Quantities exceeding ((~~750,000~~))20,000 small arms primers stored in a building shall comply with all of the following:

2.1. The warehouse or storage building shall not be accessible to unauthorized personnel.

2.2. Small arms primers shall be stored in cabinets. No more than ((~~200,000~~))20,000 small arms primers shall be stored in any one cabinet.

2.3. Shelves in cabinets shall have vertical separation of at least 2 feet (610 mm).

2.4. Cabinets shall be located against walls of the warehouse or storage room with at least 40 feet (12 192 mm) between cabinets. The minimum required separation between cabinets shall be allowed to be reduced to 20 feet (6096 mm) provided that *barricades* twice the height of the cabinets are attached to the wall, midway between each cabinet. The *barricades* shall be firmly attached to the wall and shall be constructed of steel not less than 1/4 inch thick (6.4 mm), 2-inch (51 mm) nominal thickness wood, brick or concrete block.

2.5. Small arms primers shall be separated from materials classified as *combustible liquids*, flammable liquids, flammable solids or oxidizing materials by a distance of 25 feet (7620 mm) by a *fire partition* having a *fire-resistance rating* of 1 hour.

2.6. The building shall be protected throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1.

3. Small arms primers not stored in accordance with Item 1 or 2 of this section shall be stored in a magazine meeting the requirements of Section 3304 and NFPA 495.

***

SECTION 3308
FIREWORKS DISPLAY

3308.1 General. The sale, possession, use or discharge of fireworks and pyrotechnic special effects in the City of Seattle is prohibited except where authorized by a fire department permit or exempted under this section.

Exceptions:

1. The use of fireworks by railroads or other transportation agencies for signaling or illumination.
2. The sale or use of blank cartridges or fireworks if *approved* by the *fire code official* for theatrics, signaling or ceremonial purposes.
3. The use of fireworks by the United States Armed Forces.

Outdoor fireworks displays, use of pyrotechnics before a *proximate audience* and pyrotechnic special effects in motion picture, television, theatrical and group entertainment productions shall comply with Sections 3308.2 through 3308.10 and NFPA 1123 or NFPA 1126.

3308.2 Permit application. Prior to issuing permits for a fireworks display, plans for the fireworks display, inspections of the display site and demonstrations of the display operations

shall be *approved*. A plan establishing procedures to follow and actions to be taken in the event that a shell fails to ignite in, or discharge from, a mortar or fails to function over the fallout area or other malfunctions shall be provided to the *fire code official*.

No person under 18 years of age may apply for or receive a permit under this section.

An application for a permit shall be made in writing to the *fire code official* at least 30 days in advance of the display. At the time the permit application is submitted, the *fire code official* shall be consulted regarding requirements for standby fire apparatus.

***

3308.4 Clearance. Spectators, spectator parking areas, and *dwellings*, buildings or structures shall not be located within the display site.

Exception((s)):

((~~1.~~)) This provision shall not apply to pyrotechnic special effects and fireworks displays using Division 1.4G materials before a *proximate audience* in accordance with NFPA 1126.

((~~2. This provision shall not apply to unoccupied *dwellings*, buildings and structures with the approval of the building *owner* and the *fire code official*.~~))

3308.4.1 Display site. The radius of the display site for outdoor water or land displays shall be at least 100 foot per inch (1200 per mm) based on the internal mortar diameter of the largest aerial shell to be fired.

The designated landing areas shall be an approved large, clear, open area. Spectators, vehicles and combustible materials shall not be allowed within the designated landing area. The designated landing area shall not be within 100 feet (30 480 mm) of tents and membrane structures. The firing and storage site shall be located not less than 200 feet (60 960 mm) from a building, tent or membrane structure.

When the display is fired from a barge, such barge shall be of noncombustible construction or have a noncombustible surface.

When the display is fired from a barge or vessel, a security area shall be established around the barge to prevent boats from entering the area. No boats shall be allowed within 200 feet (60 960 mm) of the firing or storage site. A boat shall be on standby to remove personnel from the barge or water in an emergency. All personnel aboard the barge shall have approved flotation devices.

Additional water-filled fire extinguishers, rated 2-A minimum, shall be on the barge and so spaced that an extinguisher shall be available within 30 feet (9144 mm) at all times.

***

Section 26. Chapter 34 of the 2009 International Fire Code is amended as follows:

***

3401.2 Nonapplicability. This chapter shall not apply to liquids as otherwise provided in other laws or regulations or chapters of this code, including:
1. Specific provisions for flammable liquids in motor fuel-dispensing facilities, repair garages, airports and marinas in Chapter 22.
2. Medicines, foodstuffs, cosmetics, and commercial, institutional and industrial products in the same concentration and packaging containing not more than 50 percent by volume of water-miscible liquids and with the remainder of the solution not being flammable, and alcoholic beverages in retail or wholesale sales or storage uses when packaged in individual containers not exceeding 1.3 gallons (5 L).
3. Storage and use of fuel oil in tanks and containers connected to ((~~oil~~))fuel-burning equipment. Such storage and use shall be in accordance with Section 603. For abandonment of fuel oil tanks, this chapter applies.
4. Refrigerant liquids and oils in refrigeration systems (see Section 606).
5. Storage and display of aerosol products complying with Chapter 28.
6. Storage and use of liquids that have no fire point when tested in accordance with ASTM D 92.
7. Liquids with a *flash point* greater than 95°F (35°C) in a water-miscible solution or dispersion with a water and inert (noncombustible) solids content of more than 80 percent by weight, which do not sustain combustion.
8. Liquids without *flash points* that can be flammable under some conditions, such as certain halogenated hydrocarbons and mixtures containing halogenated hydrocarbons.
9. The storage of distilled spirits and wines in wooden barrels and casks.

***

3401.4 Permits. Permits shall be required as set forth in Sections 105.6 and 105.7.

Exception: Pursuant to Section 106.5.1, permits issued by the Department of Ecology to install underground tanks are *approved* by the *fire code official.*

***

3402.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

* * *

VAULT. An enclosure consisting of four walls, a floor and a top for the purpose of containing a liquid storage tank and not intended to be occupied by personnel other than for inspection, repair or maintenance of the vault, the storage tank or related equipment. [NFPA 30: 3.3.55]

***

3404.2.7.4 Emergency venting.

3404.2.7.4.1 General.

Stationary, aboveground tanks shall be equipped with additional venting that will relieve excessive internal pressure caused by exposure to fires. Emergency venting devices shall be listed or approved. ((~~Emergency vents for Class I, II and IIIA liquids shall not discharge inside buildings.~~)) The venting shall be installed and maintained in accordance with Section 22.7 of NFPA 30.

The requirement for additional venting applies to each compartment of a compartmentalized tank, the interstitial space (annulus) of a secondary containment- type tank and the enclosed space of tanks of closed-top dike construction. The requirement for additional venting also applies to spaces or enclosed volumes, such as those intended for insulation, membranes or weather shields that can contain liquid because of a leak from the primary vessel and that can inhibit venting during fire exposure. The insulation, membrane or weather shield shall not interfere with emergency venting.

Exception: Tanks larger than 12,000 gallons (45 420 L) in capacity storing Class IIIB liquids which are not within the diked area or the drainage path of Class I or II liquids do not require emergency relief venting.

3404.2.7.4.2 Emergency vent pipe outlets. Emergency vents for Class I, II and IIIA liquids shall not discharge inside buildings, and outlets shall be in accordance with Section 3404.2.7.3.3.

Exception: Protected above-ground tanks located inside buildings containing Class II or Class IIIA liquids for emergency or standby generators installed in accordance with the Administrative Rule 34.01.04, *Use of Protected Aboveground Tanks for Fuel Storage Inside Buildings* and any future revisions of this rule adopted by the *fire code official,* are allowed to vent inside buildings.

3404.2.7.4.3 Extension of emergency vent piping. Piping to or from approved emergency vent devices for atmospheric and low-pressure tanks shall be sized to provide emergency vent flows that limit the back pressure to less than the maximum pressure permitted by the design of the tank. Piping to or from approved emergency vent devices for pressure vessels shall be sized in accordance with the ASME *Boiler and Pressure Vessel Code.*

***

3404.2.7.5.6 Location of connections that are made or broken. Filling, withdrawal and vapor recovery connections for Class I, II and IIIA liquids which are made and broken shall be located outside of buildings, not more than 5 feet (1524 mm) above the finished ground level, in an *approved* location in close proximity to the parked delivery vehicle. Such location shall be away from sources of ignition and not less than 5 feet (1524 mm) away from building openings.

Such connections shall be closed and liquid tight when not in use and shall be properly identified.

Exception: Fill connections for diesel fuel tanks attached to emergency generators may be located within dedicated loading docks of buildings if installed within 10 feet (3048 mm) of the exterior opening of the loading dock and if the loading dock entrance doors have openings comprising at least 50 percent of the door area.

***

3404.2.7.10.1 Leaking tank disposition. Leaking tanks shall be promptly emptied, repaired and returned to service, abandoned or removed in accordance with Section 3404.2.13 or 3404.2.14 and in accordance with WAC 173-360-325.

3404.2.7.11 Tank lining. Steel tanks are allowed to be lined only for the purpose of protecting the interior from corrosion or providing compatibility with a material to be stored. Only those liquids tested for compatibility with the lining material are allowed to be stored in lined tanks.

Tank lining shall be conducted in accordance with the applicable provisions of NFPA 326, *Standard for the Safeguarding of Tanks and Containers for Entry, Cleaning and Repair* and WAC 173-360-325.

***

3404.2.9.2 Fire protection. Fire protection for aboveground tanks shall comply with Sections 3404.2.9.2.1 through 3404.2.9.2.4.

Above-ground tanks located outside buildings and used for the storage of Class I flammable liquids shall be protected with an approved foam fire protection system.

Exception: *Protected above-ground tanks.*

***

3404.2.9.5 Above-ground tanks inside of buildings.

3404.2.9.5.1 Overflow prevention. Tanks storing Class I, II and IIIA liquids inside buildings shall be equipped with a device or other means to prevent overflow into the building including, but not limited to: a float valve; a preset meter on the fill line; a valve actuated by the weight of the tank's contents; a low-head pump that is incapable of producing overflow; or a liquid-tight overflow pipe at least one pipe size larger than the fill pipe and discharging by gravity back to the outside source of liquid or to an *approved* location.

Tanks containing Class IIIB liquids and connected to fuel-burning equipment shall be provided with a means to prevent overflow into buildings in accordance with Section 3404.2.7.5.8.

3404.2.9.5.2 Maximum quantity allowed outside of a liquid storage room. Above-ground storage tanks storing Class I, II and IIIA liquids inside buildings in quantities exceeding the maximum allowable quantity per control area set forth in Table 2703.1.1(1) shall be confined to a liquid storage room constructed and separated as required by the *Seattle Building Code* and complying with Section 3404.3.7.

