CHAPTER 31

SPECIAL CONSTRUCTION

User notes:

About this chapter: *Chapter 31 provides regulations for unique buildings and building elements. Those include buildings such as membrane structures, greenhouses and relocatable buildings. Special elements include pedestrian walkways and tunnels, awnings, canopies and marquees, vehicular gates and solar energy systems.*

Code development reminder: *Code change proposals to sections preceded by the designation [BS] will be considered by the IBC—Structural Code Development Committee during the 2019 (Group B) Code Development Cycle. See explanation on page iv.*

SECTION 3101
GENERAL

[W] 3101.1 Scope. The provisions of this chapter shall govern special building construction including membrane structures, temporary structures, *pedestrian walkways* and tunnels, automatic *vehicular gates, awnings* and *canopies, marquees,* signs, towers, antennas, relocatable buildings, swimming pool enclosures and safety devices, and solar energy systems and fixed guideway transit and passenger rail systems.

SECTION 3102
MEMBRANE STRUCTURES

3102.1 General. The provisions of Sections 3102.1 through 3102.8 shall apply to air-supported, air-inflated, membrane-covered cable, membrane-covered frame and *tensile membrane structures*, collectively known as membrane structures, erected for a period of 180 days or longer. Those erected for a shorter period of time shall comply with the *International Fire Code*. Membrane structures covering water storage facilities, water clarifiers, water treatment plants, sewage treatment plants, greenhouses and similar facilities not used for human occupancy are required to meet only the requirements of Sections 3102.3.1 and 3102.7. Membrane structures erected on a building, balcony, deck or other structure for any period of time shall comply with this section.

3102.2 Tensile membrane structures and air-supported structures. Tensile membrane structures and air-supported structures, including permanent and temporary structures, shall be designed and constructed in accordance with ASCE 55. The provisions in Sections 3102.3 through 3102.6 shall apply.

[W] 3102.3 Type of construction. Noncombustible membrane structures shall be classified as Type IIB construction. Noncombustible frame or cable-supported structures covered by an approved membrane in accordance with Section 3102.3.1 shall be classified as Type IIB construction. Heavy timber frame-supported structures covered by an *approved* membrane in accordance with Section 3102.3.1 shall be classified as Type IV-HT construction. Other membrane structures shall be classified as Type V construction.

Exception: Plastic less than 30 feet (9144 mm) above any floor used in greenhouses, where occupancy by the general public is not authorized, and for aquaculture pond covers is not required to meet the fire propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of NFPA 701.

3102.3.1 Membrane and interior liner material. Membranes and interior liners shall be either noncombustible as set forth in Section 703.5 or meet the fire propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of NFPA 701 and the manufacturer's test protocol.

Exception: Plastic less than 20 mil (0.5 mm) in thickness used in greenhouses, where occupancy by the general public is not authorized, and for aquaculture pond covers is not required to meet the fire propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of NFPA 701.

3102.4 Allowable floor areas. The area of a membrane structure shall not exceed the limitations specified in Section 506.

3102.5 Maximum height. Membrane structures shall not exceed one story nor shall such structures exceed the height limitations in feet specified in Section 504.3.

Exception: Noncombustible membrane structures serving as roofs only.

3102.6 Mixed construction. Membrane structures shall be permitted to be utilized as specified in this section as a portion of buildings of other types of construction. Height and area limits shall be as specified for the type of construction and occupancy of the building.

3102.6.1 Noncombustible membrane. A noncombustible membrane shall be permitted for use as the roof or as a skylight of any building or atrium of a building of any type of construction provided that the membrane is not less than 20 feet (6096 mm) above any floor, balcony or gallery.

[W] 3102.6.1.1 Membrane. A membrane meeting the fire propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of NFPA 701 shall be permitted to be used as the roof or as a skylight on buildings of Type IIB, III, IV-HT and V construction, provided that the membrane is not less than 20 feet (6096 mm) above any floor, balcony or gallery.

3102.7 Engineering design. The structure shall be designed and constructed to sustain dead loads; loads due to tension or inflation; live loads including wind, snow or flood and seismic loads and in accordance with Chapter 16.

3102.7.1 Lateral restraint. For membrane-covered frame structures, the membrane shall not be considered to provide lateral restraint in the calculation of the capacities of the frame members.

3102.8 Inflation systems. Air-supported and air-inflated structures shall be provided with primary and auxiliary inflation systems to meet the minimum requirements of Sections 3102.8.1 through 3102.8.3.

3102.8.1 Equipment requirements. The inflation system shall consist of one or more blowers and shall include provisions for automatic control to maintain the required inflation pressures. The system shall be so designed as to prevent overpressurization of the system.

3102.8.1.1 Auxiliary inflation system. In addition to the primary inflation system, in buildings larger than 1,500 square feet (140 m^2) in area, an auxiliary inflation system shall be provided with sufficient capacity to maintain the inflation of the structure in case of primary system failure. The auxiliary inflation system shall operate automatically when there is a loss of internal pressure and when the primary blower system becomes inoperative.

3102.8.1.2 Blower equipment. Blower equipment shall meet all of the following requirements:

1. Blowers shall be powered by continuous-rated motors at the maximum power required for any flow condition as required by the structural design.
2. Blowers shall be provided with inlet screens, belt guards and other protective devices as required by the *building official* to provide protection from injury.
3. Blowers shall be housed within a weather-protecting structure.
4. Blowers shall be equipped with backdraft check dampers to minimize air loss when inoperative.
5. Blower inlets shall be located to provide protection from air contamination. The location of inlets shall be *approved*.

