Where a PFH is installed at the first *story* of two-story buildings, each panel shall have a length of not less than 24 inches (610 mm).

2308.6.6 Cripple wall bracing. Cripple walls shall be braced in accordance with Section 2308.6.6.1 or 2308.6.6.2.

2308.6.6.1 Cripple wall bracing in Seismic Design Categories A, B and C. For the purposes of this section, cripple walls in *Seismic Design Categories* A, B and C having a stud height exceeding 14 inches (356 mm) shall be considered a *story* and shall be braced in accordance with Table 2308.6.1. Spacing of edge nailing for required cripple wall bracing shall not exceed 6 inches (152 mm) on center along the foundation plate and the top plate of the cripple wall. Nail size, nail spacing for field nailing and more restrictive boundary nailing requirements shall be as required elsewhere in the code for the specific bracing material used.

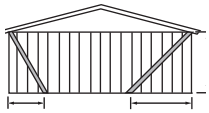
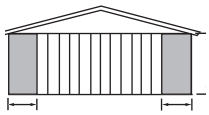
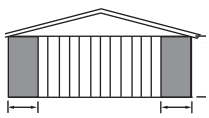
2308.6.6.2 Cripple wall bracing in Seismic Design Categories D and E. For the purposes of this section, cripple walls in *Seismic Design Categories* D and E having a stud height exceeding 14 inches (356 mm) shall be considered a *story* and shall be braced in accordance with Table 2308.6.1. Where interior braced wall lines occur without a continuous foundation below, the length of parallel exterior cripple wall bracing shall be one and one-half times the lengths required by Table 2308.6.1. Where the cripple wall sheathing type used is Method WSP or DWB and this additional length of bracing cannot be provided, the capacity of WSP or DWB sheathing shall be increased by reducing the spacing of fasteners along the perimeter of each piece of sheathing to 4 inches (102 mm) on center.

2308.6.7 Connections of braced wall panels. *Braced wall panel* joints shall occur over studs or blocking. *Braced wall panels* shall be fastened to studs, top and bottom plates and at panel edges. *Braced wall panels* shall be applied to nominal 2-inch-wide [actual $1^1/_2$-inch (38 mm)] or larger stud framing.

2308.6.7.1 Bottom plate connection. *Braced wall line* bottom plates shall be connected to joists or full-depth blocking below in accordance with Table 2304.10.1, or to foundations in accordance with Section 2308.6.7.3.

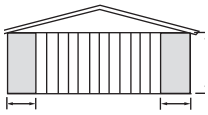
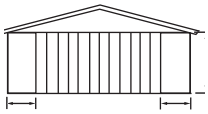
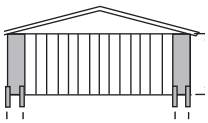
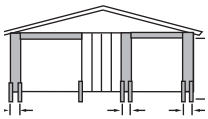
2308.6.7.2 Top plate connection. Where joists or rafters are used, *braced wall line* top plates shall be fastened over the full length of the braced wall line to joists, rafters, rim boards or full-depth blocking above in accordance with Table 2304.10.1, as applicable,

TABLE 2308.6.3(1)
BRACING METHODS

METHODS, MATERIAL	MINIMUM THICKNESS	FIGURE	CONNECTION CRITERIA[a]	
			Fasteners	Spacing
LIB[a] Let-in-bracing	1″ × 4″ wood or approved metal straps attached at 45° to 60° angles to studs at maximum of 16″ o.c.		Table 2304.10.1	Wood: per stud plus top and bottom plates
			Metal strap: installed in accordance with manufacturer's recommendations	Metal strap: installed in accordance with manufacturer's recommendations
DWB Diagonal wood boards	$^3/_4$″ thick (1″ nominal) × 6″ minimum width to studs at maximum of 24″ o.c.		Table 2304.10.1	Per stud
WSP Wood structural panel	$^3/_8$″ in accordance with Table 2308.6.3(2) or 2308.6.3(3)		Table 2304.10.1	6″ edges 12″ field
SFB Structural fiberboard sheathing	$1/_2$″ in accordance with Table 2304.10.1 to studs at maximum 16″ o.c.		Table 2304.10.1	3″ edges 6″ field

(continued)

TABLE 2308.6.3(1)—continued
BRACING METHODS

METHODS, MATERIAL	MINIMUM THICKNESS	FIGURE	CONNECTION CRITERIA[a]	
			Fasteners	Spacing
GB Gypsum board (Double sided)	$^1/_2$″ or $^5/_8$″ by a minimum of 4′ wide to studs at maximum of 24″ o.c.		Section 2506.2 for exterior and interior sheathing: 5d annual ringed cooler nails ($1^5/_8$″ × 0.086″) or $1^1/_4$″ screws (Type W or S) for $^1/_2$″ gypsum board or $1^5/_8$″ screws (Type W or S) for $^5/_8$″ gypsum board	For all braced wall panel locations: 7″ o.c. along panel edges (including top and bottom plates) and 7″ o.c. in the field
PBS Particleboard sheathing	$^3/_8$″ or $^1/_2$″ in accordance with Table 2308.6.3(4) to studs at maximum of 16″ o.c.		6d common (2″ long × 0.113″ dia.) nails for $^3/_8$″ thick sheathing or 8d common ($2^1/_2$″ long × 0.131″ dia.) nails for $^1/_2$″ thick sheathing	3″ edges 6″ field
PCP Portland cement plaster	Section 2510 to studs at maximum of 16″ o.c.		$1^1/_2$″ long, 11 gage, $^7/_{16}$″ dia. head nails or $^7/_8$″ long, 16 gage staples	6″ o.c. on all framing members
HPS Hardboard panel siding	$^7/_{16}$″ in accordance with Table 2308.6.3(5)		Table 2304.10.1	4″ edges 8″ field
ABW Alternate braced wall	$^3/_8$″		Figure 2308.6.5.1 and Section 2308.6.5.1	Figure 2308.6.5.1
PFH Portal frame with hold-downs	$^3/_8$″		Figure 2308.6.5.2 and Section 2308.6.5.2	Figure 2308.6.5.2

For SI: 1 foot = 304.8 mm, 1 degree = 0.01745 rad.

a. Method LIB shall have gypsum board fastened to at least one side with nails or screws.

TABLE 2308.6.3(2)
EXPOSED PLYWOOD PANEL SIDING

MINIMUM THICKNESS[a] (inch)	MINIMUM NUMBER OF PLIES	STUD SPACING (inches) Plywood siding applied directly to studs or over sheathing
$^3/_8$	3	16[b]
$^1/_2$	4	24

For SI: 1 inch = 25.4 mm.

a. Thickness of grooved panels is measured at bottom of grooves.

b. Spans are permitted to be 24 inches if plywood siding applied with face grain perpendicular to studs or over one of the following: (1) 1-inch board sheathing, (2) $^7/_{16}$-inch wood structural panel sheathing or (3) $^3/_8$-inch wood structural panel sheathing with strength axis (which is the long direction of the panel unless otherwise marked) of sheathing perpendicular to studs.

TABLE 2308.6.3(3)
WOOD STRUCTURAL PANEL WALL SHEATHING[b]
(Not Exposed to the Weather, Strength Axis Parallel or Perpendicular to Studs Except as Indicated Below)

MINIMUM THICKNESS (inch)	PANEL SPAN RATING	STUD SPACING (inches)		
		Siding nailed to studs	Nailable sheathing	
			Sheathing parallel to studs	Sheathing perpendicular to studs
3/8, 15/32, 1/2	16/0, 20/0, 24/0, 32/16 Wall—24″ o.c.	24	16	24
7/16, 15/32, 1/2	24/0, 24/16, 32/16 Wall—24″ o.c.	24	24[a]	24

For SI: 1 inch = 25.4 mm.

a. Plywood shall consist of four or more plies.

b. Blocking of horizontal joints shall not be required except as specified in Section 2308.6.4.

TABLE 2308.6.3(4)
ALLOWABLE SPANS FOR PARTICLEBOARD WALL SHEATHING
(Not Exposed to the Weather, Long Dimension of the Panel Parallel or Perpendicular to Studs)

GRADE	THICKNESS (inch)	STUD SPACING (inches)	
		Siding nailed to studs	Sheathing under coverings specified in Section 2308.6.3 parallel or perpendicular to studs
M-S "Exterior Glue" and M-2 "Exterior Glue"	3/8	16	—
	1/2	16	16

For SI: 1 inch = 25.4 mm.

TABLE 2308.6.3(5)
HARDBOARD SIDING

SIDING	MINIMUM NOMINAL THICKNESS (inch)	2 × 4 FRAMING MAXIMUM SPACING	NAIL SIZE[a, b, d]	NAIL SPACING	
				General	Bracing panels[c]
1. Lap siding					
Direct to studs	3/8	16″ o.c.	8d	16″ o.c.	Not applicable
Over sheathing	3/8	16″ o.c.	10d	16″ o.c.	Not applicable
2. Square edge panel siding					
Direct to studs	3/8	24″ o.c.	6d	6″ o.c. edges; 12″ o.c. at intermediate supports	4″ o.c. edges; 8″ o.c. at intermediate supports
Over sheathing	3/8	24″ o.c.	8d	6″ o.c. edges; 12″ o.c. at intermediate supports	4″ o.c. edges; 8″ o.c. at intermediate supports
3. Shiplap edge panel siding					
Direct to studs	3/8	16″ o.c.	6d	6″ o.c. edges; 12″ o.c. at intermediate supports	4″ o.c. edges; 8″ o.c. at intermediate supports
Over sheathing	3/8	16″ o.c.	8d	6″ o.c. edges; 12″ o.c. at intermediate supports	4″ o.c. edges; 8″ o.c. at intermediate supports

For SI: 1 inch = 25.4 mm.

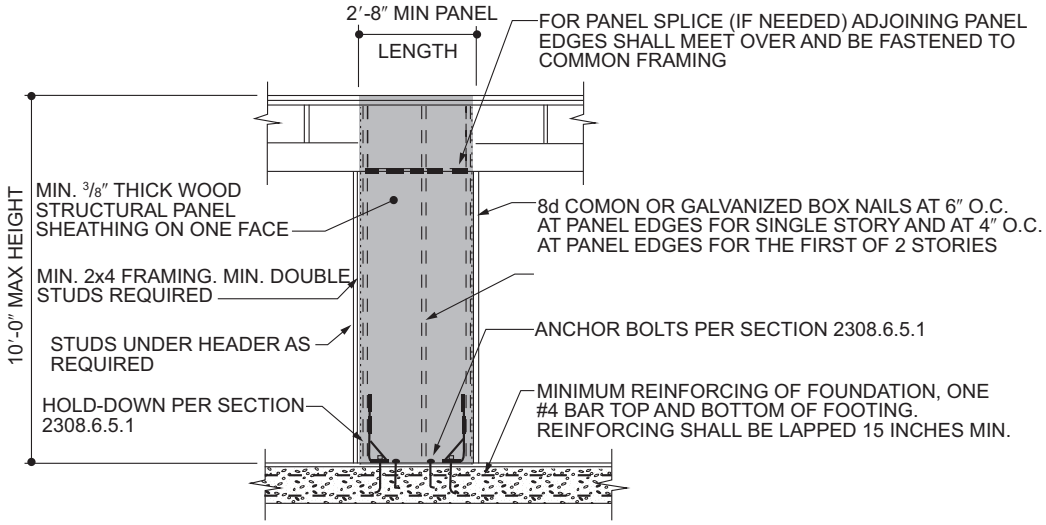
a. Nails shall be corrosion resistant.

b. Minimum acceptable nail dimensions:

c. Where used to comply with Section 2308.6.

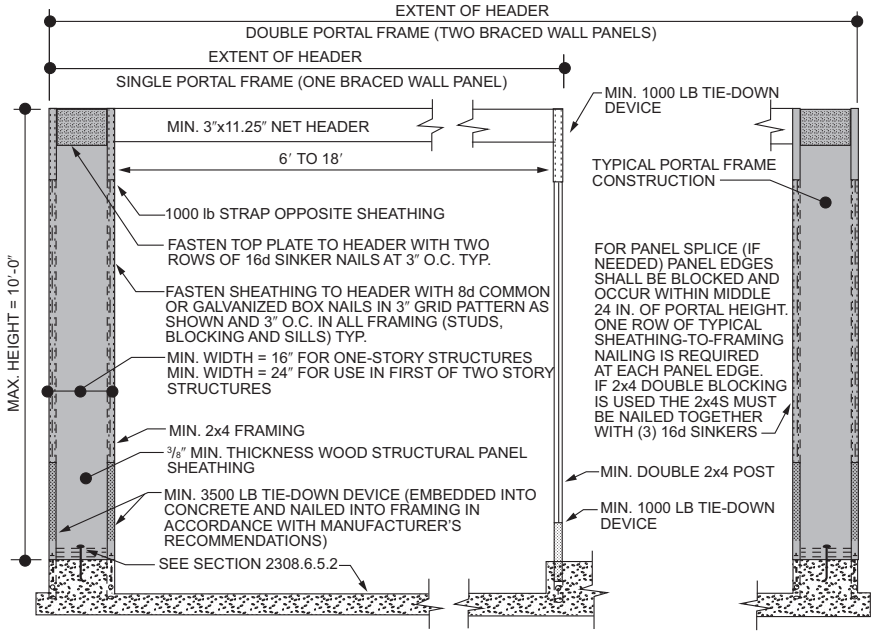
d. Nail length must accommodate the sheathing and penetrate framing 1 1/2 inches.

	Panel Siding (inch)	Lap Siding (inch)
Shank diameter	0.092	0.099
Head diameter	0.225	0.240



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

FIGURE 2308.6.5.1
ALTERNATE BRACED WALL PANEL (ABW)



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound = 4.448 N.

FIGURE 2308.6.5.2
PORTAL FRAME WITH HOLD-DOWNS (PFH)

based on the orientation of the joists or rafters to the *braced wall line*. Blocking shall be not less than 2 inches (51 mm) in nominal thickness and shall be fastened to the *braced wall line* top plate as specified in Table 2304.10.1. Notching or drilling of holes in blocking in accordance with the requirements of Section 2308.4.2.4 or 2308.7.4 shall be permitted.

At exterior gable end walls, *braced wall panel* sheathing in the top *story* shall be extended and fastened to the roof framing where the spacing between parallel exterior braced wall lines is greater than 50 feet (15 240 mm).

Where roof trusses are used and are installed perpendicular to an exterior *braced wall line*, lateral forces shall be transferred from the roof diaphragm to the braced wall over the full length of the *braced wall line* by blocking of the ends of the trusses or by other *approved* methods providing equivalent lateral force transfer. Blocking shall be not less than 2 inches (51 mm) in nominal thickness and equal to the depth of the truss at the wall line and shall be fastened to the braced wall line top plate as specified in Table 2304.10.1. Notching or drilling of holes in blocking in accordance with the requirements of Section 2308.4.2.4 or 2308.7.4 shall be permitted.

Exception: Where the roof sheathing is greater than $9^1/_4$ inches (235 mm) above the top plate, solid blocking is not required where the framing members are connected using one of the following methods:

1. In accordance with Figure 2308.6.7.2(1).
2. In accordance with Figure 2308.6.7.2(2).
3. Full-height engineered blocking panels designed for values listed in AWC WFCM.
4. A design in accordance with accepted engineering methods.

2308.6.7.3 Sill anchorage. Where foundations are required by Section 2308.6.8, braced wall line sills shall be anchored to concrete or masonry foundations. Such anchorage shall conform to the requirements of Section 2308.3. The anchors shall be distributed along the length of the braced wall line. Other anchorage devices having equivalent capacity are permitted.

2308.6.7.4 Anchorage to all-wood foundations. Where all-wood foundations are used, the force transfer from the *braced wall lines* shall be determined based on calculation and shall have a capacity that is not less than the connections required by Section 2308.3.

2308.6.8 Braced wall line and diaphragm support. *Braced wall lines* and floor and roof diaphragms shall be supported in accordance with this section.

2308.6.8.1 Foundation requirements. *Braced wall lines* shall be supported by continuous foundations.

Exception: For structures with a maximum plan dimension not more than 50 feet (15 240 mm), continuous foundations are required at exterior walls only.

For structures in *Seismic Design Categories* D and E, exterior *braced wall panels* shall be in the same plane vertically with the foundation or the portion of the structure containing the offset shall be designed in accordance with accepted engineering practice and Section 2308.1.1.

Exceptions:

1. Exterior *braced wall panels* shall be permitted to be located not more than 4 feet (1219 mm) from the foundation below where supported by a floor constructed in accordance with all of the following:
   1.1. Cantilevers or setbacks shall not exceed four times the nominal depth of the floor joists.
   1.2. Floor joists shall be 2 inches by 10 inches (51 mm by 254 mm) or larger and spaced not more than 16 inches (406 mm) on center.
   1.3. The ratio of the back span to the cantilever shall be not less than 2 to 1.
   1.4. Floor joists at ends of *braced wall panels* shall be doubled.
   1.5. A continuous rim joist shall be connected to the ends of cantilevered joists. The rim joist is permitted to be spliced using a metal tie not less than 0.058 inch (1.47 mm) (16 galvanized gage) and $1^1/_2$ inches (38 mm) in width fastened with six 16d common nails on each side. The metal tie shall have a yield stress not less than 33,000 psi (227 MPa).
   1.6. Joists at setbacks or the end of cantilevered joists shall not carry gravity loads from more than a single *story* having uniform wall and roof loads nor carry the reactions from headers having a span of 8 feet (2438 mm) or more.
2. The end of a required *braced wall panel* shall be allowed to extend not more than 1 foot (305 mm) over an opening in the wall below. This requirement is applicable to *braced wall panels* offset in plane and *braced wall panels* offset out of plane as permitted by Exception 1. *Braced wall panels* are permitted to extend over an opening not more than 8 feet (2438 mm) in width where the header is a 4-inch by 12-inch (102 mm by 305 mm) or larger member.

2308.6.8.2 Floor and roof diaphragm support in Seismic Design Categories D and E. In structures assigned to *Seismic Design Categories* D or E, floor and roof diaphragms shall be laterally supported by

braced wall lines on all edges and connected in accordance with Section 2308.6.7 [see Figure 2308.6.8.2(1)].

Exception: Portions of roofs or floors that do not support *braced wall panels* above are permitted to extend up to 6 feet (1829 mm) beyond a *braced wall line* [see Figure 2308.6.8.2(2)] provided that the framing members are connected to the *braced wall line* below in accordance with Section 2308.6.7.

2308.6.8.3 Stepped footings in Seismic Design Categories B, C, D and E. In *Seismic Design Categories* B, C, D and E, where the height of a required *braced wall panel* extending from foundation to floor above varies more than 4 feet (1219 mm), the following construction shall be used:

1. Where the bottom of the footing is stepped and the lowest floor framing rests directly on a sill bolted to the footings, the sill shall be anchored as required in Section 2308.3.
2. Where the lowest floor framing rests directly on a sill bolted to a footing not less than 8 feet (2438 mm) in length along a line of bracing, the line shall be considered to be braced. The double plate of the cripple stud wall beyond the segment of footing extending to the lowest framed floor shall be spliced to the sill plate with metal ties, one on each side of the sill and plate. The metal ties shall be not less than 0.058 inch [1.47 mm (16 galvanized gage)] by $1^1/_2$ inches (38 mm) in width by 48 inches (1219 mm) with eight 16d common nails on each side of the splice location (see Figure 2308.6.8.3). The metal tie shall have a yield stress not less than 33,000 pounds per square inch (psi) (227 MPa).
3. Where cripple walls occur between the top of the footing and the lowest floor framing, the bracing requirements for a *story* shall apply.

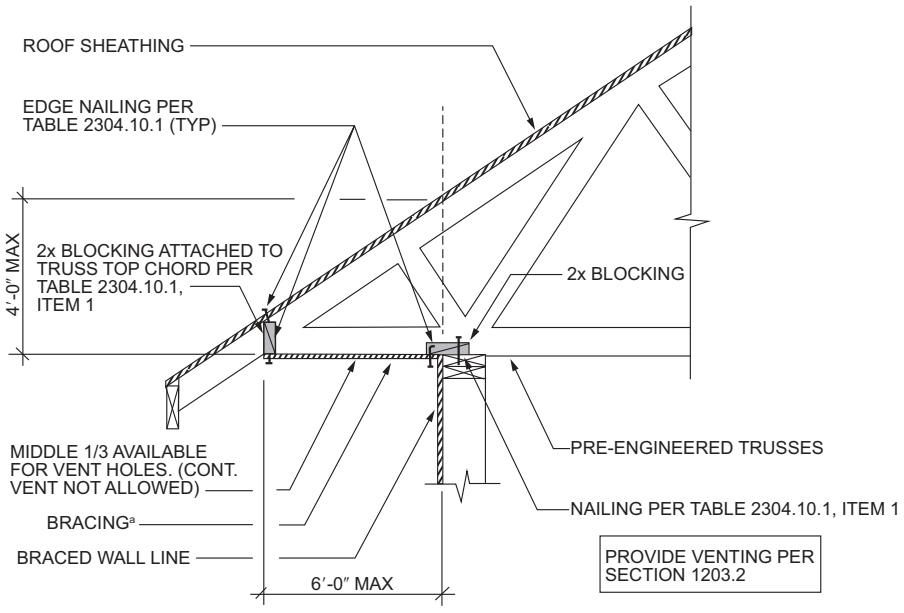
2308.6.9 Attachment of sheathing. Fastening of *braced wall panel* sheathing shall be not less than that prescribed in Tables 2308.6.1 and 2304.10.1. Wall sheathing shall not be attached to framing members by adhesives.

2308.6.10 Limitations of concrete or masonry veneer. Concrete or masonry veneer shall comply with Chapter 14 and this section.

2308.6.10.1 Limitations of concrete or masonry veneer in Seismic Design Category B or C. In *Seismic Design Categories* B and C, concrete or masonry walls and stone or masonry veneer shall not extend above a basement.

Exceptions:

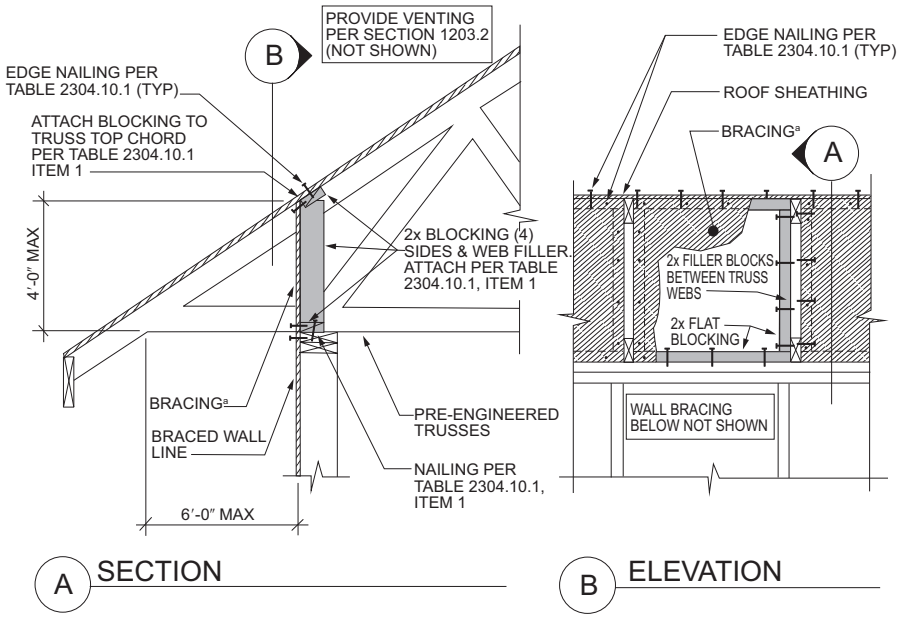
1. In structures assigned to *Seismic Design Category* B, stone and masonry veneer is permitted to be used in the first two *stories above grade plane* or the first three *stories above grade plane* where the lowest *story* has concrete or masonry walls, provided that wood structural panel wall bracing is used and the length of bracing provided is one and one-half times the required length specified in Table 2308.6.1.



a. Methods of bracing shall be as described in Table 2308.6.3(1) DWB, WSP, SFB, GB, PBS, PCP or HPS.

For SI: 1 foot = 304.8 mm.

FIGURE 2308.6.7.2(1)
BRACED WALL LINE TOP PLATE CONNECTION



a. Methods of bracing shall be as described in Table 2308.6.3(1) DWB, WSP, SFB, GB, PBS, PCP or HPS.

For SI: 1 foot = 304.8 mm.

FIGURE 2308.6.7.2(2)
BRACED WALL PANEL TOP PLATE CONNECTION

2. Stone and masonry veneer is permitted to be used in the first *story above grade plane* or the first two *stories above grade plane* where the lowest *story* has concrete or masonry walls.
3. Stone and masonry veneer is permitted to be used in both *stories* of buildings with two *stories above grade plane*, provided the following criteria are met:
   3.1. Type of brace in accordance with Section 2308.6.1 shall be WSP and the allowable shear capacity in accordance with Section 2306.3 shall be not less than 350 plf (5108 N/m).
   3.2. *Braced wall panels* in the second *story* shall be located in accordance with Section 2308.6.1 and not more than 25 feet (7620 mm) on center, and the total length of *braced wall panels* shall be not less than 25 percent of the *braced wall line* length. *Braced wall panels* in the first *story* shall be located in accordance with Section 2308.6.1 and not more than 25 feet (7620 mm) on center, and the total length of *braced wall panels* shall be not less than 45 percent of the *braced wall line* length.
   3.3. Hold-down connectors with an allowable capacity of 2,000 pounds (8896 N) shall be provided at the ends of each *braced wall panel* for the second *story* to the first *story* connection. Hold-down connectors with an allowable capacity of 3,900 pounds (17 347 N) shall be provided at the ends of each *braced wall panel* for the first *story* to the foundation connection. In all cases, the hold-down connector force shall be transferred to the foundation.
   3.4. Cripple walls shall not be permitted.

2308.6.10.2 Limitations of concrete or masonry in Seismic Design Categories D and E. In *Seismic Design Categories* D and E, concrete or masonry walls and stone or masonry veneer shall not extend above a basement.