Exception: Protected above-ground tanks containing Class II or IIIA liquids in accordance with Administrative Rule 34.01.04, *Use of Protected Above-ground Tanks for Fuel Storage Inside Buildings* and any future revisions of this rule adopted by the *fire code official*.

3404.2.9.5.3 Maximum quantity allowed within a liquid storage room. The maximum aggregate quantity of flammable and combustible liquids in aboveground storage tanks allowed inside a building within a liquid storage room constructed and separated as required by the *Seattle Building Code* and complying with Section 3404.3.7 is limited to 20,000 gallons (75 700 L).

3404.2.9.6 Above-ground tanks outside of buildings. Above-ground tanks outside of buildings shall comply with Sections 3404.2.9.6.1 through 3404.2.9.6.3.

3404.2.9.6.1 Locations where above-ground tanks are prohibited or quantity limits are established. Storage of Class I and II liquids in above-ground tanks outside of buildings is prohibited within the limits established ((~~by law as the limits of districts in which such storage is prohibited (see Section 3 of the Sample Ordinance for Adoption of the *International Fire Code* on page v).~~))in Table 3404.2.9.6.1-A.

TABLE 3404.2.9.6.1-A
QUANTITY RESTRICTIONS FOR ABOVE-GROUND STORAGE TANKS USED FOR DISPENSING INTO EQUIPMENT

TYPE OF LIQUID	MAXIMUM PRIMARY TANK CAPACITY		
	LOCATION OF TANK		
	Within Fire District	Within I-zone[a,b]	Outside I-zone[a,b]
Class I liquids	Prohibited	1,000 gallons[c]	500 gallons[c]
Class II liquids for open use	660 gallons[c]	1,000 gallons[c]	660 gallons[c]

Combination of Class I and Class II liquids in compartmentalized tanks for open use	Prohibited	3,000 gallons[c,d]	1,000 gallons[c,d]
Class II liquids outside for closed use (e.g. emergency generators)	2,000 gallons[c]	4,000 gallons[c]	2,000 gallons[c]

For SI: 1 foot = 304.8 mm, 1 gallon = 3.785 L

a. I-zone means Industrial zones identified in accordance with the City Land Use Code.

b. Additional tanks are allowed on the same site if separated from one another by a minimum of 100 feet.

c. Maximum tank capacities are allowed to be doubled if *protected aboveground tanks* in accordance with the requirements of this chapter have been provided.

d. Maximum individual compartment capacities shall not exceed the maximum allowable primary tank capacity for the class of liquid.

***

3404.2.11 Underground tanks. Underground storage of flammable and *combustible liquids* in tanks shall comply with Section 3404.2 and Sections 3404.2.11.1 through 3404.2.11.5.2. Pursuant to Section 106.5.1, the *fire code official approves* permits to install underground tanks issued by and inspections of underground tanks conducted by the Washington State Department of Ecology.

***

3404.2.13 Abandonment and status of tanks. Tanks taken out of service shall be removed in accordance with Section 3404.2.14, or safeguarded in accordance with Sections 3404.2.13.1 through 3404.2.13.2.3 and API 1604. Residential heating oil tanks required by this code to be removed or decommissioned shall also comply with Administrative Rule 34.02.07, *Decommissioning Residential Heating Oil Tanks* and any future revisions of this rule adopted by the *fire code official*.

***

3404.2.13.1.4 Tanks abandoned in place. Tanks abandoned in place shall be as follows:

1. Flammable and *combustible liquids* shall be removed from the tank and connected piping.
2. The suction, inlet, gauge, vapor return and vapor lines shall be disconnected.
3. The tank shall be filled completely with an *approved* inert solid material.

   Exception: Residential heating oil tanks of 1,100 gallons (4164 L) or less if the fill line is permanently removed to a point below grade to prevent refilling of the tank.
4. Remaining underground piping shall be capped or plugged.
5. A record of tank size, location and date of abandonment shall be retained.

6. All exterior above-grade fill piping shall be permanently removed when tanks are abandoned or removed.

***

3404.3.1.1 Approved containers. Only *approved* containers and portable tanks shall be used.

It shall be unlawful to sell, offer for sale or distribute any container for the storage and/or use of flammable liquids, unless such container has been approved for such purpose under applicable provisions of this code.

***

3404.3.4.4 Liquids for maintenance and operation of equipment. In all occupancies, quantities of flammable and *combustible liquids* in excess of 10 gallons (38 L) used for maintenance purposes and the operation of equipment shall be stored in liquid storage cabinets in accordance with Section 3404.3.2. Quantities not exceeding 10 gallons (38 L) are allowed to be stored outside of a cabinet when in *approved* containers located in private garages or other *approved* locations.

In Groups A, B, E, F, I, M, R and S occupancies, quantities of flammable and combustible liquids used for demonstration, treatment and laboratory work exceeding 10 gallons (37.85 L) shall be stored in liquid storage cabinets in accordance with Section 3404.3.2. Quantities not exceeding 10 gallons (38 L) shall be in approved containers in approved locations.

3404.3.5 Storage in control areas. Storage of flammable and *combustible liquids* in *control areas* shall be in accordance with Sections 3404.3.5.1 through 3404.3.5.4.

3404.3.5.1 Basement storage. Class I liquids shall be allowed to be stored in *basements* ((~~in amounts not exceeding the *maximum allowable quantity per control area* for use-*open systems* in Table 2703.1.1(1), provided that automatic suppression and other fire protection are provided in accordance with Chapter 9.~~)) protected throughout by an *approved* automatic sprinkler system required in accordance with Chapter 9. The maximum aggregate quantity of all combined Class I flammable liquids in a basement shall not exceed 30 gallons (113.5 L) and Class IA flammable liquids shall not exceed 10 gallons (37.85 L).
Quantities of Class I flammable liquids in basements in excess of 10 gallons shall be stored in *approved* liquid storage cabinets in accordance with Section 3404.3.2.
Exception: Class I liquids stored and used in basement areas of research laboratories in accordance with Administrative Rule 34.03.04, *Flammable Liquid Storage and Use in Basement Level Laboratories* and any future revisions of this rule adopted by the *fire code official.*

Class II and IIIA liquids shall also be allowed to be stored in *basements*, provided that automatic suppression and other fire protection are provided in accordance with Chapter 9.

***

3404.3.6.1 Container type. Containers for Class I liquids shall be metal.
Exception: In sprinklered buildings, an aggregate quantity of 120 gallons (454 L) of water-miscible Class IB and Class IC liquids is allowed in nonmetallic containers, each having a capacity of 16 ounces (0.473 L) or less.

Plastic containers may be used for Class II and III liquids only if individual containers are:

1. Stored less than 5 feet (1524 mm) high; or
2. Confined to box bins protected by automatic sprinklers within racks.

***

3404.3.7.3 Spill control and secondary containment. Liquid storage rooms shall be provided with spill control and secondary containment in accordance with Section 2704.2.

3404.3.7.3 Point of Information
If secondary containment of nonwater-miscible flammable or combustible liquids is to be achieved through the use of recessed floors or liquid-tight sills as allowed for in Section 2704.2, the room must be protected by an automatic-foam system in accordance with Section 3404.3.7.5.1.

3404.3.7.4 Ventilation. Liquid storage rooms shall be ventilated in accordance with Section 2704.3.

3404.3.7.5 Fire protection. Fire protection for liquid storage rooms shall comply with Sections 3404.3.7.5.1 and 3404.3.7.5.2.

If secondary containment of nonwater-miscible flammable or combustible liquids is achieved through the use of recessed floors or liquid-tight sills as allowed for in Section 2704.2, an automatic foam system shall be provided in the room and must be approved by the *fire code official*.

3404.3.7.5 Point of Information
Nonwater-miscible flammable and combustible liquids are those flammable and combustible liquids that are unable to dissolve uniformly with water. Whether a flammable or combustible liquid is soluble with water is dependent on the chemical nature of the liquid. A source of information regarding the water solubility of common flammable and combustible liquids can be found in NFPA 325M.

***

3404.3.8.2 Spill control and secondary containment. Liquid storage warehouses shall be provided with spill control and secondary containment as set forth in Section 2704.2.

3404.3.8.2 Point of Information

If secondary containment of nonwater-miscible flammable or combustible liquids is to be achieved through the use of recessed floors or liquid-tight sills as allowed for in Section 2704.2, the room must be protected by an automatic-foam system in accordance with Section 3404.3.7.5.1.

***

3404.3.8.4 Fire-extinguishing systems. Liquid storage warehouses shall be protected by *automatic sprinkler systems* installed in accordance with Chapter 9 and Tables 3404.3.6.3(4) through 3404.3.6.3(7) and Table 3404.3.7.5.1, or Section 16.4 and Tables 16.5.2.1 through 16.5.2.6 of NFPA 30. In-rack sprinklers shall also comply with NFPA 13. Automatic foam-water systems and automatic AFFF water sprinkler systems shall not be used except when *approved.* Protection criteria developed from fire modeling or full-scale fire testing conducted at an *approved* testing laboratory are allowed in lieu of the protection as shown in Tables 3404.3.6.3(2) through 3404.3.6.3(7) and Table 3404.3.7.5.1 when *approved.*

If secondary containment of nonwater-miscible flammable or combustible liquids is achieved through the use of recessed floors or liquid-tight sills as allowed for in Section 2704.2, an automatic foam system shall be provided throughout the warehouse and shall be *approved* by the *fire code official.*

***

3405.4 Solvent distillation units. Solvent distillation units shall comply with Sections 3405.4.1 through 3405.4.9.

3405.4.1 Unit with a capacity of 60 gallons or less. Solvent distillation units used to ((~~recycle~~))process Class I, II or IIIA liquids having a distillation chamber capacity of 60 gallons (227 L) or less shall be *listed*, *labeled* and installed in accordance with Section 3405.4 and UL 2208.

Exceptions:

1. Solvent distillation units installed in dry cleaning plants in accordance with Chapter 12.
2. Solvent distillation units used in continuous through-put industrial processes where the source of heat is remotely supplied using steam, hot water, oil or other heat transfer fluids, the temperature of which is below the auto-ignition point of the solvent.

((~~3. Solvent distillation units *listed* for and used in laboratories.~~))

((~~4.~~))3. Custom and noncommercial solvent distillation units that are ((~~a~~))*pproved* by the *fire code official* for research, testing and experimental processes.

4. Solvent distillation units installed or in service prior to September 27, 1998 if in accordance with Sections 3405.4.10.1 through 3405.4.10.6.

***

3405.4.10 Existing units.

3405.4.10.1 General. Solvent distillation units installed or placed in service prior to September 27, 1998 shall be in accordance with Section 3405.4.10.

Exceptions:

1. Existing commercially produced high purity column stills with a chamber capacity of 60 gallons (227 L) or less that are constructed of UL or CSA approved components and provided with an enclosed cabinet, mechanical ventilation, and microprocessor control. Such units shall be located in a laboratory or similar controlled environment approved by the *fire code official*, maintained at least 3 feet (914 mm) from ignition sources, and separated from exit ways by 1-hour fire-resistant construction.
2. Existing commercially produced solvent distillation units, including glass apparatus and electric heating mantels, with a chamber capacity of 1.5 liters (0.4 gal.) or less that are used for research, testing and experimental purposes in a laboratory setting or similar controlled environment.