[S] 3102.8.2 ((~~Standby~~)) Legally required standby power. Wherever an auxiliary inflation system is required, an *approved* legally required standby power ((~~generating~~)) system shall be provided. The system shall be equipped with a suitable means for automatically starting the generator set upon failure of the normal electrical service and for automatic transfer and operation of all of the required electrical functions at full power within 60 seconds of such service failure. ((~~Standby~~)) The legally required standby power system shall be capable of operating independently for not less than 4 hours.

3102.8.3 Support provisions. A system capable of supporting the membrane in the event of deflation shall be provided for in air-supported and air-inflated structures having an *occupant load* of 50 or more or where covering a swimming pool regardless of *occupant load*. The support system shall be capable of maintaining membrane structures used as a roof for Type I construction not less than 20 feet (6096 mm) above floor or seating areas. The support system shall be capable of maintaining other membranes not less than 7 feet (2134 mm) above the floor, seating area or surface of the water.

SECTION 3103
TEMPORARY STRUCTURES

[S] 3103.1 ((~~General.~~ ~~The provisions of Sections 3103.1 through 3103.4 shall apply to structures erected for a period of less than 180 days. Tents, umbrella structures and other membrane structures erected for a period of less than 180 days shall comply with the *International Fire Code*. Those erected for a longer period of time shall comply with applicable sections of this code.~~)) See Section 106.13.

~~((**3103.1.1 Conformance.** Temporary structures and uses shall conform to the structural strength, fire safety, *means of egress*, accessibility, light, ventilation and sanitary requirements of this code as necessary to ensure public health, safety and general welfare.~~

~~**3103.1.2 Permit required.** Temporary structures that cover an area greater than 120 square feet (11.16 m^2), including connecting areas or spaces with a common *means of egress* or entrance that are used or intended to be used for the gathering together of 10 or more persons, shall not be erected, operated or maintained for any purpose without obtaining a *permit* from the *building official*.~~))

[S] ((~~3103.2 Construction documents.~~ ~~A *permit* application and *construction documents* shall be submitted for each installation of a temporary structure. The *construction documents* shall include a site plan indicating the location of the temporary structure and information delineating the *means of egress* and the *occupant load*.~~))**

[S] ((~~3103.3 Location.~~ ~~Temporary structures shall be located in accordance with the requirements of Table 602 based on the *fire-resistance rating* of the *exterior walls* for the proposed type of construction.~~))**

[S] ((~~3103.4 Means of egress.~~ ~~Temporary structures shall conform to the *means of egress* requirements of Chapter 10 and shall have an *exit access* travel distance of 100 feet (30 480 mm) or less.~~))**

SECTION 3104
PEDESTRIAN WALKWAYS AND TUNNELS

3104.1 General. This section shall apply to connections between buildings such as *pedestrian walkways* or tunnels, located at, above or below grade level, that are used as a means of travel by persons. The *pedestrian walkway* shall not contribute to the *building area* or the number of *stories* or height of connected buildings.

3104.1.1 Application. Pedestrian walkways shall be designed and constructed in accordance with Sections 3104.2 through 3104.9. Tunnels shall be designed and constructed in accordance with Sections 3104.2 and 3104.10.

3104.2 Separate structures. Buildings connected by *pedestrian walkways* or tunnels shall be considered to be separate structures.

Exceptions:

1. Buildings that are on the same lot and considered as portions of a single building in accordance with Section 503.1.2.
2. For purposes of calculating the number of Type B units required by Chapter 11, structurally connected buildings and buildings with multiple wings shall be considered to be one structure.

3104.3 Construction. The *pedestrian walkway* shall be of noncombustible construction.

Exceptions:

1. Combustible construction shall be permitted where connected buildings are of combustible construction.
2. *Fire-retardant-treated wood*, in accordance with Section 603.1, Item 1.3, shall be permitted for the roof construction of the *pedestrian walkway* where connected buildings are not less than Type I or II construction.

3104.4 Contents. Only materials and decorations *approved* by the *building official* shall be located in the *pedestrian walkway*.

3104.5 Connections of pedestrian walkways to buildings. The connection of a *pedestrian walkway* to a building shall comply with Section 3104.5.1, 3104.5.2, 3104.5.3 or 3104.5.4.

Exception: Buildings that are on the same lot and considered as portions of a single building in accordance with Section 503.1.2.

3104.5.1 Fire barriers. *Pedestrian walkways* shall be separated from the interior of the building by not less than 2-hour *fire barriers* constructed in accordance with Section 707 and Sections 3104.5.1.1 through 3104.5.1.3.

3104.5.1.1 Exterior walls. Exterior walls of buildings connected to *pedestrian walkways* shall be 2-hour fire-resistance rated. This protection shall extend not less than 10 feet (3048 mm) in every direction surrounding the perimeter of the pedestrian walkway.

3104.5.1.2 Openings in exterior walls of connected buildings. Openings in exterior walls required to be fire-resistance rated in accordance with Section 3104.5.1.1 shall be equipped with opening protectives providing a not less than 3/4-hour *fire protection rating* in accordance with Section 716.

3104.5.1.3 Supporting construction. The fire barrier shall be supported by construction as required by Section 707.5.1.

3104.5.2 Alternative separation. The wall separating the *pedestrian walkway* and the building shall comply with Section 3104.5.2.1 or 3104.5.2.2 where:

1. The distance between the connected buildings is more than 10 feet (3048 mm).
2. The *pedestrian walkway* and connected buildings are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, and the roof of the walkway is not more than 55 feet (16 764 mm) above grade connecting to the fifth, or lower, story above grade plane, of each building.

   Exception: Open parking garages need not be equipped with an automatic sprinkler system.