Exception: In structures assigned to *Seismic Design Category* D, stone and masonry veneer is permitted to be used in the first *story above grade plane*, provided the following criteria are met:

1. Type of brace in accordance with Section 2308.6.1 shall be WSP and the allowable shear capacity in accordance with Section 2306.3 shall be not less than 350 plf (5108 N/m).
2. The *braced wall panels* in the first *story* shall be located at each end of the *braced wall line* and not more than 25 feet (7620 mm) on center, and the total length of *braced wall panels*

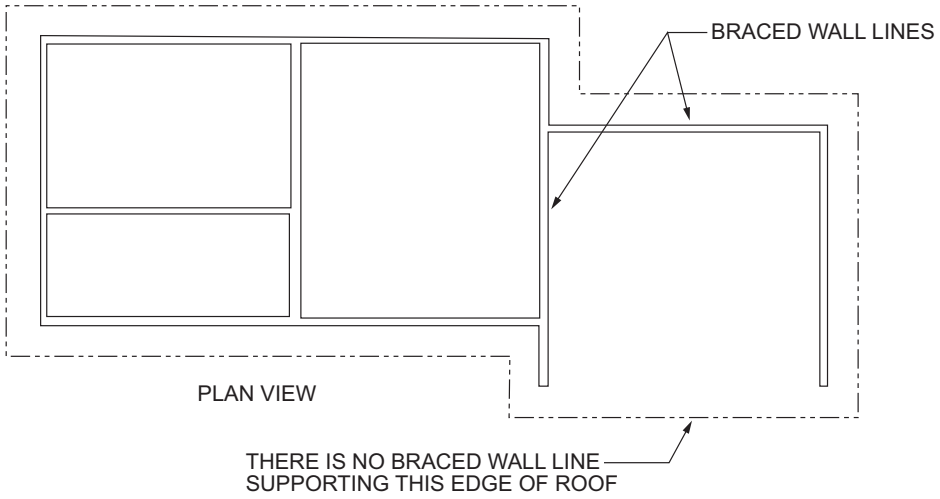
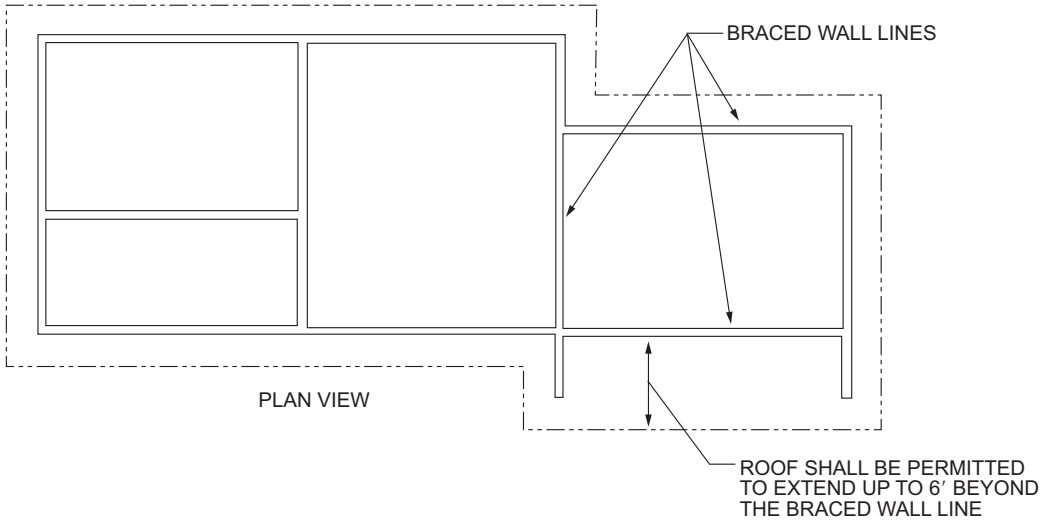


FIGURE 2308.6.8.2(1)
ROOF IN SDC D OR E NOT SUPPORTED ON ALL EDGES



For SI: 1 foot = 304.8 mm.

FIGURE 2308.6.8.2(2)
ROOF EXTENSION IN SDC D OR E BEYOND BRACED WALL LINE

shall be not less than 45 percent of the *braced wall line* length.

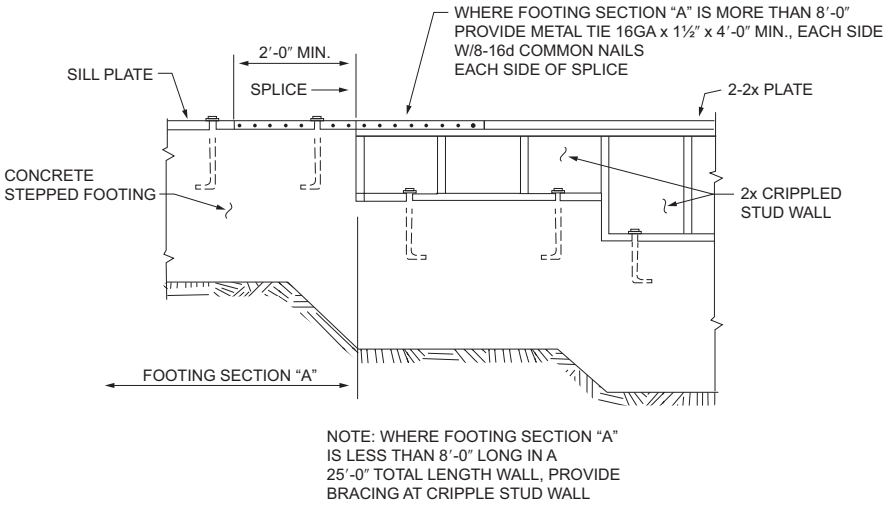
3. Hold-down connectors shall be provided at the ends of braced walls for the first floor to foundation with an allowable capacity of 2,100 pounds (9341 N).
4. Cripple walls shall not be permitted.

2308.7 Roof and ceiling framing. The framing details required in this section apply to roofs having a slope of not less than three units vertical in 12 units horizontal (25-percent slope). Where the roof slope is less than three units vertical in 12 units horizontal (25-percent slope), members supporting rafters and ceiling joists such as ridge board, hips and valleys shall be designed as beams.

2308.7.1 Ceiling joist spans. Spans for ceiling joists shall be in accordance with Table 2308.7.1(1) or 2308.7.1(2). For other grades and species, and other loading conditions, refer to the AWC STJR.

2308.7.2 Rafter spans. Spans for rafters shall be in accordance with Table 2308.7.2(1), 2308.7.2(2), 2308.7.2(3), 2308.7.2(4), 2308.7.2(5) or 2308.7.2(6). For other grades and species and other loading conditions, refer to the AWC STJR. The span of each rafter shall be measured along the horizontal projection of the rafter.

2308.7.3 Ceiling joist and rafter framing. Rafters shall be framed directly opposite each other at the ridge. There shall be a ridge board not less than 1-inch (25 mm) nominal thickness at ridges and not less in depth than the cut end of the rafter. At valleys and hips, there shall be a sin-



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

FIGURE 2308.6.8.3
STEPPED FOOTING CONNECTION DETAILS

gle valley or hip rafter not less than 2-inch (51 mm) nominal thickness and not less in depth than the cut end of the rafter.

2308.7.3.1 Ceiling joist and rafter connections. Ceiling joists and rafters shall be nailed to each other and the assembly shall be nailed to the top wall plate in accordance with Tables 2304.10.1 and 2308.7.5. Ceiling joists shall be continuous or securely joined where they meet over interior partitions and be fastened to adjacent rafters in accordance with Tables 2304.10.1 and 2308.7.3.1 to provide a continuous rafter tie across the building where such joists are parallel to the rafters. Ceiling joists shall have a bearing surface of not less than $1^1/_2$ inches (38 mm) on the top plate at each end.

Where ceiling joists are not parallel to rafters, an equivalent rafter tie shall be installed in a manner to provide a continuous tie across the building, at a spacing of not more than 4 feet (1219 mm) on center. The connections shall be in accordance with Tables 2308.7.3.1 and 2304.10.1, or connections of equivalent capacities shall be provided. Where ceiling joists or rafter ties are not provided at the top of the rafter support walls, the ridge formed by these rafters shall also be supported by a girder conforming to Section 2308.8. Rafter ties shall be spaced not more than 4 feet (1219 mm) on center.

Rafter tie connections shall be based on the equivalent rafter spacing in Table 2308.7.3.1. Rafter-to-ceiling joist connections and rafter tie connections shall be of sufficient size and number to prevent splitting from nailing.

Roof framing member connection to braced wall lines shall be in accordance with Section 2308.6.7.2.

2308.7.4 Notches and holes. Notching at the ends of rafters or ceiling joists shall not exceed one-fourth the depth. Notches in the top or bottom of the rafter or ceiling joist shall not exceed one-sixth the depth and shall not be located in the middle one-third of the span, except that a notch not more than one-third of the depth is permitted in the top of the rafter or ceiling joist not further from the face of the support than the depth of the member. Holes bored in rafters or ceiling joists shall not be within 2 inches (51 mm) of the top and bottom and their diameter shall not exceed one-third the depth of the member.

2308.7.5 Wind uplift. The roof construction shall have rafter and truss ties to the wall below. Resultant uplift loads shall be transferred to the foundation using a continuous load path. The rafter or truss to wall connection shall comply with Tables 2304.10.1 and 2308.7.5.

2308.7.6 Framing around openings. Trimmer and header rafters shall be doubled, or of lumber of equivalent cross section, where the span of the header exceeds 4 feet (1219 mm). The ends of header rafters that are more than 6 feet (1829 mm) in length shall be supported by framing anchors or rafter hangers unless bearing on a beam, partition or wall.

2308.7.6.1 Openings in roof diaphragms in Seismic Design Categories B, C, D and E. In buildings classified as *Seismic Design Category* B, C, D or E. openings in horizontal diaphragms with a dimension that is greater than 4 feet (1219 mm) shall be constructed with metal ties and blocking in accordance with this section and Figure 2308.4.4.1(1). Metal ties shall be not less than 0.058 inch [1.47 mm (16 galvanized gage)] in thickness by $1^1/_2$ inches (38 mm) in width and shall have a yield stress not less than 33,000 psi (227 Mpa). Blocking shall extend not less than the dimension of the opening in the direction of the tie and blocking. Ties shall be attached to blocking in accordance with the manufacturer's instructions but with not less than eight 16d common nails on each side of the header-joist intersection.

2308.7.7 Purlins. Purlins to support roof loads are permitted to be installed to reduce the span of rafters within allowable limits and shall be supported by struts to bearing walls. The maximum span of 2-inch by 4-inch (51 mm by 102 mm) purlins shall be 4 feet (1219 mm). The maximum span of the 2-inch by 6-inch (51 mm by 152 mm) purlin shall be 6 feet (1829 mm), but in no case shall the purlin be smaller than the supported rafter. Struts shall be not less than 2-inch by 4-inch (51 mm by 102 mm) members. The unbraced length of struts shall not exceed 8 feet (2438 mm) and the slope of the struts shall be not less than 45 degrees (0.79 rad) from the horizontal.

2308.7.8 Blocking. Roof rafters and ceiling joists shall be supported laterally to prevent rotation and lateral displacement in accordance with Section 2308.4.6 and connected to braced wall lines in accordance with Section 2308.6.7.2.

2308.7.9 Engineered wood products. Prefabricated wood I-joists, structural glued-laminated timber and structural composite lumber shall not be notched or drilled except where permitted by the manufacturer's recommendations or where the effects of such alterations are specifically considered in the design of the member by a *registered design professional*.

2308.7.10 Roof sheathing. Roof sheathing shall be in accordance with Tables 2304.8(3) and 2304.8(5) for wood structural panels, and Tables 2304.8(1) and 2304.8(2) for lumber and shall comply with Section 2304.8.2.

2308.7.11 Joints. Joints in lumber sheathing shall occur over supports unless *approved* end-matched lumber is used, in which case each piece shall bear on at least two supports.

2308.7.12 Roof planking. Planking shall be designed in accordance with the general provisions of this code.

In lieu of such design, 2-inch (51 mm) tongue-and groove planking is permitted in accordance with Table 2308.7.12. Joints in such planking are permitted to be randomly spaced, provided the system is applied to not less than three continuous spans, planks are center matched and end matched or splined, each plank bears on at least one support, and joints are separated by not less than 24 inches (610 mm) in adjacent pieces.

2308.7.13 Wood trusses. Wood trusses shall be designed in accordance with Section 2303.4. Connection to braced wall lines shall be in accordance with Section 2308.6.7.2.

2308.7.14 Attic ventilation. For *attic* ventilation, see Section 1203.2.

2308.8 Design of elements. Combining of engineered elements or systems and conventionally specified elements or systems shall be permitted subject to the limits of Sections 2308.8.1 and 2308.8.2.

2308.8.1 Elements exceeding limitations of conventional construction. Where a building of otherwise conventional construction contains structural elements exceeding the limits of Section 2308.2, these elements and the supporting load path shall be designed in accordance with accepted engineering practice and the provisions of this code.

2308.8.2 Structural elements or systems not described herein. Where a building of otherwise conventional construction contains structural elements or systems not described in Section 2308, these elements or systems shall be designed in accordance with accepted engineering practice and the provisions of this code. The extent of such design need only demonstrate compliance of the nonconventional elements with other applicable provisions of this code and shall be compatible with the performance of the conventionally framed system.

TABLE 2308.7.1(1)
CEILING JOIST SPANS FOR COMMON LUMBER SPECIES
(Uninhabitable Attics Without Storage, Live Load = 10 psf, L/Δ = 240)

CEILING JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 5 psf			
			2 × 4	2 × 6	2 × 8	2 × 10
			Maximum ceiling joist spans			
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
12	Douglas Fir-Larch	SS	13-2	20-8	Note a	Note a
	Douglas Fir-Larch	#1	12-8	19-11	Note a	Note a
	Douglas Fir-Larch	#2	12-5	19-6	25-8	Note a
	Douglas Fir-Larch	#3	10-10	15-10	20-1	24-6
	Hem-Fir	SS	12-5	19-6	25-8	Note a
	Hem-Fir	#1	12-2	19-1	25-2	Note a
	Hem-Fir	#2	11-7	18-2	24-0	Note a
	Hem-Fir	#3	10-10	15-10	20-1	24-6
	Southern Pine	SS	12-11	20-3	Note a	Note a
	Southern Pine	#1	12-5	19-6	25-8	Note a
	Southern Pine	#2	11-10	18-8	24-7	Note a
	Southern Pine	#3	10-1	14-11	18-9	22-9
	Spruce-Pine-Fir	SS	12-2	19-1	25-2	Note a
	Spruce-Pine-Fir	#1	11-10	18-8	24-7	Note a
	Spruce-Pine-Fir	#2	11-10	18-8	24-7	Note a
	Spruce-Pine-Fir	#3	10-10	15-10	20-1	24-6
16	Douglas Fir-Larch	SS	11-11	18-9	24-8	Note a
	Douglas Fir-Larch	#1	11-6	18-1	23-10	Note a
	Douglas Fir-Larch	#2	11-3	17-8	23-0	Note a
	Douglas Fir-Larch	#3	9-5	13-9	17-5	21-3
	Hem-Fir	SS	11-3	17-8	23-4	Note a
	Hem-Fir	#1	11-0	17-4	22-10	Note a
	Hem-Fir	#2	10-6	16-6	21-9	Note a
	Hem-Fir	#3	9-5	13-9	17-5	21-3
	Southern Pine	SS	11-9	18-5	24-3	Note a
	Southern Pine	#1	11-3	17-8	23-4	Note a
	Southern Pine	#2	10-9	16-11	21-7	25-7
	Southern Pine	#3	8-9	12-11	16-3	19-9
	Spruce-Pine-Fir	SS	11-0	17-4	22-10	Note a
	Spruce-Pine-Fir	#1	10-9	16-11	22-4	Note a
	Spruce-Pine-Fir	#2	10-9	16-11	22-4	Note a
	Spruce-Pine-Fir	#3	9-5	13-9	17-5	21-3

(continued)

TABLE 2308.7.1(1)—continued
CEILING JOIST SPANS FOR COMMON LUMBER SPECIES
(Uninhabitable Attics Without Storage, Live Load = 10 psf, L/Δ = 240)

CEILING JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 5 psf			
			2 × 4	2 × 6	2 × 8	2 × 10
			Maximum ceiling joist spans			
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
19.2	Douglas Fir-Larch	SS	11-3	17-8	23-3	Note a
	Douglas Fir-Larch	#1	10-10	17-0	22-5	Note a
	Douglas Fir-Larch	#2	10-7	16-7	21-0	25-8
	Douglas Fir-Larch	#3	8-7	12-6	15-10	19-5
	Hem-Fir	SS	10-7	16-8	21-11	Note a
	Hem-Fir	#1	10-4	16-4	21-6	Note a
	Hem-Fir	#2	9-11	15-7	20-6	25-3
	Hem-Fir	#3	8-7	12-6	15-10	19-5
	Southern Pine	SS	11-0	17-4	22-10	Note a
	Southern Pine	#1	10-7	16-8	22-0	Note a
	Southern Pine	#2	10-2	15-7	19-8	23-5
	Southern Pine	#3	8-0	11-9	14-10	18-0
	Spruce-Pine-Fir	SS	10-4	16-4	21-6	Note a
	Spruce-Pine-Fir	#1	10-2	15-11	21-0	25-8
	Spruce-Pine-Fir	#2	10-2	15-11	21-0	25-8
	Spruce-Pine-Fir	#3	8-7	12-6	15-10	19-5
24	Douglas Fir-Larch	SS	10-5	16-4	21-7	Note a
	Douglas Fir-Larch	#1	10-0	15-9	20-1	24-6
	Douglas Fir-Larch	#2	9-10	14-10	18-9	22-11
	Douglas Fir-Larch	#3	7-8	11-2	14-2	17-4
	Hem-Fir	SS	9-10	15-6	20-5	Note a
	Hem-Fir	#1	9-8	15-2	19-7	23-11
	Hem-Fir	#2	9-2	14-5	18-6	22-7
	Hem-Fir	#3	7-8	11-2	14-2	17-4
	Southern Pine	SS	10-3	16-1	21-2	Note a
	Southern Pine	#1	9-10	15-6	20-5	24-0
	Southern Pine	#2	9-3	13-11	17-7	20-11
	Southern Pine	#3	7-2	10-6	13-3	16-1
	Spruce-Pine-Fir	SS	9-8	15-2	19-11	25-5
	Spruce-Pine-Fir	#1	9-5	14-9	18-9	22-11
	Spruce-Pine-Fir	#2	9-5	14-9	18-9	22-11
	Spruce-Pine-Fir	#3	7-8	11-2	14-2	17-4

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. Span exceeds 26 feet in length.

TABLE 2308.7.1(2)
CEILING JOIST SPANS FOR COMMON LUMBER SPECIES
(Uninhabitable Attics With Limited Storage, Live Load = 20 psf, L/Δ = 240)

CEILING JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf			
			2 × 4	2 × 6	2 × 8	2 × 10
			Maximum ceiling joist spans			
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
12	Douglas Fir-Larch	SS	10-5	16-4	21-7	Note a
	Douglas Fir-Larch	#1	10-0	15-9	20-1	24-6
	Douglas Fir-Larch	#2	9-10	14-10	18-9	22-11
	Douglas Fir-Larch	#3	7-8	11-2	14-2	17-4
	Hem-Fir	SS	9-10	15-6	20-5	Note a
	Hem-Fir	#1	9-8	15-2	19-7	23-11
	Hem-Fir	#2	9-2	14-5	18-6	22-7
	Hem-Fir	#3	7-8	11-2	14-2	17-4
	Southern Pine	SS	10-3	16-1	21-2	Note a
	Southern Pine	#1	9-10	15-6	20-5	24-0
	Southern Pine	#2	9-3	13-11	17-7	20-11
	Southern Pine	#3	7-2	10-6	13-3	16-1
	Spruce-Pine-Fir	SS	9-8	15-2	19-11	25-5
	Spruce-Pine-Fir	#1	9-5	14-9	18-9	22-11
	Spruce-Pine-Fir	#2	9-5	14-9	18-9	22-11
	Spruce-Pine-Fir	#3	7-8	11-2	14-2	17-4
16	Douglas Fir-Larch	SS	9-6	14-11	19-7	25-0
	Douglas Fir-Larch	#1	9-1	13-9	17-5	21-3
	Douglas Fir-Larch	#2	8-9	12-10	16-3	19-10
	Douglas Fir-Larch	#3	6-8	9-8	12-4	15-0
	Hem-Fir	SS	8-11	14-1	18-6	23-8
	Hem-Fir	#1	8-9	13-5	16-10	20-8
	Hem-Fir	#2	8-4	12-8	16-0	19-7
	Hem-Fir	#3	6-8	9-8	12-4	15-0
	Southern Pine	SS	9-4	14-7	19-3	24-7
	Southern Pine	#1	8-11	14-0	17-9	20-9
	Southern Pine	#2	8-0	12-0	15-3	18-1
	Southern Pine	#3	6-2	9-2	11-6	14-0
	Spruce-Pine-Fir	SS	8-9	13-9	18-1	23-1
	Spruce-Pine-Fir	#1	8-7	12-10	16-3	19-10
	Spruce-Pine-Fir	#2	8-7	12-10	16-3	19-10
	Spruce-Pine-Fir	#3	6-8	9-8	12-4	15-0

(continued)

TABLE 2308.7.1(2)—continued
CEILING JOIST SPANS FOR COMMON LUMBER SPECIES
(Uninhabitable Attics With Limited Storage, Live Load = 20 psf, L/Δ = 240)

CEILING JOIST SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf			
			2 × 4	2 × 6	2 × 8	2 × 10
			Maximum ceiling joist spans			
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
19.2	Douglas Fir-Larch	SS	8-11	14-0	18-5	23-4
	Douglas Fir-Larch	#1	8-7	12-6	15-10	19-5
	Douglas Fir-Larch	#2	8-0	11-9	14-10	18-2
	Douglas Fir-Larch	#3	6-1	8-10	11-3	13-8
	Hem-Fir	SS	8-5	13-3	17-5	22-3
	Hem-Fir	#1	8-3	12-3	15-6	18-11
	Hem-Fir	#2	7-10	11-7	14-8	17-10
	Hem-Fir	#3	6-1	8-10	11-3	13-8
	Southern Pine	SS	8-9	13-9	18-2	23-1
	Southern Pine	#1	8-5	12-9	16-2	18-11
	Southern Pine	#2	7-4	11-0	13-11	16-6
	Southern Pine	#3	5-8	8-4	10-6	12-9
	Spruce-Pine-Fir	SS	8-3	12-11	17-1	21-8
	Spruce-Pine-Fir	#1	8-0	11-9	14-10	18-2
	Spruce-Pine-Fir	#2	8-0	11-9	14-10	18-2
	Spruce-Pine-Fir	#3	6-1	8-10	11-3	13-8
24	Douglas Fir-Larch	SS	8-3	13-0	17-1	20-11
	Douglas Fir-Larch	#1	7-8	11-2	14-2	17-4
	Douglas Fir-Larch	#2	7-2	10-6	13-3	16-3
	Douglas Fir-Larch	#3	5-5	7-11	10-0	12-3
	Hem-Fir	SS	7-10	12-3	16-2	20-6
	Hem-Fir	#1	7-6	10-11	13-10	16-11
	Hem-Fir	#2	7-1	10-4	13-1	16-0
	Hem-Fir	#3	5-5	7-11	10-0	12-3
	Southern Pine	SS	8-1	12-9	16-10	21-6
	Southern Pine	#1	7-8	11-5	14-6	16-11
	Southern Pine	#2	6-7	9-10	12-6	14-9
	Southern Pine	#3	5-1	7-5	9-5	11-5
	Spruce-Pine-Fir	SS	7-8	12-0	15-10	19-5
	Spruce-Pine-Fir	#1	7-2	10-6	13-3	16-3
	Spruce-Pine-Fir	#2	7-2	10-6	13-3	16-3
	Spruce-Pine-Fir	#3	5-5	7-11	10-0	12-3

Check sources for availability of lumber in lengths greater than 20 feet.
For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.
a. Span exceeds 26 feet in length.

TABLE 2308.7.2(1)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Roof Live Load = 20 psf, Ceiling Not Attached to Rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
12	Douglas Fir-Larch	SS	11-6	18-0	23-9	Note b	Note b	11-6	18-0	23-5	Note b	Note b
	Douglas Fir-Larch	#1	11-1	17-4	22-5	Note b	Note b	10-6	15-4	19-5	23-9	Note b
	Douglas Fir-Larch	#2	10-10	16-7	21-0	25-8	Note b	9-10	14-4	18-2	22-3	25-9
	Douglas Fir-Larch	#3	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
	Hem-Fir	SS	10-10	17-0	22-5	Note b	Note b	10-10	17-0	22-5	Note b	Note b
	Hem-Fir	#1	10 -7	16-8	21-10	Note b	Note b	10-3	14-11	18-11	23-2	Note b
	Hem-Fir	#2	10-1	15-11	20-8	25-3	Note b	9-8	14-2	17-11	21-11	25-5
	Hem-Fir	#3	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
	Southern Pine	SS	11-3	17-8	23-4	Note b	Note b	11-3	17-8	23-4	Note b	Note b
	Southern Pine	#1	10-10	17-0	22-5	26-0	26-0	10-6	15-8	19-10	23-2	Note b
	Southern Pine	#2	10-4	15-7	19-8	23-5	26-0	9-0	13-6	17-1	20-3	23-10
	Southern Pine	#3	8-0	11-9	14-10	18-0	21-4	6-11	10-2	12-10	15-7	18-6
	Spruce-Pine-Fir	SS	10-7	16-8	21-11	Note b	Note b	10-7	16-8	21-9	Note b	Note b
	Spruce-Pine-Fir	#1	10-4	16-3	21-0	25-8	Note b	9-10	14-4	18-2	22-3	25-9
	Spruce-Pine-Fir	#2	10-4	16-3	21-0	25-8	Note b	9-10	14-4	18-2	22-3	25-9
	Spruce-Pine-Fir	#3	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
16	Douglas Fir-Larch	SS	10-5	16-4	21-7	Note b	Note b	10-5	16-0	20-3	24-9	Note b
	Douglas Fir-Larch	#1	10-0	15-4	19-5	23-9	Note b	9-1	13-3	16-10	20-7	23-10
	Douglas Fir-Larch	#2	9-10	14-4	18-2	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Douglas Fir-Larch	#3	7-5	10-10	13-9	16-9	19-6	6-5	9-5	11-11	14-6	16-10
	Hem-Fir	SS	9-10	15-6	20-5	Note b	Note b	9-10	15-6	19-11	24-4	Note b
	Hem-Fir	#1	9-8	14-11	18-11	23-2	Note b	8-10	12-11	16-5	20-0	23-3
	Hem-Fir	#2	9-2	14-2	17-11	21-11	25-5	8-5	12-3	15-6	18-11	22-0
	Hem-Fir	#3	7-5	10-10	13-9	16-9	19-6	6-5	9-5	11-11	14-6	16-10
	Southern Pine	SS	10-3	16-1	21-2	Note b	Note b	10-3	16-1	21-2	25-7	Note b
	Southern Pine	#1	9-10	15-6	19-10	23-2	26-0	9-1	13-7	17-2	20-1	23-10
	Southern Pine	#2	9-0	13-6	17-1	20-3	23-10	7-9	11-8	14-9	17-6	20-8
	Southern Pine	#3	6-11	10-2	12-10	15-7	18-6	6-0	8-10	11-2	13-6	16-0
	Spruce-Pine-Fir	SS	9-8	15-2	19-11	25-5	Note b	9-8	14-10	18-10	23-0	Note b
	Spruce-Pine-Fir	#1	9-5	14-4	18-2	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Spruce-Pine-Fir	#2	9-5	14-4	18-2	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Spruce-Pine-Fir	#3	7-5	10-10	13-9	16-9	19-6	6-5	9-5	11-11	14-6	16-10
19.2	Douglas Fir-Larch	SS	9-10	15-5	20-4	25-11	Note b	9-10	14-7	18-6	22-7	Note b
	Douglas Fir-Larch	#1	9-5	14-0	17-9	21-8	25-2	8-4	12-2	15-4	18-9	21-9
	Douglas Fir-Larch	#2	8-11	13-1	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Douglas Fir-Larch	#3	6-9	9-11	12-7	15-4	17-9	5-10	8-7	10-10	13-3	15-5
	Hem-Fir	SS	9-3	14-7	19-2	24-6	Note b	9-3	14-4	18-2	22-3	25-9
	Hem-Fir	#1	9-1	13-8	17-4	21-1	24-6	8-1	11-10	15-0	18-4	21-3
	Hem-Fir	#2	8-8	12-11	16-4	20-0	23-2	7-8	11-2	14-2	17-4	20-1
	Hem-Fir	#3	6-9	9-11	12-7	15-4	17-9	5-10	8-7	10-10	13-3	15-5
	Southern Pine	SS	9-8	15-2	19-11	25-5	Note b	9-8	15-2	19-7	23-4	Note b
	Southern Pine	#1	9-3	14-3	18-1	21-2	25-2	8-4	12-4	15-8	18-4	21-9
	Southern Pine	#2	8-2	12-3	15-7	18-6	21-9	7-1	10-8	13-6	16-0	18-10
	Southern Pine	#3	6-4	9-4	11-9	14-3	16-10	5-6	8-1	10-2	12-4	14-7
	Spruce-Pine-Fir	SS	9-1	14-3	18-9	23-11	Note b	9-1	13-7	17-2	21-0	24-4
	Spruce-Pine-Fir	#1	8-10	13-1	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Spruce-Pine-Fir	#2	8-10	13-1	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Spruce-Pine-Fir	#3	6-9	9-11	12-7	15-4	17-9	5-10	8-7	10-10	13-3	15-5

(continued)

TABLE 2308.7.2(1)—continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Roof Live Load = 20 psf, Ceiling Not Attached to Rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
24	Douglas Fir-Larch	SS	9-1	14-4	18-10	23-4	Note b	8-11	13-1	16-7	20-3	23-5
	Douglas Fir-Larch	#1	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
	Douglas Fir-Larch	#2	8-0	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3
	Douglas Fir-Larch	#3	6-1	8-10	11-3	13-8	15-11	5-3	7-8	9-9	11-10	13-9
	Hem-Fir	SS	8-7	13-6	17-10	22-9	Note b	8-7	12-10	16-3	19-10	23-0
	Hem-Fir	#1	8-4	12-3	15-6	18-11	21-11	7-3	10-7	13-5	16-4	19-0
	Hem-Fir	#2	7-11	11-7	14-8	17-10	20-9	6-10	10-0	12-8	15-6	17-11
	Hem-Fir	#3	6-1	8-10	11-3	13-8	15-11	5-3	7-8	9-9	11-10	13-9
	Southern Pine	SS	8-11	14-1	18-6	23-8	Note b	8-11	13-10	17-6	20-10	24-8
	Southern Pine	#1	8-7	12-9	16-2	18-11	22-6	7-5	11-1	14-0	16-5	19-6
	Southern Pine	#2	7-4	11-0	13-11	16-6	19-6	6-4	9-6	12-1	14-4	16-10
	Southern Pine	#3	5-8	8-4	10-6	12-9	15-1	4-11	7-3	9-1	11-0	13-1
	Spruce-Pine-Fir	SS	8-5	13-3	17-5	21-8	25-2	8-4	12-2	15-4	18-9	21-9
	Spruce-Pine-Fir	#1	8-0	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3
	Spruce-Pine-Fir	#2	8-0	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3
	Spruce-Pine-Fir	#3	6-1	8-10	11-3	13-8	15-11	5-3	7-8	9-9	11-10	13-9

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below:

H_C/H_R	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

where:

H_C = Height of ceiling joists or rafter ties measured vertically above the top of the rafter support walls.