3405.4.10.1 Point of Information

For solvent distillation units installed or placed in service after September 27, 1998, see Sections 3405.4.1 through 3405.4.9.

3405.4.10.2 Listing. Solvent distillation units used to process Class I, II or IIIA liquids shall be listed in accordance with the *Seattle Electrical Code* for Class 1, Division 1 or 2 hazardous locations.

Exception: If approved by the *fire code official*, existing commercially produced units having a chamber capacity of 60 gallons (227 L) or less separated from exits and exit ways by 1-hour fire-resistant construction and located at least 3 feet (914 mm) away from ignition sources.

3405.4.10.2 Point of Information

For solvent distillation units installed or placed in service after September 27, 1998, see Sections 3405.4.1 through 3405.4.9.

3405.4.10.3 Location. Solvent distillation units shall not be used in basements. Units processing Class I, II or IIIA liquids, having a distillation capacity exceeding 60 gallons (227 L) shall be used in locations that comply with the use and mixing requirement of Section 3405 and other applicable provisions in Chapter 34.

3405.4.10.4 Overfill protection. A means to automatically interrupt distillation and prevent collection containers and portable tanks from overfilling, or an overfill containment pan sized to contain the entire capacity of the distillation chamber shall be provided.

3405.4.10.5 Safety limit controls. Safety limit controls that shut off the unit in the event of a malfunction that increases the risk of fire or explosion shall be provided.

3405.4.10.6 Maximum temperature. The maximum temperature of the unit distillation chamber shall not exceed the autoignition temperature of the liquid being distilled.

3405.4.11 Units installed outdoors. Solvent distillation units installed outdoors shall be in accordance with Sections 3405.4.7 through 3405.4.10 and the following:

Units shall be located a minimum of 15 feet (4572 mm) from public ways, property lines, combustible construction and openings to buildings.

Spill control is required around the unit in accordance with Section 2704.2.

An attendant is required while the unit is in operation.

The unit shall be empty if unattended or shut down and the area secured in an approved manner.

***

3406.5.4.5 Commercial, industrial, governmental or manufacturing. Dispensing of Class II and III motor vehicle fuel from tank vehicles into the fuel tanks of motor vehicles located at commercial, industrial, governmental or manufacturing establishments is allowed where permitted, provided such dispensing operations are conducted in accordance with the following:
1. Dispensing shall occur only at sites that have been issued a permit to conduct mobile fueling.

2. The *owner* of a mobile fueling operation shall provide to the jurisdiction a written response plan which demonstrates readiness to respond to a fuel spill and carry out appropriate mitigation measures, and describes the process to dispose properly of contaminated materials.

3. A detailed site plan shall be submitted with each application for a permit. The site plan shall indicate: all buildings, structures and appurtenances on site and their use or function; all uses adjacent to the property lines of the site; the locations of all storm drain openings, adjacent waterways or wetlands; information regarding slope, natural drainage, curbing, impounding and how a spill will be retained upon the site property; and the scale of the site plan.

Provisions shall be made to prevent liquids spilled during dispensing operations from flowing into buildings or off-site. Acceptable methods include, but shall not be limited to, grading driveways, raising doorsills or other *approved* means.

4. The *fire code official* is allowed to impose limits on the times and days during which mobile fueling operations is allowed to take place, and specific locations on a site where fueling is permitted.

5. Mobile fueling operations shall be conducted in areas not accessible to the public or shall be limited to times when the public is not present.

6. Mobile fueling shall not take place within 15 feet (4572 mm) of buildings, property lines, combustible storage or storm drains.

Exceptions:

1. The distance to storm drains shall not apply where an *approved* storm drain cover or an *approved* equivalent that will prevent any fuel from reaching the drain is in place prior to fueling or a fueling hose being placed within 15 feet (4572 mm) of the drain. Where placement of a storm drain cover will cause the accumulation of excessive water or difficulty in conducting the fueling, such cover shall not be used and the fueling shall not take place within 15 feet (4572 mm) of a drain.
2. The distance to storm drains shall not apply for drains that direct influent to *approved* oil interceptors.

7. The tank vehicle shall comply with the requirements of NFPA 385 and local, state and federal requirements. The tank vehicle's specific functions shall include that of supplying fuel to motor vehicle fuel tanks. The vehicle and all its equipment shall be maintained in good repair.

8. Signs prohibiting smoking or open flames within 25 feet (7620 mm) of the tank vehicle or the point of fueling shall be prominently posted on three sides of the vehicle including the back and both sides.

9. A portable fire extinguisher with a minimum rating of 40:BC shall be provided on the vehicle with signage clearly indicating its location.

10. The dispensing nozzles and hoses shall be of an *approved* and *listed* type and the inside diameter of the hose shall not exceed 11/4 inches (32mm).

11. The dispensing hose shall not be extended from the reel more than 100 feet (30 480 mm) in length.

All pressure hoses and couplings shall be inspected at intervals appropriate to the service. Any hose showing materials deterioration, signs of leakage or weakness in its carcass or at the couplings shall be withdrawn from service or repaired or discarded.

12. Absorbent materials, nonwater-absorbent pads capable of absorbing a minimum of 16 gallons (61 L), a 10-foot-long (3048 mm) containment boom, an *approved* container with lid and a nonmetallic shovel and a storm drain spill kit shall be provided to mitigate a minimum 5-gallon (19 L) fuel spill.

13. Tank vehicles shall be equipped with a "fuel limit" switch such as a count-back switch, to limit the amount of a single fueling operation to a maximum of 500 gallons (1893 L) before resetting the limit switch.

Exception: Tank vehicles where the operator carries and can utilize a remote emergency shutoff device which, when activated, immediately causes flow of fuel from the tank vehicle to cease.

14. *Persons* responsible for dispensing operations shall be trained in the appropriate mitigating actions in the event of a fire, leak or spill. Training records shall be maintained by the dispensing company and shall be made available to the *fire code official* upon request.

15. Operators of tank vehicles used for mobile fueling operations shall have in their possession at all times an emergency communications device to notify the proper authorities in the event of an emergency.

16. The tank vehicle dispensing equipment shall be constantly attended and operated only by designated personnel who are trained to handle and dispense motor fuels.

17. Fuel dispensing shall be prohibited within 25 feet (7620 mm) of any source of ignition.

18. The engines of vehicles being fueled shall be shut off during dispensing operations.

19. Nighttime fueling operations shall only take place in adequately lighted areas.

20. The tank vehicle shall be positioned with respect to vehicles being fueled to prevent traffic from driving over the delivery hose.

21. During fueling operations, tank vehicle brakes shall be set, chock blocks shall be in place and warning lights shall be in operation.

22. Motor vehicle fuel tanks shall not be topped off.

23. The dispensing hose shall be properly placed on an *approved* reel or in an *approved* compartment prior to moving the tank vehicle.

24. The *fire code official* and other appropriate authorities shall be notified without delay by the fuel delivery operator ((~~when~~))if a reportable spill or unauthorized discharge occurs or if any spill or accidental release, inside or outside of a building, could present a fire or life safety hazard.

25. Operators shall place a drip pan or an absorbent pillow, in good condition, under each fuel fill opening prior to and during dispensing operations. Drip pans shall be liquid-tight. The pan or absorbent pillow shall have a capacity of not less than ((~~3~~))5 gallons (((~~11.36~~))19 L). Spills retained in the drip pan or absorbent pillow need not be reported.

Operators, when fueling, shall have on their *person* an absorbent pad capable of capturing diesel foam overfills. Except during fueling, the nozzle shall face upward and an absorbent pad shall be kept under the nozzle to catch drips. Contaminated absorbent pads or pillows shall be disposed of regularly in accordance with local, state and federal requirements.

26. It is the responsibility of the permit applicant to ensure that all persons and parties with an interest in the property (i.e., property owner, lessor, real-estate company, property manager as well as operators of the property) have given explicit consent to allow mobile fueling to occur on the property. Managers, lessees, renters and other persons cannot solely give permission for mobile fueling to occur on the property.

27. Fueling locations shall have a surface that will be protected by continuous pavement (cement or asphalt) that is in good repair. Good repair means that a surface has no cracks, holes or means through which a spill could reach soil.

Exception: Demonstration by the vehicle operator that the flow of fuel can be stopped from the farthest fueling location within 15 seconds.

***

Section 27. Chapter 38 of the 2009 International Fire Code is amended as follows:

CHAPTER 38
LIQUEFIED PETROLEUM GASES

SECTION 3801
GENERAL

3801.1 Scope. Storage, handling and transportation of liquefied petroleum gas (LP-gas) and the installation of LP-gas equipment pertinent to systems for such uses shall comply with this

chapter, NFPA 54, *National Fuel Gas Code* and NFPA 58, *Liquefied Petroleum Gas Code* as amended.

Exceptions:

1. LP-gas used with oxygen for hot work operations shall be in accordance with Chapter 26.
2. LP-gas used in connection with outdoor patio heaters shall be in accordance with Section 603.4.

Properties of LP-gases shall be determined in accordance with Appendix B of NFPA 58 as amended.

3801.1 Point of Information

Adopted local amendments to NFPA 58 can be accessed at http://www.seattle.gov/fire/FMO/firecode/nfpaAmendments.htm

***

3801.3 Construction documents. Where a single LP-gas container is more than ((~~2,000~~))500 gallons ((~~(7570 L)~~))(1892.5 L)in water capacity or the aggregate water capacity of LP-gas containers is more than ((~~4,000~~))1000 gallons ((~~(15 140 L)~~))(3785 L) and for all mounded or underground LP-gas containers, the installer shall submit *construction documents* to the *fire code official* for *approval* of ((~~for~~)) such installation ((~~prior to beginning the installation~~))before starting the installation.

***

3803.1 General. LP-gas equipment shall be installed in accordance with ((~~the *International)*~~ NFPA 54, *National Fuel Gas Code* and NFPA 58 as amended, except as otherwise provided in this chapter.

***

3803.2.1 Portable containers. Portable LP-gas containers, as defined in NFPA 58 as amended, shall not be used in buildings except as specified in NFPA 58 as amended and Sections 3803.2.1.1 through 3803.2.1.7.

***

3803.2.1.2 Construction, renovation and temporary heating. Portable LP-gas containers are allowed to be used in buildings or areas of buildings undergoing construction, renovation or for temporary heating as set forth in Sections 6.19.4, 6.19.5 and 6.19.8 of NFPA 58 as amended.

Individual LP-gas container capacities and aggregate quantities of LP-gas allowed within buildings undergoing construction or renovation shall be in accordance with Table 3803.2.1.2.