3104.5.2.1 Passage of smoke. The wall shall be capable of resisting the passage of smoke.

3104.5.2.2 Glass. The wall shall be constructed of a tempered, wired or laminated glass and doors separating the interior of the building from the pedestrian walkway. The glass shall be protected by an *automatic sprinkler system* in accordance with Section 903.3.1.1 that, when actuated, shall completely wet the entire surface of interior sides of the wall or glass. Obstructions shall not be installed between the sprinkler heads and the wall or glass. The glass shall be in a gasketed frame

and installed in such a manner that the framing system will deflect without breaking (loading) the glass before the sprinkler operates.

3104.5.3 Open sides on walkway. Where the distance between the connected buildings is more than 10 feet (3048 mm), the walls at the intersection of the *pedestrian walkway* and each building need not be fire-resistance rated provided that both sidewalls of the pedestrian walkway are not less than 50 percent open with the open area uniformly distributed to prevent the accumulation of smoke and *toxic* gases. The roof of the walkway shall be located not more than 40 feet (12 160 mm) above grade plane, and the walkway shall only be permitted to connect to the third or lower story of each building.

Exception: Where the *pedestrian walkway* is protected with a sprinkler system in accordance with Section 903.3.1.1, the roof of the walkway shall be located not more than 55 feet (16 764 mm) above grade plane and the walkway shall only be permitted to connect to the fifth or lower story of each building.

3104.5.4 Exterior walls greater than 2 hours. Where *exterior walls* of connected buildings are required by Section 705 to have a *fire-resistance rating* greater than 2 hours, the walls at the intersection of the pedestrian walkway and each building need not be fire-resistance rated provided:

1. The *pedestrian walkway* is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1.
2. The roof of the walkway is not located more than 55 feet (16 764 mm) above grade plane and the walkway connects to the fifth, or lower, story above grade plane of each building.

[S] 3104.6 Public way. *Pedestrian walkways* over a *public way* shall comply with Chapter 32 and the Street Use Ordinance, *Seattle Municipal Code* Title 15.

3104.7 Egress. Access shall be provided at all times to a *pedestrian walkway* that serves as a required *exit*.

3104.8 Width. The unobstructed width of *pedestrian walkways* shall be not less than 36 inches (914 mm). The total width shall be not greater than 30 feet (9144 mm).

3104.9 Exit access travel. The length of *exit access* travel shall be 200 feet (60 960 mm) or less.

Exceptions:

1. *Exit access* travel distance on a *pedestrian walkway* equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 shall be 250 feet (76 200 mm) or less.
2. *Exit access* travel distance on a *pedestrian walkway* constructed with both sides not less than 50 percent open shall be 300 feet (91 440 mm) or less.
3. *Exit access* travel distance on a *pedestrian walkway* constructed with both sides not less than 50 percent open, and equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, shall be 400 feet (122 m) or less.

3104.10 Tunneled walkway. Separation between the tunneled walkway and the building to which it is connected shall be not less than 2-hour fire-resistant construction and openings therein shall be protected in accordance with Section 716.

SECTION 3105
AWNINGS AND CANOPIES

[S] ((~~3105.1 General.~~ ~~*Awnings* and *canopies* shall comply with the requirements of Sections 3105.2 and 3105.3 and other applicable sections of this code.~~))

[S] ((~~3105.2 Design and construction.~~ ~~*Awnings* and *canopies* shall be designed and constructed to withstand wind or other lateral loads and live loads as required by Chapter 16 with due allowance for shape, open construction and similar features that relieve the pressures or loads. Structural members shall be protected to prevent deterioration. *Awnings* shall have frames of noncombustible material, *fire-retardant-treated wood*, heavy timber complying with Section 2304.11, or 1-hour construction with combustible or noncombustible covers and shall be either fixed, retractable, folding or collapsible.~~))

[S] ((~~3105.3 Awnings and canopy materials.~~ ~~Awnings and *canopies* shall be provided with an *approved* covering that complies with one of the following:~~

~~1. The fire propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of NFPA 701.~~

~~2. Has a flame spread index not greater than 25 when tested in accordance with ASTM E84 or UL 723.~~

~~3. Meets all of the following criteria when tested in accordance with NFPA 286:~~

~~3.1. During the 40 kW exposure, flames shall not spread to the ceiling.~~

~~3.2. Flashover, as defined in NFPA 286, shall not occur.~~

~~3.3. The flame shall not spread to the outer extremity of the sample on any wall or ceiling.~~

~~3.4. The peak heat release rate throughout the test shall not exceed 800 kW.~~

~~**Exception:** The fire propagation performance and flame spread index requirements shall not apply to awnings installed on detached one- and two-family dwellings.~~))

[S] 3105.1 General. All *awnings* and *canopies* are subject to the requirements of this section. A *marquee* is a type of *canopy* and is subject to this section. *Awnings* and *canopies* containing electrical wiring and light fixtures are also subject to the requirements of the *Seattle Electrical Code*. *Awnings* and *canopies* over a public place shall comply with the *Seattle Municipal Code* Title 15, *Street Use Code*.

[S] 3105.2 Definitions. The following terms are defined in Chapter 2 of this code.

AWNING.

AWNING SIGN.

CANOPY.

CANOPY SIGN.

DISPLAY SURFACE.

FIRE-RETARDANT COVERING.

VENEER.

[S] 3105.2.1 Definitions of "sign" and various types of signs are found in *Seattle Municipal Code*, Title 23, *Land Use Code*, Chapter 84A, Definitions.

[S] 3105.3 Permits.

3105.3.1 Permits required. No *awning* or *canopy* shall be erected, constructed, altered or structurally revised without a permit issued by the *building official.* A single permit may be issued for installation of all *awnings* or *canopies*, without signs, serving a multi-tenant building. Structural repairs and replacement of *awning* coverings requires a permit.