H_R = Height of roof ridge measured vertically above the top of the rafter support walls.

b. Span exceeds 26 feet in length.

TABLE 2308.7.2(2)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Roof Live Load = 20 psf, Ceiling Attached to Rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
12	Douglas Fir-Larch	SS	10-5	16-4	21-7	Note b	Note b	10-5	16-4	21-7	Note b	Note b
	Douglas Fir-Larch	#1	10-0	15-9	20-10	Note b	Note b	10-0	15-4	19-5	23-9	Note b
	Douglas Fir-Larch	#2	9-10	15-6	20-5	25-8	Note b	9-10	14-4	18-2	22-3	25-9
	Douglas Fir-Larch	#3	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
	Hem-Fir	SS	9-10	15-6	20-5	Note b	Note b	9-10	15-6	20-5	Note b	Note b
	Hem-Fir	#1	9-8	15-2	19-11	25-5	Note b	9-8	14-11	18-11	23-2	Note b
	Hem-Fir	#2	9-2	14-5	19-0	24-3	Note b	9-2	14-2	17-11	21-11	25-5
	Hem-Fir	#3	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
	Southern Pine	SS	10-3	16-1	21-2	Note b	Note b	10-3	16-1	21-2	Note b	Note b
	Southern Pine	#1	9-10	15-6	20-5	26-0	26-0	9-10	15-6	19-10	23-2	26-0
	Southern Pine	#2	9-5	14-9	19-6	23-5	26-0	9-0	13-6	17-1	20-3	23-10
	Southern Pine	#3	8-0	11-9	14-10	18-0	21-4	6-11	10-2	12-10	15-7	18-6
	Spruce-Pine-Fir	SS	9-8	15-2	19-11	25-5	Note b	9-8	15-2	19-11	25-5	Note b
	Spruce-Pine-Fir	#1	9-5	14-9	19-6	24-10	Note b	9-5	14-4	18-2	22-3	25-9
	Spruce-Pine-Fir	#2	9-5	14-9	19-6	24-10	Note b	9-5	14-4	18-2	22-3	25-9
	Spruce-Pine-Fir	#3	8-7	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
16	Douglas Fir-Larch	SS	9-6	14-11	19-7	25-0	Note b	9-6	14-11	19-7	24-9	Note b
	Douglas Fir-Larch	#1	9-1	14-4	18-11	23-9	Note b	9-1	13-3	16-10	20-7	23-10
	Douglas Fir-Larch	#2	8-11	14-1	18-2	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Douglas Fir-Larch	#3	7-5	10-10	13-9	16-9	19-6	6-5	9-5	11-11	14-6	16-10
	Hem-Fir	SS	8-11	14-1	18-6	23-8	Note b	8-11	14-1	18-6	23-8	Note b
	Hem-Fir	#1	8-9	13-9	18-1	23-1	Note b	8-9	12-11	16-5	20-0	23-3
	Hem-Fir	#2	8-4	13-1	17-3	21-11	25-5	8-4	12-3	15-6	18-11	22-0
	Hem-Fir	#3	7-5	10-10	13-9	16-9	19-6	6-5	9-5	11-11	14-6	16-10
	Southern Pine	SS	9-4	14-7	19-3	24-7	Note b	9-4	14-7	19-3	24-7	Note b
	Southern Pine	#1	8-11	14-1	18-6	23-2	26-0	8-11	13-7	17-2	20-1	23-10
	Southern Pine	#2	8-7	13-5	17-1	20-3	23-10	7-9	11-8	14-9	17-6	20-8
	Southern Pine	#3	6-11	10-2	12-10	15-7	18-6	6-0	8-10	11-2	13-6	16-0
	Spruce-Pine-Fir	SS	8-9	13-9	18-1	23-1	Note b	8-9	13-9	18-1	23-0	Note b
	Spruce-Pine-Fir	#1	8-7	13-5	17-9	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Spruce-Pine-Fir	#2	8-7	13-5	17-9	22-3	25-9	8-6	12-5	15-9	19-3	22-4
	Spruce-Pine-Fir	#3	7-5	10-10	13-9	16-9	19-6	6-5	9-5	11-11	14-6	16-10
19.2	Douglas Fir-Larch	SS	8-11	14-0	18-5	23-7	Note b	8-11	14-0	18-5	22-7	Note b
	Douglas Fir-Larch	#1	8-7	13-6	17-9	21-8	25-2	8-4	12-2	15-4	18-9	21-9
	Douglas Fir-Larch	#2	8-5	13-1	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Douglas Fir-Larch	#3	6-9	9-11	12-7	15-4	17-9	5-10	8-7	10-10	13-3	15-5
	Hem-Fir	SS	8-5	13-3	17-5	22-3	Note b	8-5	13-3	17-5	22-3	25-9
	Hem-Fir	#1	8-3	12-11	17-1	21-1	24-6	8-1	11-10	15-0	18-4	21-3
	Hem-Fir	#2	7-10	12-4	16-3	20-0	23-2	7-8	11-2	14-2	17-4	20-1
	Hem-Fir	#3	6-9	9-11	12-7	15-4	17-9	5-10	8-7	10-10	13-3	15-5

(continued)

TABLE 2308.7.2(2)—continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Roof Live Load = 20 psf, Ceiling Attached to Rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
19.2	Southern Pine	SS	8-9	13-9	18-2	23-1	Note b	8-9	13-9	18-2	23-1	Note b
	Southern Pine	#1	8-5	13-3	17-5	21-2	25-2	8-4	12-4	15-8	18-4	21-9
	Southern Pine	#2	8-1	12-3	15-7	18-6	21-9	7-1	10-8	13-6	16-0	18-10
	Southern Pine	#3	6-4	9-4	11-9	14-3	16-10	5-6	8-1	10-2	12-4	14-7
	Spruce-Pine-Fir	SS	8-3	12-11	17-1	21-9	Note b	8-3	12-11	17-1	21-0	24-4
	Spruce-Pine-Fir	#1	8-1	12-8	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Spruce-Pine-Fir	#2	8-1	12-8	16-7	20-3	23-6	7-9	11-4	14-4	17-7	20-4
	Spruce-Pine-Fir	#3	6-9	9-11	12-7	15-4	17-9	5-10	8-7	10-10	13-3	15-5
24	Douglas Fir-Larch	SS	8-3	13-0	17-2	21-10	Note b	8-3	13-0	16-7	20-3	23-5
	Douglas Fir-Larch	#1	8-0	12-6	15-10	19-5	22-6	7-5	10-10	13-9	16-9	19-6
	Douglas Fir-Larch	#2	7-10	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3
	Douglas Fir-Larch	#3	6-1	8-10	11-3	13-8	15-11	5-3	7-8	9-9	11-10	13-9
	Hem-Fir	SS	7-10	12-3	16-2	20-8	25-1	7-10	12-3	16-2	19-10	23-0
	Hem-Fir	#1	7-8	12-0	15-6	18-11	21-11	7-3	10-7	13-5	16-4	19-0
	Hem-Fir	#2	7-3	11-5	14-8	17-10	20-9	6-10	10-0	12-8	15-6	17-11
	Hem-Fir	#3	6-1	8-10	11-3	13-8	15-11	5-3	7-8	9-9	11-10	13-9
	Southern Pine	SS	8-1	12-9	16-10	21-6	Note b	8-1	12-9	16-10	20-10	24-8
	Southern Pine	#1	7-10	12-3	16-2	18-11	22-6	7-5	11-1	14-0	16-5	19-6
	Southern Pine	#2	7-4	11-0	13-11	16-6	19-6	6-4	9-6	12-1	14-4	16-10
	Southern Pine	#3	5-8	8-4	10-6	12-9	15-1	4-11	7-3	9-1	11-0	13-1
	Spruce-Pine-Fir	SS	7-8	12-0	15-10	20-2	24-7	7-8	12-0	15-4	18-9	21-9
	Spruce-Pine-Fir	#1	7-6	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3
	Spruce-Pine-Fir	#2	7-6	11-9	14-10	18-2	21-0	6-11	10-2	12-10	15-8	18-3
	Spruce-Pine-Fir	#3	6-1	8-10	11-3	13-8	15-11	5-3	7-8	9-9	11-10	13-9

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below:

H_C/H_R	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

where:

H_C = Height of ceiling joists or rafter ties measured vertically above the top of the rafter support walls.

H_R = Height of roof ridge measured vertically above the top of the rafter support walls.

b. Span exceeds 26 feet in length.

TABLE 2308.7.2(3)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground Snow Load = 30 psf, Ceiling Not Attached to Rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
12	Douglas Fir-Larch	SS	10-0	15-9	20-9	Note b	Note b	10-0	15-9	20-1	24-6	Note b
	Douglas Fir-Larch	#1	9-8	14-9	18-8	22-9	Note b	9-0	13-2	16-8	20-4	23-7
	Douglas Fir-Larch	#2	9-5	13-9	17-5	21-4	24-8	8-5	12-4	15-7	19-1	22-1
	Douglas Fir-Larch	#3	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Hem-Fir	SS	9-6	14-10	19-7	25-0	Note b	9-6	14-10	19-7	24-1	Note b
	Hem-Fir	#1	9-3	14-4	18-2	22-2	25-9	8-9	12-10	16-3	19-10	23-0
	Hem-Fir	#2	8-10	13-7	17-2	21-0	24-4	8-4	12-2	15-4	18-9	21-9
	Hem-Fir	#3	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Southern Pine	SS	9-10	15-6	20-5	Note b	Note b	9-10	15-6	20-5	25-4	Note b
	Southern Pine	#1	9-6	14-10	19-0	22-3	26-0	9-0	13-5	17-0	19-11	23-7
	Southern Pine	#2	8-7	12-11	16-4	19-5	22-10	7-8	11-7	14-8	17-4	20-5
	Southern Pine	#3	6-7	9-9	12-4	15-0	17-9	5-11	8-9	11-0	13-5	15-10
	Spruce-Pine-Fir	SS	9-3	14-7	19-2	24-6	Note b	9-3	14-7	18-8	22-9	Note b
	Spruce-Pine-Fir	#1	9-1	13-9	17-5	21-4	24-8	8-5	12-4	15-7	19-1	22-1
	Spruce-Pine-Fir	#2	9-1	13-9	17-5	21-4	24-8	8-5	12-4	15-7	19-1	22-1
	Spruce-Pine-Fir	#3	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
16	Douglas Fir-Larch	SS	9-1	14-4	18-10	23-9	Note b	9-1	13-9	17-5	21-3	24-8
	Douglas Fir-Larch	#1	8-9	12-9	16-2	19-9	22-10	7-10	11-5	14-5	17-8	20-5
	Douglas Fir-Larch	#2	8-2	11-11	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2
	Douglas Fir-Larch	#3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6
	Hem-Fir	SS	8-7	13-6	17-10	22-9	Note b	8-7	13-6	17-1	20-10	24-2
	Hem-Fir	#1	8-5	12-5	15-9	19-3	22-3	7-7	11-1	14-1	17-2	19-11
	Hem-Fir	#2	8-0	11-9	14-11	18-2	21-1	7-2	10-6	13-4	16-3	18-10
	Hem-Fir	#3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6
	Southern Pine	SS	8-11	14-1	18-6	23-8	Note b	8-11	14-1	18-5	21-11	25-11
	Southern Pine	#1	8-7	13-0	16-6	19-3	22-10	7-10	11-7	14-9	17-3	20-5
	Southern Pine	#2	7-6	11-2	14-2	16-10	19-10	6-8	10-0	12-8	15-1	17-9
	Southern Pine	#3	5-9	8-6	10-8	13-0	15-4	5-2	7-7	9-7	11-7	13-9
	Spruce-Pine-Fir	SS	8-5	13-3	17-5	22-1	25-7	8-5	12-9	16-2	19-9	22-10
	Spruce-Pine-Fir	#1	8-2	11-11	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2
	Spruce-Pine-Fir	#2	8-2	11-11	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2
	Spruce-Pine-Fir	#3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6
19.2	Douglas Fir-Larch	SS	8-7	13-6	17-9	21-8	25-2	8-7	12-6	15-10	19-5	22-6
	Douglas Fir-Larch	#1	7-11	11-8	14-9	18-0	20-11	7-1	10-5	13-2	16-1	18-8
	Douglas Fir-Larch	#2	7-5	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Douglas Fir-Larch	#3	5-7	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2
	Hem-Fir	SS	8-1	12-9	16-9	21-4	24-8	8-1	12-4	15-7	19-1	22-1
	Hem-Fir	#1	7-9	11-4	14-4	17-7	20-4	6-11	10-2	12-10	15-8	18-2
	Hem-Fir	#2	7-4	10-9	13-7	16-7	19-3	6-7	9-7	12-2	14-10	17-3
	Hem-Fir	#3	5-7	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2

(continued)

TABLE 2308.7.2(3)—continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground Snow Load = 30 psf, Ceiling Not Attached to Rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
19.2	Southern Pine	SS	8-5	13-3	17-5	22-3	Note b	8-5	13-3	16-10	20-0	23-7
	Southern Pine	#1	8-0	11-10	15-1	17-7	20-11	7-1	10-7	13-5	15-9	18-8
	Southern Pine	#2	6-10	10-2	12-11	15-4	18-1	6-1	9-2	11-7	13-9	16-2
	Southern Pine	#3	5-3	7-9	9-9	11-10	14-0	4-8	6-11	8-9	10-7	12-6
	Spruce-Pine-Fir	SS	7-11	12-5	16-5	20-2	23-4	7-11	11-8	14-9	18-0	20-11
	Spruce-Pine-Fir	#1	7-5	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Spruce-Pine-Fir	#2	7-5	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Spruce-Pine-Fir	#3	5-7	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2
24	Douglas Fir-Larch	SS	7-11	12-6	15-10	19-5	22-6	7-8	11-3	14-2	17-4	20-1
	Douglas Fir-Larch	#1	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Douglas Fir-Larch	#2	6-8	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Douglas Fir-Larch	#3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10
	Hem-Fir	SS	7-6	11-10	15-7	19-1	22-1	7-6	11-0	13-11	17-0	19-9
	Hem-Fir	#1	6-11	10-2	12-10	15-8	18-2	6-2	9-1	11-6	14-0	16-3
	Hem-Fir	#2	6-7	9-7	12-2	14-10	17-3	5-10	8-7	10-10	13-3	15-5
	Hem-Fir	#3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10
	Southern Pine	SS	7-10	12-3	16-2	20-0	23-7	7-10	11-10	15-0	17-11	21-2
	Southern Pine	#1	7-1	10-7	13-5	15-9	18-8	6-4	9-6	12-0	14-1	16-8
	Southern Pine	#2	6-1	9-2	11-7	13-9	16-2	5-5	8-2	10-4	12-3	14-6
	Southern Pine	#3	4-8	6-11	8-9	10-7	12-6	4-2	6-2	7-10	9-6	11-2
	Spruce-Pine-Fir	SS	7-4	11-7	14-9	18-0	20-11	7-1	10-5	13-2	16-1	18-8
	Spruce-Pine-Fir	#1	6-8	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Spruce-Pine-Fir	#2	6-8	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Spruce-Pine-Fir	#3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below:

H_C/H_R	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

where:

H_C = Height of ceiling joists or rafter ties measured vertically above the top of the rafter support walls.

H_R = Height of roof ridge measured vertically above the top of the rafter support walls.

b. Span exceeds 26 feet in length.

TABLE 2308.7.2(4)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground Snow Load = 50 psf, Ceiling Not Attached to Rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
12	Douglas Fir-Larch	SS	8-5	13-3	17-6	22-4	26-0	8-5	13-3	17-0	20-9	24-0
	Douglas Fir-larch	#1	8-2	12-0	15-3	18-7	21-7	7-7	11-2	14-1	17-3	20-0
	Douglas Fir-larch	#2	7-8	11-3	14-3	17-5	20-2	7-1	10-5	13-2	16-1	18-8
	Douglas Fir-larch	#3	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
	Hem-Fir	SS	8-0	12-6	16-6	21-1	25-6	8-0	12-6	16-6	20-4	23-7
	Hem-Fir	#1	7-10	11-9	14-10	18-1	21-0	7-5	10-10	13-9	16-9	19-5
	Hem-Fir	#2	7-5	11-1	14-0	17-2	19-11	7-0	10-3	13-0	15-10	18-5
	Hem-Fir	#3	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
	Southern Pine	SS	8-4	13-1	17-2	21-11	Note b	8-4	13-1	17-2	21-5	25-3
	Southern Pine	#1	8-0	12-3	15-6	18-2	21-7	7-7	11-4	14-5	16-10	20-0
	Southern Pine	#2	7-0	10-6	13-4	15-10	18-8	6-6	9-9	12-4	14-8	17-3
	Southern Pine	#3	5-5	8-0	10-1	12-3	14-6	5-0	7-5	9-4	11-4	13-5
	Spruce-Pine-Fir	SS	7-10	12-3	16-2	20-8	24-1	7-10	12-3	15-9	19-3	22-4
	Spruce-Pine-Fir	#1	7-8	11-3	14-3	17-5	20-2	7-1	10-5	13-2	16-1	18-8
	Spruce-Pine-Fir	#2	7-8	11-3	14-3	17-5	20-2	7-1	10-5	13-2	16-1	18-8
	Spruce-Pine-Fir	#3	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
16	Douglas Fir-Larch	SS	7-8	12-1	15-10	19-5	22-6	7-8	11-7	14-8	17-11	20-10
	Douglas Fir-Larch	#1	7-1	10-5	13-2	16-1	18-8	6-7	9-8	12-2	14-11	17-3
	Douglas Fir-Larch	#2	6-8	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Douglas Fir-Larch	#3	5-0	7-4	9-4	11-5	13-2	4-8	6-10	8-8	10-6	12-3
	Hem-Fir	SS	7-3	11-5	15-0	19-1	22-1	7-3	11-5	14-5	17-8	20-5
	Hem-Fir	#1	6-11	10-2	12-10	15-8	18-2	6-5	9-5	11-11	14-6	16-10
	Hem-Fir	#2	6-7	9-7	12-2	14-10	17-3	6-1	8-11	11-3	13-9	15-11
	Hem-Fir	#3	5-0	7-4	9-4	11-5	13-2	4-8	6-10	8-8	10-6	12-3
	Southern Pine	SS	7-6	11-10	15-7	19-11	23-7	7-6	11-10	15-7	18-6	21-10
	Southern Pine	#1	7-1	10-7	13-5	15-9	18-8	6-7	9-10	12-5	14-7	17-3
	Southern Pine	#2	6-1	9-2	11-7	13-9	16-2	5-8	8-5	10-9	12-9	15-0
	Southern Pine	#3	4-8	6-11	8-9	10-7	12-6	4-4	6-5	8-1	9-10	11-7
	Spruce-Pine-Fir	SS	7-1	11-2	14-8	18-0	20-11	7-1	10-9	13-8	15-11	19-4
	Spruce-Pine-Fir	#1	6-8	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Spruce-Pine-Fir	#2	6-8	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Spruce-Pine-Fir	#3	5-0	7-4	9-4	11-5	13-2	4-8	6-10	8-8	10-6	12-3
19.2	Douglas Fir-Larch	SS	7-3	11-4	14-6	17-8	20-6	7-3	10-7	13-5	16-5	19-0
	Douglas Fir-Larch	#1	6-6	9-6	12-0	14-8	17-1	6-0	8-10	11-2	13-7	15-9
	Douglas Fir-Larch	#2	6-1	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9
	Douglas Fir-Larch	#3	4-7	6-9	8-6	10-5	12-1	4-3	6-3	7-11	9-7	11-2
	Hem-Fir	SS	6-10	10-9	14-2	17-5	20-2	6-10	10-5	13-2	16-1	18-8
	Hem-Fir	#1	6-4	9-3	11-9	14-4	16-7	5-10	8-7	10-10	13-3	15-5
	Hem-Fir	#2	6-0	8-9	11-1	13-7	15-9	5-7	8-1	10-3	12-7	14-7
	Hem-Fir	#3	4-7	6-9	8-6	10-5	12-1	4-3	6-3	7-11	9-7	11-2

(continued)

TABLE 2308.7.2(4)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground Snow Load = 50 psf, Ceiling Not Attached to Rafters, L/Δ = 180)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
19.2	Southern Pine	SS	7-1	11-2	14-8	18-3	21-7	7-1	11-2	14-2	16-11	20-0
	Southern Pine	#1	6-6	9-8	12-3	14-4	17-1	6-0	9-0	11-4	13-4	15-9
	Southern Pine	#2	5-7	8-4	10-7	12-6	14-9	5-2	7-9	9-9	11-7	13-8
	Southern Pine	#3	4-3	6-4	8-0	9-8	11-5	4-0	5-10	7-4	8-11	10-7
	Spruce-Pine-Fir	SS	6-8	10-6	13-5	16-5	19-1	6-8	9-10	12-5	15-3	17-8
	Spruce-Pine-Fir	#1	6-1	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9
	Spruce-Pine-Fir	#2	6-1	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9
	Spruce-Pine-Fir	#3	4-7	6-9	8-6	10-5	12-1	4-3	6-3	7-11	9-7	11-2
24	Douglas Fir-Larch	SS	6-8	10-3	13-0	15-10	18-4	6-6	9-6	12-0	14-8	17-0
	Douglas Fir-Larch	#1	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
	Douglas Fir-Larch	#2	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2
	Douglas Fir-Larch	#3	4-1	6-0	7-7	9-4	10-9	3-10	5-7	7-1	8-7	10-0
	Hem-Fir	SS	6-4	9-11	12-9	15-7	18-0	6-4	9-4	11-9	14-5	16-8
	Hem-Fir	#1	5-8	8-3	10-6	12-10	14-10	5-3	7-8	9-9	11-10	13-9
	Hem-Fir	#2	5-4	7-10	9-11	12-1	14-1	4-11	7-3	9-2	11-3	13-0
	Hem-Fir	#3	4-1	6-0	7-7	9-4	10-9	3-10	5-7	7-1	8-7	10-0
	Southern Pine	SS	6-7	10-4	13-8	16-4	19-3	6-7	10-0	12-8	15-2	17-10
	Southern Pine	#1	5-10	8-8	11-0	12-10	15-3	5-5	8-0	10-2	11-11	14-1
	Southern Pine	#2	5-0	7-5	9-5	11-3	13-2	4-7	6-11	8-9	10-5	12-3
	Southern Pine	#3	3-10	5-8	7-1	8-8	10-3	3-6	5-3	6-7	8-0	9-6
	Spruce-Pine-Fir	SS	6-2	9-6	12-0	14-8	17-1	6-0	8-10	11-2	13-7	15-9
	Spruce-Pine-Fir	#1	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2
	Spruce-Pine-Fir	#2	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2
	Spruce-Pine-Fir	#3	4-1	6-0	7-7	9-4	10-9	3-10	5-7	7-1	8-7	10-0

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below:

H_C/H_R	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

where:

H_C = Height of ceiling joists or rafter ties measured vertically above the top of the rafter support walls.

H_R = Height of roof ridge measured vertically above the top of the rafter support walls.

b. Span exceeds 26 feet in length.