TABLE 3803.2.1.2
USE OF LP-GAS INSIDE BUILDINGS UNDERGOING CONSTRUCTION or RENOVATION [1]

Location	Maximum Individual Container Capacity	Maximum Aggregate Quantity per Floor	Maximum Aggregate Quantity inside the Building
Within Occupied A Occupancies	Limits established by permit issued by Special Events Section		
Within Occupied Buildings other than A Occupancies	50 lbs. water capacity (nominal 20 lb LP-gas capacity)	Number of cylinders shall not exceed the number of workers assigned to use the LP-gas.	Number of cylinders shall not exceed the number of workers assigned to use the LP-gas.
Unoccupied Buildings	239 lbs. water capacity (nominal 100 lb LP-gas capacity)	735 lbs. water capacity (nominal 300 lb LP-gas capacity)	4410 lbs. water capacity (nominal 1800 lb LP-gas capacity)

[1] Weight of LP-gas per gallon = 4.20 lbs.

***

3803.2.1.4 Group B, E and I occupancies. In Group B, E and I laboratory occupancies, portable LP-gas containers are allowed to be used for research and experimentation. Such containers shall not be used in classrooms. Such containers shall not exceed a 50-pound (23 kg) water capacity in occupancies used for educational or research purposes and shall not exceed a 12-pound (5 kg) water capacity in occupancies used for institutional purposes. Where more than one such container is present in the same room, each container shall be separated from other containers by a distance of not less than 20 feet (6096 mm).

***

3803.2.1.7 Use for food preparation. Where *approved*, *listed* LP-gas commercial food service appliances are allowed to be used for food-preparation within restaurants and in attended commercial food-catering operations in accordance with NFPA 54, the ((~~*International*~~)) *National Fuel Gas Code,* the *International Mechanical Code* and NFPA58 as amended.

3803.2.2 Industrial vehicles and floor maintenance machines. LP-gas containers on industrial vehicles and floor maintenance machines shall comply with Sections 11.12 and 11.13 of NFPA 58 as amended.

3803.3 Location of equipment and piping. Equipment and piping shall not be installed in locations where such equipment and piping is prohibited by NFPA 54, the ((~~*International*~~)) *National Fuel Gas Code*.

3803.4 Use of LP-gas containers on roofs or exterior balconies. LP-gas containers on roofs or exterior balconies shall be in accordance with Sections 3803.4.1 through 3803.4.2.

3803.4.1 LP-gas containers on roofs of buildings. LP-gas containers are prohibited on the roofs of buildings and parking garages. [NFPA 58 6.6.7.1]

Exceptions:

1. Temporary installations at construction sites in accordance with Section 3803.5.
2. A single LP-gas container having an individual water capacity not exceeding 48 pounds [nominal 20 lb (9 kg) LP-gas] connected to a LP-gas grill.

3803.4.2 LP-gas containers on exterior balconies. LP-gas containers with a water capacity greater than 2.5 pounds (1 kg) shall not be located on decks or balconies above the first floor that are attached to a Group R-1 or R-2 Occupancy. [NFPA 58 6.19.11.2]

Exceptions:

1. LP-gas containers not exceeding a water capacity of 48 pounds (21.8 kg) [nominal 20 pounds (9 kg) LP-gas] may be used on balconies served by outside stairways if only such stairways are used to transport the container.
2. A single LP-gas container having an individual water capacity not exceeding 48 pounds (21.8 kg) [nominal 20 pounds (9 kg) LP-gas] connected to a LP-gas grill may be located on each exterior balcony of any occupancy except Group R-2 that is licensed by the Washington State Department of Health and Social Services or Washington State Department of Health, if a portable fire extinguisher having a minimum rating of 20-B is located within 30 feet (9144 mm) of the grill.

3803.5 Special uses of LP-gas outside of buildings. Individual container capacities and maximum aggregate quantities of LP-gas used for outdoor cooking, fueling equipment at construction sites, fueling tar kettles, fueling hot tar tank trucks and used in conjunction with torch-applied roofing operations shall be limited in accordance with Table 3803.5.

Portable LP-gas-fired heating appliances located outdoors are allowed in accordance with Section 603.4.2.

TABLE 3803.5

SPECIAL USES OF LP-GAS OUTSIDE OF BUILDINGS

Use/Activity	Location	Maximum Individual Container Capacity	Maximum Aggregate Quantity
Outdoor Cooking (except R-2 and R-3 where allowed)	Fire District	50 lbs. water capacity[1] (nominal 20 lbs. LP-gas capacity)	100 lbs.water capacity (nominal 40 lbs. LP-gas capacity)
	Elsewhere	50 lbs. water capacity (nominal 20 lbs. LP-gas capacity)	357 lbs. water capacity (nominal 150 lbs. LP-gas capacity)
Fueling Temporary Heating Equipment at Construction Sites	Fire District	Prohibited	Prohibited
	Elsewhere	500 gallons	500 gallons
Fueling Tar Kettles	Fire District	200 lbs. water capacity (nominal 84 lbs. LP-gas capacity)	400 lbs. water capacity (nominal 168 lbs. LP-gas capacity)
	Elsewhere	3024 lbs. water capacity (nominal 1260 lbs. LP-gas capacity)	3024 lbs. water capacity (nominal 1260 lbs. LP-gas capacity)
	On Roofs of Buildings	200 lbs. water capacity (nominal 84 lbs. LP-gas capacity)	400 lbs. water capacity (nominal 168 lbs. LP-gas capacity)
Fueling Hot Tar Tank Trucks	Fire District	200 lbs. water capacity (nominal 84 lbs. LP-gas capacity)	400 lbs. water capacity (nominal 168 lbs. LP-gas capacity)
	Elsewhere	500 gallons	500 gallons

Fueling Roofing Torches	Occupied Buildings	72 lbs. water capacity (nominal 30 lbs. LP-gas capacity)	300 lbs. water capacity (nominal 126 lbs. LP-gas capacity)
	Unoccupied Buildings	72 lbs. water capacity (nominal 30 lbs. LP-gas capacity)	605 lbs. water capacity (nominal 252 lbs. LP-gas capacity)

[1] When the LP-gas is separated from the public by a minimum of 30 feet, or by a noncombustible partition, the maximum allowable individual container size may be increased to 239 lbs. water capacity (nominal 100 lbs. LP-gas capacity) and the maximum allowable aggregate quantity may be increased to 1,000 lbs. water capacity (nominal 420 lbs. LP-gas capacity).

SECTION 3804
LOCATION OF LP-GAS CONTAINERS

3804.1 General. The storage and handling of LP-gas and the installation and maintenance of related equipment shall comply with NFPA58 as amended and be subject to the approval of the *fire code official*, except as provided in this chapter.

3804.2 Maximum capacity within established limits. ((~~Within the limits established by law restricting the storage of liquefied petroleum gas for the protection of heavily populated or congested areas, the aggregate capacity of any one installation shall not exceed a water capacity of 2,000 gallons (7570 L) (see Section 3 of the Sample Ordinance for Adoption of the *International Fire Code* on page xiii).~~
~~Exception:~~))In particular installations, ((~~this~~)) the location and capacity limit of LP-gas installations ((~~shall~~))may be determined by the *fire code official*, after consideration of special features such as topographical conditions, nature of occupancy, and proximity to buildings, capacity of proposed LP-gas containers, degree of fire protection to be provided, proximity to residential, educational and institutional occupancies and other high-risk areas and capabilities of the local fire department.

3804.2.1 Fire District restrictions. Storage and use of LP-gas containers having an individual capacity in excess of 239 pounds (108.4 kg) water capacity [nominal 100 pounds (48.3 kg) LP-gas] and all stationary installations are prohibited in the *Fire District*.
Exception: Containers and stationary installations up to 500 gallons (1892 L) LP-gas capacity west of Alaskan Way.

***

3804.3.1 Special hazards. LP-gas containers shall also be located with respect to special hazards including, but not limited to, above-ground flammable or *combustible liquid* tanks,

oxygen or gaseous hydrogen containers, flooding or electric power lines as specified in Section 6.4.5 of NFPA 58 as amended.

3804.4 Multiple LP-gas container installations. Multiple LP-gas container installations with a total water storage capacity o more than 180,000 gallons (681 300 L) [150,000-gallon (567 750 L) LP-gas capacity] shall be subdivided into groups containing not more than 180,000 gallons (681 300 L) in each group. Such groups shall be separated by a distance of not less than 50 feet (15 240 mm), unless the containers are protected in accordance with one of the following:
1. Mounded in an *approved* manner.
2. Protected with *approved* insulation on areas that are subject to impingement of ignited gas from pipelines or other leakage.
3. Protected by firewalls of *approved* construction.
4. Protected by an *approved* system for application of water as specified in Table 6.4.2 of NFPA 58 as amended.
5. Protected by other *approved* means.

Where one of these forms of protection is provided, the separation shall not be less than 25 feet (7620 mm) between LP-gas container groups.

***

3806.2 Overfilling. LP-gas containers shall not be filled or maintained with LP-gas in excess of either the volume determined using the fixed liquid-level gauge installed by the manufacturer or the weight determined by the required percentage of the water capacity marked on the container. Portable LP-gas containers shall not be refilled unless equipped with an overfilling prevention device (OPD) where required by Section 5.7.3 of NFPA 58 as amended.

3806.3 Dispensing locations. The point of transfer of LP-gas from one LP-gas container to another shall be separated from exposures as specified in NFPA 58 as amended.

***

3807.2 Smoking and other sources of ignition. "No Smoking" signs complying with Section 310 shall be posted when required by the *fire code official*. Smoking within 25 feet (7620 mm) of a point of transfer, while filling operations are in progress at LP-gas containers or vehicles, shall be prohibited.

Control of other sources of ignition shall comply with Chapter 3 of this code and Section 6.22 of NFPA 58 as amended.

***

3808.1 General. Fire protection shall be provided for installations having storage LP-gas containers with a water capacity of more than 4,000 gallons (15 140 L), as required by Section 6.25 of NFPA 58 as amended.

3808.2 Portable fire extinguishers. Portable fire extinguishers complying with Section 906 shall be provided as specified in NFPA 58 as amended.

***

3809.9 Storage within buildings accessible to the public and residential occupancies. Storage of LP-gas within buildings accessible to the public and in residential occupancies shall be in accordance with this section.

3809.9.1 Storage within buildings accessible to the public. Department of Transportation (DOTn) specification cylinders with maximum water capacity of 21/2 pounds (1 kg) ((~~used in completely self-contained hand torches and similar application~~)) are allowed to be stored or displayed in a building accessible to the public. The quantity of LP-gas shall not exceed ((~~200 pounds (91 kg)~~)) 25 pounds (11.4 kg) in the Fire District and 100 pounds (45.3 kg) outside the Fire District except as provided in Section 3809.11.