Signs installed on *awnings* and *canopies* shall have a separate sign permit for each separate business entity.

Each subsequent installation of an *awning*, *canopy* or sign shall require a separate permit.

Exception: Maintenance which is limited to painting, repainting, cleaning and minor repairs does not require a permit.

3105.3.2 Permit application. To obtain a permit required by this chapter, the applicant shall file an application which includes the following:

1. The address of the proposed *awning* or *canopy* on the building;
2. Specifications, plans and drawings of the structure, site and vicinity plans, and an identification numbering system for the placement of each proposed *awning* or *canopy* on the elevation and plan view drawings;
3. Signature, contact information and City business license number of the building owner;
4. Signature, contact information and City business license number of the business establishment served by the *awning* or *canopy*;
5. Signature, contact information, City business license number, and State contractor or electrical contractor license number of the installer;
6. Electrical connection and illumination information when the *awning* or *canopy* has electrical components; and
7. Permit fee as specified in the *Fee Subtitle.*

[S] 3105.4 Maintenance. Each *awning* and *canopy*, together with their supports, braces, anchors, and signs shall be maintained in good repair and in a proper state of preservation. The surface of all *awnings* and *canopies* shall be kept clean and *awnings* shall be protected with a sealer-type solution. Failure to maintain any *awning*, *canopy* or sign is a violation and subject to the provisions of Section 103 of this code.

[S] 3105.5 Materials. *Awnings* shall have approved *fire-retardant coverings* or shall comply with the requirements in this code for the materials *used*. *Canopy* materials shall meet the standards for the rigid material *used* as required by this code. Frames shall be of materials allowed for the type of construction of the building.

Exception: Aluminum frames are allowed with all construction types.

3105.5.1 Approval of materials. The *building official* is permitted to require that sufficient technical data be submitted to substantiate the proposed *use* of any materials and is allowed to approve their *use* if it is determined that the evidence submitted is satisfactory for the *use* intended.

[S] 3105.6 Welding. All structural welding shall conform to the requirements of Chapter 20 for aluminum and Chapter 22 for steel.

[S] 3105.7 Electric signs and luminaires. All *electric signs* shall comply with *Seattle Electrical Code* Article 600 and Article 410 for luminaires.

[S] 3105.8 Obstruction of exits, light and ventilation. No portion of the surface or support of an *awning* or *canopy*, including a retracted *awning*, shall be erected, constructed or maintained so as to obstruct any fire escape or standpipe, or any window,

door or opening used as a *means of egress*, or so as to prevent free passage from one part of a roof to any other part of a roof. No *awning*, *canopy*, or portion thereof shall be attached in any form, shape or manner to a fire escape or standpipe, nor be placed in any manner that interferes with any opening providing ventilation or light required by Chapter 12 of this *Code*.

[S] 3105.9 Location. All portions of *awnings* and *canopies* shall be at least 8 feet (2438 mm) above any walking surface immediately below. All portions of *awnings* and *canopies* located over public property shall be at least 8 feet (2438 mm) above grade and at least 2 feet (610 mm) from the curb. *Awnings* and *canopies* shall be located where they will not obstruct, obscure or interfere with any publicly maintained street tree, streetlight or utility pole.

[S] 3105.10 Supports. The supports for *awnings* and *canopies* shall be located on private property.

Exception: Where approved by the Director of Transportation, stanchions for *awnings* located at the entrance to buildings are permitted to be installed on public property if they are located in line with other street furniture. Individual stanchions shall have a cross sectional dimension or diameter no greater than 6 inches (152 mm).

[S] 3105.11 Drainage.

3105.11.1 Awning drainage. *Awnings* shall shed water uniformly from the *awning* covering.

3105.11.2 Canopy drainage. *Canopies* draining away from the *building line* shall shed water uniformly over the *canopy* edge. The upper surface of a *canopy* shall be sloped a minimum of 1 unit vertical in 48 units horizontal (2% slope). Approval shall be obtained from the Director of Public Utilities when a *canopy* drains back toward the building and is connected to an infiltration facility, a side sewer or is conveyed under a sidewalk to a gutter.

[S] 3105.12 Design loads. *Awnings* and *canopies* shall be designed and constructed to resist all forces to which they are subject as specified in Chapter 16. Where signs, *electric signs* or luminaires are attached to an *awning* or *canopy* structure, the additional load of all attachments shall be included in the design loads and shall comply with the requirements of Chapter 16 and Section 3107.10.1 of this *Code*.

[S] 3105.13 Pitch. The upper surface of all *awnings* shall have a pitch of at least 30 degrees (0.52 rad) from the horizontal. The *building official* is authorized to approve *awnings* with a smaller pitch when the design is prepared by a licensed structural engineer.

[S] 3105.14 Attachment of awnings and canopies. All *awnings* and *canopies* attached to masonry, concrete, aluminum, or steel shall be safely secured with steel anchors and bolts, or approved expansion bolts of sufficient size and anchorage to support the loads safely. No support or attachment for an *awning* or *canopy* shall be connected to, supported by, or fastened to exterior veneer.

[S] 3105.15 Size. Where an *awning* or *canopy* is located at an exit door from a stairway or *exit passageway* that is fire-resistance rated, the distance the *awning* or *canopy* projects from the building shall be no more than one-half the distance from the walking surface to the lowest point of the bottom of the *awning* or *canopy*.

[S] 3105.16 Approved materials. The *building official* may require that sufficient technical data be submitted to substantiate the proposed *use* of any material; and may approve *use* of the material if the *building official* determined that the evidence submitted is satisfactory for the intended *use*.

[S] 3105.17 Inspections. All *awnings* and *canopies* regulated by this chapter are subject to inspection by the *building official*. The permit holder must request a final inspection within 3 business days of completing the installation.