TABLE 2308.7.2(5)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground Snow Load = 30 psf, Ceiling Attached to Rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
12	Douglas Fir-Larch	SS	9-1	14-4	18-10	24-1	Note b	9-1	14-4	18-10	24-1	Note b
	Douglas Fir-Larch	#1	8-9	13-9	18-2	22-9	Note b	8-9	13-2	16-8	20-4	23-7
	Douglas Fir-Larch	#2	8-7	13-6	17-5	21-4	24-8	8-5	12-4	15-7	19-1	22-1
	Douglas Fir-Larch	#3	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Hem-Fir	SS	8-7	13-6	17-10	22-9	Note b	8-7	13-6	17-10	22-9	Note b
	Hem-Fir	#1	8-5	13-3	17-5	22-2	25-9	8-5	12-10	16-3	19-10	23-0
	Hem-Fir	#2	8-0	12-7	16-7	21-0	24-4	8-0	12-2	15-4	18-9	21-9
	Hem-Fir	#3	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Southern Pine	SS	8-11	14-1	18-6	23-8	Note b	8-11	14-1	18-6	23-8	Note b
	Southern Pine	#1	8-7	13-6	17-10	22-3	Note b	8-7	13-5	17-0	19-11	23-7
	Southern Pine	#2	8-3	12-11	16-4	19-5	22-10	7-8	11-7	14-8	17-4	20-5
	Southern Pine	#3	6-7	9-9	12-4	15-0	17-9	5-11	8-9	11-0	13-5	15-10
	Spruce-Pine-Fir	SS	8-5	13-3	17-5	22-3	Note b	8-5	13-3	17-5	22-3	Note b
	Spruce-Pine-Fir	#1	8-3	12-11	17-0	21-4	24-8	8-3	12-4	15-7	19-1	22-1
	Spruce-Pine-Fir	#2	8-3	12-11	17-0	21-4	24-8	8-3	12-4	15-7	19-1	22-1
	Spruce-Pine-Fir	#3	7-1	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
16	Douglas Fir-Larch	SS	8-3	13-0	17-2	21-10	Note b	8-3	13-0	17-2	21-3	24-8
	Douglas Fir-Larch	#1	8-0	12-6	16-2	19-9	22-10	7-10	11-5	14-5	17-8	20-5
	Douglas Fir-Larch	#2	7-10	11-11	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2
	Douglas Fir-Larch	#3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6
	Hem-Fir	SS	7-10	12-3	16-2	20-8	25-1	7-10	12-3	16-2	20-8	24-2
	Hem-Fir	#1	7-8	12-0	15-9	19-3	22-3	7-7	11-1	14-1	17-2	19-11
	Hem-Fir	#2	7-3	11-5	14-11	18-2	21-1	7-2	10-6	13-4	16-3	18-10
	Hem-Fir	#3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6
	Southern Pine	SS	8-1	12-9	16-10	21-6	Note b	8-1	12-9	16-10	21-6	25-11
	Southern Pine	#1	7-10	12-3	16-2	19-3	22-10	7-10	11-7	14-9	17-3	20-5
	Southern Pine	#2	7-6	11-2	14-2	16-10	19-10	6-8	10-0	12-8	15-1	17-9
	Southern Pine	#3	5-9	8-6	10-8	13-0	15-4	5-2	7-7	9-7	11-7	13-9
	Spruce-Pine-Fir	SS	7-8	12-0	15-10	20-2	24-7	7-8	12-0	15-10	19-9	22-10
	Spruce-Pine-Fir	#1	7-6	11-9	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2
	Spruce-Pine-Fir	#2	7-6	11-9	15-1	18-5	21-5	7-3	10-8	13-6	16-6	19-2
	Spruce-Pine-Fir	#3	6-2	9-0	11-5	13-11	16-2	5-6	8-1	10-3	12-6	14-6
19.2	Douglas Fir-Larch	SS	7-9	12-3	16-1	20-7	25-0	7-9	12-3	15-10	19-5	22-6
	Douglas Fir-Larch	#1	7-6	11-8	14-9	18-0	20-11	7-1	10-5	13-2	16-1	18-8
	Douglas Fir-Larch	#2	7-4	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Douglas Fir-Larch	#3	5-7	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2
	Hem-Fir	SS	7-4	11-7	15-3	19-5	23-7	7-4	11-7	15-3	19-1	22-1
	Hem-Fir	#1	7-2	11-4	14-4	17-7	20-4	6-11	10-2	12-10	15-8	18-2
	Hem-Fir	#2	6-10	10-9	13-7	16-7	19-3	6-7	9-7	12-2	14-10	17-3
	Hem-Fir	#3	5-7	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2

(continued)

TABLE 2308.7.2(5)—continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground Snow Load = 30 psf, Ceiling Attached to Rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
19.2	Southern Pine	SS	7-8	12-0	15-10	20-2	24-7	7-8	12-0	15-10	20-0	23-7
	Southern Pine	#1	7-4	11-7	15-1	17-7	20-11	7-1	10-7	13-5	15-9	18-8
	Southern Pine	#2	6-10	10-2	12-11	15-4	18-1	6-1	9-2	11-7	13-9	16-2
	Southern Pine	#3	5-3	7-9	9-9	11-10	14-0	4-8	6-11	8-9	10-7	12-6
	Spruce-Pine-Fir	SS	7-2	11-4	14-11	19-0	23-1	7-2	11-4	14-9	18-0	20-11
	Spruce-Pine-Fir	#1	7-0	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Spruce-Pine-Fir	#2	7-0	10-11	13-9	16-10	19-6	6-8	9-9	12-4	15-1	17-6
	Spruce-Pine-Fir	#3	5-7	8-3	10-5	12-9	14-9	5-0	7-4	9-4	11-5	13-2
24	Douglas Fir-Larch	SS	7-3	11-4	15-0	19-1	22-6	7-3	11-3	14-2	17-4	20-1
	Douglas Fir-Larch	#1	7-0	10-5	13-2	16-1	18-8	6-4	9-4	11-9	14-5	16-8
	Douglas Fir-Larch	#2	6-8	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Douglas Fir-Larch	#3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10
	Hem-Fir	SS	6-10	10-9	14-2	18-0	21-11	6-10	10-9	13-11	17-0	19-9
	Hem-Fir	#1	6-8	10-2	12-10	15-8	18-2	6-2	9-1	11-6	14-0	16-3
	Hem-Fir	#2	6-4	9-7	12-2	14-10	17-3	5-10	8-7	10-10	13-3	15-5
	Hem-Fir	#3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10
	Southern Pine	SS	7-1	11-2	14-8	18-9	22-10	7-1	11-2	14-8	17-11	21-2
	Southern Pine	#1	6-10	10-7	13-5	15-9	18-8	6-4	9-6	12-0	14-1	16-8
	Southern Pine	#2	6-1	9-2	11-7	13-9	16-2	5-5	8-2	10-4	12-3	14-6
	Southern Pine	#3	4-8	6-11	8-9	10-7	12-6	4-2	6-2	7-10	9-6	11-2
	Spruce-Pine-Fir	SS	6-8	10-6	13-10	17-8	20-11	6-8	10-5	13-2	16-1	18-8
	Spruce-Pine-Fir	#1	6-6	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Spruce-Pine-Fir	#2	6-6	9-9	12-4	15-1	17-6	5-11	8-8	11-0	13-6	15-7
	Spruce-Pine-Fir	#3	5-0	7-4	9-4	11-5	13-2	4-6	6-7	8-4	10-2	11-10

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below:

H_C/H_R	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

where:

H_C = Height of ceiling joists or rafter ties measured vertically above the top of the rafter support walls.

H_R = Height of roof ridge measured vertically above the top of the rafter support walls.

b. Span exceeds 26 feet in length.

TABLE 2308.7.2(6)
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground Snow Load = 50 psf, Ceiling Attached to Rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
12	Douglas Fir-Larch	SS	7-8	12-1	15-11	20-3	24-8	7-8	12-1	15-11	20-3	24-0
	Douglas Fir-Larch	#1	7-5	11-7	15-3	18-7	21-7	7-5	11-2	14-1	17-3	20-0
	Douglas Fir-Larch	#2	7-3	11-3	14-3	17-5	20-2	7-1	10-5	13-2	16-1	18-8
	Douglas Fir-Larch	#3	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
	Hem-Fir	SS	7-3	11-5	15-0	19-2	23-4	7-3	11-5	15-0	19-2	23-4
	Hem-Fir	#1	7-1	11-2	14-8	18-1	21-0	7-1	10-10	13-9	16-9	19-5
	Hem-Fir	#2	6-9	10-8	14-0	17-2	19-11	6-9	10-3	13-0	15-10	18-5
	Hem-Fir	#3	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
	Southern Pine	SS	7-6	11-10	15-7	19-11	24-3	7-6	11-10	15-7	19-11	24-3
	Southern Pine	#1	7-3	11-5	15-0	18-2	21-7	7-3	11-4	14-5	16-10	20-0
	Southern Pine	#2	6-11	10-6	13-4	15-10	18-8	6-6	9-9	12-4	14-8	17-3
	Southern Pine	#3	5-5	8-0	10-1	12-3	14-6	5-0	7-5	9-4	11-4	13-5
	Spruce-Pine-Fir	SS	7-1	11-2	14-8	18-9	22-10	7-1	11-2	14-8	18-9	22-4
	Spruce-Pine-Fir	#1	6-11	10-11	14-3	17-5	20-2	6-11	10-5	13-2	16-1	18-8
	Spruce-Pine-Fir	#2	6-11	10-11	14-3	17-5	20-2	6-11	10-5	13-2	16-1	18-8
	Spruce-Pine-Fir	#3	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
16	Douglas Fir-Larch	SS	7-0	11-0	14-5	18-5	22-5	7-0	11-0	14-5	17-11	20-10
	Douglas Fir-Larch	#1	6-9	10-5	13-2	16-1	18-8	6-7	9-8	12-2	14-11	17-3
	Douglas Fir-Larch	#2	6-7	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Douglas Fir-Larch	#3	5-0	7-4	9-4	11-5	13-2	4-8	6-10	8-8	10-6	12-3
	Hem-Fir	SS	6-7	10-4	13-8	17-5	21-2	6-7	10-4	13-8	17-5	20-5
	Hem-Fir	#1	6-5	10-2	12-10	15-8	18-2	6-5	9-5	11-11	14-6	16-10
	Hem-Fir	#2	6-2	9-7	12-2	14-10	17-3	6-1	8-11	11-3	13-9	15-11
	Hem-Fir	#3	5-0	7-4	9-4	11-5	13-2	4-8	6-10	8-8	10-6	12-3
	Southern Pine	SS	6-10	10-9	14-2	18-1	22-0	6-10	10-9	14-2	18-1	21-10
	Southern Pine	#1	6-7	10-4	13-5	15-9	18-8	6-7	9-10	12-5	14-7	17-3
	Southern Pine	#2	6-1	9-2	11-7	13-9	16-2	5-8	8-5	10-9	12-9	15-0
	Southern Pine	#3	4-8	6-11	8-9	10-7	12-6	4-4	6-5	8-1	9-10	11-7
	Spruce-Pine-Fir	SS	6-5	10-2	13-4	17-0	20-9	6-5	10-2	13-4	16-8	19-4
	Spruce-Pine-Fir	#1	6-4	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Spruce-Pine-Fir	#2	6-4	9-9	12-4	15-1	17-6	6-2	9-0	11-5	13-11	16-2
	Spruce-Pine-Fir	#3	5-0	7-4	9-4	11-5	13-2	4-8	6-10	8-8	10-6	12-3
19.2	Douglas Fir-Larch	SS	6-7	10-4	13-7	17-4	20-6	6-7	10-4	13-5	16-5	19-0
	Douglas Fir-Larch	#1	6-4	9-6	12-0	14-8	17-1	6-0	8-10	11-2	13-7	15-9
	Douglas Fir-Larch	#2	6-1	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9
	Douglas Fir-Larch	#3	4-7	6-9	8-6	10-5	12-1	4-3	6-3	7-11	9-7	11-2
	Hem-Fir	SS	6-2	9-9	12-10	16-5	19-11	6-2	9-9	12-10	16-1	18-8
	Hem-Fir	#1	6-1	9-3	11-9	14-4	16-7	5-10	8-7	10-10	13-3	15-5
	Hem-Fir	#2	5-9	8-9	11-1	13-7	15-9	5-7	8-1	10-3	12-7	14-7
	Hem-Fir	#3	4-7	6-9	8-6	10-5	12-1	4-3	6-3	7-11	9-7	11-2

(continued)

TABLE 2308.7.2(6)—continued
RAFTER SPANS FOR COMMON LUMBER SPECIES
(Ground Snow Load = 50 psf, Ceiling Attached to Rafters, L/Δ = 240)

RAFTER SPACING (inches)	SPECIES AND GRADE		DEAD LOAD = 10 psf					DEAD LOAD = 20 psf				
			2 × 4	2 × 6	2 × 8	2 × 10	2 × 12	2 × 4	2 × 6	2 × 8	2 × 10	2 × 12
			Maximum rafter spans[a]									
			(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)	(ft. - in.)
19.2	Southern Pine	SS	6-5	10-2	13-4	17-0	20-9	6-5	10-2	13-4	16-11	20-0
	Southern Pine	#1	6-2	9-8	12-3	14-4	17-1	6-0	9-0	11-4	13-4	15-9
	Southern Pine	#2	5-7	8-4	10-7	12-6	14-9	5-2	7-9	9-9	11-7	13-8
	Southern Pine	#3	4-3	6-4	8-0	9-8	11-5	4-0	5-10	7-4	8-11	10-7
	Spruce-Pine-Fir	SS	6-1	9-6	12-7	16-0	19-1	6-1	9-6	12-5	15-3	17-8
	Spruce-Pine-Fir	#1	5-11	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9
	Spruce-Pine-Fir	#2	5-11	8-11	11-3	13-9	15-11	5-7	8-3	10-5	12-9	14-9
	Spruce-Pine-Fir	#3	4-7	6-9	8-6	10-5	12-1	4-3	6-3	7-11	9-7	11-2
24	Douglas Fir-Larch	SS	6-1	9-7	12-7	15-10	18-4	6-1	9-6	12-0	14-8	17-0
	Douglas Fir-Larch	#1	5-10	8-6	10-9	13-2	15-3	5-5	7-10	10-0	12-2	14-1
	Douglas Fir-Larch	#2	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2
	Douglas Fir-Larch	#3	4-1	6-0	7-7	9-4	10-9	3-10	5-7	7-1	8-7	10-0
	Hem-Fir	SS	5-9	9-1	11-11	15-2	18-0	5-9	9-1	11-9	14-5	15-11
	Hem-Fir	#1	5-8	8-3	10-6	12-10	14-10	5-3	7-8	9-9	11-10	13-9
	Hem-Fir	#2	5-4	7-10	9-11	12-1	14-1	4-11	7-3	9-2	11-3	13-0
	Hem-Fir	#3	4-1	6-0	7-7	9-4	10-9	3-10	5-7	7-1	8-7	10-0
	Southern Pine	SS	6-0	9-5	12-5	15-10	19-3	6-0	9-5	12-5	15-2	17-10
	Southern Pine	#1	5-9	8-8	11-0	12-10	15-3	5-5	8-0	10-2	11-11	14-1
	Southern Pine	#2	5-0	7-5	9-5	11-3	13-2	4-7	6-11	8-9	10-5	12-3
	Southern Pine	#3	3-10	5-8	7-1	8-8	10-3	3-6	5-3	6-7	8-0	9-6
	Spruce-Pine-Fir	SS	5-8	8-10	11-8	14-8	17-1	5-8	8-10	11-2	13-7	15-9
	Spruce-Pine-Fir	#1	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2
	Spruce-Pine-Fir	#2	5-5	7-11	10-1	12-4	14-3	5-0	7-4	9-4	11-5	13-2
	Spruce-Pine-Fir	#3	4-1	6-0	7-7	9-4	10-9	3-10	5-7	7-1	8-7	10-0

Check sources for availability of lumber in lengths greater than 20 feet.

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. The tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location. When ceiling joists or rafter ties are located higher in the attic space, the rafter spans shall be multiplied by the factors given below:

H_C/H_R	Rafter Span Adjustment Factor
1/3	0.67
1/4	0.76
1/5	0.83
1/6	0.90
1/7.5 or less	1.00

where:

H_C = Height of ceiling joists or rafter ties measured vertically above the top of the rafter support walls.

H_R = Height of roof ridge measured vertically above the top of the rafter support walls.

TABLE 2308.7.3.1
RAFTER TIE CONNECTIONS[g]

RAFTER SLOPE	TIE SPACING (inches)	NO SNOW LOAD				GROUND SNOW LOAD (pound per square foot)							
						30 pounds per square foot				50 pounds per square foot			
						Roof span (feet)							
		12	20	28	36	12	20	28	36	12	20	28	36
		Required number of 16d common ($3^1/_2$″ x 0.162″) nails[a, b] per connection[c, d, e, f]											
3:12	12	4	6	8	10	4	6	8	11	5	8	12	15
	16	5	7	10	13	5	8	11	14	6	11	15	20
	24	7	11	15	19	7	11	16	21	9	16	23	30
	32	10	14	19	25	10	16	22	28	12	27	30	40
	48	14	21	29	37	14	32	36	42	18	32	46	60
4:12	12	3	4	5	6	3	5	6	8	4	6	9	11
	16	3	5	7	8	4	6	8	11	5	8	12	15
	24	4	7	10	12	5	9	12	16	7	12	17	22
	32	6	9	13	16	8	12	16	22	10	16	24	30
	48	8	14	19	24	10	18	24	32	14	24	34	44
5:12	12	3	3	4	5	3	4	5	7	3	5	7	9
	16	3	4	5	7	3	5	7	9	4	7	9	12
	24	4	6	8	10	4	7	10	13	6	10	14	18
	32	5	8	10	13	6	10	14	18	8	14	18	24
	48	7	11	15	20	8	14	20	26	12	20	28	36
7:12	12	3	3	3	4	3	3	4	5	3	4	5	7
	16	3	3	4	5	3	4	5	6	3	5	7	9
	24	3	4	6	7	3	5	7	9	4	7	10	13
	32	4	6	8	10	4	8	10	12	6	10	14	18
	48	5	8	11	14	6	10	14	18	9	14	20	26
9:12	12	3	3	3	3	3	3	3	4	3	3	4	5
	16	3	3	3	4	3	3	4	5	3	4	5	7
	24	3	3	5	6	3	4	6	7	3	6	8	10
	32	3	4	6	8	4	6	8	10	5	8	10	14
	48	4	6	9	11	5	8	12	14	7	12	16	20
12:12	12	3	3	3	3	3	3	3	3	3	3	3	4
	16	3	3	3	3	3	3	3	4	3	3	4	5
	24	3	3	3	4	3	3	4	6	3	4	6	8
	32	3	3	4	5	3	5	6	8	4	6	8	10
	48	3	4	6	7	4	7	8	12	6	8	12	16

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 47.8 N/m^2.

a. 40d box (5″ × 0.162″) or 16d sinker ($3^1/_4$″ × 0.148″) nails are permitted to be substituted for 16d common ($3^1/_2$″ × 0.16″) nails.

b. Nailing requirements are permitted to be reduced 25 percent if nails are clinched.

c. Rafter tie heel joint connections are not required where the ridge is supported by a load-bearing wall, header or ridge beam.

d. When intermediate support of the rafter is provided by vertical struts or purlins to a load-bearing wall, the tabulated heel joint connection requirements are permitted to be reduced proportionally to the reduction in span.

e. Equivalent nailing patterns are required for ceiling joist to ceiling joist lap splices.

f. Connected members shall be of sufficient size to prevent splitting due to nailing.

g. For snow loads less than 30 pounds per square foot, the required number of nails is permitted to be reduced by multiplying by the ratio of actual snow load plus 10 divided by 40, but not less than the number required for no snow load.

TABLE 2308.7.5
REQUIRED RATING OF APPROVED UPLIFT CONNECTORS (pounds)[a, b, c, e, f, g, h]

NOMINAL DESIGN WIND SPEED, V_{asd} [i]	ROOF SPAN (feet)							OVERHANGS (pounds/feet)[d]
	12	20	24	28	32	36	40	
85	-72	-120	-145	-169	-193	-217	-241	-38.55
90	-91	-151	-181	-212	-242	-272	-302	-43.22
100	-131	-281	-262	-305	-349	-393	-436	-53.36
110	-175	-292	-351	-409	-467	-526	-584	-64.56

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 1.61 km/hr, 1 pound = 0.454 Kg, 1 pound/foot = 14.5939 N/m.

a. The uplift connection requirements are based on a 30-foot mean roof height located in Exposure B. For Exposure C or D and for other mean roof heights, multiply the above loads by the adjustment coefficients below.

	Mean Roof Height (feet)									
EXPOSURE	15	20	25	30	35	40	45	50	55	60
B	1.00	1.00	1.00	1.00	1.05	1.09	1.12	1.16	1.19	1.22
C	1.21	1.29	1.35	1.40	1.45	1.49	1.53	1.56	1.59	1.62
D	1.47	1.55	1.61	1.66	1.70	1.74	1.78	1.81	1.84	1.87

b. The uplift connection requirements are based on the framing being spaced 24 inches on center. Multiply by 0.67 for framing spaced 16 inches on center and multiply by 0.5 for framing spaced 12 inches on center.

c. The uplift connection requirements include an allowance for 10 pounds of dead load.

d. The uplift connection requirements do not account for the effects of overhangs. The magnitude of the above loads shall be increased by adding the overhang loads found in the table. The overhang loads are also based on framing spaced 24 inches on center. The overhang loads given shall be multiplied by the overhang projection and added to the roof uplift value in the table.

e. The uplift connection requirements are based upon wind loading on end zones as defined in Figure 28.6.3 of ASCE 7. Connection loads for connections located a distance of 20 percent of the least horizontal dimension of the building from the corner of the building are permitted to be reduced by multiplying the table connection value by 0.7 and multiplying the overhang load by 0.8.

f. For wall-to-wall and wall-to-foundation connections, the capacity of the uplift connector is permitted to be reduced by 100 pounds for each full wall above. (For example, if a 500-pound rated connector is used on the roof framing, a 400-pound rated connector is permitted at the next floor level down).

g. Interpolation is permitted for intermediate values of V_{asd} and roof spans.

h. The rated capacity of approved tie-down devices is permitted to include up to a 60-percent increase for wind effects where allowed by material specifications.

i. V_{asd} shall be determined in accordance with Section 1609.3.1.

TABLE 2308.7.12
ALLOWABLE SPANS FOR 2-INCH TONGUE-AND-GROOVE DECKING

SPAN[a] (feet)	LIVE LOAD (pounds per square foot)	DEFLECTION LIMIT	BENDING STRESS (f) (pounds per square inch)	MODULUS OF ELASTICITY (E) (pounds per square inch)
Roofs				
4	20	1/240 1/360	160	170,000 256,000
	30	1/240 1/360	210	256,000 384,000
	40	1/240 1/360	270	340,000 512,000
4.5	20	1/240 1/360	200	242,000 305,000
	30	1/240 1/360	270	363,000 405,000
	40	1/240 1/360	350	484,000 725,000
5.0	20	1/240 1/360	250	332,000 500,000
	30	1/240 1/360	330	495,000 742,000
	40	1/240 1/360	420	660,000 1,000,000
5.5	20	1/240 1/360	300	442,000 660,000
	30	1/240 1/360	400	662,000 998,000
	40	1/240 1/360	500	884,000 1,330,000
6.0	20	1/240 1/360	360	575,000 862,000
	30	1/240 1/360	480	862,000 1,295,000
	40	1/240 1/360	600	1,150,000 1,730,000

(continued)

TABLE 2308.7.12—continued
ALLOWABLE SPANS FOR 2-INCH TONGUE-AND-GROOVE DECKING

SPAN[a] (feet)	LIVE LOAD (pounds per square foot)	DEFLECTION LIMIT	BENDING STRESS (f) (pounds per square inch)	MODULUS OF ELASTICITY (E) (pounds per square inch)
Roofs				
6.5	20	1/240 1/360	420	595,000 892,000
	30	1/240 1/360	560	892,000 1,340,000
	40	1/240 1/360	700	1,190,000 1,730,000
7.0	20	1/240 1/360	490	910,000 1,360,000
	30	1/240 1/360	650	1,370,000 2,000,000
	40	1/240 1/360	810	1,820,000 2,725,000
7.5	20	1/240 1/360	560	1,125,000 1,685,000
	30	1/240 1/360	750	1,685,000 2,530,000
	40	1/240 1/360	930	2,250,000 3,380,000
8.0	20	1/240 1/360	640	1,360,000 2,040,000
	30	1/240 1/360	850	2,040,000 3,060,000
Floors				
4 4.5 5.0	40	1/360	840 950 1,060	1,000,000 1,300,000 1,600,000

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kN/m^2, 1 pound per square inch = 0.00689 N/mm^2.

a. Spans are based on simple beam action with 10 pounds per square foot dead load and provisions for a 300-pound concentrated load on a 12-inch width of decking. Random layup is permitted in accordance with the provisions of Section 2308.7.12. Lumber thickness is $1^1/_2$ inches nominal.

SECTION 2309
WOOD FRAME CONSTRUCTION MANUAL

2309.1 Wood Frame Construction Manual. Structural design in accordance with the AWC WFCM shall be permitted for buildings assigned to Risk Category I or II subject to the limitations of Section 1.1.3 of the AWC WFCM and the load assumptions contained therein. Structural elements beyond these limitations shall be designed in accordance with accepted engineering practice.

CHAPTER 24
GLASS AND GLAZING

SECTION 2401
GENERAL

2401.1 Scope. The provisions of this chapter shall govern the materials, design, construction and quality of glass, light-transmitting ceramic and light-transmitting plastic panels for exterior and interior use in both vertical and sloped applications in buildings and structures.

2401.2 Glazing replacement. The installation of replacement glass shall be as required for new installations.

SECTION 2402
DEFINITIONS

2402.1 Definitions. The following terms are defined in Chapter 2:

DALLE GLASS.

DECORATIVE GLASS.

SECTION 2403
GENERAL REQUIREMENTS FOR GLASS

2403.1 Identification. Each pane shall bear the manufacturer's *mark* designating the type and thickness of the glass or glazing material. The identification shall not be omitted unless *approved* and an affidavit is furnished by the glazing contractor certifying that each light is glazed in accordance with *approved construction documents* that comply with the provisions of this chapter. Safety glazing shall be identified in accordance with Section 2406.3.

Each pane of tempered glass, except tempered spandrel glass, shall be permanently identified by the manufacturer. The identification *mark* shall be acid etched, sand blasted, ceramic fired, laser etched, embossed or of a type that, once applied, cannot be removed without being destroyed.

Tempered spandrel glass shall be provided with a removable paper marking by the manufacturer.

2403.2 Glass supports. Where one or more sides of any pane of glass are not firmly supported, or are subjected to unusual load conditions, detailed *construction documents*, detailed shop drawings and analysis or test data ensuring safe performance for the specific installation shall be prepared by a *registered design professional*.

2403.3 Framing. To be considered firmly supported, the framing members for each individual pane of glass shall be designed so the deflection of the edge of the glass perpendicular to the glass pane shall not exceed $^1/_{175}$ of the glass edge length or $^3/_4$ inch (19.1 mm), whichever is less, when subjected to the larger of the positive or negative load where loads are combined as specified in Section 1605.