Exception: Storage in restaurants and at food service locations of 10-oz (238-g) butane nonrefillable containers is limited to no more than 24 containers, and an additional 24 10-oz (238-g) butane nonrefillable containers stored in another location within the building if constructed with at least a 2-hour fire wall protection. [NFPA 8.3.2.3]

3809.9.2 Storage within residential occupancies. Storage of containers within residential occupancies, including the basement or any storage area in a common basement storage area in multi-family occupancies and attached or detached garages, is limited to containers each having a maximum water capacity of 2.5 pounds (1 kg) and not exceeding 5.4 pound (2.4-kg) aggregate water capacity per living space unit. [NFPA 58 8.3.5]

3809.10 Storage within buildings not accessible to the public. The maximum quantity allowed in one storage location in buildings not accessible to the public, such as industrial buildings, shall not exceed a water capacity of 735 pounds (334 kg) [nominal 300 pounds (136 kg) of LP-gas]. Where additional storage locations are required on the same floor within the same building, they shall be separated by a minimum of 300 feet (91 440 mm). Storage beyond these limitations shall comply with Section 3809.11.

Individual LP-gas container capacities and aggregate quantities of LP-gas allowed to be stored within buildings not accessible to the public are limited in accordance with Table 3809.10.

TABLE 3809.10
STORAGE WITHIN BUILDINGS NOT ACCESSIBLE TO THE PUBLIC[1]

Location	Max Individual Container Capacity	Maximum Aggregate Quantity
Fire District	72 lbs. water capacity (nominal 30 lbs. LP-gas capacity)	144 lbs. water capacity (nominal 60 lbs. LP-gas)
Elsewhere	72 lbs. water capacity (nominal 30 lbs. LP-gas capacity)	735 lbs. water capacity (nominal 300 lbs. LP-gas capacity)

[1] Weight of LP-gas per gallon = 4.20 lbs.

***

3809.11.2 Construction. The construction of such buildings and rooms shall comply with requirements for Group H occupancies in the *International Building Code*, Chapter 10 of NFPA 58 as amended and both of the following:
1. Adequate vents shall be provided to the outside at both top and bottom, located at least 5 feet (1524 mm) from building openings.
2. The entire area shall be classified for the purposes of ignition source control in accordance with Section 6.22 of NFPA 58 as amended.

3809.12 Location of storage outside of buildings. Storage outside of buildings of LP-gas containers awaiting use, resale or part of a cylinder exchange program shall be located in accordance with Table 3809.12-A.

TABLE 3809.12-A
SEPARATION FROM EXPOSURES OF LP-GAS CONTAINERS AWAITING USE, RESALE OR EXCHANGE STORED OUTSIDE OF BUILDINGS

MINIMUM SEPARATION DISTANCE FROM STORED CYLINDERS TO (feet):

QUANTITY OF LP-GASSTORED (pounds)	Nearest important building or group of buildings or line of adjoining property that may be built upon	Line of adjoining property occupied by schools, places of religious worship, hospitals, athletic fields or other points of public gathering; busy thoroughfares; or sidewalks	LP-gas dispensing station	Doorway or opening to a building with two or more means of egress	Doorway or opening to a building with one means of egress	Combustible materials	Motor vehicle fuel dispenser
720 or less	0	0	5	5	10	10	20
721 - 2,500	((0))10	10	10	5[1]	10	10	20
2,501 - 6,000	10	10	10	10	10	10	20
6,001- 10,000	20	20	20	20	20	10	20
Over 10,000	25	25	25	25	25	10	20

For SI: 1 foot = 304.8 mm, 1 pound = 0.454 kg.

[1]5 foot (1524 mm) setback allowed to one of the two exits; 10 foot (3048 mm) setback required to second exit.

Maximum aggregate quantities of LP-gas located outside of buildings accessible to the public shall be in accordance with Table 3809.12-B.

TABLE 3809.12-B
STORAGE OUTSIDE BUILDINGS ACCESSIBLE TO THE PUBLIC[1]

Location	Max Individual Container Capacity	Maximum Aggregate Quantity
Fire District	72 lbs. water capacity (nominal 30 lbs. LP-gas)	357 lbs. water capacity (nominal 150

		lbs. LP-gas)
Elsewhere	72 pounds water capacity (nominal 30 lbs. LP-gas)	2592 lbs. water capacity (nominal 1080 lbs. LP-gas)[2]

[1] Weight of LP-gas per gallon = 4.20 lbs.
[2] Actual maximum quantity shall be determined on a case by case basis but shall not exceed the maximum quantity set forth here.

3809.13 Protection of containers. LP-gas containers shall be stored within a suitable enclosure or otherwise protected against tampering. Vehicular protection shall be provided in accordance with Section 312 ((~~as~~))if required by the *fire code official*.

***

3811.3 Garaging. Garaging of LP-gas tank vehicles shall be as specified in NFPA 58 as amended. Vehicles with LP-gas fuel systems are allowed to be stored or serviced in garages as specified in Section 11.15 of NFPA 58 as amended.

Point of Information
The following Tables may be used to approximate container capacity conversions.

FOR PORTABLE DOT/ ICC/ CTC CYLINDER APPLICATIONS:

Propane Capacity		**Water Capacity**	
(lb)	**(gal)**	**(lb)**	**(gal)**
5	1.2	12	1.4
10	2.4	23.8	2.8
14	3.3	34	4.1
20	4.7	48	5.7
25	5.9	59.5	7.1

30	7.1	72	8.6
40	9.5	95	11
60	14	144	17
100	24	239	29
150	35	357	43
200	47	477	57
300	71	715	86
420	99	1,000	119

FOR STATIONARY ASTM CONTAINER APPLICATIONS:

Water Capacity (gallons)	LP-gas Capacity (gallons)*	LP-gas Capacity (pounds)
100	80	338
125	100	423
150	120	508
250	200	848
325	260	-
500	400	-
1,000	800	-

* Based on propane specific gravity of .508 at 60°F

Section 28. Chapter 45 of the 2009 International Fire Code is amended as follows:

CHAPTER 45
MARINAS

SECTION 4501
SCOPE

4501.1 Scope. Marina facilities shall be in accordance with this chapter.

Exception: Approved designated facilities and shipyards in accordance with the Administrative Rule 26.02.09, *Designated Hot Work Facilities and Shipyards* and any future revisions of this rule adopted by the *fire code official.*

***

4502.1 Definitions. The following words and terms shall, for the purpose of this chapter and as used elsewhere in this code, have the meanings shown herein.

COVERED BOAT MOORAGE. A pier or system of floating or fixed accessways to which vessels on water may be secured, 50 percent or more of which is covered by a roof.

DESIGNATED HOT WORK FACILITY. Those piers, designated by the fire code official, which by virtue of their construction, location, fire protection, emergency vehicle access and fire hydrant availability, are suitable to allow certain repairs to *vessels*.

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

MARINA. Any portion of the ocean or inland water, either naturally or artificially protected, for the mooring, servicing or safety of vessels, and ((~~shall include~~))including artificially protected works, the public or private lands ashore, ((~~and~~)) structures or facilities, other than floating homes, provided within the enclosed body of water and ashore for the mooring or servicing of vessels or the servicing of their crews or passengers.

PIER. ((~~A structure built over the water, supported by pillars or piles, and used as a landing place, pleasure pavilion or similar purpose.~~)) A structure, usually of greater length than width, of timber, stone, concrete or other 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.

[B] SUBSTRUCTURE. That portion of the construction below and including the deck immediately above the water.

[B] SUPERSTRUCTURE. That portion of construction above the deck.
Exception: *Covered boat moorage.*

VESSEL. A ((~~motorized~~)) watercraft, other than a seaplane on the water, used or capable of being used as a means of transportation. ((~~Non transportation vessels, such as houseboats and boathouses, are included in this definition.~~))

WHARF. A structure or bulkhead constructed of wood, stone, concrete or similar material built ((~~at the shore of a harbor, lake or river~~))along and parallel to waters for *vessels* to lie alongside of, and to anchor piers or floats.

***

4503.5.1 Labeling electrical disconnects. Electrical transformers, control panels and breaker panels shall be readily accessible, clearly labeled and indicate the areas they service. See also Section 605.

4503.6 Berthing and storage. Berthing and storage shall be in accordance with Chapter 7 of NFPA 303.

4503.7 ((~~Slip identification.~~))Signage. At the shore end of *piers*, *wharves* and *floats* conspicuous signage shall be located indicating the address of the *piers*, *wharves* and *floats* and, for those structures that are designed to support vehicles, the weight limit the structure can support. Numbers and letters shall be easily legible and have high contrast with the color of the sign background. Numbers and letters shall not be less than 5 inches (127 mm) in height.

Slips and mooring spaces shall be individually identified by an *approved* numeric or alphabetic designator. Space designators shall be posted at the space. Signs indicating the space designators located on finger piers and floats shall be posted at the base of all piers, finger piers, floats and finger floats.

4503.8 Emergency Plan. Owners of piers, wharves, floats and marinas shall prepare an emergency plan for the facility. The plan shall include procedures for fire department notification and fire evacuation, and shall include the location of portable fire extinguishers and hose cabinets, sprinkler and standpipe system control valves, fire department connections and electrical disconnects.

4503.8 Point of Information

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

SECTION 4504
FIRE PROTECTION EQUIPMENT

4504.1 General. Piers, marinas, ((~~and~~))wharves ((~~with facilities for mooring or servicing five or more vessels~~)), and marine motor fuel-dispensing facilities shall be equipped with fire protection ((~~equipment~~))features in accordance with Sections 4504.2 through 4504.6.

4504.2 Standpipes. ((~~Marinas and boatyards shall be equipped throughout with standpipe systems in accordance with NFPA 303. Systems shall be provided with hose connections located such that no point on the marina pier or float system exceeds 150 feet (15 240 mm) from a standpipe hose connection.~~))

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

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

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

4504.2.1 Hose connections. Hose connection stations on required standpipes shall be provided at the water end of the *pier*, *wharf* or *float*, and along the entire length of the *pier*, *wharf* or *float* at spacing not to exceed 150 feet (45 720 mm) and as close as practical to the land end. Each hose connection shall consist of a valved 21/2-inch (64 mm) fire department hose outlet. Outlet caps shall have a predrilled 1/8-inch (3.2 mm) hole for pressure relief and be secured with a short length of chain or cable to prevent falling after removal. Listed equipment shall be used.

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

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

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

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

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

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

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

***

4504.7 Automatic sprinkler systems.

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

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

Exceptions:
1. Combustible substructures whose deck area does not exceed 8,000 square feet (743.2 m^2) and does not support superstructures.
2. Combustible substructures whose deck area does not exceed 8,000 square feet (743.2 m^2) but supports superstructures not required to be provided with an approved automatic sprinkler system as specified in Section 424.9.2 of the *Seattle Building Code.*
3. Noncombustible substructures with or without superstructures.
4. Substructures, over other than tidal water, if sprinkler heads cannot be installed with a minimum clearance of 4 feet (1219 mm) above mean high water.

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

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

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

4504.8 Fire department connections. Standpipe and sprinkler systems shall be equipped with not less than a two-way 21/2-inch (64 mm) fire department connection (FDC), which shall be readily visible and located at the fire department apparatus access.