[S] 3105.18 Footing or foundation inspection. Footings or foundations for *awnings* and *canopies* are subject to inspection by the *building official*. An inspection must be requested and completed before the footing is filled.

[S] 3105.19 Electrical inspection. All electrical wiring is subject to the *Seattle Electrical Code*. Upon energizing any electrical elements, the permit holder must request an inspection within one business day.

SECTION 3106
MARQUEES

[S] 3106.1 General. ((~~Marquees shall comply with Sections 3106.2 through 3106.5 and other applicable sections of this code.~~))** *Marquees* are, by definition, a *canopy* and shall comply with Section 3105.

[S] ((~~**3106.2 Thickness.** The height or thickness of a marquee measured vertically from its lowest to its highest point shall be not greater than 3 feet (914 mm) where the marquee projects more than two-thirds of the distance from the *lot line* to the curb line, and shall be not greater than 9 feet (2743 mm) where the marquee is less than two-thirds of the distance from the lot line to the curb line.~~))

[S] ((~~**3106.3 Roof construction.** Where the roof or any part thereof is a skylight, the skylight shall comply with the requirements of Chapter 24. Every roof and skylight of a marquee shall be sloped to downspouts that shall conduct any drainage from the marquee in such a manner so as not to spill over the sidewalk.~~))

[S] ((~~3106.4 Location prohibited.~~ ~~Every marquee shall be so located as not to interfere with the operation of any exterior standpipe, and such that the marquee does not obstruct the clear passage of *stairways* or *exit discharge* from the building or the installation or maintenance of street lighting.~~))

[S] ((~~3106.5 Construction.~~ ~~A marquee shall be supported entirely from the building and constructed of noncombustible materials. Marquees shall be designed as required in Chapter 16. Structural members shall be protected to prevent deterioration.~~))

SECTION 3107
SIGNS

[S] ((~~3107.1 General.~~ ~~Signs shall be designed, constructed and maintained in accordance with this code.~~))

[S] 3107.1 General. It is the purpose of this chapter to safeguard the life, health, property and welfare of people within the City by regulating and controlling the design, quality of materials, construction, location, illumination, and maintenance of signs and *sign structures* that are visible from any portion of public places and rights-of-way.

[S] 3107.2 Enforcement.

3107.2.1 Authority. The Director of Transportation and the *building official* shall enforce the provisions of this chapter as it relates to signs located over public places. "Public places" is defined in Section 15.02.046 of the *Seattle Municipal Code*, *Street and Sidewalk Use*. The *building official* shall enforce the provisions of this chapter as it relates to signs located over all other property in the City of Seattle.

3107.2.2 Other requirements. All signs shall comply with any additional sign regulations imposed by *Seattle Municipal Code* Title 23, *Land Use Code*, and Title 15, *Street Use Code*, and other City regulations, even when no permit is required. Signs having electrical wiring and light fixtures are subject to the requirements of the *Seattle Electrical Code*.

[S] 3107.3 Definitions

[S] 3107.3.1 Definitions – Building Code. The following definitions are found in Chapter 2 of this *Code*:

AWNING SIGN.

CANOPY SIGN.

DISPLAY SURFACE.

NONSTRUCTURAL TRIM.

PROJECTING SIGN.

PROJECTION.

SIGN STRUCTURE.

VENEER.

[S] 3107.3.2 Definitions – Land Use Code. The following sign-related definitions are found in the Seattle *Land Use Code* Chapter 23.84A:

ELECTRIC SIGN.

ON-PREMISES SIGN.

PROJECTING SIGN.

ROOF SIGN.

SIGN.

WALL SIGN.

[S] 3107.4 Permits.

3107.4.1 Permits required. Except as otherwise specifically provided in this section, a permit shall be obtained from the *building official* before any sign is erected, constructed, posted, applied, or altered.

A permit must be obtained for:

1. All signs viewable from public rights of way, except signs considered temporary signs by the *Land Use Code* Section 23.55.
2. All *electric signs*.
3. A new permit is required for existing signs when a different business entity uses the sign.
4. Any *display surface* greater than 5 square feet (0.46 m^2) in area.

5. Signs located within the interior of the building that are not visible from the public right-of-way when:

5.1. The sign is mounted within the interior of a covered or open mall of a multi-tenant retail facility and the sign is located over or adjoining the pedestrian walking surface; or

5.2. When the sign is greater than 5 square feet (0.46 m^2) in area; or

5.3 When it is an *electric sign.*

6. Existing signs that are removed and reinstalled.

7. Signs that are refurbished, retro-fitted, relocated or field-assembled.

3107.4.2 Work exempt from permit. A sign permit is not required for:

1. Changes made to the message copy installed on the *display surface* of a sign when the *sign structure* is lawfully erected and is specifically designed for using manually replaceable copy.

2. Maintenance which is limited to painting, repainting, cleaning and minor repairs.

3. Signs for public facilities that indicate danger or that provide service or safety information and are not greater than 24 square feet (2.23 square meters).

3107.4.3 Temporary signs. The erection, re-erection, construction, posting or placement of temporary signs that are allowed by Section 23.55.012 of the *Land Use Code* do not require a sign permit. The owner of a temporary sign is responsible for compliance with the provisions of this section and other applicable laws or codes regulating signs, and for the removal of any temporary sign at the end of the allowed term. Failure to comply with the requirements of either this *Code* or the *Land Use Code* is a violation and subject to the provisions of Section 103 of this *Code* and the provisions of Chapter 23.91 of the *Land Use Code.*

3107.4.4 Maximum number of signs. Temporary signs allowed by Section 23.55.012 of the *Land Use Code* and signs not requiring a permit as specified in Section 3107.4.1 of this *Code* are not counted as part of the maximum number of signs allowed under Chapter 23.55 of the *Land Use Code*.