2403.4 Interior glazed areas. Where interior glazing is installed adjacent to a walking surface, the differential deflection of two adjacent unsupported edges shall be not greater than the thickness of the panels when a force of 50 pounds per linear foot (plf) (730 N/m) is applied horizontally to one panel at any point up to 42 inches (1067 mm) above the walking surface.

2403.5 Louvered windows or jalousies. Float, wired and patterned glass in louvered windows and jalousies shall be no thinner than nominal $^3/_{16}$ inch (4.8 mm) and no longer than 48 inches (1219 mm). Exposed glass edges shall be smooth.

Wired glass with wire exposed on longitudinal edges shall not be used in louvered windows or jalousies.

Where other glass types are used, the design shall be submitted to the *building official* for approval.

SECTION 2404
WIND, SNOW, SEISMIC AND DEAD LOADS ON GLASS

2404.1 Vertical glass. Glass sloped 15 degrees (0.26 rad) or less from vertical in windows, curtain and window walls, doors and other exterior applications shall be designed to resist the wind loads due to ultimate design wind speed, V_{ult}, in Section 1609 for components and cladding. Glass in glazed curtain walls, glazed storefronts and glazed partitions shall meet the seismic requirements of ASCE 7, Section 13.5.9. The load resistance of glass under uniform load shall be determined in accordance with ASTM E1300.

The design of vertical glazing shall be based on Equation 24-1.

$$0.6F_{gw} \le F_{ga} \qquad \textbf{(Equation 24-1)}$$

where:

F_{gw} = Wind load on the glass due to ultimate design wind speed, V_{ult}, computed in accordance with Section 1609.

F_{ga} = Short duration load on the glass as determined in accordance with ASTM E1300.

2404.2 Sloped glass. Glass sloped more than 15 degrees (0.26 rad) from vertical in skylights, sunrooms, sloped roofs and other exterior applications shall be designed to resist the most critical combinations of loads determined by Equations 24-2, 24-3 and 24-4.

$$F_g = 0.6W_o - D \qquad \textbf{(Equation 24-2)}$$

$$F_g = 0.6W_i + D + 0.5\,S \qquad \textbf{(Equation 24-3)}$$

$$F_g = 0.3\,W_i + D + S \qquad \textbf{(Equation 24-4)}$$

where:

D = Glass dead load psf (kN/m^2).

For glass sloped 30 degrees (0.52 rad) or less from horizontal,

= 13 t_g (For SI: 0.0245 t_g).

For glass sloped more than 30 degrees (0.52 rad) from horizontal,

= 13 t_g cos θ (For SI: 0.0245 t_g cos θ).

F_g = Total load, psf (kN/m^2) on glass.

S = Snow load, psf (kN/m^2) as determined in Section 1608.

t_g = Total glass thickness, inches (mm) of glass panes and plies.

W_i = Inward wind force, psf (kN/m^2) due to ultimate design wind speed, V_{ult}, as calculated in Section 1609.

W_o = Outward wind force, psf (kN/m^2) due to ultimate design wind speed, V_{ult}, as calculated in Section 1609.

θ = Angle of slope from horizontal.

Exception: The performance grade rating of unit skylights and tubular daylighting devices shall be determined in accordance with Section 2405.5.

The design of sloped glazing shall be based on Equation 24-5.

$$F_g \le F_{ga} \qquad \textbf{(Equation 24-5)}$$

where:

F_g = Total load on the glass as determined by Equations 24-2, 24-3 and 24-4.

F_{ga} = Short duration load resistance of the glass as determined in accordance with ASTM E1300 for Equations 24-2 and 24-3; or the long duration load resistance of the glass as determined in accordance with ASTM E1300 for Equation 24-4.

2404.3 Wired, patterned and sandblasted glass.

2404.3.1 Vertical wired glass. Wired glass sloped 15 degrees (0.26 rad) or less from vertical in windows, curtain and window walls, doors and other exterior applications shall be designed to resist the wind loads in Section 1609 for components and cladding according to the following equation:

$$0.6F_{gw} < 0.5\ F_{ge} \qquad \textbf{(Equation 24-6)}$$

where:

F_{gw} = Wind load on the glass due to ultimate design wind speed, V_{ult}, computed in accordance with Section 1609.

F_{ge} = Nonfactored load from ASTM E1300 using a thickness designation for monolithic glass that is not greater than the thickness of wired glass.

2404.3.2 Sloped wired glass. Wired glass sloped more than 15 degrees (0.26 rad) from vertical in skylights, sunspaces, sloped roofs and other exterior applications shall be designed to resist the most critical of the combinations of loads from Section 2404.2.

For Equations 24-2 and 24-3:

$$F_g < 0.5\ F_{ge} \qquad \textbf{(Equation 24-7)}$$

For Equation 24-4:

$$F_g < 0.3\ F_{ge} \qquad \textbf{(Equation 24-8)}$$

where:

F_g = Total load on the glass as determined by Equations 24-2, 24-3 and 24-4.

F_{ge} = Nonfactored load in accordance with ASTM E1300.

2404.3.3 Vertical patterned glass. Patterned glass sloped 15 degrees (0.26 rad) or less from vertical in windows, curtain and window walls, doors and other exterior applications shall be designed to resist the wind loads in Section 1609 for components and cladding according to Equation 24-9.

$$F_{gw} < 1.0\ F_{ge} \qquad \textbf{(Equation 24-9)}$$

where:

F_{gw} = Wind load on the glass due to ultimate design wind speed, V_{ult}, computed in accordance with Section 1609.

F_{ge} = Nonfactored load in accordance with ASTM E1300. The value for patterned glass shall be based on the thinnest part of the glass. Interpolation between nonfactored load charts in ASTM E1300 shall be permitted.

2404.3.4 Sloped patterned glass. Patterned glass sloped more than 15 degrees (0.26 rad) from vertical in skylights, sunspaces, sloped roofs and other exterior applications shall be designed to resist the most critical of the combinations of loads from Section 2404.2.

For Equations 24-2 and 24-3:

$$F_g < 1.0\ F_{ge} \qquad \textbf{(Equation 24-10)}$$

For Equation 24-4:

$$F_g < 0.6F_{ge} \qquad \textbf{(Equation 24-11)}$$

where:

F_g = Total load on the glass as determined by Equations 24-2, 24-3 and 24-4.

F_{ge} = Nonfactored load in accordance with ASTM E1300. The value for patterned glass shall be based on the thinnest part of the glass. Interpolation between the nonfactored load charts in ASTM E1300 shall be permitted.

2404.3.5 Vertical sandblasted glass. Sandblasted glass sloped 15 degrees (0.26 rad) or less from vertical in windows, curtain and window walls, doors, and other exterior applications shall be designed to resist the wind loads in Section 1609 for components and cladding according to Equation 24-12.

$$0.6F_{gw} < 0.5\ F_{ge} \qquad \textbf{(Equation 24-12)}$$

where:

F_g = Wind load on the glass due to ultimate design wind speed, V_{ult}, computed in accordance with Section 1609.

F_{ge} = Nonfactored load in accordance with ASTM E1300. The value for sandblasted glass is for moderate levels of sandblasting.

2404.4 Other designs. For designs outside the scope of this section, an analysis or test data for the specific installation shall be prepared by a *registered design professional*.

SECTION 2405
SLOPED GLAZING AND SKYLIGHTS

2405.1 Scope. This section applies to the installation of glass and other transparent, translucent or opaque glazing material installed at a slope more than 15 degrees (0.26 rad) from the vertical plane, including glazing materials in skylights, roofs and sloped walls.

2405.2 Allowable glazing materials and limitations. Sloped glazing shall be any of the following materials, subject to the listed limitations.

1. For monolithic glazing systems, the glazing material of the single light or layer shall be laminated glass with a minimum 30-mil (0.76 mm) polyvinyl butyral (or equivalent) interlayer, wired glass, light-transmitting plastic materials meeting the requirements of Section 2607, heat-strengthened glass or fully tempered glass.
2. For multiple-layer glazing systems, each light or layer shall consist of any of the glazing materials specified in Item 1 above.

Annealed glass is permitted to be used as specified in Exceptions 2 and 3 of Section 2405.3.

For additional requirements for plastic skylights, see Section 2610. Glass-block construction shall conform to the requirements of Section 2110.1.

2405.3 Screening. Where used in monolithic glazing systems, heat-strengthened and fully tempered glass shall have screens installed below the glazing material. The screens and their fastenings shall: (1) be capable of supporting twice the weight of the glazing; (2) be firmly and substantially fastened to the framing members and (3) be installed within 4 inches (102 mm) of the glass. The screens shall be constructed of a noncombustible material not thinner than No. 12 B&S gage (0.0808 inch) with mesh not larger than 1 inch by 1 inch (25 mm by 25 mm). In a corrosive atmosphere, structurally equivalent noncorrosive screen materials shall be used. Heat-strengthened glass, fully tempered glass and wired glass, when used in multiple-layer glazing systems as the bottom glass layer over the walking surface, shall be equipped with screening that conforms to the requirements for monolithic glazing systems.

Exception: In monolithic and multiple-layer sloped glazing systems, the following applies:

1. Fully tempered glass installed without protective screens where glazed between intervening floors at a slope of 30 degrees (0.52 rad) or less from the vertical plane shall have the highest point of the glass 10 feet (3048 mm) or less above the walking surface.
2. Screens are not required below any glazing material, including annealed glass, where the walking surface below the glazing material is permanently protected from the risk of falling glass or the area below the glazing material is not a walking surface.
3. Any glazing material, including annealed glass, is permitted to be installed without screens in the sloped glazing systems of commercial or detached noncombustible greenhouses used exclusively for growing plants and not open to the public, provided that the height of the greenhouse at the ridge does not exceed 30 feet (9144 mm) above grade.
4. Screens shall not be required in individual *dwelling units* in Groups R-2, R-3 and R-4 where fully tempered glass is used as single glazing or as both panes in an insulating glass unit, and the following conditions are met:
    4.1. Each pane of the glass is 16 square feet (1.5 m^2) or less in area.
    4.2. The highest point of the glass is 12 feet (3658 mm) or less above any walking surface or other accessible area.
    4.3. The glass thickness is $^3/_{16}$ inch (4.8 mm) or less.
5. Screens shall not be required for laminated glass with a 15-mil (0.38 mm) polyvinyl butyral (or equivalent) interlayer used in individual *dwelling units* in Groups R-2, R-3 and R-4 within the following limits:
    5.1. Each pane of glass is 16 square feet (1.5 m^2) or less in area.
    5.2. The highest point of the glass is 12 feet (3658 mm) or less above a walking surface or other accessible area.

2405.4 Framing. In Type I and II construction, sloped glazing and skylight frames shall be constructed of noncombustible materials. In structures where acid fumes deleterious to metal are incidental to the use of the buildings, *approved* pressure-treated wood or other *approved* noncorrosive materials are permitted to be used for sash and frames. Framing supporting sloped glazing and skylights shall be designed to resist the tributary roof loads in Chapter 16. Skylights set at an angle of less than 45 degrees (0.79 rad) from the horizontal plane shall be mounted at least 4 inches (102 mm) above the plane of the roof on a curb constructed as required for the frame. Skylights shall not be installed in the plane of the roof where the roof pitch is less than 45 degrees (0.79 rad) from the horizontal.

Exception: Installation of a skylight without a curb shall be permitted on roofs with a minimum slope of 14 degrees (three units vertical in 12 units horizontal) in Group R-3 occupancies. All unit skylights installed in a roof with a pitch flatter than 14 degrees (0.25 rad) shall be mounted at least 4 inches (102 mm) above the plane of the roof on a curb constructed as required for the frame unless otherwise specified in the manufacturer's installation instructions.

2405.5 Unit skylights and tubular daylighting devices. Unit skylights and tubular daylighting devices shall be tested and labeled as complying with AAMA/WDMA/CSA 101/I.S./A440. The *label* shall state the name of the manufacturer,

the *approved* labeling agency, the product designation and the performance grade rating as specified in AAMA/WDMA/CSA 101/I.S.2/A440. Where the product manufacturer has chosen to have the performance grade of the skylight rated separately for positive and negative design pressure, then the *label* shall state both performance grade ratings as specified in AAMA/WDMA/CSA 101/I.S.2/A440 and the skylight shall comply with Section 2405.5.2. Where the skylight is not rated separately for positive and negative pressure, then the performance grade rating shown on the *label* shall be the performance grade rating determined in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 for both positive and negative design pressure and the skylight shall conform to Section 2405.5.1.

2405.5.1 Skylights rated for the same performance grade for both positive and negative design pressure. The design of skylights shall be based on Equation 24-13.

$$F_g \le PG \qquad \textbf{(Equation 24-13)}$$

where:

F_g = Maximum load on the skylight determined from Equations 24-2 through 24-4 in Section 2404.2.

PG = Performance grade rating of the skylight.

2405.5.2 Skylights rated for separate performance grades for positive and negative design pressure. The design of skylights rated for performance grade for both positive and negative design pressures shall be based on Equations 24-14 and 24-15.

$$F_{gi} \le PG_{Po} \qquad \textbf{(Equation 24-14)}$$

$$F_{go} \le PG_{Ne} \qquad \textbf{(Equation 24-15)}$$

where:

PG_{Pos} = Performance grade rating of the skylight under positive design pressure;

PG_{Neg} = Performance grade rating of the skylight under negative design pressure; and

F_{gi} and F_{go} are determined in accordance with the following:

For $0.6W_o \ge D$,

where:

W_o = Outward wind force, psf (kN/m^2) due to ultimate design wind speed, V_{ult}, as calculated in Section 1609.

D = The dead weight of the glazing, psf (kN/m^2) as determined in Section 2404.2 for glass, or by the weight of the plastic, psf (kN/m^2) for plastic glazing.

F_{gi} = Maximum load on the skylight determined from Equations 24-3 and 24-4 in Section 2404.2.

F_{go} = Maximum load on the skylight determined from Equation 24-2.

For $0.6\ W_o < D$,

where:

W_o = The outward wind force, psf (kN/m^2) due to ultimate design wind speed, V_{ult}. as calculated in Section 1609.

D = The dead weight of the glazing, psf (kN/m^2) as determined in Section 2404.2 for glass, or by the weight of the plastic for plastic glazing.

F_{gi} = Maximum load on the skylight determined from Equations 24-2 through 24-4 in Section 2404.2.

F_{go} = 0.

SECTION 2406
SAFETY GLAZING

2406.1 Human impact loads. Individual glazed areas, including glass mirrors, in hazardous locations as defined in Section 2406.4 shall comply with Sections 2406.1.1 through 2406.1.4.

Exception: Mirrors and other glass panels mounted or hung on a surface that provides a continuous backing support.

2406.1.1 Impact test. Except as provided in Sections 2406.1.2 through 2406.1.4, all glazing shall pass the impact test requirements of Section 2406.2.

2406.1.2 Plastic glazing. Plastic glazing shall meet the weathering requirements of ANSI Z97.1.

2406.1.3 Glass block. Glass-block walls shall comply with Section 2101.2.5.

2406.1.4 Louvered windows and jalousies. Louvered windows and jalousies shall comply with Section 2403.5.

2406.2 Impact test. Where required by other sections of this code, glazing shall be tested in accordance with CPSC 16 CFR Part 1201. Glazing shall comply with the test criteria for Category II, unless otherwise indicated in Table 2406.2(1).

Exception: Glazing not in doors or enclosures for hot tubs, whirlpools, saunas, steam rooms, bathtubs and showers shall be permitted to be tested in accordance with ANSI Z97.1. Glazing shall comply with the test criteria for Class A, unless otherwise indicated in Table 2406.2(2).

2406.3 Identification of safety glazing. Except as indicated in Section 2406.3.1, each pane of safety glazing installed in hazardous locations shall be identified by a manufacturer's designation specifying who applied the designation, the manufacturer or installer and the safety glazing standard with

which it complies, as well as the information specified in Section 2403.1. The designation shall be acid etched, sand blasted, ceramic fired, laser etched, embossed or of a type that once applied, cannot be removed without being destroyed. A *label* meeting the requirements of this section shall be permitted in lieu of the manufacturer's designation.

Exceptions:

1. For other than tempered glass, manufacturer's designations are not required, provided the *building official* approves the use of a certificate, affidavit or other evidence confirming compliance with this code.
2. Tempered spandrel glass is permitted to be identified by the manufacturer with a removable paper designation.

2406.3.1 Multipane assemblies. Multipane glazed assemblies having individual panes not exceeding 1 square foot (0.09 m^2) in exposed areas shall have at least one pane in the assembly marked as indicated in Section 2406.3. Other panes in the assembly shall be marked "CPSC 16 CFR Part 1201" or "ANSI Z97.1," as appropriate.

2406.4 Hazardous locations. The locations specified in Sections 2406.4.1 through 2406.4.7 shall be considered specific hazardous locations requiring safety glazing materials.

2406.4.1 Glazing in doors. Glazing in all fixed and operable panels of swinging, sliding and bifold doors shall be considered a hazardous location.

Exceptions:

1. Glazed openings of a size through which a 3-inch-diameter (76 mm) sphere is unable to pass.
2. Decorative glazing.
3. Glazing materials used as curved glazed panels in revolving doors.
4. Commercial refrigerated cabinet glazed doors.

2406.4.2 Glazing adjacent to doors. Glazing in an individual fixed or operable panel adjacent to a door where the nearest vertical edge of the glazing is within a 24-inch (610 mm) arc of either vertical edge of the door in a closed position and where the bottom exposed edge of the glazing is less than 60 inches (1524 mm) above the walking surface shall be considered a hazardous location.

Exceptions:

1. Decorative glazing.
2. Where there is an intervening wall or other permanent barrier between the door and glazing.
3. Where access through the door is to a closet or storage area 3 feet (914 mm) or less in depth. Glazing in this application shall comply with Section 2406.4.3.
4. Glazing in walls on the latch side of and perpendicular to the plane of the door in a closed position in one- and two-family dwellings or within dwelling units in Group R-2.

2406.4.3 Glazing in windows. Glazing in an individual fixed or operable panel that meets all of the following conditions shall be considered a hazardous location:

1. The exposed area of an individual pane is greater than 9 square feet (0.84 m^2).
2. The bottom edge of the glazing is less than 18 inches (457 mm) above the floor.
3. The top edge of the glazing is greater than 36 inches (914 mm) above the floor.
4. One or more walking surface(s) are within 36 inches (914 mm), measured horizontally and in a straight line, of the plane of the glazing.

Exceptions:

1. Decorative glazing.
2. Where a horizontal rail is installed on the accessible side(s) of the glazing 34 to 38 inches (864 to

TABLE 2406.2(1)
MINIMUM CATEGORY CLASSIFICATION OF GLAZING USING CPSC 16 CFR PART 1201

EXPOSED SURFACE AREA OF ONE SIDE OF ONE LITE	GLAZING IN STORM OR COMBINATION DOORS (Category class)	GLAZING IN DOORS (Category class)	GLAZED PANELS REGULATED BY SECTION 2406.4.3 (Category class)	GLAZED PANELS REGULATED BY SECTION 2406.4.2 (Category class)	DOORS AND ENCLOSURES REGULATED BY SECTION 2406.4.5 (Category class)	SLIDING GLASS DOORS PATIO TYPE (Category class)
9 square feet or less	I	I	No requirement	I	II	II
More than 9 square feet	II	II	II	II	II	II

For SI: 1 square foot = 0.0929 m^2.

TABLE 2406.2(2)
MINIMUM CATEGORY CLASSIFICATION OF GLAZING USING ANSI Z97.1

EXPOSED SURFACE AREA OF ONE SIDE OF ONE LITE	GLAZED PANELS REGULATED BY SECTION 2406.4.3 (Category class)	GLAZED PANELS REGULATED BY SECTION 2406.4.2 (Category class)	DOORS AND ENCLOSURES REGULATED BY SECTION 2406.4.5[a] (Category class)
9 square feet or less	No requirement	B	A
More than 9 square feet	A	A	A

For SI: square foot = 0.0929 m^2.

a. Use is only permitted by the exception to Section 2406.2.

965 mm) above the walking surface. The rail shall be capable of withstanding a horizontal load of 50 pounds per linear foot (730 N/m) without contacting the glass and be a minimum of $1^1/_2$ inches (38 mm) in cross-sectional height.

3. Outboard panes in insulating glass units or multiple glazing where the bottom exposed edge of the glass is 25 feet (7620 mm) or more above any grade, roof, walking surface or other horizontal or sloped (within 45 degrees of horizontal) (0.79 rad) surface adjacent to the glass exterior.

2406.4.4 Glazing in guards and railings. Glazing in *guards* and railings, including structural baluster panels and nonstructural in-fill panels, regardless of area or height above a walking surface shall be considered a hazardous location.

2406.4.5 Glazing and wet surfaces. Glazing in walls, enclosures or fences containing or facing hot tubs, spas, whirlpools, saunas, steam rooms, bathtubs, showers and indoor or outdoor swimming pools where the bottom exposed edge of the glazing is less than 60 inches (1524 mm) measured vertically above any standing or walking surface shall be considered a hazardous location. This shall apply to single glazing and all panes in multiple glazing.

Exception: Glazing that is more than 60 inches (1524 mm), measured horizontally and in a straight line, from the water's edge of a bathtub, hot tub, spa, whirlpool or swimming pool.

2406.4.6 Glazing adjacent to stairways and ramps. Glazing where the bottom exposed edge of the glazing is less than 60 inches (1524 mm) above the plane of the adjacent walking surface of stairways, landings between flights of stairs and ramps shall be considered a hazardous location.

Exceptions:

1. The side of a stairway, landing or ramp that has a guard complying with the provisions of Sections 1015 and 1607.8, and the plane of the glass is greater than 18 inches (457 mm) from the railing.
2. Glazing 36 inches (914 mm) or more measured horizontally from the walking surface.

2406.4.7 Glazing adjacent to the bottom stairway landing. Glazing adjacent to the landing at the bottom of a stairway where the glazing is less than 60 inches (1524 mm) above the landing and within a 60-inch (1524 mm) horizontal arc that is less than 180 degrees (3.14 rad) from the bottom tread nosing shall be considered a hazardous location.

Exception: Glazing that is protected by a guard complying with Sections 1015 and 1607.8 where the plane of the glass is greater than 18 inches (457 mm) from the guard.

2406.5 Fire department access panels. Fire department glass access panels shall be of tempered glass. For insulating glass units, all panes shall be tempered glass.

SECTION 2407
GLASS IN HANDRAILS AND GUARDS

2407.1 Materials. Glass used in a handrail, guardrail or a *guard* section shall be laminated glass constructed of fully tempered or heat-strengthened glass and shall comply with Category II or CPSC 16 CFR Part 1201 or Class A of ANSI Z97.1. Glazing in railing in-fill panels shall be of an *approved* safety glazing material that conforms to the provisions of Section 2406.1.1. For all glazing types, the minimum nominal thickness shall be $^1/_4$ inch (6.4 mm).

Exception: Single fully tempered glass complying with Category II of CPSC 16 CFR Part 1201 or Class A of ANSI Z97.1 shall be permitted to be used in handrails and guardrails where there is no walking surface beneath them or the walking surface is permanently protected from the risk of falling glass.

2407.1.1 Loads. The panels and their support system shall be designed to withstand the loads specified in Section 1607.8. A design factor of four shall be used for safety.

2407.1.2 Support. Each handrail or *guard* section shall be supported by a minimum of three glass balusters or shall be otherwise supported to remain in place should one baluster panel fail. Glass balusters shall not be installed without an attached handrail or *guard*.

Exception: A top rail shall not be required where the glass balusters are laminated glass with two or more glass plies of equal thickness and the same glass type when *approved* by the *building official*. The panels shall be designed to withstand the loads specified in Section 1607.8.

2407.1.3 Parking garages. Glazing materials shall not be installed in handrails or *guards* in parking garages except for pedestrian areas not exposed to impact from vehicles.

2407.1.4 Glazing in wind-borne debris regions. Glazing installed in in-fill panels or balusters in *wind-borne debris regions* shall comply with the following:

2407.1.4.1 Balusters and in-fill panels. Glass installed in exterior railing in-fill panels or balusters shall be laminated glass complying with Category II of CPSC 16 CFR Part 1201 or Class A of ANSI Z97.1.

2407.1.4.2 Glass supporting top rail. When the top rail is supported by glass, the assembly shall be tested according to the impact requirements of Section 1609.1.2. The top rail shall remain in place after impact.

SECTION 2408
GLAZING IN ATHLETIC FACILITIES

2408.1 General. Glazing in athletic facilities and similar uses subject to impact loads, which forms whole or partial wall sections or which is used as a door or part of a door, shall comply with this section.

2408.2 Racquetball and squash courts.

2408.2.1 Testing. Test methods and loads for individual glazed areas in racquetball and squash courts subject to

impact loads shall conform to those of CPSC 16 CFR Part 1201 or ANSI Z97.1 with impacts being applied at a height of 59 inches (1499 mm) above the playing surface to an actual or simulated glass wall installation with fixtures, fittings and methods of assembly identical to those used in practice.

Glass walls shall comply with the following conditions:

1. A glass wall in a racquetball or squash court, or similar use subject to impact loads, shall remain intact following a test impact.
2. The deflection of such walls shall be not greater than $1^1/_2$ inches (38 mm) at the point of impact for a drop height of 48 inches (1219 mm).

Glass doors shall comply with the following conditions:

1. Glass doors shall remain intact following a test impact at the prescribed height in the center of the door.
2. The relative deflection between the edge of a glass door and the adjacent wall shall not exceed the thickness of the wall plus $^1/_2$ inch (12.7 mm) for a drop height of 48 inches (1219 mm).

2408.3 Gymnasiums and basketball courts. Glazing in multipurpose gymnasiums, basketball courts and similar athletic facilities subject to human impact loads shall comply with Category II of CPSC 16 CFR Part 1201 or Class A of ANSI Z97.1.

SECTION 2409
GLASS IN WALKWAYS, ELEVATOR HOISTWAYS AND ELEVATOR CARS

2409.1 Glass walkways. Glass installed as a part of a floor/ceiling assembly as a walking surface and constructed with laminated glass shall comply with ASTM E2751 or with the load requirements specified in Chapter 16. Such assemblies shall comply with the *fire-resistance rating* requirements of this code where applicable.

2409.2 Glass in elevator hoistway enclosures. Glass in elevator hoistway enclosures and hoistway doors shall be laminated glass conforming to ANSI Z97.1 or CPSC 16 CFR Part 1201.

2409.2.1 Fire-resistance-rated hoistways. Glass installed in hoistways and hoistway doors where the hoistway is required to have a fire-resistance rating shall also comply with Section 716.

2409.2.2 Glass hoistway doors. The glass in glass hoistway doors shall be not less than 60 percent of the total visible door panel surface area as seen from the landing side.

2409.3 Visions panels in elevator hoistway doors. Glass in vision panels in elevator hoistway doors shall be permitted to be any transparent glazing material not less than $^1/_4$ inch (6.4 mm) in thickness conforming to Class A in accordance with ANSI Z97.1 or Category II in accordance with CPSC 16 CFR Part 1201. The area of any single vision panel shall be not less than 24 square inches (15 484 mm^2) and the total area of one or more vision panels in any hoistway door shall be not more than 85 square inches (54 839 mm^2).