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

***

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

***

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

***

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

***

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

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

***

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

~~**Exceptions:**~~

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

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

***

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

Exceptions:

1. Where it is determined by the *fire code official* that the radio coverage system is not needed.
2. One and two family dwellings and townhouses.
3. Buildings constructed primarily of wood-frame (Type V) construction without below grade storage or parking areas.
4. Buildings that are 35 feet high (as defined by the *Seattle Building Code* Section 502) or less without below grade storage or parking areas.

SECTION 4604
MEANS OF EGRESS FOR EXISTING BUILDINGS

[W] 4604.1 General. *Means of egress* in existing buildings shall comply with ((~~the minimum egress requirements when specified in Table 4603.1 as further enumerated in Sections 4604.2~~

~~through 4604.21, and the building code that applied at the time of construction. Where the provisions conflict, the most restrictive provision shall apply.~~))Section 1030 and Sections 4604.1.1 through 4604.23.

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

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

***

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

1. Group A having 50 or more occupants.
   Exception: Assembly occupancies used exclusively as a place of worship and having an *occupant load* of less than 300.
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
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
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
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
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
30A—08	Code for Motor Fuel-dispensing Facilities and Repair Garages	2201.4, 2201.5, 2201.6, 2206.6.3, 2210.1
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
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
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
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
51A—06	Acetylene Cylinder Charging Plants	2608.1
52—06	Vehicular Fuel System Code	3001.1
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
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
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
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
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
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
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
101—06	Life Safety Code	1028.6.2
105—07	Installation of Smoke Door Assemblies and Other Opening Protectives	703.1.2
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
130-10 as amended	Standard for Fixed Guideway Transit and Passenger Rail Systems	318
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
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
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
	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
	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
	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
	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
	484—06	Combustible Metals. . . . . .Table 1304.1
	490—02	Storage of Ammonium Nitrate. 3301.1.5
	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
	498—06	Safe Havens and Interchange Lots for Vehicles Transporting Explosives. 3301.1.2
	502 - 08 as amended	Standard for Road Tunnels, Bridges, and Other Limited Access Highways. 319
	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
	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
	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
	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
	720 – 09	Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment 907.2.8, 907.2.9, 907.2.10
	750—06	Water Mist Fire Protection Systems. . . . . .Table 901.6.1
	1122—08	Model Rocketry 3301.1.4
	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
	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
	1127—08	High Power Rocketry 3301.1.4
	1142—07	Water Supply for Suburban and Rural Fire Fighting B103.3
	2001—08	Clean Agent Fire Extinguishing Systems . . . . . .Table 901.6.1, 904.10

Underwriters Laboratories, Inc.
333 Pfingsten Road

UL

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	
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	
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	
710B—04	Recirculating Systems—with Revisions through April 2006. . . . . .904.11	

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
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
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
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
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
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
2034 – 08	Single and Multiple Station Carbon Monoxide Alarms	907.2.8.4.2, 907.2.10.3
2075—07	Standard for Gas and Vapor Detectors and Sensors	2211.7.2.1
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
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
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

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

CHAPTER 90
RESIDENTIAL OCCUPANCIES
FOUR STORIES AND OVER

Chapter 90 Point of Information

The requirements of this Chapter originated in City of Seattle Ordinance 98868, effective June 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.

SECTION 9001

GENERAL

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

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

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

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

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

9001.2 Exit Enclosure Required. All existing apartment houses, apartment hotels and hotels four stories or more in height, shall have at least two fully enclosed stairways that have a one-hour fire-resistive rating throughout. The interior corridors and egressways thereof, including all doors, transoms and other openings into corridors, shall be constructed or improved to substantially have a one-hour fire-resistive rating throughout. In buildings constructed as 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.

9001.3 Sprinkler Alternative. In lieu of compliance with the requirements of Section 9001.2, approved automatic fire sprinkler systems may be installed in all stairways, interior corridors and egressways of existing apartment houses, apartment hotels, and hotels four stories or more in height. Automatic sprinkler systems, if so installed, shall also be installed in all janitor rooms, 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.

SECTION 9002
CONFLICTS WITH LATER ADOPTED CODES

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

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

CHAPTER 91
AUTOMATIC SPRINKLER SYSTEMS IN NURSING HOMES

Point of Information

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

SECTION 9101
SCOPE

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

SECTION 9102
INSTALLATION OF EQUIPMENT

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

1. Nursing homes that are of Type I or II construction throughout, as defined in the *International Building Code*.

2. Nursing homes not more than one story in height which have interiors with a one-hour fire resistance rating throughout.

SECTION 9103
CONFLICTS WITH LATER ADOPTED CODES

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

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

CHAPTER 92
AUTOMATIC SPRINKLER SYSTEMS IN SCHOOLS

Chapter 92 Point of Information
The requirements of this Chapter originated in City of Seattle Ordinance 94931, effective August 5, 1966.

SECTION 9201
GENERAL

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

1. A public place of instruction operated by public authorities, including elementary and secondary schools.

2. A place of instruction operated by private persons or private or religious organizations in which the course of study is similar to that in a public school, and which has been authorized by the State as an educational institution.

SECTION 9202
INSTALLATION OF EQUIPMENT

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

1. School buildings that are of Type I or II construction as defined in the Building Code.

2. School buildings not over three stories in height that have interiors with one-hour fire resistance rating throughout, and that have egress enclosures with a one-hour fire resistance rating.

3. School buildings, not over three stories in height, with interiors that substantially have a one-hour fire resistance rating, need only have egress corridors, stairways, janitor rooms, storage rooms and similar spaces equipped with approved automatic sprinkler systems. Classrooms and assembly rooms in such buildings need not be so equipped.

SECTION 9203
CONFLICTS WITH LATER ADOPTED CODES

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

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

CHAPTER 93
MINIMUM STANDARDS FOR HIGH-RISE BUILDINGS

Chapter 93 Point of Information

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

SECTION 9301
GENERAL

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

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

9301.2.1 Hazards and design features. If the *fire code official* finds a condition in a high-rise building not specifically addressed in this chapter, which in the *fire code official*'s opinion makes fire escape or fire fighting unusually difficult, the *fire code official* is authorized to

declare it to be a hazard, notify the owner of such condition and order its correction in a manner consistent with these minimum safeguards.

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

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

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

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

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

DEAD-END CORRIDOR: A corridor that permits only one direction of travel from a unit or 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.

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

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

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

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

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

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

SECTION 9302
EXITS

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

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

Exceptions:

1. Pressurization may be omitted if the building has an *approved* automatic sprinkler system, all corridor openings are self-closing, all occupied areas have access to a second means of egress or a fire escape and the omission is *approved* by the *fire code official*.
2. A single stair may exit through a building lobby, if the lobby is of non-combustible 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.

9302.3 Fire Escapes. Exterior fire escapes shall be accessible and structurally safe at all times. Owners of high-rise buildings shall load test fire escapes at least once every five years with a weight of not less than 100 lb/sq. foot. The results of such a load test shall be submitted in writing to the *fire code official*. In lieu of such a test, the *fire code official* may accept the opinion of a structural engineer licensed by the State of Washington describing his inspection

and/or tests and stating that the fire escape is structurally safe and will support a load of 100 lb/sq. foot. There shall be signs *approved* by the *fire code official* clearly identifying the route of access to the fire escape from every public corridor. Fire escapes that are not maintained structurally safe and not otherwise required by provisions of the Fire Code shall be removed. Locked doors or windows are prohibited between public corridors and fire escapes.

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

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

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

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

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

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*.

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

NOTE: To qualify for exception 3, all spaces adjacent to the building lobby must be 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.

4. Office areas above the main lobby, including open space design areas.
   NOTE: This exception does not apply to retail or wholesale stores, display rooms, 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*.
5. Smoke detectors are not required in spaces that are separated by one-hour fire-resistive construction, with openings protected by one-hour self-closing doors.

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

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

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

SECTION 9305
HEATING, VENTILATION AND AIR CONDITIONING SYSTEM (HVAC) SHUTDOWN

9305.1 Air moving systems. Air moving systems that serve more than the floor on which they 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.

Exception: Air moving systems of:

1. Less than 2,000 CFM.
2. Exhaust only systems of less than 15,000 CFM, such as toilet, range hood, kitchen, fume hood, etc.
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.
4. Life safety pressurization systems as provided in the Building Code.
5. Buildings with *approved* automatic smoke control pursuant to Section 1807 of the 1982 edition of the Seattle Building Code.

SECTION 9306
FIRE ALARM AND DETECTION SYSTEMS

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

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

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

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

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

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

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

Exceptions:

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

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

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.

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

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

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

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

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

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

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

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

9306.7 Elevator recall. A fire alarm originating on a floor other than the main lobby floor shall cause all elevators to be returned to the main floor in accordance with Chapter 30 of the 1982 *Seattle Building Code*. Whenever new elevator controllers are installed, they shall meet 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. Stairway pressurization emergency power shall be provided by an on-site diesel engine generator set. Such power shall start automatically on fire alarm and the generator set shall have a two-hour fuel supply.

2. Exit signs and pathway illumination shall have emergency power by trickle charged storage batteries. Such batteries shall have a capacity to provide required illumination for 90 minutes.
3. Fire alarm emergency power shall be provided as required in Section 9306.

SECTION 9308
SIGN REQUIREMENTS

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

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

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

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

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

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

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

SECTION 9309
EMERGENCY PREPAREDNESS

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

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

Exceptions:

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

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

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

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

CHAPTER 94
FIRE PROTECTION FOR COVERED BOAT MOORAGE

Chapter 94 Point of Information

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

SECTION 9401
GENERAL

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

Exceptions:

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

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

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

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

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

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

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

9401.8 Fire extinguishers. One portable fire extinguisher having a minimum rating of 2A 20-BC shall be provided within 75 feet (22,860 mm) of all portions of piers, wharves, and floats, or 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

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

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

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

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

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

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

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

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

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

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

PIER is a structure, usually of greater length than width, of timber, stone, concrete or other 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.

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

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

SECTION 9403
PLANS AND APPROVALS

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

SECTION 9404
ACCESS AND WATER SUPPLY

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

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

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

9404.3 Fire hydrants. 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 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*.

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

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

SECTION 9405
FIRE PROTECTION EQUIPMENT

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

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

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

Each hose connection shall consist of a valved 21/2-inch (64 mm) fire department hose outlet. Outlet caps shall have a predrilled 1/8-inch (3.2 mm) hole for pressure relief and be secured with a short length of chain or cable to prevent falling after removal. Listed equipment shall be used.

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

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

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

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

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

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

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

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

Exception: Gravity-operated drop out vents.

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

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

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

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

9405.4.2 Draft curtain location and depth. The maximum area protected by draft curtains shall not exceed 2,000 sq. ft. (186 m2) or two slips or berths, whichever is smaller. Draft curtains shall not extend past the piling line. Draft curtains shall have a minimum depth of 2 feet (609 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 21/2-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 distance between the fire apparatus access road and FDC is less than 150 feet (45,720 mm). See also SFC 9404.3 Fire hydrants.