3107.4.5 Attachments to signs. Ancillary devices, displays and attachments, that are not part of the original sign design for which a permit was issued, shall not be added to an existing sign except as provided Chapter 23.55 of the *Land Use Code* and requires a new permit issued by the *building official.*

Where ancillary devices, displays, *electric signs* or luminaires are attached to a *sign structure*, the additional load of all attachments shall be included in the design loads and shall comply with the requirements of Chapter 16 and Section 3107.10 of this *Code*.

[S] 3107.5 Permit application. To obtain a sign permit, the applicant shall submit an application to the Department which provides the following information:

1. The address of the proposed sign installation;

2. Specifications, plans and drawings of the structure, site and vicinity, and a numbering system that identifies the placement of each proposed sign on the elevation and plan view drawings;

3. Signature, contact information and City business license number of the building owner;

4. Signature, contact information and City business license number of the business establishment served by the sign or *awning sign*;

5. Signature, contact information, City business license number, and State contractor or electrical contractor license number of the installer;

6. Electrical connection and illumination information when the sign has electrical components; and

7. Permit fee as specified in the *Fee Subtitle*.

Note: Electrical permits are required for *electric signs* pursuant to the *Seattle Electrical Code*, and street use permits shall be obtained from the Department of Transportation for signs over any public place pursuant to the *Street Use Code*. Review and approval by the Department of Neighborhoods is required for signs located on the site of a *historic building*, or in a *landmark* or special review district.

[S] 3107.6 Inspections. All signs regulated by this chapter are subject to inspection by the *building official*, including sign footings, refurbished or relocated used signs and retrofitted and field-assembled signs. The permit holder must request a final inspection within 3 business days of completing the installation. The *building official* may require an inspection of any temporary sign to ensure public safety.

3107.6.1 Electrical sign inspection. All electrical wiring is subject to the *Seattle Electrical Code.* Upon energizing an *electrical sign*, the permit holder must request an inspection within one business day.

3107.6.2 Sign footing inspection. Footings for all signs greater than 5 square feet (0.46 m^2) in area require a footing inspection. An inspection must be requested and completed before the footing is filled.

[S] 3107.7 Maintenance and closure of business.

3107.7.1 Maintenance. The owners of signs shall maintain their signs, together with all supports, braces, guys and anchors, in good repair and in a proper state of preservation. The owners shall keep *display surfaces* of all signs neatly painted or posted at all times. Failure to maintain any sign, *display surface* or *sign structure* and the component parts is a violation and subject to the provisions of Section 103 of this *Code*.

3107.7.2 Closure of business and abandoned signs. Upon the closure and vacation of a business or activity, the operator of the business or activity is responsible for removing all related signs within 90 days from the date of closure. If the operator fails to remove any sign and the business or activity is not resumed during the 90-day period, then the owner of the premises upon which the signs are located is responsible and must remove all signs within 180 days from the date of closure and vacation of the business or activity.

Note: A new permit is required for existing signs when a different business entity uses the sign. See Section 3107.4.

[S] 3107.8 Nonconforming signs. Maintenance to keep a nonconforming sign in good condition is required. Minor structural or electrical additions or alterations deemed to be necessary for public safety may be authorized by the *building official.* A nonconforming sign, for the purpose of this C*ode*, is a sign or any portion of a sign which, because of its location or construction, could not lawfully be reconstructed in its present location.

[S] 3107.9 General requirements.

3107.9.1 General. All signs shall conform to the requirements of this section.

3107.9.2 Clearance from overhead electrical conductors. Signs shall be located no closer than 3 feet (914 mm) horizontally or 8 feet (2438 mm) vertically from overhead electrical conductors which are energized at 1000 volts or less and not less than 10 feet (3048 mm) in any direction from overhead conductors energized at more than 1000 volts.

Exception: Overhead conductors enclosed in an approved raceway or enclosure.

3107.9.3 Clearance from fire escapes, exits or standpipes. No sign or *sign structure* shall be erected in such a manner that any portion of its surface or supports will interfere in any way with the free use of any fire escape, exit or standpipe.

3107.9.4 Obstruction of exits, light and ventilation. No portion of the surface or support of any sign shall be erected, constructed or maintained so as to obstruct any fire escape or standpipe, or any window, door or opening used as a *means of egress*, or so as to prevent free passage from one part of a roof to any other part of the roof. No sign, or portion of a sign, shall be attached in any form, shape or manner to a fire escape or standpipe, nor be placed in such a manner as to interfere with any opening providing the ventilation or light required by Chapter 12 of this *Code*.

3107.9.5 Supporting members. Signs mounted on and attached to buildings shall be so designed and mounted that secondary structural members shall be incorporated into and become a part of the sign display. Exterior bracing such as angle irons, guy wires, cables and similar devices are permitted only where no other reasonable method of fastening consistent with safety is possible.

3107.9.6 Non-display surfaces. If a sign is visible from more than one direction, all areas not intended as a *display surface* including the back and sides, shall be designed so the non-*display surfaces* are given a finished appearance and the *display surface* is visible only from the direction that it is intended to be seen.

3107.9.7 Electrical permit sticker. Each *electrical sign* shall display the electrical permit sticker issued with the sign permit. The sticker shall be located where it is clearly visible without use of a ladder and without requiring access into a building, unless otherwise authorized by the *building official*.

3107.9.8 Labels. Every permanent sign shall display the name of the sign erector or manufacturer. Electrical signs must display listing labels required by the *Seattle Electrical Code*.

[S] 3107.10 Design.