2409.4 Glass in elevator cars. Glass in elevator cars shall be in accordance with this section.

2409.4.1 Glass types. Glass in elevator car enclosures, glass elevator car doors and glass used for lining walls and ceilings of elevator cars shall be laminated glass conforming to Class A in accordance with ANSI Z97.1 or Category II in accordance with CPSC 16 CFR Part 1201.

Exception: Tempered glass shall be permitted to be used for lining walls and ceilings of elevator cars provided:

1. The glass is bonded to a nonpolymeric coating, sheeting or film backing having a physical integrity to hold the fragments when the glass breaks.
2. The glass is not subjected to further treatment such as sandblasting; etching; heat treatment or painting that could alter the original properties of the glass.
3. The glass is tested to the acceptance criteria for laminated glass as specified for Class A in accordance with ANSI Z97.1 or Category II in accordance with CPSC 16 CFR Part 1201.

2409.4.2 Surface area. The glass in glass elevator car doors shall be not less than 60 percent of the total visible door panel surface area as seen from the car side of the doors.

CHAPTER 25

GYPSUM BOARD, GYPSUM PANEL PRODUCTS AND PLASTER

SECTION 2501 GENERAL

2501.1 Scope. Provisions of this chapter shall govern the materials, design, construction and quality of gypsum board, gypsum panel products, lath, gypsum plaster, cement plaster and reinforced gypsum concrete.

2501.2 Performance. Lathing, plastering, gypsum board and gypsum panel product construction shall be done in the manner and with the materials specified in this chapter and, when required for fire protection, shall also comply with the provisions of Chapter 7.

2501.3 Other materials. Other *approved* wall or ceiling coverings shall be permitted to be installed in accordance with the recommendations of the manufacturer and the conditions of approval.

SECTION 2502 DEFINITIONS

2502.1 Definitions. The following terms are defined in Chapter 2:

CEMENT PLASTER.

EXTERIOR SURFACES.

GYPSUM BOARD.

GYPSUM PANEL PRODUCTS.

GYPSUM PLASTER.

GYPSUM VENEER PLASTER.

INTERIOR SURFACES.

WEATHER-EXPOSED SURFACES.

WIRE BACKING.

SECTION 2503 INSPECTION

2503.1 Inspection. Lath, gypsum board and gypsum panel products shall be inspected in accordance with Section 110.3.5.

SECTION 2504 VERTICAL AND HORIZONTAL ASSEMBLIES

2504.1 Scope. The following requirements shall be met where construction involves gypsum board, gypsum panel products or lath and plaster in vertical and horizontal assemblies.

2504.1.1 Wood framing. Wood supports for lath, gypsum board or gypsum panel products, as well as wood stripping or furring, shall be not less than 2 inches (51 mm) nominal thickness in the least dimension.

Exception: The minimum nominal dimension of wood furring strips installed over solid backing shall be not less than 1 inch by 2 inches (25 mm by 51 mm).

2504.1.2 Studless partitions. The minimum thickness of vertically erected studless solid plaster partitions of $^{3}/_{8}$-inch (9.5 mm) and $^{3}/_{4}$-inch (19.1 mm) rib metal lath, $^{1}/_{2}$-inch-thick (12.7 mm) gypsum lath, gypsum board or gypsum panel product shall be 2 inches (51 mm).

SECTION 2505 SHEAR WALL CONSTRUCTION

2505.1 Resistance to shear (wood framing). Wood-frame shear walls sheathed with gypsum board, gypsum panel products or lath and plaster shall be designed and constructed in accordance with Section 2306.3 and are permitted to resist wind and seismic loads. Walls resisting seismic loads shall be subject to the limitations in Section 12.2.1 of ASCE 7.

2505.2 Resistance to shear (steel framing). Cold-formed steel-frame shear walls sheathed with gypsum board or gypsum panel products and constructed in accordance with the materials and provisions of Section 2211.6 are permitted to resist wind and seismic loads. Walls resisting seismic loads shall be subject to the limitations in Section 12.2.1 of ASCE 7.

SECTION 2506 GYPSUM BOARD AND GYPSUM PANEL PRODUCT MATERIALS

2506.1 General. Gypsum board, gypsum panel products and accessories shall be identified by the manufacturer's designation to indicate compliance with the appropriate standards referenced in this section and stored to protect such materials from the weather.

2506.2 Standards. Gypsum board and gypsum panel products shall conform to the appropriate standards listed in Table 2506.2 and Chapter 35 and, where required for fire protection, shall conform to the provisions of Chapter 7.

2506.2.1 Other materials. Metal suspension systems for acoustical and lay-in panel ceilings shall comply with ASTM C635 listed in Chapter 35 and Section 13.5.6 of ASCE 7 for installation in high seismic areas.

SECTION 2507 LATHING AND PLASTERING

2507.1 General. Lathing and plastering materials and accessories shall be marked by the manufacturer's designation to indicate compliance with the appropriate standards refer-

enced in this section and stored in such a manner to protect them from the weather.

2507.2 Standards. Lathing and plastering materials shall conform to the standards listed in Table 2507.2 and Chapter 35 and, where required for fire protection, shall also conform to the provisions of Chapter 7.

SECTION 2508
GYPSUM CONSTRUCTION

2508.1 General. Gypsum board, gypsum panel products and gypsum plaster construction shall be of the materials listed in Tables 2506.2 and 2507.2. These materials shall be assembled and installed in compliance with the appropriate standards listed in Tables 2508.1 and 2511.1.1 and Chapter 35.

TABLE 2506.2
GYPSUM BOARD AND GYPSUM PANEL PRODUCTS MATERIALS AND ACCESSORIES

MATERIAL	STANDARD
Accessories for gypsum board	ASTM C1047
Adhesives for fastening gypsum board	ASTM C557
Cold-formed steel studs and track, structural	AISI S200 and ASTM C955, Section 8
Cold-formed steel studs and track, nonstructural	AISI S220 and ASTM C645, Section 10
Elastomeric joint sealants	ASTM C920
Fiber-reinforced gypsum panels	ASTM C1278
Glass mat gypsum backing panel	ASTM C1178
Glass mat gypsum panel 5	ASTM C1658
Glass mat gypsum substrate	ASTM C1177
Joint reinforcing tape and compound	ASTM C474; C475
Nails for gypsum boards	ASTM C514, F547, F1667
Steel screws	ASTM C954; C1002
Standard specification for gypsum board	ASTM C1396
Testing gypsum and gypsum products	ASTM C22; C472; C473

TABLE 2507.2
LATH, PLASTERING MATERIALS AND ACCESSORIES

MATERIAL	STANDARD
Accessories for gypsum veneer base	ASTM C1047
Blended cement	ASTM C595
Cold-formed steel studs and track, structural	AISI S200 and ASTM C955, Section 8
Cold-formed steel studs and track, nonstructural	AISI S220 and ASTM C645, Section 10
Exterior plaster bonding compounds	ASTM C932
Hydraulic cement	ASTM C1157; C1600
Gypsum casting and molding plaster	ASTM C59
Gypsum Keene's cement	ASTM C61
Gypsum plaster	ASTM C28
Gypsum veneer plaster	ASTM C587
Interior bonding compounds, gypsum	ASTM C631
Lime plasters	ASTM C5; C206
Masonry cement	ASTM C91
Metal lath	ASTM C847
Plaster aggregates Sand Perlite Vermiculite	 ASTM C35; C897 ASTM C35 ASTM C35
Plastic cement	ASTM C1328
Portland cement	ASTM C150
Steel screws	ASTM C1002; C954
Welded wire lath	ASTM C933
Woven wire plaster base	ASTM C1032

TABLE 2508.1
INSTALLATION OF GYPSUM CONSTRUCTION

MATERIAL	STANDARD
Gypsum board and gypsum panel products	GA-216; ASTM C840
Gypsum sheathing and gypsum panel products	ASTM C1280
Gypsum veneer base	ASTM C844
Interior lathing and furring	ASTM C841
Steel framing for gypsum board and gypsum panel products	ASTM C754; C1007

2508.2 Limitations. Gypsum wallboard or gypsum plaster shall not be used in any exterior surface where such gypsum construction will be exposed directly to the weather. Gypsum wallboard shall not be used where there will be direct exposure to water or continuous high humidity conditions. Gypsum sheathing shall be installed on exterior surfaces in accordance with ASTM C1280.

2508.2.1 Weather protection. Gypsum wallboard, gypsum lath or gypsum plaster shall not be installed until weather protection for the installation is provided.

2508.3 Single-ply application. Edges and ends of gypsum board and gypsum panel products shall occur on the framing members, except those edges and ends that are perpendicular to the framing members. Edges and ends of gypsum board and gypsum panel products shall be in moderate contact except in concealed spaces where fire-resistance-rated construction, shear resistance or diaphragm action is not required.

2508.3.1 Floating angles. Fasteners at the top and bottom plates of vertical assemblies, or the edges and ends of horizontal assemblies perpendicular to supports, and at the wall line are permitted to be omitted except on shear resisting elements or fire-resistance-rated assemblies. Fasteners shall be applied in such a manner as not to fracture the face paper with the fastener head.

2508.4 Joint treatment. Gypsum board and gypsum panel product fire-resistance-rated assemblies shall have joints and fasteners treated.

Exception: Joint and fastener treatment need not be provided where any of the following conditions occur:

1. Where the gypsum board or the gypsum panel product is to receive a decorative finish such as wood paneling, battens, acoustical finishes or any similar application that would be equivalent to joint treatment.
2. On single-layer systems where joints occur over wood framing members.
3. Square edge or tongue-and-groove edge gypsum board (V-edge), gypsum panel products, gypsum backing board or gypsum sheathing.
4. On multilayer systems where the joints of adjacent layers are offset.
5. Assemblies tested without joint treatment.

2508.5 Horizontal gypsum board or gypsum panel product diaphragm ceilings. Gypsum board or gypsum panel products shall be permitted to be used on wood joists to create a horizontal diaphragm ceiling in accordance with Table 2508.5.

2508.5.1 Diaphragm proportions. The maximum allowable diaphragm proportions shall be $1^1/_2$:1 between shear resisting elements. Rotation or cantilever conditions shall not be permitted.

2508.5.2 Installation. Gypsum board or gypsum panel products used in a horizontal diaphragm ceiling shall be installed perpendicular to ceiling framing members. End joints of adjacent courses of gypsum board shall not occur on the same joist.

2508.5.3 Blocking of perimeter edges. Perimeter edges shall be blocked using a wood member not less than 2-inch by 6-inch (51 mm by 152 mm) nominal dimension.

TABLE 2508.5
SHEAR CAPACITY FOR HORIZONTAL WOOD-FRAME GYPSUM BOARD DIAPHRAGM CEILING ASSEMBLIES

MATERIAL	THICKNESS OF MATERIAL (MINIMUM) (inches)	SPACING OF FRAMING MEMBERS (inches)	SHEAR VALUE[a, b] (PLF OF CEILING)	MIMIMUM FASTENER SIZE
Gypsum board or gypsum panel product	$^1/_2$	16 o.c.	90	5d cooler or wallboard nail; $1^5/_8$-inch long; 0.086-inch shank; $^{15}/_{64}$-inch head[c]
Gypsum board or gypsum panel product	$^1/_2$	24 o.c.	70	5d cooler or wallboard nail; $1^5/_8$-inch long; 0.086-inch shank; $^{15}/_{64}$-inch head[c]

For SI: 1 inch = 25.4 mm, 1 pound per foot = 14.59 N/m.

a. Values are not cumulative with other horizontal diaphragm values and are for short-term wind or seismic loading. Values shall be reduced 25 percent for normal loading.

b. Values shall be reduced 50 percent in Seismic Design Categories D, E and F.

c. $1^1/_4$-inch, No. 6 Type S or W screws are permitted to be substituted for the listed nails.

Blocking material shall be installed flat over the top plate of the wall to provide a nailing surface not less than 2 inches (51 mm) in width for the attachment of the gypsum board or gypsum panel product.

2508.5.4 Fasteners. Fasteners used for the attachment of gypsum board or gypsum panel products to a horizontal diaphragm ceiling shall be as defined in Table 2508.5. Fasteners shall be spaced not more than 7 inches (178 mm) on center at all supports, including perimeter blocking, and not more than $^{3}/_{8}$ inch (9.5 mm) from the edges and ends of the gypsum board or gypsum panel product.

2508.5.5 Lateral force restrictions. Gypsum board or gypsum panel products shall not be used in diaphragm ceilings to resist lateral forces imposed by masonry or concrete construction.

SECTION 2509
SHOWERS AND WATER CLOSETS

2509.1 Wet areas. Showers and public toilet walls shall conform to Section 1210.2.

2509.2 Base for tile. Materials used as a base for wall tile in tub and shower areas and wall and ceiling panels in shower areas shall be of materials listed in Table 2509.2 and installed in accordance with the manufacturer's recommendations. Water-resistant gypsum backing board shall be used as a base for tile in water closet compartment walls when installed in accordance with GA-216 or ASTM C840 and the manufacturer's recommendations. Regular gypsum wallboard is permitted under tile or wall panels in other wall and ceiling areas when installed in accordance with GA-216 or ASTM C840.

TABLE 2509.2
BACKERBOARD MATERIALS

MATERIAL	STANDARD
Glass mat gypsum backing panel	ASTM C1178
Nonasbestos fiber-cement backer board	ASTM C1288 or ISO 8336, Category C
Nonasbestos fiber-mat reinforced cementitious backer unit	ASTM C1325

2509.3 Limitations. Water-resistant gypsum backing board shall not be used in the following locations:

1. Over a vapor retarder in shower or bathtub compartments.
2. Where there will be direct exposure to water or in areas subject to continuous high humidity.

SECTION 2510
LATHING AND FURRING FOR CEMENT PLASTER (STUCCO)

2510.1 General. Exterior and interior cement plaster and lathing shall be done with the appropriate materials listed in Table 2507.2 and Chapter 35.

2510.2 Weather protection. Materials shall be stored in such a manner as to protect them from the weather.

2510.3 Installation. Installation of these materials shall be in compliance with ASTM C926 and ASTM C1063.

2510.4 Corrosion resistance. Metal lath and lath attachments shall be of corrosion-resistant material.

2510.5 Backing. Backing or a lath shall provide sufficient rigidity to permit plaster applications.

2510.5.1 Support of lath. Where lath on vertical surfaces extends between rafters or other similar projecting members, solid backing shall be installed to provide support for lath and attachments.

2510.5.2 Use of gypsum backing board. Gypsum backing for cement plaster shall be in accordance with Section 2510.5.2.1 or 2510.5.2.2.

2510.5.2.1 Gypsum board as a backing board. Gypsum lath or gypsum wallboard shall not be used as a backing for cement plaster.

Exception: Gypsum lath or gypsum wallboard is permitted, with a *water-resistive barrier*, as a backing for self-furred metal lath or self-furred wire fabric lath and cement plaster where either of the following conditions occur:

1. On horizontal supports of ceilings or roof soffits.
2. On interior walls.

2510.5.2.2 Gypsum sheathing backing. Gypsum sheathing is permitted as a backing for metal or wire fabric lath and cement plaster on walls. A *water-resistive barrier* shall be provided in accordance with Section 2510.6.

2510.5.3 Backing not required. Wire backing is not required under expanded metal lath or paperbacked wire fabric lath.

2510.6 Water-resistive barriers. *Water-resistive barriers* shall be installed as required in Section 1404.2 and, where applied over wood-based sheathing, shall include a water-resistive vapor-permeable barrier with a performance at least equivalent to two layers of *water-resistive barrier* complying with ASTM E2556, Type I. The individual layers shall be installed independently such that each layer provides a separate continuous plane and any flashing (installed in accordance with Section 1405.4) intended to drain to the *water-resistive barrier* is directed between the layers.

Exception: Where the *water-resistive barrier* that is applied over wood-based sheathing has a water resistance equal to or greater than that of a *water-resistive barrier* complying with ASTM E2556, Type II and is separated from the stucco by an intervening, substantially nonwater-absorbing layer or drainage space.

2510.7 Preparation of masonry and concrete. Surfaces shall be clean, free from efflorescence, sufficiently damp and rough for proper bond. If the surface is insufficiently rough, *approved* bonding agents or a Portland cement dash bond coat mixed in proportions of not more than two parts volume of sand to one part volume of Portland cement or plastic cement shall be applied. The dash bond coat shall be left undisturbed and shall be moist cured not less than 24 hours.

SECTION 2511
INTERIOR PLASTER

2511.1 General. Plastering gypsum plaster or cement plaster shall be not less than three coats where applied over metal lath or wire fabric lath and not less than two coats where applied over other bases permitted by this chapter.

Exception: Gypsum veneer plaster and cement plaster specifically designed and *approved* for one-coat applications.

2511.1.1 Installation. Installation of lathing and plaster materials shall conform to Table 2511.1.1 and Section 2507.

TABLE 2511.1.1
INSTALLATION OF PLASTER CONSTRUCTION

MATERIAL	STANDARD
Cement plaster	ASTM C926
Gypsum plaster	ASTM C842
Gypsum veneer plaster	ASTM C843
Interior lathing and furring (gypsum plaster)	ASTM C841
Lathing and furring (cement plaster)	ASTM C1063
Steel framing	ASTM C754; C1007

2511.2 Limitations. Plaster shall not be applied directly to fiber insulation board. Cement plaster shall not be applied directly to gypsum lath or gypsum plaster except as specified in Sections 2510.5.1 and 2510.5.2.

2511.3 Grounds. Where installed, grounds shall ensure the minimum thickness of plaster as set forth in ASTM C842 and ASTM C926. Plaster thickness shall be measured from the face of lath and other bases.

2511.4 Interior masonry or concrete. Condition of surfaces shall be as specified in Section 2510.7. *Approved* specially prepared gypsum plaster designed for application to concrete surfaces or *approved* acoustical plaster is permitted. The total thickness of base coat plaster applied to concrete ceilings shall be as set forth in ASTM C842 or ASTM C926. Should ceiling surfaces require more than the maximum thickness permitted in ASTM C842 or ASTM C926, metal lath or wire fabric lath shall be installed on such surfaces before plastering.

2511.5 Wet areas. Showers and public toilet walls shall conform to Sections 1210.2 and 1210.3. When wood frame walls and partitions are covered on the interior with cement plaster or tile of similar material and are subject to water splash, the framing shall be protected with an *approved* moisture barrier.

SECTION 2512
EXTERIOR PLASTER

2512.1 General. Plastering with cement plaster shall be not less than three coats when applied over metal lath or wire fabric lath or gypsum board backing as specified in Section 2510.5 and shall be not less than two coats when applied over masonry or concrete. If the plaster surface is to be completely covered by veneer or other facing material, or is completely concealed by another wall, plaster application need only be two coats, provided the total thickness is as set forth in ASTM C926.

2512.1.1 On-grade floor slab. On wood frame or steel stud construction with an on-grade concrete floor slab system, exterior plaster shall be applied in such a manner as to cover, but not to extend below, the lath and paper. The application of lath, paper and flashing or drip screeds shall comply with ASTM C1063.

2512.1.2 Weep screeds. A minimum 0.019-inch (0.48 mm) (No. 26 galvanized sheet gage), corrosion-resistant weep screed with a minimum vertical attachment flange of $3^1/_2$ inches (89 mm) shall be provided at or below the foundation plate line on exterior stud walls in accordance with ASTM C926. The weep screed shall be placed a minimum of 4 inches (102 mm) above the earth or 2 inches (51 mm) above paved areas and be of a type that will allow trapped water to drain to the exterior of the building. The *water-resistive barrier* shall lap the attachment flange. The exterior lath shall cover and terminate on the attachment flange of the weep screed.

2512.2 Plasticity agents. Only *approved* plasticity agents and *approved* amounts thereof shall be added to Portland cement or blended cements. When plastic cement or masonry cement is used, no additional lime or plasticizers shall be added. Hydrated lime or the equivalent amount of lime putty used as a plasticizer is permitted to be added to cement plaster or cement and lime plaster in an amount not to exceed that set forth in ASTM C926.

2512.3 Limitations. Gypsum plaster shall not be used on exterior surfaces.

2512.4 Cement plaster. Plaster coats shall be protected from freezing for a period of not less than 24 hours after set has occurred. Plaster shall be applied when the ambient temperature is higher than 40°F (4°C), unless provisions are made to keep cement plaster work above 40°F (4°C) during application and 48 hours thereafter.

2512.5 Second-coat application. The second coat shall be brought out to proper thickness, rodded and floated sufficiently rough to provide adequate bond for the finish coat. The second coat shall have no variation greater than $^1/_4$ inch (6.4 mm) in any direction under a 5-foot (1524 mm) straight edge.

2512.6 Curing and interval. First and second coats of cement plaster shall be applied and moist cured as set forth in ASTM C926 and Table 2512.6.

2512.7 Application to solid backings. Where applied over gypsum backing as specified in Section 2510.5 or directly to unit masonry surfaces, the second coat is permitted to be applied as soon as the first coat has attained sufficient hardness.

2512.8 Alternate method of application. The second coat is permitted to be applied as soon as the first coat has attained sufficient rigidity to receive the second coat.

TABLE 2512.6
CEMENT PLASTERS

COAT	MINIMUM PERIOD MOIST CURING	MINIMUM INTERVAL BETWEEN COATS
First	48 hours[a]	48 hours[b]
Second	48 hours	7 days[c]
Finish	—	Note c

a. The first two coats shall be as required for the first coats of exterior plaster, except that the moist-curing time period between the first and second coats shall be not less than 24 hours. Moist curing shall not be required where job and weather conditions are favorable to the retention of moisture in the cement plaster for the required time period.

b. Twenty-four-hour minimum interval between coats of interior cement plaster. For alternative method of application, see Section 2512.8.

c. Finish coat plaster is permitted to be applied to interior cement plaster base coats after a 48-hour period.

2512.8.1 Admixtures. When using this method of application, calcium aluminate cement up to 15 percent of the weight of the Portland cement is permitted to be added to the mix.

2512.8.2 Curing. Curing of the first coat is permitted to be omitted and the second coat shall be cured as set forth in ASTM C926 and Table 2512.6.

2512.9 Finish coats. Cement plaster finish coats shall be applied over base coats that have been in place for the time periods set forth in ASTM C926. The third or finish coat shall be applied with sufficient material and pressure to bond and to cover the brown coat and shall be of sufficient thickness to conceal the brown coat.

SECTION 2513
EXPOSED AGGREGATE PLASTER

2513.1 General. Exposed natural or integrally colored aggregate is permitted to be partially embedded in a natural or colored bedding coat of cement plaster or gypsum plaster, subject to the provisions of this section.

2513.2 Aggregate. The aggregate shall be applied manually or mechanically and shall consist of marble chips, pebbles or similar durable, moderately hard (three or more on the Mohs hardness scale), nonreactive materials.

2513.3 Bedding coat proportions. The bedding coat for interior or exterior surfaces shall be composed of one part Portland cement and one part Type S lime; or one part blended cement and one part Type S lime; or masonry cement; or plastic cement and a maximum of three parts of graded white or natural sand by volume. The bedding coat for interior surfaces shall be composed of 100 pounds (45.4 kg) of neat gypsum plaster and a maximum of 200 pounds (90.8 kg) of graded white sand. A factory-prepared bedding coat for interior or exterior use is permitted. The bedding coat for exterior surfaces shall have a minimum compressive strength of 1,000 pounds per square inch (psi) (6895 kPa).

2513.4 Application. The bedding coat is permitted to be applied directly over the first (scratch) coat of plaster, provided the ultimate overall thickness is a minimum of $^{7}/_{8}$ inch (22 mm), including lath. Over concrete or masonry surfaces, the overall thickness shall be a minimum of $^{1}/_{2}$ inch (12.7 mm).

2513.5 Bases. Exposed aggregate plaster is permitted to be applied over concrete, masonry, cement plaster base coats or gypsum plaster base coats installed in accordance with Section 2511 or 2512.

2513.6 Preparation of masonry and concrete. Masonry and concrete surfaces shall be prepared in accordance with the provisions of Section 2510.7.

2513.7 Curing of base coats. Cement plaster base coats shall be cured in accordance with ASTM C926. Cement plaster bedding coats shall retain sufficient moisture for hydration (hardening) for 24 hours minimum or, where necessary, shall be kept damp for 24 hours by light water spraying.

SECTION 2514
REINFORCED GYPSUM CONCRETE

2514.1 General. Reinforced gypsum concrete shall comply with the requirements of ASTM C317 and ASTM C956.

2514.2 Minimum thickness. The minimum thickness of reinforced gypsum concrete shall be 2 inches (51 mm) except the minimum required thickness shall be reduced to $1^{1}/_{2}$ inches (38 mm), provided the following conditions are satisfied:

1. The overall thickness, including the formboard, is not less than 2 inches (51 mm).
2. The clear span of the gypsum concrete between supports does not exceed 33 inches (838 mm).
3. Diaphragm action is not required.
4. The design live load does not exceed 40 pounds per square foot (psf) (1915 Pa).

CHAPTER 26

PLASTIC

SECTION 2601 GENERAL

2601.1 Scope. These provisions shall govern the materials, design, application, construction and installation of foam plastic, foam plastic insulation, plastic veneer, interior plastic finish and *trim*, light-transmitting plastics and plastic composites, including plastic lumber. See Chapter 14 for requirements for *exterior wall* finish and *trim*.

SECTION 2602 DEFINITIONS

2602.1 Definitions. The following terms are defined in Chapter 2:

FIBER-REINFORCED POLYMER.

FOAM PLASTIC INSULATION.

LIGHT-DIFFUSING SYSTEM.

LIGHT-TRANSMITTING PLASTIC ROOF PANELS.

LIGHT-TRANSMITTING PLASTIC WALL PANELS.

PLASTIC, APPROVED.

PLASTIC COMPOSITE.

PLASTIC GLAZING.

PLASTIC LUMBER.

THERMOPLASTIC MATERIAL.

THERMOSETTING MATERIAL.

WOOD/PLASTIC COMPOSITE.

SECTION 2603 FOAM PLASTIC INSULATION

2603.1 General. The provisions of this section shall govern the requirements and uses of foam plastic insulation in buildings and structures.

2603.2 Labeling and identification. Packages and containers of foam plastic insulation and foam plastic insulation components delivered to the job site shall bear the *label* of an *approved agency* showing the manufacturer's name, product listing, product identification and information sufficient to determine that the end use will comply with the code requirements.

2603.3 Surface-burning characteristics. Unless otherwise indicated in this section, foam plastic insulation and foam plastic cores of manufactured assemblies shall have a flame spread index of not more than 75 and a smoke-developed index of not more than 450 where tested in the maximum thickness intended for use in accordance with ASTM E84 or UL 723. Loose fill-type foam plastic insulation shall be tested as board stock for the flame spread and smoke-developed indexes.