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

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

SECTION 9406
EMERGENCY PLANS AND TRAINING

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

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

9406.2 Point of Information
For examples of emergency plans, see information bulletins located at www.seattle.gov/fire titled Emergency Procedures for Public Occupancies and Fire Evacuation Planning.

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.

9406.3.2 All employees, including office personnel, shall be given training in the use of portable fire extinguishers.

9406.4 Fire department liaison. If requested by the Seattle Fire Department, management shall assist the fire department in pre-fire planning for the following:
(1) Entries and access routes for equipment within the premises,
(2) Location, construction, use, and accessibility of all buildings and all their subdivisions including basements, storage lockers, and other areas,
(3) Location and extent of outside working areas,
(4) Location and means of access to both dry and wet boat-storage areas,
(5) Type and capacity of standpipes on piers and walkways, including all points where connection of hydrant or pumper supplies can be affected,
(6) Types and capacities of facility equipment, including work or tow boats, portable pumps, pier-mounted hose cabinets, all portable fire extinguishers, and other equipment,
(7) Voltages and capacities of electrical systems, and location of electrical disconnecting means.

SECTION 9407
OPERATIONAL HAZARDS

9407.1 The marina or boatyard operator shall post in a prominent location or provide to boat operators using a marina or boatyard for mooring, repair, servicing, or storage, a list of safe operating procedures containing the following:
(1) Procedures for disposal of trash;
(2) Location of nonsmoking areas;
(3) Location of fire extinguishers and hoses;
(4) Procedures for turning in a fire alarm; and
(5) Fueling procedures.

9407.2 Fueling Operations. Fueling of floating marine craft with Class I fuels at other than a marine motor fuel-dispensing facility is prohibited. Fueling of floating marine craft with Class II or III fuels at other than a marine motor fuel-dispensing facility shall be in accordance with SFC 2210.4.

SECTION 9408
COMPLIANCE

9408.1 Compliance. All corrections that may be necessary to provide the minimum fire safety requirements established in this Chapter shall be completed by the owners as follows:
(a) The *fire code official* shall develop a procedure for surveying marinas to effect compliance with this Chapter. The *fire code official* shall send written and signed notices to the owners of all non- complying marinas. Within 120 days of the date of notification

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.

(b) The *fire code official* shall review the concept design and firm schedule and respond in writing. The time schedule for compliance shall be measured from the date of the *fire 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.

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

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

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

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

***

B101.1 Scope. The procedure for determining fire-flow requirements for buildings or portions of buildings hereafter constructed and for buildings undergoing a substantial alteration as 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.

***

SECTION B103
MODIFICATIONS

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

B103.2 Increases. The *fire* *code official*((~~chief~~))is authorized to increase the fire-flow 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.

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

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

***

SECTION B105
FIRE-FLOW REQUIREMENTS FOR BUILDINGS

B105.1 One- and two-family dwellings and townhouses. The minimum fire-flow and flow duration requirements for one- and two-family *dwellings* and townhouses having a fire-flow calculation area that does not exceed 3,600 square feet (344.5m2) shall be 1,000 gallons per 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.

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

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

Exceptions:

1. A reduction in required fire-flow of up to 75 percent, as *approved*, is allowed when the 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 minute (5678 L/min) for the prescribed duration as specified in Table B105.1.
2. The resulting fire-flow shall not be less than 1,000 gallons per minute for the prescribed duration as specified in Table B105.1 for a building that consists only of Group R-1 or R-2 occupancies and their associated parking.

***

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

APPENDIX D
FIRE APPARATUS ACCESS ROADS

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

SECTION D101
GENERAL

D101.1 Scope. Fire apparatus access roads other than public streets shall be in accordance with this appendix and all other applicable requirements of the *International Fire Code*.

SECTION D102
REQUIRED ACCESS

D102.1 Access and loading. Facilities, buildings or portions of buildings hereafter constructed, substantially altered or moved into or within the jurisdiction shall be accessible to fire department apparatus by way of an *approved* fire apparatus access road with an asphalt, concrete or other *approved* driving surface capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds (34 050 kg).

SECTION D103
MINIMUM SPECIFICATIONS

((~~**D103.1 Access road width with a hydrant.** Where a fire hydrant is located on a fire apparatus access road, the minimum road width shall be 26 feet (7925 mm), exclusive of shoulders (see Figure D103.1).~~))

D103.1((~~2~~)) Grade. Fire apparatus access roads shall not exceed 10 percent in grade.

Exception: Grades steeper than 10 percent as *approved* by the *fire code official*((~~chief~~)).

D103.2((~~3~~)) Turning radius. The minimum turning radius shall be determined by the *fire code official*.

D103.3((4)) Dead ends. Dead-end fire apparatus access roads in excess of 150 feet (45 720 mm) shall be provided with width and turnaround provisions in accordance with Table D103.3((4)) and Figure D103.3. Required turnarounds shall be located no more than 150 ft. from the dead-end terminus of the fire apparatus road.

TABLE D103.3((4))
REQUIREMENTS FOR DEAD-END FIRE

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.]

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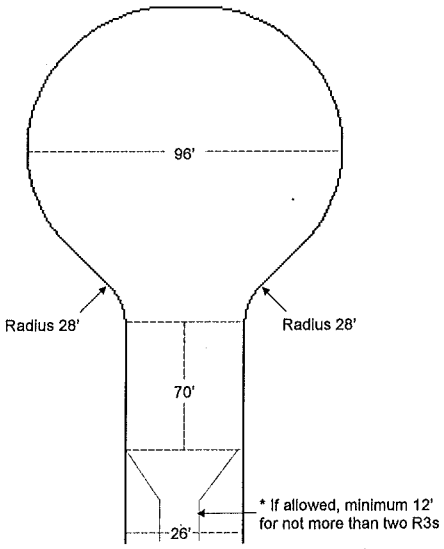
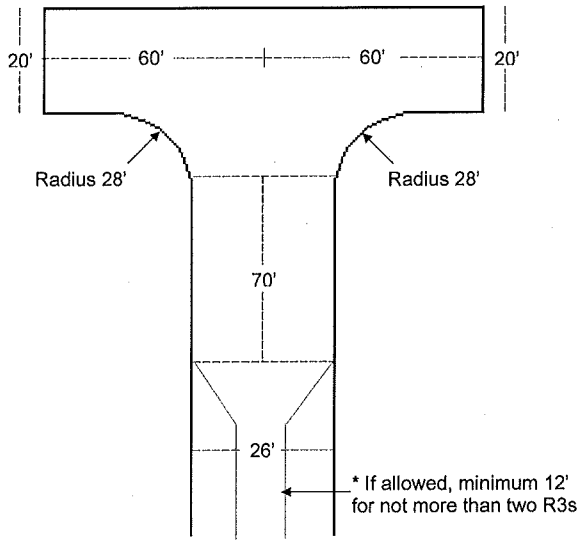
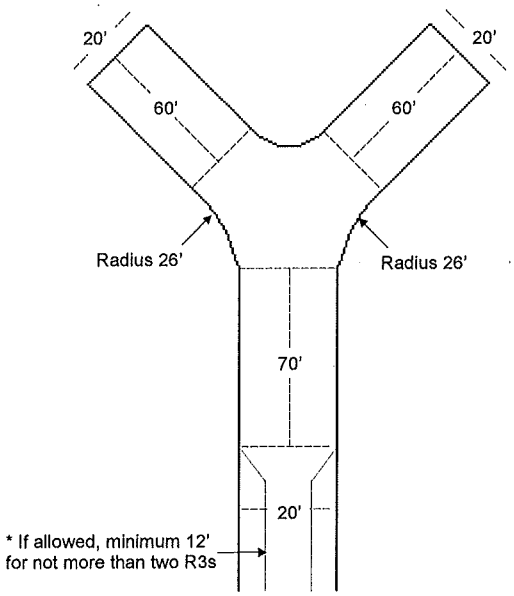
FIGURE D103.3
DEAD-END FIRE APPARATUS ACCESS ROAD TURNAROUND

96 Foot Cul-de-sac

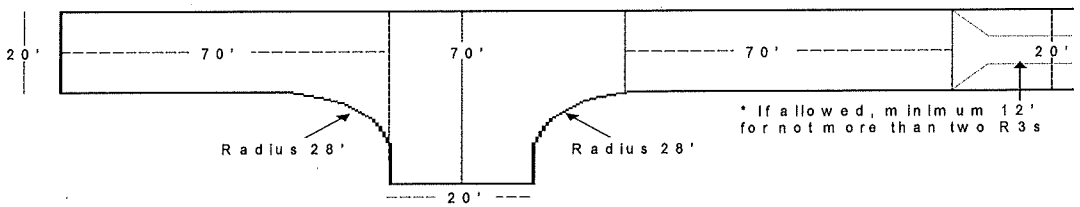




120 Foot Hammerhead



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 toll 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.

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

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

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

***

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

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

SECTION D104
COMMERCIAL AND INDUSTRIAL DEVELOPMENTS

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

D104.1((2)) Buildings exceeding 62,000 square feet in area.
Buildings or facilities having a gross *building area* of more than 62,000 square feet (5760 m2) shall be provided with two separate and *approved* fire apparatus access roads.
Exception: Projects having a gross *building area* of up to 124,000 square feet (11 520m2) that have a single *approved* fire apparatus access road when all buildings are equipped throughout with *approved automatic sprinkler systems.*

D104.2((3)) Remoteness. Where two access roads are required, they shall be placed a distance 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

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

Exceptions:

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

***

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

***

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

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

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

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

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;

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

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

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

J103.1.3.1 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. The building *owner* shall modify or expand the emergency responder radio coverage system at the owner's expense if frequency changes are required by the FCC or additional frequencies are made available by the FCC. Prior approval of a public safety radio coverage system on previous frequencies does not exempt the building owner from complying with this section.

J103.1.3.1 Point of Information
There is currently an ongoing national effort to eliminate current interference issues between cellular carriers and public safety bands in the 800 MHz band. This effort could revise the actual frequencies for public agencies within this band. The public safety radio enhancement system design shall be capable of being changed to accommodate updated frequencies in order to allow maintenance of the minimum system design criteria.

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

J103.1.4.1 Primary Power Source. The primary power source shall be supplied from a 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.

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

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

J103.1.5 System Monitoring.

J103.1.5.1 Fire Alarm System. The public safety radio enhancement system shall include automatic supervisory and trouble signals for malfunctions of the signal booster(s) and power supplies that are annunciated by the fire alarm system, as follows:
(1)The integrity of the circuit monitoring signal booster(s) and power supply(ies) shall comply with NFPA 72, *National Fire Alarm Code*.
(2)System and signal booster supervisory signals shall include the following:
(a)Antenna malfunction
(b)Signal booster failure
(3)Power supply supervisory signals shall include the following for each signal booster:
(a)Loss of normal ac power
(b)Failure of battery charger
(c)Low battery capacity, alarming at 70 percent of battery capacity

J103.1.4 Signal booster requirements. If used, signal boosters shall meet the following requirements:
1. All signal booster components shall be contained in a NEMA4-type waterproof cabinet.
2. The battery system shall be contained in a NEMA4- type waterproof cabinet.
3. The system shall include automatic alarming of malfunctions of the signal booster and battery system. Any resulting trouble alarm shall be automatically transmitted to an approved central station or proprietary supervising station as defined in NFPA 72 or, when approved by the *fire 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.