3107.10.1 General. Signs and *sign structures* shall be designed and constructed to resist all forces to which they are subject as specified in Chapter 16 and this section. All signs shall be designed and installed to transfer all forces directly to the structural frame of the building or structure. The overturning moment produced from lateral forces shall in no case exceed two-thirds of the dead load resisting moment. Uplifts due to overturning shall be adequately resisted by proper anchorage to the ground or to the structural frame of the building. The weight of earth superimposed over footings is permitted to be used in determining the dead load resisting moment. Such earth shall be carefully placed and thoroughly compacted.

3107.10.2 Wind and seismic loads. Signs and *sign structures* shall be designed and constructed to resist wind and seismic forces as specified in Chapter 16 of this *Code*.

3107.10.3 Allowable stresses. The design of wood, concrete, steel or aluminum members shall conform to the requirements of Chapters 19, 20, 22 and 23. Loads, both vertical and horizontal, exerted on the soil shall not produce stresses exceeding those specified in Chapter 16 of this *Code*. The working stresses of wire rope and its fastenings shall not exceed 25 percent of the ultimate strength of the rope or fasteners.

[S] 3107.11 Construction.

3107.11.1 General. The supports for all signs and *sign structures* shall be placed in or upon private property and shall be securely built, constructed, and erected in conformance with the requirements of this chapter. All structural welding on signs and *sign structures* shall conform to the requirements of Chapter 20 for aluminum and Chapter 22 for steel.

3107.11.2 Materials. Materials for construction of signs and *sign structures* shall be:

1. Of a quality and grade allowed by specific chapters in this *Code* for the materials proposed; or
2. Listed or rated for the proposed *use*; or
3. Approved by the *building official*.

3107.11.3 Approved materials. The *building official* may require that sufficient technical data be submitted to substantiate the proposed *use* of any material; and may approve *use* of the material when the *building official* determines that the evidence submitted is satisfactory for the intended *use*.

3107.11.4 Anchorage. Members supporting unbraced signs shall be so proportioned that the bearing loads imposed on the soil in either direction, horizontal or vertical, shall not exceed the design requirements.

Braced ground signs shall be anchored to resist the specified wind or seismic load acting in any direction. Anchors and supports shall be designed for safe bearing loads on the soil and for an effective resistance to pull-out amounting to a force 25 percent greater than the required resistance to overturning.

Signs attached to masonry, concrete or steel shall be safely and securely fastened thereto by means of metal anchors, bolts or approved expansion screws of sufficient size and anchorage to support safely the loads applied. No wooden blocks or plugs or anchors with wood used in connection with screws or nails is considered proper anchorage except in the case of signs attached to wood framing.

No lead plugs or anchors shall be used to support signs. No anchor or support of any sign shall be connected to or supported by an unbraced parapet wall unless the wall is designed or braced for the added forces.

[S] 3107.12 Roof signs.

3107.12.1 General. *Roof signs* shall be constructed of approved material as specified in Section 3107.11. The sign shall be secured and anchored to the structural frame of the building.

3107.12.2 Clear passage. A passage clear of all obstructions shall be left under or around, and immediately adjacent to, signs exceeding a height of 4 feet (1219 mm) above the roof. The passage shall not be less than 3 feet (914 mm) wide and 4 feet (1219 mm) high and shall be at parapet or roof level. There shall be one clear passage opening as follows:

1. One for each *roof sign*.
2. One for every 50 lineal feet (15 240 mm) of horizontally running *sign structure*.
3. Within 20 feet (6096 mm) of walls and parapets when *roof signs* are at right angles to a face of the building.

[S] 3107.13 Electrical signs.

3107.13.1 Construction. Structures supporting *electrical signs* shall comply with Section 3107.11 of this *Code*.

3107.13.2 Installation. Electrical signs and branch circuits supplying power to *electric signs* shall be installed in accordance with the Article 600 of the *Seattle Electrical Code*.

3107.13.3 Inspections. The permit holder must request a final inspection within 3 business days of completing the installation or within one business day upon energizing an *electrical sign*.

SECTION 3108
TELECOMMUNICATION AND BROADCAST TOWERS

[BS] 3108.1 General. Towers shall be designed and constructed in accordance with the provisions of TIA-222. Towers shall be designed for seismic loads; exceptions related to seismic design listed in Section 2.7.3 of TIA-222 shall not apply. In Section 2.6.6.2 of TIA 222, the horizontal extent of Topographic Category 2, escarpments, shall be 16 times the height of the escarpment.

Exception: Single free-standing poles used to support antennas not greater than 75 feet (22 860 mm), measured from the top of the pole to grade, shall not be required to be noncombustible.

[BS] 3108.2 Location and access. Towers shall be located such that guy wires and other accessories shall not cross or encroach on any street or other public space, or over above-ground electric utility lines, or encroach on any privately owned property without the written consent of the owner of the encroached-upon property, space or above-ground electric utility lines. Towers shall be equipped with climbing and working facilities in compliance with TIA-222. Access to the tower sites shall be limited as required by applicable OSHA, FCC and EPA regulations.

SECTION 3109
SWIMMING POOLS, SPAS AND HOT TUBS

[W] 3109.1 General. The design and construction of swimming pools, spas and ((~~hot tubs~~)) other aquatic recreation facilities shall comply with the *International Swimming Pool and Spa Code*, ((~~.~~)) where the facility is one of the following:

1. For the sole use of residents and invited guests at a single-family *dwelling*;
2. For the sole use of residents and invited guests of a duplex owned by the residents;
3. Operated exclusively for physical therapy or rehabilitation and under the supervision of licensed medical practitioner.

All other "water recreation facilities" as defined in RCW 70.90.110 are regulated under chapters 246-260 and 246-262 WAC.