Exceptions:

1. Smoke-developed index for interior *trim* as provided for in Section 2604.2.
2. In cold storage buildings, ice plants, food plants, food processing rooms and similar areas, foam plastic insulation where tested in a thickness of 4 inches (102 mm) shall be permitted in a thickness up to 10 inches (254 mm) where the building is equipped throughout with an automatic fire sprinkler system in accordance with Section 903.3.1.1. The approved *automatic sprinkler system* shall be provided in both the room and that part of the building in which the room is located.
3. Foam plastic insulation that is a part of a Class A, B or C roof-covering assembly provided the assembly with the foam plastic insulation satisfactorily passes NFPA 276 or UL 1256. The smoke-developed index shall not be limited for roof applications.
4. Foam plastic insulation greater than 4 inches (102 mm) in thickness shall have a maximum flame spread index of 75 and a smoke-developed index of 450 where tested at a minimum thickness of 4 inches (102 mm), provided the end use is approved in accordance with Section 2603.9 using the thickness and density intended for use.
5. Flame spread and smoke-developed indexes for foam plastic interior signs in *covered and open mall buildings* provided the signs comply with Section 402.6.4.

2603.4 Thermal barrier. Except as provided for in Sections 2603.4.1 and 2603.9, foam plastic shall be separated from the interior of a building by an approved thermal barrier of $^1/_2$-inch (12.7 mm) gypsum wallboard or a material that is tested in accordance with and meets the acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275. Combustible concealed spaces shall comply with Section 718.

2603.4.1 Thermal barrier not required. The thermal barrier specified in Section 2603.4 is not required under the conditions set forth in Sections 2603.4.1.1 through 2603.4.1.14.

2603.4.1.1 Masonry or concrete construction. A thermal barrier is not required for foam plastic installed in a masonry or concrete wall, floor or roof system where the foam plastic insulation is covered on each face by not less than 1-inch (25 mm) thickness of masonry or concrete.

2603.4.1.2 Cooler and freezer walls. Foam plastic installed in a maximum thickness of 10 inches (254 mm) in cooler and freezer walls shall:

1. Have a flame spread index of 25 or less and a smoke-developed index of not more than 450, where tested in a minimum 4-inch (102 mm) thickness.
2. Have flash ignition and self-ignition temperatures of not less than 600°F and 800°F (316°C and 427°C), respectively.
3. Have a covering of not less than 0.032-inch (0.8 mm) aluminum or corrosion-resistant steel having a base metal thickness not less than 0.0160 inch (0.4 mm) at any point.
4. Be protected by an *automatic sprinkler system* in accordance with Section 903.3.1.1. Where the cooler or freezer is within a building, both the cooler or freezer and that part of the building in which it is located shall be sprinklered.

2603.4.1.3 Walk-in coolers. In nonsprinklered buildings, foam plastic having a thickness that does not exceed 4 inches (102 mm) and a maximum flame spread index of 75 is permitted in walk-in coolers or freezer units where the aggregate floor area does not exceed 400 square feet (37 m^2) and the foam plastic is covered by a metal facing not less than 0.032-inch-thick (0.81 mm) aluminum or corrosion-resistant steel having a minimum base metal thickness of 0.016 inch (0.41 mm). A thickness of up to 10 inches (254 mm) is permitted where protected by a thermal barrier.

2603.4.1.4 Exterior walls-one-story buildings. For one-*story* buildings, foam plastic having a flame spread index of 25 or less, and a smoke-developed index of not more than 450, shall be permitted without thermal barriers in or on *exterior walls* in a thickness not more than 4 inches (102 mm) where the foam plastic is covered by a thickness of not less than 0.032-inch-thick (0.81 mm) aluminum or corrosion-resistant steel having a base metal thickness of 0.0160 inch (0.41 mm) and the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

2603.4.1.5 Roofing. A thermal barrier is not required for foam plastic insulation that is a part of a Class A, B or C roof-covering assembly that is installed in accordance with the code and the manufacturer's instructions and is either constructed as described in Item 1 or tested as described in Item 2.

1. The roof assembly is separated from the interior of the building by wood structural panel sheathing not less than 0.47 inch (11.9 mm) in thickness bonded with exterior glue, with edges supported by blocking, tongue-and-groove joints, other approved type of edge support or an equivalent material.
2. The assembly with the foam plastic insulation satisfactorily passes NFPA 276 or UL 1256.

2603.4.1.6 Attics and crawl spaces. Within an attic or crawl space where entry is made only for service of utilities, foam plastic insulation shall be protected against ignition by $1^1/_2$-inch-thick (38 mm) mineral fiber insulation; $^1/_4$-inch-thick (6.4 mm) wood structural panel, particleboard or hardboard; $^3/_8$-inch (9.5 mm) gypsum wallboard, corrosion-resistant steel having a base metal thickness of 0.016 inch (0.4 mm); $1^1/_2$-inch-thick (38 mm) self-supported spray-applied cellulose insulation in attic spaces only or other approved material installed in such a manner that the foam plastic insulation is not exposed. The protective covering shall be consistent with the requirements for the type of construction.

2603.4.1.7 Doors not required to have a fire protection rating. Where pivoted or side-hinged doors are permitted without a fire protection rating, foam plastic insulation, having a flame spread index of 75 or less and a smoke-developed index of not more than 450, shall be permitted as a core material where the door facing is of metal having a minimum thickness of 0.032-inch (0.8 mm) aluminum or steel having a base metal thickness of not less than 0.016 inch (0.4 mm) at any point.

2603.4.1.8 Exterior doors in buildings of Group R-2 or R-3. In occupancies classified as Group R-2 or R-3, foam-filled exterior entrance doors to individual *dwelling units* that do not require a fire-resistance rating shall be faced with aluminum, steel, fiberglass, wood or other approved materials.

2603.4.1.9 Garage doors. Where garage doors are permitted without a fire-resistance rating and foam plastic is used as a core material, the door facing shall be metal having a minimum thickness of 0.032-inch (0.8 mm) aluminum or 0.010-inch (0.25 mm) steel or the facing shall be minimum 0.125-inch-thick (3.2 mm) wood. Garage doors having facings other than those described above shall be tested in accordance with, and meet the acceptance criteria of, DASMA 107.

> **Exception:** Garage doors using foam plastic insulation complying with Section 2603.3 in detached and attached garages associated with one- and two-family dwellings need not be provided with a thermal barrier.

2603.4.1.10 Siding backer board. Foam plastic insulation of not more than 2,000 British thermal units per square feet (Btu/sq. ft.) (22.7 mJ/m^2) as determined by NFPA 259 shall be permitted as a siding backer board with a maximum thickness of $^1/_2$ inch (12.7 mm), provided it is separated from the interior of the building by not less than 2 inches (51 mm) of mineral fiber insulation or equivalent or where applied as insulation with re-siding over existing wall construction.

2603.4.1.11 Interior trim. Foam plastic used as interior *trim* in accordance with Section 2604 shall be permitted without a thermal barrier.

2603.4.1.12 Interior signs. Foam plastic used for interior signs in *covered mall buildings* in accordance with Section 402.6.4 shall be permitted without a thermal barrier. Foam plastic signs that are not affixed to interior building surfaces shall comply with Chapter 8 of the *Fire Code*.

2603.4.1.13 Type V construction. Foam plastic spray applied to a sill plate, joist header and rim joist in Type V construction is subject to all of the following:

1. The maximum thickness of the foam plastic shall be $3^1/_4$ inches (82.6 mm).
2. The density of the foam plastic shall be in the range of 1.5 to 2.0 pcf (24 to 32 kg/m^3).
3. The foam plastic shall have a flame spread index of 25 or less and an accompanying smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL 723.

2603.4.1.14 Floors. The thermal barrier specified in Section 2603.4 is not required to be installed on the walking surface of a structural floor system that contains foam plastic insulation when the foam plastic is covered by a minimum nominal $^1/_2$-inch-thick (12.7 mm) wood structural panel or approved equivalent. The thermal barrier specified in Section 2603.4 is required on the underside of the structural floor system that contains foam plastic insulation when the underside of the structural floor system is exposed to the interior of the building.

Exception: Foam plastic used as part of an interior floor finish.

2603.5 Exterior walls of buildings of any height. *Exterior walls* of buildings of Type I, II, III or IV construction of any height shall comply with Sections 2603.5.1 through 2603.5.7. *Exterior walls* of cold storage buildings required to be constructed of noncombustible materials, where the building is more than one *story* in height, shall comply with the provisions of Sections 2603.5.1 through 2603.5.7. *Exterior walls* of buildings of Type V construction shall comply with Sections 2603.2, 2603.3 and 2603.4.

2603.5.1 Fire-resistance-rated walls. Where the wall is required to have a fire-resistance rating, data based on tests conducted in accordance with ASTM E119 or UL 263 shall be provided to substantiate that the fire-resistance rating is maintained.

2603.5.2 Thermal barrier. Any foam plastic insulation shall be separated from the building interior by a thermal barrier meeting the provisions of Section 2603.4, unless special approval is obtained on the basis of Section 2603.9.

Exception: One-story buildings complying with Section 2603.4.1.4.

2603.5.3 Potential heat. The potential heat of foam plastic insulation in any portion of the wall or panel shall not exceed the potential heat expressed in Btu per square feet (mJ/m^2) of the foam plastic insulation contained in the wall assembly tested in accordance with Section 2603.5.5. The potential heat of the foam plastic insulation shall be determined by tests conducted in accordance with NFPA 259 and the results shall be expressed in Btu per square feet (mJ/m^2).

Exception: One-story buildings complying with Section 2603.4.1.4.

2603.5.4 Flame spread and smoke-developed indexes. Foam plastic insulation, exterior coatings and facings shall be tested separately in the thickness intended for use, but not to exceed 4 inches (102 mm), and shall each have a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E84 or UL 723.

Exception: Prefabricated or factory-manufactured panels having minimum 0.020-inch (0.51 mm) aluminum facings and a total thickness of $^1/_4$ inch (6.4 mm) or less are permitted to be tested as an assembly where the foam plastic core is not exposed in the course of construction.

2603.5.5 Vertical and lateral fire propagation. The exterior wall assembly shall be tested in accordance with and comply with the acceptance criteria of NFPA 285.

Exceptions:

1. One-story buildings complying with Section 2603.4.1.4.
2. Wall assemblies where the foam plastic insulation is covered on each face by not less than 1-inch (25 mm) thickness of masonry or concrete and meeting one of the following:
   2.1. There is no airspace between the insulation and the concrete or masonry.
   2.2. The insulation has a flame spread index of not more than 25 as determined in accordance with ASTM E84 or UL 723 and the maximum airspace between the insulation and the concrete or masonry is not more than 1 inch (25 mm).

2603.5.6 Label required. The edge or face of each piece, package or container of foam plastic insulation shall bear the *label* of an *approved agency*. The *label* shall contain the manufacturer's or distributor's identification, model number, serial number or definitive information describing the product or materials' performance characteristics and *approved agency*'s identification.

2603.5.7 Ignition. *Exterior walls* shall not exhibit sustained flaming where tested in accordance with NFPA 268. Where a material is intended to be installed in more than one thickness, tests of the minimum and maximum thickness intended for use shall be performed.

Exception: Assemblies protected on the outside with one of the following:

1. A thermal barrier complying with Section 2603.4.
2. A minimum 1-inch (25 mm) thickness of concrete or masonry.

3. Glass-fiber-reinforced concrete panels of a minimum thickness of $^3/_8$ inch (9.5 mm).
4. Metal-faced panels having minimum 0.019-inch-thick (0.48 mm) aluminum or 0.016-inch-thick (0.41 mm) corrosion-resistant steel outer facings.
5. A minimum $^7/_8$-inch (22.2 mm) thickness of stucco complying with Section 2510.
6. A minimum $^1/_4$-inch (6.4 mm) thickness of fiber-cement lap, panel or shingle siding complying with Sections 1405.16 and 1405.16.1 or 1405.16.2.

2603.6 Roofing. Foam plastic insulation meeting the requirements of Sections 2603.2, 2603.3 and 2603.4 shall be permitted as part of a roof-covering assembly, provided the assembly with the foam plastic insulation is a Class A, B or C roofing assembly where tested in accordance with ASTM E108 or UL 790.

2603.7 Foam plastic insulation used as interior finish or interior trim in plenums. Foam plastic insulation used as interior wall or ceiling finish or as interior trim in plenums shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL 723 and shall comply with one or more of Sections 2603.7.1, 2603.7.2 and 2607.3.

2603.7.1 Separation required. The foam plastic insulation shall be separated from the plenum by a thermal barrier complying with Section 2603.4 and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL 723 at the thickness and density intended for use.

2603.7.2 Approval. The foam plastic insulation shall exhibit a flame spread index of 25 or less and a smoke-developed index of 50 or less when tested in accordance with ASTM E84 or UL 723 at the thickness and density intended for use and shall meet the acceptance criteria of Section 803.1.2 when tested in accordance with NFPA 286. The foam plastic insulation shall be approved based on tests conducted in accordance with Section 2603.9.

2603.7.3 Covering. The foam plastic insulation shall be covered by corrosion-resistant steel having a base metal thickness of not less than 0.0160 inch (0.4 mm) and shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL 723 at the thickness and density intended for use.

2603.8 Protection against termites. In areas where the probability of termite infestation is very heavy in accordance with Figure 2603.8, extruded and expanded polystyrene, polyisocyanurate and other foam plastics shall not be installed on the exterior face or under interior or exterior foundation walls or slab foundations located below grade. The clearance between foam plastics installed above grade and exposed earth shall be not less than 6 inches (152 mm).

Exceptions:

1. Buildings where the structural members of walls, floors, ceilings and roofs are entirely of noncombustible materials or preservative-treated wood.

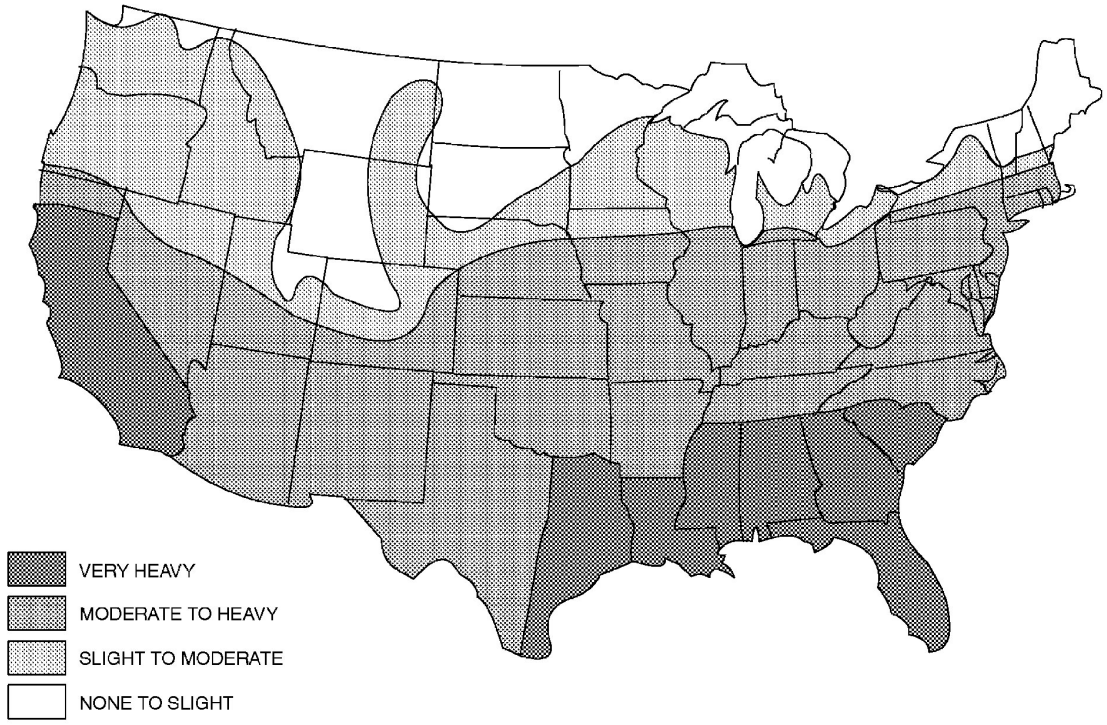


FIGURE 2603.8
TERMITE INFESTATION PROBABILITY MAP

2. An approved method of protecting the foam plastic and structure from subterranean termite damage is provided.
3. On the interior side of basement walls.

2603.9 Special approval. Foam plastic shall not be required to comply with the requirements of Section 2603.4 or those of Section 2603.6 where specifically approved based on large-scale tests such as, but not limited to, NFPA 286 (with the acceptance criteria of Section 803.1.2.1), FM 4880, UL 1040 or UL 1715. Such testing shall be related to the actual end-use configuration and be performed on the finished manufactured foam plastic assembly in the maximum thickness intended for use. Foam plastics that are used as interior finish on the basis of special tests shall also conform to the flame spread and smoke-developed requirements of Chapter 8. Assemblies tested shall include seams, joints and other typical details used in the installation of the assembly and shall be tested in the manner intended for use.

2603.10 Wind resistance. Foam plastic insulation complying with ASTM C578 and ASTM C1289 and used as exterior wall sheathing on framed wall assemblies shall comply with ANSI/FS 100 for wind pressure resistance.

2603.11 Cladding attachment over foam sheathing to masonry or concrete wall construction. Cladding shall be specified and installed in accordance with Chapter 14 and the cladding manufacturer's installation instructions or an approved design. Foam sheathing shall be attached to masonry or concrete construction in accordance with the insulation manufacturer's installation instructions or an approved design. Furring and furring attachments through foam sheathing shall be designed to resist design loads determined in accordance with Chapter 16, including support of cladding weight as applicable. Fasteners used to attach cladding or furring through foam sheathing to masonry or concrete substrates shall be approved for application into masonry or concrete material and shall be installed in accordance with the fastener manufacturer's installation instructions.

Exceptions:

1. Where the cladding manufacturer has provided approved installation instructions for application over foam sheathing and connection to a masonry or concrete substrate, those requirements shall apply.
2. For exterior insulation and finish systems, refer to Section 1408.
3. For anchored masonry or stone veneer installed over foam sheathing, refer to Section 1405.

2603.12 Cladding attachment over foam sheathing to cold-formed steel framing. Cladding shall be specified and installed in accordance with Chapter 14 and the cladding manufacturer's approved installation instructions, including any limitations for use over foam plastic sheathing, or an approved design. Where used, furring and furring attachments shall be designed to resist design loads determined in accordance with Chapter 16. In addition, the cladding or furring attachments through foam sheathing to framing shall meet or exceed the minimum fastening requirements of Sections 2603.12.1 and 2603.12.2, or an approved design for support of cladding weight.

Exceptions:

1. Where the cladding manufacturer has provided approved installation instructions for application over foam sheathing, those requirements shall apply.
2. For exterior insulation and finish systems, refer to Section 1408.

TABLE 2603.12.1
CLADDING MINIMUM FASTENING REQUIREMENTS FOR DIRECT ATTACHMENT OVER FOAM PLASTIC SHEATHING TO SUPPORT CLADDING WEIGHT[a]

CLADDING FASTENER THROUGH FOAM SHEATHING INTO:	CLADDING FASTENER TYPE AND MINIMUM SIZE[b]	CLADDING FASTENER VERTICAL SPACING (inches)	MAXIMUM THICKNESS OF FOAM SHEATHING[c] (inches)					
			16″o.c. fastener horizontal spacing			24″o.c. fastener horizontal spacing		
			Cladding weight			Cladding weight		
			3 psf	11 psf	25 psf	3 psf	11 psf	25 psf
Steel framing (minimum penetration of steel thickness plus 3 threads)	#8 screw into 33 mil steel or thicker	6	3	3	1.5	3	2	DR
		8	3	2	0.5	3	1.5	DR
		12	3	1.5	DR	3	0.75	DR
	#10 screw into 33 mil steel	6	4	3	2	4	3	0.5
		8	4	3	1	4	2	DR
		12	4	2	DR	3	1	DR
	#10 screw into 43 mil steel or thicker	6	4	4	3	4	4	2
		8	4	4	2	4	3	1.5
		12	4	3	1.5	4	3	DR

For SI: 1 inch = 25.4 mm; 1 pound per square foot (psf) = 0.0479 kPa, 1 pound per square inch = 0.00689 MPa.
DR = design required; o.c. = on center.
a. Steel framing shall be minimum 33 ksi steel for 33 mil and 43 mil steel and 50 ksi steel for 54 mil steel or thicker.
b. Screws shall comply with the requirements of AISI S200.
c. Foam sheathing shall have a minimum compressive strength of 15 pounds per square inch in accordance with ASTM C578 or ASTM C1289.

3. For anchored masonry or stone veneer installed over foam sheathing, refer to Section 1405.

2603.12.1 Direct attachment. Where cladding is installed directly over foam sheathing without the use of furring, cladding minimum fastening requirements to support the cladding weight shall be as specified in Table 2603.12.1.

2603.12.2 Furred cladding attachment. Where steel or wood furring is used to attach cladding over foam sheathing, furring minimum fastening requirements to support the cladding weight shall be as specified in Table 2603.12.2. Where placed horizontally, wood furring shall be preservative-treated wood in accordance with Section 2303.1.9 or naturally durable wood and fasteners shall be corrosion resistant in accordance Section 2304.10.5. Steel furring shall have a minimum G60 galvanized coating.

SECTION 2604
INTERIOR FINISH AND TRIM

2604.1 General. Plastic materials installed as interior finish or *trim* shall comply with Chapter 8. Foam plastics shall only be installed as interior finish where approved in accordance with the special provisions of Section 2603.9. Foam plastics that are used as interior finish shall also meet the flame spread and smoke-developed index requirements for interior finish in accordance with Chapter 8. Foam plastics installed as interior *trim* shall comply with Section 2604.2.

2604.2 Interior trim. Foam plastic used as interior *trim* shall comply with Sections 2604.2.1 through 2604.2.4.

2604.2.1 Density. The minimum density of the interior *trim* shall be 20 pcf (320 kg/m^3).

2604.2.2 Thickness. The maximum thickness of the interior *trim* shall be $^1/_2$ inch (12.7 mm) and the maximum width shall be 8 inches (204 mm).

2604.2.3 Area limitation. The interior *trim* shall not constitute more than 10 percent of the specific wall or ceiling areas to which it is attached.

2604.2.4 Flame spread. The flame spread index shall not exceed 75 where tested in accordance with ASTM E84 or UL 723. The smoke-developed index shall not be limited.

Exception: When the interior *trim* material has been tested as an interior finish in accordance with NFPA 286 and complies with the acceptance criteria in Section 803.1.2.1, it shall not be required to be tested for flame spread index in accordance with ASTM E84 or UL 723.

TABLE 2603.12.2
FURRING MINIMUM FASTENING REQUIREMENTS FOR APPLICATION OVER FOAM PLASTIC SHEATHING TO SUPPORT CLADDING WEIGHT[a]

FURRING MATERIAL	FRAMING MEMBER	FASTENER TYPE AND MINIMUM SIZE[b]	MINIMUM PENETRATION INTO WALL FRAMING (inches)	FASTENER SPACING IN FURRING (inches)	MAXIMUM THICKNESS OF FOAM SHEATHING[4] (inches)					
					16″ o.c. furring[e]			24″ o.c. furring[e]		
					Cladding weight			Cladding weight		
					3 psf	11 psf	25 psf	3 psf	11 psf	25 psf
Minimum 33 mil steel furring or minimum 1x wood furring[c]	33 mil steel stud	#8 screw	Steel thickness plus 3 threads	12	3	1.5	DR	3	0.5	DR
				16	3	1	DR	2	DR	DR
				24	2	DR	DR	2	DR	DR
		#10 screw	Steel thickness plus 3 threads	12	4	2	DR	4	1	DR
				16	4	1.5	DR	3	DR	DR
				24	3	DR	DR	2	DR	DR
	43 mil or thicker steel stud	#8 Screw	Steel thickness plus 3 threads	12	3	1.5	DR	3	0.5	DR
				16	3	1	DR	2	DR	DR
				24	2	DR	DR	2	DR	DR
		#10 screw	Steel thickness plus 3 threads	12	4	3	1.5	4	3	DR
				16	4	3	0.5	4	2	DR
				24	4	2	DR	4	0.5	DR

For SI: 1 inch = 25.4 mm; 1 pound per square foot (psf) = 0.0479 kPa, 1 pound per square inch = 0.00689 MPa.

DR = design required: o.c. = on center.

a. Wood furring shall be Spruce-Pine fir or any softwood species with a specific gravity of 0.42 or greater. Steel furring shall be minimum 33 ksi steel. Steel studs shall be minimum 33 ksi steel for 33 mil and 43 mil thickness and 50 ksi steel for 54 mil steel or thicker.

b. Screws shall comply with the requirements of AISI S200.

c. Where the required cladding fastener penetration into wood material exceeds $^3/_4$ inch and is not more than $1^1/_2$ inches, a minimum 2-inch nominal wood furring shall be used or an approved design.

d. Foam sheathing shall have a minimum compressive strength of 15 pounds per square inch in accordance with ASTM C578 or ASTM C1289.

e. Furring shall be spaced not more than 24 inches on center, in a vertical or horizontal orientation. In a vertical orientation, furring shall be located over wall studs and attached with the required fastener spacing. In a horizontal orientation, the indicated 8-inch and 12-inch fastener spacing in furring shall be achieved by use of two fasteners into studs at 16 inches and 24 inches on center, respectively.

SECTION 2605
PLASTIC VENEER

2605.1 Interior use. Where used within a building, plastic veneer shall comply with the interior finish requirements of Chapter 8.

2605.2 Exterior use. Exterior plastic veneer, other than plastic siding, shall be permitted to be installed on the *exterior walls* of buildings of any type of construction in accordance with all of the following requirements:

1. Plastic veneer shall comply with Section 2606.4.
2. Plastic veneer shall not be attached to any exterior wall to a height greater than 50 feet (15 240 mm) above grade.
3. Sections of plastic veneer shall not exceed 300 square feet (27.9 m^2) in area and shall be separated by not less than 4 feet (1219 mm) vertically.

Exception: The area and separation requirements and the smoke-density limitation are not applicable to plastic veneer applied to buildings constructed of Type VB construction, provided the walls are not required to have a fire-resistance rating.

2605.3 Plastic siding. Plastic siding shall comply with the requirements of Sections 1404 and 1405.

SECTION 2606
LIGHT-TRANSMITTING PLASTICS

2606.1 General. The provisions of this section and Sections 2607 through 2611 shall govern the quality and methods of application of light-transmitting plastics for use as light-transmitting materials in buildings and structures. Foam plastics shall comply with Section 2603. Light-transmitting plastic materials that meet the other code requirements for walls and roofs shall be permitted to be used in accordance with the other applicable chapters of the code.

2606.2 Approval for use. Sufficient technical data shall be submitted to substantiate the proposed use of any light-transmitting material, as approved by the *building official* and subject to the requirements of this section.

2606.3 Identification. Each unit or package of light-transmitting plastic shall be identified with a *mark* or decal satisfactory to the *building official*, which includes identification as to the material classification.