J103.2.1 Approval prior to installation. No amplification system capable of operating on frequencies ((~~licensed to any public safety agency by the FCC~~))assigned to the King County Regional 800 MHz Radio System shall be installed without prior coordination and approval of the King County Regional Communications Board and the *fire code official*.

J103.2.2 Permit required. A construction permit, as required by Section 105.7.5 of the *International Fire Code*, shall be obtained prior to the installation of the emergency responder radio coverage system.

J103.2.3 Minimum qualifications of personnel. The minimum qualifications of the system designer and lead installation personnel shall include:
1. A valid FCC-issued General Radio Operators License, and
2. Certification of in-building system training issued by the Associated Public-Safety Communications Officials International (APCO) or the National Association of Business and Education Radio (NABER) ((~~a nationally recognized organization or school~~)) or a certificate issued by the manufacturer of the equipment being installed. The agency may waive these requirements upon successful demonstration of adequate skills and experience satisfactory to the *fire code official*.

J103.2.4 Acceptance test procedure. ((~~When an emergency responder radio coverage system is required, and upon completion of installation, the building *owner* shall have the radio system tested to ensure that two-way coverage on each floor of the building is a minimum of 90 percent.~~))Acceptance testing for an in-building radio amplification system is required, upon completion of installation. It is the building owner's responsibility to have the radio system tested by qualified personnel to ensure a minimum of 95 percent two-way coverage on each floor of the building. The performance test shall include at minimum a floor plan and the signal strength in various locations of the building. Each owner shall submit a new field performance test report, whenever structural changes occur to the building that would materially change the original field performance tests.

J103.2.4 Point of Information
The Department of Planning and Development may not issue a Certificate of Occupancy if the building fails to comply with this section.

The test procedure shall be conducted as follows:
1. Each floor of the building shall be divided into a grid of ((~~20~~)) 40 approximately equal areas.
2. ((~~The test shall be conducted using a calibrated portable radio of the latest brand and model used by the agency talking through the agency's radio communications system.~~))Talk-back testing from a site to the King County Regional 800 MHz Radio System shall use a two watt, portable transceiver with speaker/microphone and flexible antenna. Field strength testing

instruments must have been calibrated within one year) of the date of the acceptance test. Field strength testing instruments must be of the frequency selective type incorporating a flexible antenna similar to the ones used on the hand held transceivers.
The City of Seattle's Radio System Manager may designate alternate methods of measuring the signal level, that satisfy appropriate levels of public safety grade coverage.
A representative of the Seattle Fire Department will oversee the acceptance test.
3. A maximum of two nonadjacent areas shall be allowed to fail the test.
4. In the event that three of the areas fail the test, in order to be more statistically accurate, the floor may be divided into ((~~40~~)) 80 equal areas. A maximum of four nonadjacent areas shall be allowed to fail the test. If the system fails the ((~~40~~))80 area test, the system shall be altered to meet the 90-percent coverage requirement.
5. A test location approximately in the center of each grid area shall be selected for the test, then the radio shall be enabled to verify two-way communications to and from the outside of the building through the King County Regional 800 MHz Radio System ((~~public agency's radio communications system.~~))Once the test location has been selected, that location shall represent the entire area. If the test fails in the selected test location, that grid area shall fail, and prospecting for a better spot within the grid area shall not be allowed.
6. The gain values of all amplifiers shall be measured and the test measurement results shall be kept on file with the building owner so that the measurements can be verified during annual tests. In the event that the measurement results become lost, the building owner shall be required to rerun the acceptance test to reestablish the gain values.
7. As part of the installation a spectrum analyzer or other suitable test equipment shall be utilized to insure spurious oscillations are not being generated by the subject signal booster. This test shall be conducted at time of installation and subsequent annual inspections.

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

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.

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

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

1. In-building coverage test as described in Section J103.2.4.
2. Signal boosters shall be tested to ensure that the gain is the same as it was upon initial installation and acceptance.
3. Backup batteries and power supplies shall be tested under load for a period of one hour to 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 periods until the integrity of the battery can be determined.
4. Amplifiers shall be tested to ensure that the gain is the same as it was upon initial installation and acceptance.

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

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

((~~**J103.3.4 Additional frequencies.** The building *owner* shall modify or expand the emergency 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 public safety radio coverage system on previous frequencies does not exempt this section.~~))

J103.3.4 Five-year tests. In addition to the annual test, it shall be the building owner's 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.

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

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

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

***

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

***

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

***

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

***

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

***

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

***

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

***

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

***

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

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

***

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

(A) If cylinders are manifolded together, the total water capacity of the connected cylinders shall be not more than 735 lb (333 kg) [nominal 300 lb (136 kg) LP-Gas capacity]. If there is more than one such manifold in a room, it shall be separated from any other by at least 20 ft (6.1 m).
(B) The amount of LP-Gas in cylinders for research and experimental use in the building shall be limited to the smallest practical quantity and shall not exceed the quantity limits set forth in Seattle Fire Code Section 3803.2.1.3.

***

6.19.7.2 ((~~Where~~))If cylinders are used in ((~~buildings housing educational and institutional~~))Group B, E and I laboratory occupancies for research and experimental purposes, the following ((~~shall~~))apply:
(1) The maximum water capacity of individual cylinders used ((~~shall be~~)) is 50 lb (23 kg) [nominal 20 lb (9.1 kg) LP-Gas capacity] if used in ((~~educational~~))Group B and E occupancies and 12 lb (5.4 kg) [nominal 5 lb (2 kg) LP-Gas capacity] if used in ((~~institutional~~)) Group I occupancies.
(2) If more than one such cylinder is located in the same room, the cylinders shall be separated by at least 20 ft (6.1 m).
(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~~

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

***

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

***

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

***

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

***

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

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

***

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

***

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

***

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

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

***

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

***

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

***

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

***

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

***

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

5.4.11* Emergency Power Supply System (EPSS). Underground and enclosed stations shall be provided with a Class 2 , Type 60, Level 1 Emergency Power Supply System (EPSS) in 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.

***

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

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

***

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

***

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

***

5.5.5.1 The occupant load for a station shall be based on whichever is greater:
(1) T((t))he train load of trains simultaneously entering the station on all tracks in normal traffic direction plus the simultaneous entraining load awaiting a train or;
(2) The number of occupants computed at the rate of one occupant per unit of area as follows:

- 7 sq. ft. for underground structures
- 15 sq. ft. for surface structures and elevated structures.

***

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

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

***

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

***

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

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

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

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

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

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

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

***

((~~**5.5.6.3.3 Elevators.**~~

~~**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 permitted to account for part of the means of egress capacity in stations.~~

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

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

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

~~(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).~~

~~(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.~~

~~(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).~~

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

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

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

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

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

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

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

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

***

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.

***

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 of 25 ppm for egress calculations.

***

5.6.1 Stations shall be provided with a system of emergency lighting in accordance with ((~~NFPA *10*~~,)) Section 1006 of the 2009 *Seattle Building Code*, except as otherwise noted herein.

***

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 otherwise noted in this standard.

***

5.7.3.1 An automatic sprinkler ((~~protection~~)) system shall be provided ((~~in~~))throughout all 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~~)).

***

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

***

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

***

5.7.4.1.1 ((~~Class of service shall be determined by the authority having jurisdiction. (SeeA.5.7.4.30)~~)) Elevated transit stations shall be equipped throughout with a Class I standpipe system.

***

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

***

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

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

***

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

***

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

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

***

((~~5.9.1.2 Interior wall and ceiling finish materials, when tested in accordance with NFPA 286, 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:~~

~~(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.~~
~~(b) The peak heat release rate shall not exceed 800 kW (2730 kBtu/hr).~~
~~(c) Flashover shall not occur.~~
~~(3) The total smoke released throughout the test shall not exceed 1000 m2 (10, 764 ft2).~~.))

***

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*.

***

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

***

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.

***

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

(1)~~610 mm (24 in.)~~ 760 mm (30 in.) at the walking surface to
(2)~~760 mm (30 in.)~~ 910 mm (36 in.) at 1420 mm (56 in.) above the walking surface to
(3)~~610 mm (24 in.)~~ 760 mm (30 in.) at 2025 mm (80 in.) above the walking surface

***

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.

***

((~~**6.2.2.2.2** For exit stairs serving underground or enclosed trainways, the width of exit stairs shall not be required to exceed 1120 mm (44 in.).~~))

***

((~~**6.2.2.5 Exit Hatches.**~~
~~**6.2.2.5.1** Exit hatches shall be permitted in the means of egress, provided the following conditions are met:~~
~~(1) Hatches shall be equipped with a manual opening device that can be readily opened from the egress side.~~
~~(2) Hatches shall be operable with not more than one releasing operation.~~

~~(3) The force required to open the hatch when applied at the opening device shall not exceed 130 N (30 lb).~~
~~(4) The hatch shall be equipped with a hold-open device that automatically latches the door in the open position to prevent accidental closure.~~
~~**6.2.2.5.2** Exit hatches shall be capable of being opened from the discharge side to permit access by authorized personnel.~~
~~**6.2.2.5.3*** Exit hatches shall be conspicuously marked on the discharge side to prevent possible blockage.~~))

***

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

***

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

A.6.3.3.2.11 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.

6.3.3.2.11.1 The following systems shall be connected to the emergency power supply system:
(((~~(1)Emergency lighting~~
~~(2)Protective signaling systems~~
~~(3)Emergency communication system~~
~~(4)Fire command center))~~

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

(5) Fire alarm systems.
(6) Power and lighting for the fire command center.
(7) Lighting for mechanical rooms containing critical equipment.
(8) Electrically powered fire pumps.
(9) Ventilation and automatic fire detection equipment for smoke proof enclosures.
(10) Smoke control systems.
(11) A selected elevator in each bank of elevators in accordance with *Seattle Building Code* Section 3016.7. A bank of elevators is a group of elevators or a single elevator controlled by a common operating system—all elevators that respond to a single call button constitute a bank of elevators. All elevators shall be transferable to emergency power.

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

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

***

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

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

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

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

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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.~~))

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

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

~~(1) Fire in trainway or station~~
~~(2)Local incident within the electrical utility that interrupts power to the emergency ventilation system~~
~~(3)Derailment~~))

***

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

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

A.7.7.1 The class defines the minimum time, in hours, for 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.

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

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

***

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

***

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

***

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

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

***

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

***

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

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

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

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

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

***

4.5 Emergency Communications.
Emergency communications, ((~~where~~))if required by the authority having jurisdiction, shall be provided by the installation of outdoor-type emergency telephone boxes, ((~~coded alarm telegraph 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, t((~~T~~))hey 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.

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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.

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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.

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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.