SECTION 3110
AUTOMATIC VEHICULAR GATES

3110.1 General. *Automatic vehicular gates* shall comply with the requirements of Sections 3110.2 and 3110.3 and other applicable sections of this code.

3110.2 Vehicular gates intended for automation. *Vehicular gates* intended for automation shall be designed, constructed and installed to comply with the requirements of ASTM F2200.

3110.3 Vehicular gate openers. *Vehicular gate* openers, where provided, shall be *listed* in accordance with UL 325.

SECTION 3111
SOLAR ENERGY SYSTEMS

3111.1 General. Solar energy systems shall comply with the requirements of this section.

3111.1.1 Wind resistance. Rooftop-mounted photovoltaic panels and modules and solar thermal collectors shall be designed in accordance with Section 1609.

3111.1.2 Roof live load. Roof structures that provide support for solar energy systems shall be designed in accordance with Section 1607.13.5.

3111.2 Solar thermal systems. Solar thermal systems shall be designed and installed in accordance with Section 2606.12, the *International Plumbing Code*, the *International Mechanical Code* and the *International Fire Code*.

3111.2.1 Equipment. Solar thermal systems and components shall be *listed* and *labeled* in accordance with ICC 900/SRCC 300 and ICC 901/SRCC 100.

3111.3 Photovoltaic solar energy systems. Photovoltaic solar energy systems shall be designed and installed in accordance with this section, the *International Fire Code*, NFPA 70 and the manufacturer's installation instructions.

3111.3.1 Equipment. Photovoltaic panels and modules shall be *listed* and *labeled* in accordance with UL 1703. Inverters shall be *listed* and *labeled* in accordance with UL 1741. Systems connected to the utility grid shall use inverters *listed* for utility interaction.

3111.3.2 Fire classification. Rooftop-mounted photovoltaic systems shall have a fire classification in accordance with Section 1505.9. Building-integrated photovoltaic systems shall have a fire classification in accordance with Section 1505.8.

3111.3.3 Building-integrated photovoltaic systems. Building-integrated photovoltaic systems that serve as roof coverings shall be designed and installed in accordance with Section 1507.18.

3111.3.4 Access and pathways. Roof access, pathways and spacing requirements shall be provided in accordance with Section 1204 of the *International Fire Code*.

3111.3.5 Ground-mounted photovoltaic systems. Ground-mounted photovoltaic systems shall be designed and installed in accordance with Chapter 16 and the *International Fire Code*.

3111.3.5.1 Fire separation distances. Ground-mounted photovoltaic systems shall be subject to the fire separation distance requirements determined by the local jurisdiction.

SECTION 3112
GREENHOUSES

3112.1 General. The provisions of this section shall apply to greenhouses that are designed and used for the cultivation, maintenance, or protection of plants.

3112.2 Accessibility. *Greenhouses* shall be accessible in accordance with Chapter 11.

3112.3 Structural design. *Greenhouses* shall comply with the structural design requirements for *greenhouses* in Chapter 16.

3112.4 Glass and glazing. Glass and glazing used in greenhouses shall comply with Section 2405.

3112.5 Light-transmitting plastics. Light-transmitting plastics shall be permitted in lieu of plain glass in *greenhouses* and shall comply with Section 2606.

3112.6 Membrane structures. *Greenhouses* that are membrane structures shall comply with Section 3102.

3112.6.1 Plastic film. Plastic films used in *greenhouses* shall comply with Section 3102.3.

SECTION 3113
RELOCATABLE BUILDINGS

3113.1 General. The provisions of this section shall apply to relocatable buildings. Relocatable buildings manufactured after the effective date of this code shall comply with the applicable provisions of this code.

Exception: This section shall not apply to manufactured housing used as dwellings.

3113.1.1 Compliance. A newly constructed relocatable building shall comply with the requirements of this code for new construction. An existing relocatable building that is undergoing alteration, addition, change of occupancy or relocation shall comply with Chapter 14 of the *International Existing Building Code.*

3113.2 Supplemental information. Supplemental information specific to a relocatable building shall be submitted to the authority having jurisdiction. It shall, as a minimum, include the following in addition to the information required by Section 105:

1. Manufacturer’s name and address.
2. Date of manufacture.
3. Serial number of module.
4. Manufacturer’s design drawings.
5. Type of construction in accordance with Section 602.
6. Design loads including: roof live load, roof snow load, floor live load, wind load and seismic site class, use group and design category.
7. Additional building planning and structural design data.
8. Site-built structure or appurtenance attached to the relocatable building.

3113.3 Manufacturer’s data plate. Each relocatable module shall have a data plate that is permanently attached on or adjacent to the electrical panel, and shall include the following information:

1. Occupancy group.
2. Manufacturer’s name and address.
3. Date of manufacture.
4. Serial number of module.
5. Design roof live load, design floor live load, snow load, wind and seismic design.
6. *Approved* quality assurance agency or *approved* inspection agency.
7. Codes and standards of construction.
8. Envelope thermal resistance values.
9. Electrical service size.
10. Fuel-burning equipment and size.
11. Special limitations if any.

3113.4 Inspection agencies. The building official is authorized to accept reports of inspections conducted by *approved* inspection agencies during off-site construction of the relocatable building, and to satisfy the applicable requirements of Sections 110.3 through 110.3.11.1.

[W] SECTION 3114
FIXED GUIDEWAY TRANSIT AND PASSENGER RAIL SYSTEMS

3114.1 Fixed guideway transit and passenger rail systems. Construction of fixed guideway transit and passenger rail systems shall be in accordance with NFPA 130-17, standard for fixed guideway transit and passenger rail systems.

3114.2 Means of egress. The means of egress for fixed guideway transit and passenger rail systems shall be in accordance with NFPA 130-17.