2606.4 Specifications. Light-transmitting plastics, including thermoplastic, thermosetting or reinforced thermosetting plastic material, shall have a self-ignition temperature of 650°F (343°C) or greater where tested in accordance with ASTM D1929; a smoke-developed index not greater than 450 where tested in the manner intended for use in accordance with ASTM E84 or UL 723, or a maximum average smoke density rating not greater than 75 where tested in the thickness intended for use in accordance with ASTM D2843 and shall conform to one of the following combustibility classifications:

Class CC1: Plastic materials that have a burning extent of 1 inch (25 mm) or less where tested at a nominal thickness of 0.060 inch (1.5 mm), or in the thickness intended for use, in accordance with ASTM D635.

Class CC2: Plastic materials that have a burning rate of $2^1/_2$ inches per minute (1.06 mm/s) or less where tested at a nominal thickness of 0.060 inch (1.5 mm), or in the thickness intended for use, in accordance with ASTM D635.

2606.5 Structural requirements. Light-transmitting plastic materials in their assembly shall be of adequate strength and durability to withstand the loads indicated in Chapter 16. Technical data shall be submitted to establish stresses, maximum unsupported spans and such other information for the various thicknesses and forms used as deemed necessary by the *building official*.

2606.6 Fastening. Fastening shall be adequate to withstand the loads in Chapter 16. Proper allowance shall be made for expansion and contraction of light-transmitting plastic materials in accordance with accepted data on the coefficient of expansion of the material and other material in conjunction with which it is employed.

2606.7 Light-diffusing systems. Unless the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, light-diffusing systems shall not be installed in the following occupancies and locations:

1. Group A with an *occupant load* of 1,000 or more.
2. Theaters with a stage and proscenium opening and an *occupant load* of 700 or more.
3. Group I-2.
4. Group I-3.
5. Interior exit stairways and ramps and *exit* passageways.

2606.7.1 Support. Light-transmitting plastic diffusers shall be supported directly or indirectly from ceiling or roof construction by use of noncombustible hangers. Hangers shall be not less than No. 12 steel-wire gage (0.106 inch) galvanized wire or equivalent.

2606.7.2 Installation. Light-transmitting plastic diffusers shall comply with Chapter 8 unless the light-transmitting plastic diffusers will fall from the mountings before igniting, at an ambient temperature of not less than 200°F (111°C) below the ignition temperature of the panels. The panels shall remain in place at an ambient room temperature of 175°F (79°C) for a period of not less than 15 minutes.

2606.7.3 Size limitations. Individual panels or units shall not exceed 10 feet (3048 mm) in length nor 30 square feet (2.79 m^2) in area.

2606.7.4 Fire suppression system. In buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, plastic light-diffusing systems shall be protected both above and below unless the sprinkler system has been specifically approved for installation only above the light-diffusing system. Areas of light-diffusing systems that are protected in accordance with this section shall not be limited.

2606.7.5 Electrical luminaires. Light-transmitting plastic panels and light-diffuser panels that are installed in approved electrical luminaires shall comply with the requirements of Chapter 8 unless the light-transmitting plastic panels conform to the requirements of Section 2606.7.2. The area of approved light-transmitting plastic materials that is used in required *exits* or *corridors* shall not exceed 30 percent of the aggregate area of the ceiling in which such panels are installed, unless the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

2606.8 Partitions. Light-transmitting plastics used in or as partitions shall comply with the requirements of Chapters 6 and 8.

2606.9 Bathroom accessories. Light-transmitting plastics shall be permitted as glazing in shower stalls, shower doors, bathtub enclosures and similar accessory units. Safety glazing shall be provided in accordance with Chapter 24.

2606.10 Awnings, patio covers and similar structures. *Awnings* constructed of light-transmitting plastics shall be constructed in accordance with the provisions specified in Section 3105 and Chapter 32 for projections. Patio covers constructed of light-transmitting plastics shall comply with Section 2606. Light-transmitting plastics used in canopies at motor fuel-dispensing facilities shall comply with Section 2606, except as modified by Section 406.7.2.

2606.11 Greenhouses. Light-transmitting plastics shall be permitted in lieu of plain glass in greenhouses.

2606.12 Solar collectors. Light-transmitting plastic covers on solar collectors having noncombustible sides and bottoms shall be permitted on buildings not over three *stories above grade plane* or 9,000 square feet (836.1 m^2) in total floor area, provided the light-transmitting plastic cover does not exceed 33.33 percent of the roof area for CC1 materials or 25 percent of the roof area for CC2 materials.

Exception: Light-transmitting plastic covers having a thickness of 0.010 inch (0.3 mm) or less shall be permitted to be of any plastic material provided the area of the solar collectors does not exceed 33.33 percent of the roof area.

SECTION 2607
LIGHT-TRANSMITTING PLASTIC WALL PANELS

2607.1 General. Light-transmitting plastics shall not be used as wall panels in *exterior walls* in occupancies in Groups A-l, A-2, H, I-2 and I-3. In other groups, light-transmitting plastics shall be permitted to be used as wall panels in *exterior walls*, provided that the walls are not required to have a fire-resistance rating and the installation conforms to the requirements of this section. Such panels shall be erected and anchored on a foundation, waterproofed or otherwise protected from moisture absorption and sealed with a coat of mastic or other approved waterproof coating. Light-transmitting plastic wall panels shall comply with Section 2606.

2607.2 Installation. *Exterior wall* panels installed as provided for herein shall not alter the type of construction classification of the building.

2607.3 Height limitation. Light-transmitting plastics shall not be installed more than 75 feet (22 860 mm) above *grade plane*, except as allowed by Section 2607.5.

2607.4 Area limitation and separation. The maximum area of a single wall panel and minimum vertical and horizontal separation requirements for exterior light-transmitting plastic wall panels shall be as provided for in Table 2607.4. The maximum percentage of wall area of any *story* in light-transmitting plastic wall panels shall not exceed that indicated in Table 2607.4 or the percentage of unprotected openings permitted by Section 705.8, whichever is smaller.

Exceptions:

1. In structures provided with approved flame barriers extending 30 inches (760 mm) beyond the *exterior wall* in the plane of the floor, a vertical separation is not required at the floor except that provided by the vertical thickness of the flame barrier projection.
2. Veneers of approved weather-resistant light-transmitting plastics used as exterior siding in buildings of Type V construction in compliance with Section 1406.

TABLE 2607.4
AREA LIMITATION AND SEPARATION REQUIREMENTS FOR LIGHT-TRANSMITTING PLASTIC WALL PANELS[a]

FIRE SEPARATION DISTANCE (feet)	CLASS OF PLASTIC	MAXIMUM PERCENTAGE AREA OF EXTERIOR WALL IN PLASTIC WALL PANELS	MAXIMUM SINGLE AREA OF PLASTIC WALL PANELS (square feet)	MINIMUM SEPARATION OF PLASTIC WALL PANELS (feet)	
				Vertical	Horizontal
Less than 6	—	Not Permitted	Not Permitted	—	—
6 or more but less than 11	CC1	10	50	8	4
	CC2	Not Permitted	Not Permitted	—	—
11 or more but less than or equal to 30	CC1	25	90	6	4
	CC2	15	70	8	4
Over 30	CC1	50	Not Limited	3[b]	0
	CC2	50	100	6[b]	3

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m^2.

a. For combinations of plastic glazing and plastic wall panel areas permitted, see Section 2607.6.

b. For reductions in vertical separation allowed, see Section 2607.4.

3. The area of light-transmitting plastic wall panels in *exterior walls* of greenhouses shall be exempt from the area limitations of Table 2607.4 but shall be limited as required for unprotected openings in accordance with Section 704.8.

2607.5 Automatic sprinkler system. Where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, the maximum percentage area of *exterior wall* in any *story* in light-transmitting plastic wall panels and the maximum square footage of a single area given in Table 2607.4 shall be increased 100 percent, but the area of light-transmitting plastic wall panels shall not exceed 50 percent of the wall area in any story, or the area permitted by Section 705.8 for unprotected openings, whichever is smaller. These installations shall be exempt from height limitations.

2607.6 Combinations of glazing and wall panels. Combinations of light-transmitting plastic glazing and light-transmitting plastic wall panels shall be subject to the area, height and percentage limitations and the separation requirements applicable to the class of light-transmitting plastic as prescribed for light-transmitting plastic wall panel installations.

SECTION 2608
LIGHT-TRANSMITTING PLASTIC GLAZING

2608.1 Buildings of Type VB construction. Openings in the *exterior walls* of buildings of Type VB construction, where not required to be protected by Section 705, shall be permitted to be glazed or equipped with light-transmitting plastic. Light-transmitting plastic glazing shall comply with Section 2606.

2608.2 Buildings of other types of construction. Openings in the *exterior walls* of buildings of types of construction other than Type VB, where not required to be protected by Section 705, shall be permitted to be glazed or equipped with light-transmitting plastic in accordance with Section 2606 and all of the following:

1. The aggregate area of light-transmitting plastic glazing shall not exceed 25 percent of the area of any wall face of the *story* in which it is installed. The area of a single pane of glazing installed above the first *story above grade plane* shall not exceed 16 square feet (1.5 m^2) and the vertical dimension of a single pane shall not exceed 4 feet (1219 mm).

   Exception: Where an *automatic sprinkler system* is provided throughout in accordance with Section 903.3.1.1, the area of allowable glazing shall be increased to not more than 50 percent of the wall face of the *story* in which it is installed with no limit on the maximum dimension or area of a single pane of glazing.

2. Approved flame barriers extending 30 inches (762 mm) beyond the *exterior wall* in the plane of the floor, or vertical panels not less than 4 feet (1219 mm) in height, shall be installed between glazed units located in adjacent stories.

   Exception: Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

3. Light-transmitting plastics shall not be installed more than 75 feet (22 860 mm) above grade level.

   Exception: Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

SECTION 2609
LIGHT-TRANSMITTING PLASTIC ROOF PANELS

2609.1 General. Light-transmitting plastic roof panels shall comply with this section and Section 2606. Light-transmitting plastic roof panels shall not be installed in Groups H, I-2 and I-3. In all other groups, light-transmitting plastic roof panels shall comply with any one of the following conditions:

1. The building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
2. The roof construction is not required to have a fire-resistance rating by Table 601.
3. The roof panels meet the requirements for roof coverings in accordance with Chapter 15.

2609.2 Separation. Individual roof panels shall be separated from each other by a distance of not less than 4 feet (1219 mm) measured in a horizontal plane.

Exceptions:

1. The separation between roof panels is not required in a building equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
2. The separation between roof panels is not required in low-hazard occupancy buildings complying with the conditions of Section 2609.4, Exception 2 or 3.

2609.3 Location. Where *exterior wall* openings are required to be protected by Section 705.8, a roof panel shall not be installed within 6 feet (1829 mm) of such *exterior wall*.

2609.4 Area limitations. Roof panels shall be limited in area and the aggregate area of panels shall be limited by a percentage of the floor area of the room or space sheltered in accordance with Table 2609.4.

Exceptions:

1. The area limitations of Table 2609.4 shall be permitted to be increased by 100 percent in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
2. Low-hazard occupancy buildings, such as swimming pool shelters, shall be exempt from the area limitations of Table 2609.4, provided that the buildings do not exceed 5,000 square feet (465 m^2) in

area and have a minimum fire separation distance of 10 feet (3048 mm).

3. Greenhouses that are occupied for growing plants on a production or research basis, without public access, shall be exempt from the area limitations of Table 2609.4 provided they have a minimum fire separation distance of 4 feet (1220 mm).
4. Roof coverings over terraces and patios in occupancies in Group R-3 shall be exempt from the area limitations of Table 2609.4 and shall be permitted with light-transmitting plastics.

TABLE 2609.4
AREA LIMITATIONS FOR
LIGHT-TRANSMITTING PLASTIC ROOF PANELS

CLASS OF PLASTIC	MAXIMUM AREA OF INDIVIDUAL ROOF PANELS (square feet)	MAXIMUM AGGREGATE AREA OF ROOF PANELS (percent of floor area)
CC1	300	30
CC2	100	25

For SI: 1 square foot = 0.0929 m^2.

SECTION 2610
LIGHT-TRANSMITTING PLASTIC SKYLIGHT GLAZING

2610.1 Light-transmitting plastic glazing of skylight assemblies. Skylight assemblies glazed with light-transmitting plastic shall conform to the provisions of this section and Section 2606. Unit skylights glazed with light-transmitting plastic shall comply with Section 2405.5.

Exception: Skylights in which the light-transmitting plastic conforms to the required roof-covering class in accordance with Section 1505.

2610.2 Mounting. The light-transmitting plastic shall be mounted above the plane of the roof on a curb constructed in accordance with the requirements for the type of construction classification, but not less than 4 inches (102 mm) above the plane of the roof. Edges of the light-transmitting plastic skylights or domes shall be protected by metal or other approved noncombustible material, or the light transmitting plastic dome or skylight shall be shown to be able to resist ignition where exposed at the edge to a flame from a Class B brand as described in ASTM E108 or UL 790. The Class B brand test shall be conducted on a skylight that is elevated to a height as specified in the manufacturer's installation instructions, but not less than 4 inches (102 mm).

Exceptions:

1. Curbs shall not be required for skylights used on roofs having a minimum slope of three units vertical in 12 units horizontal (25-percent slope) in occupancies in Group R-3 and on buildings with a nonclassified roof covering.
2. The metal or noncombustible edge material is not required where nonclassified roof coverings are permitted.

2610.3 Slope. Flat or corrugated light-transmitting plastic skylights shall slope not less than four units vertical in 12 units horizontal (4:12). Dome-shaped skylights shall rise above the mounting flange a minimum distance equal to 10 percent of the maximum width of the dome but not less than 3 inches (76 mm).

Exception: Skylights that pass the Class B Burning Brand Test specified in ASTM E108 or UL 790.

2610.4 Maximum area of skylights. Each skylight shall have a maximum area within the curb of 100 square feet (9.3 m^2).

Exception: The area limitation shall not apply where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or the building is equipped with smoke and heat vents in accordance with Section 910.

2610.5 Aggregate area of skylights. The aggregate area of skylights shall not exceed $33^1/_3$ percent of the floor area of the room or space sheltered by the roof in which such skylights are installed where Class CC1 materials are utilized, and 25 percent where Class CC2 materials are utilized.

Exception: The aggregate area limitations of light-transmitting plastic skylights shall be increased 100 percent beyond the limitations set forth in this section where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or the building is equipped with smoke and heat vents in accordance with Section 910.

2610.6 Separation. Skylights shall be separated from each other by a distance of not less than 4 feet (1219 mm) measured in a horizontal plane.

Exceptions:

1. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
2. In Group R-3, multiple skylights located above the same room or space with a combined area not exceeding the limits set forth in Section 2610.4.

2610.7 Location. Where *exterior wall* openings are required to be protected in accordance with Section 705, a skylight shall not be installed within 6 feet (1829 mm) of such *exterior wall*.

2610.8 Combinations of roof panels and skylights. Combinations of light-transmitting plastic roof panels and skylights shall be subject to the area and percentage limitations and separation requirements applicable to roof panel installations.

SECTION 2611
LIGHT-TRANSMITTING PLASTIC INTERIOR SIGNS

2611.1 General. Light-transmitting plastic interior wall signs shall be limited as specified in Sections 2611.2 through 2611.4. Light-transmitting plastic interior wall signs in *covered and open mall buildings* shall comply with Section 402.6.4. Light-transmitting plastic interior signs shall also comply with Section 2606.

2611.2 Aggregate area. The sign shall not exceed 20 percent of the wall area.

2611.3 Maximum area. The sign shall not exceed 24 square feet (2.23 m^2).

2611.4 Encasement. Edges and backs of the sign shall be fully encased in metal.

SECTION 2612
PLASTIC COMPOSITES

2612.1 General. Plastic composites shall consist of either wood/plastic composites or plastic lumber. Plastic composites shall comply with the provisions of this code and with the additional requirements of Section 2612.

2612.2 Labeling and identification. Packages and containers of plastic composites used in exterior applications shall bear a *label* showing the manufacturer's name, product identification and information sufficient to determine that the end use will comply with code requirements.

2612.2.1 Performance levels. The label for plastic composites used in exterior applications as deck boards, stair treads, handrails and guards shall indicate the required performance levels and demonstrate compliance with the provisions of ASTM D7032.

2612.2.2 Loading. The label for plastic composites used in exterior applications as deck boards, stair treads, handrails and guards shall indicate the type and magnitude of the load determined in accordance with ASTM D7032.

2612.3 Flame spread index. Plastic composites shall exhibit a flame spread index not exceeding 200 when tested in accordance with ASTM E84 or UL 723 with the test specimen remaining in place during the test.

Exception: Materials determined to be noncombustible in accordance with Section 703.5.

2612.4 Termite and decay resistance. Plastic composites containing wood, cellulosic or any other biodegradable materials shall be termite and decay resistant as determined in accordance with ASTM D7032.

2612.5 Construction requirements. Plastic composites shall be permitted to be used as exterior deck boards, stair treads, handrails and guards in buildings of Type VB construction.

2612.5.1 Span rating. Plastic composites used as exterior deck boards shall have a span rating determined in accordance with ASTM D7032.

2612.6 Plastic composite decking, handrails and guards. Plastic composite decking, handrails and guards shall be installed in accordance with this code and the manufacturer's instructions.

SECTION 2613
FIBER-REINFORCED POLYMER

2613.1 General. The provisions of this section shall govern the requirements and uses of fiber-reinforced polymer in and on buildings and structures.

2613.2 Labeling and identification. Packages and containers of fiber-reinforced polymer and their components delivered to the job site shall bear the *label* of an *approved agency* showing the manufacturer's name, product listing, product identification and information sufficient to determine that the end use will comply with the code requirements.

2613.3 Interior finishes. Fiber-reinforced polymer used as *interior finishes, decorative materials or trim* shall comply with Chapter 8.

2613.3.1 Foam plastic cores. Fiber-reinforced polymer used as interior finish and which contains foam plastic cores shall comply with Chapter 8 and this chapter.

2613.4 Light-transmitting materials. Fiber-reinforced polymer used as light-transmitting materials shall comply with Sections 2606 through 2611 as required for the specific application.

2613.5 Exterior use. Fiber-reinforced polymer shall be permitted to be installed on the *exterior walls* of buildings of any type of construction when such polymers meet the requirements of Section 2603.5. Fireblocking shall be installed in accordance with Section 718.

Exceptions:

1. Compliance with Section 2603.5 is not required when all of the following conditions are met:
   - 1.1. The fiber-reinforced polymer shall not exceed an aggregate total of 20 percent of the area of the specific wall to which it is attached, and no single architectural element shall exceed 10 percent of the area of the specific wall to which it is attached, and no contiguous set of architectural elements shall exceed 10 percent of the area of the specific wall to which they are attached.
   - 1.2. The fiber-reinforced polymer shall have a flame spread index of 25 or less. The flame spread index requirement shall not be required for coatings or paints having a thickness of less than 0.036 inch (0.9 mm) that are applied directly to the surface of the fiber-reinforced polymer.
   - 1.3. Fireblocking complying with Section 718.2.6 shall be installed.
   - 1.4. The fiber-reinforced polymer shall be installed directly to a noncombustible substrate or be separated from the exterior wall by one of the following materials: corrosion-resistant steel having a minimum base metal thickness of 0.016 inch (0.41 mm) at any point, aluminum having a minimum thickness of 0.019 inch (0.5 mm) or other approved noncombustible material.
2. Compliance with Section 2603.5 is not required when the fiber-reinforced polymer is installed on buildings that are 40 feet (12 190 mm) or less above grade when all of the following conditions are met:
   - 2.1. The fiber-reinforced polymer shall meet the requirements of Section 1406.2.
   - 2.2. Where the fire separation distance is 5 feet (1524 mm) or less, the area of the fiber-

reinforced polymer shall not exceed 10 percent of the wall area. Where the fire separation distance is greater than 5 feet (1524 mm), there shall be no limit on the area of the *exterior wall* coverage using fiber-reinforced polymer.

2.3. The fiber-reinforced polymer shall have a flame spread index of 200 or less. The flame spread index requirements do not apply to coatings or paints having a thickness of less than 0.036 inch (0.9 mm) that are applied directly to the surface of the fiber-reinforced polymer.

2.4. Fireblocking complying with Section 718.2.6 shall be installed.

SECTION 2614
REFLECTIVE PLASTIC CORE INSULATION

2614.1 General. The provisions of this section shall govern the requirements and uses of reflective plastic core insulation in buildings and structures. Reflective plastic core insulation shall comply with the requirements of Section 2614 and of one of the following: Section 2614.3 or 2614.4.

2614.2 Identification. Packages and containers of reflective plastic core insulation delivered to the job site shall show the manufacturer's or supplier's name, product identification and information sufficient to determine that the end use will comply with the code requirements.

2614.3 Surface-burning characteristics. Reflective plastic core insulation shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 450 when tested in accordance with ASTM E84 or UL 723. The reflective plastic core insulation shall be tested at the maximum thickness intended for use. Test specimen preparation and mounting shall be in accordance with ASTM E2599.

2614.4 Room corner test heat release. Reflective plastic core insulation shall comply with the acceptance criteria of Section 803.1.2.1 when tested in accordance with NFPA 286 or UL 1715 in the manner intended for use and at the maximum thickness intended for use.

CHAPTER 27

ELECTRICAL

SECTION 2701
GENERAL

2701.1 Scope. This chapter governs the electrical components, equipment and systems used in buildings and structures covered by this code. Electrical components, equipment and systems shall be designed and constructed in accordance with the provisions of NFPA 70.

SECTION 2702
EMERGENCY AND STANDBY POWER SYSTEMS

2702.1 Installation. Emergency power systems and standby power systems shall comply with Sections 2702.1.1 through 2702.1.7.

2702.1.1 Stationary generators. Stationary emergency and standby power generators required by this code shall be listed in accordance with UL 2200.

2702.1.2 Electrical. Emergency power systems and standby power systems required by this code or the *Fire Code* shall be installed in accordance with the *Fire Code*, NFPA 70, NFPA 110 and NFPA 111.

2702.1.3 Load transfer. Emergency power systems shall automatically provide secondary power within 10 seconds after primary power is lost, unless specified otherwise in this code. Standby power systems shall automatically provide secondary power within 60 seconds after primary power is lost, unless specified otherwise in this code.

2702.1.4 Load duration. Emergency power systems and standby power systems shall be designed to provide the required power for a minimum duration of 2 hours without being refueled or recharged, unless specified otherwise in this code.

2702.1.5 Uninterruptable power source. An uninterrupted source of power shall be provided for equipment when required by the manufacturer's instructions, the listing, this code or applicable referenced standards.

2702.1.6 Interchangeability. Emergency power systems shall be an acceptable alternative for installations that require standby power systems.

2702.1.7 Group I-2 occupancies. In Group I-2 occupancies, in new construction or where the building is substantially damaged, where an essential electrical system is located in flood hazard areas established in Section 1612.3, the system shall be located and installed in accordance with ASCE 24.

2702.2 Where required. Emergency and standby power systems shall be provided where required by Sections 2702.2.1 through 2702.2.16.

2702.2.1 Emergency alarm systems. Emergency power shall be provided for emergency alarm systems as required by Section 415.5.

2702.2.2 Elevators and platform lifts. Standby power shall be provided for elevators and platform lifts as required in Sections 1009.4, 1009.5, 3003.1, 3007.8 and 3008.8.

2702.2.3 Emergency responder radio coverage systems. Standby power shall be provided for emergency responder radio coverage systems required in Section 916 and the *Fire Code*. The standby power supply shall be capable of operating the emergency responder radio coverage system for a duration of not less than 24 hours.

2702.2.4 Emergency voice/alarm communication systems. Emergency power shall be provided for emergency voice/alarm communication systems as required in Section 907.5.2.2.5. The system shall be capable of powering the required load for a duration of not less than 24 hours, as required in NFPA 72.

2702.2.5 Exit signs. Emergency power shall be provided for exit signs as required in Section 1013.6.3. The system shall be capable of powering the required load for a duration of not less than 90 minutes.

2702.2.6 Group I-2 occupancies. Essential electrical systems for Group I-2 occupancies shall be in accordance with Section 407.10.

2702.2.7 Group I-3 occupancies. Emergency power shall be provided for power-operated doors and locks in Group I-3 occupancies as required in Section 408.4.2.

2702.2.8 Hazardous materials. Emergency or standby power shall be provided in occupancies with hazardous materials where required by the *Fire Code*.

2702.2.9 High-rise buildings. Emergency and standby power shall be provided in high-rise buildings as required in Sections 403.4.8.

2702.2.10 Horizontal sliding doors. Standby power shall be provided for horizontal sliding doors as required in Section 1010.1.4.3. The standby power supply shall have a capacity to operate not fewer than 50 closing cycles of the door.

2702.2.11 Means of egress illumination. Emergency power shall be provided for means of egress illumination as required in Section 1008.3. The system shall be capable of powering the required load for a duration of not less than 90 minutes.

2702.2.12 Membrane structures. Standby power shall be provided for auxiliary inflation systems in permanent membrane structures as required in Section 3102.8.2. Standby power shall be provided for a duration of not less

than 4 hours. Auxiliary inflation systems in temporary air-supported and air-inflated membrane structures shall be provided in accordance with Section 3103.10.4 of the *Fire Code.*

2702.2.13 Pyrophoric materials. Emergency power shall be provided for occupancies with silane gas in accordance with the *Fire Code.*

2702.2.14 Semiconductor fabrication facilities. Emergency power shall be provided for semiconductor fabrication facilities as required in Section 415.11.10.

2702.2.15 Smoke control systems. Standby power shall be provided for smoke control systems as required in Sections 404.7, 909.11, 909.20.6.2 and 909.21.5.

2702.2.16 Underground buildings. Emergency and standby power shall be provided in underground buildings as required in Section 405.

2702.3 Critical circuits. Cables used for survivability of required critical circuits shall be listed in accordance with UL 2196. Electrical circuit protective systems shall be installed in accordance with their listing requirements.

2702.4 Maintenance. Emergency and standby power systems shall be maintained and tested in accordance with the *Fire Code*.

CHAPTER 28

MECHANICAL SYSTEMS

SECTION 2801
GENERAL

2801.1 Scope. Mechanical appliances, equipment and systems shall be constructed, installed and maintained in accordance with the *Mechanical Code* and the *Fuel Gas Code*. Masonry chimneys, fireplaces and barbecues shall comply with the *Mechanical Code* and Chapter 21 of this code.

CHAPTER 29

PLUMBING SYSTEMS

SECTION 2901
GENERAL

2901.1 Scope. The provisions of this chapter and the *Plumbing Code* shall govern the erection, installation, *alteration*, repairs, relocation, replacement, *addition* to, use or maintenance of plumbing equipment and systems. Toilet and bathing rooms shall be constructed in accordance with Section 1210. Plumbing systems and equipment shall be constructed, installed and maintained in accordance with the *Plumbing Code*.

SECTION 2902
MINIMUM PLUMBING FACILITIES

2902.1 Minimum number of fixtures. Plumbing fixtures shall be provided in the minimum number as shown in Table 2902.1 based on the actual use of the building or space. Uses not shown in Table 2902.1 shall be considered individually by the code official. The number of occupants shall be determined by this code.

2902.1.1 Fixture calculations. To determine the *occupant load* of each sex, the total *occupant load* shall be divided in half. To determine the required number of fixtures, the fixture ratio or ratios for each fixture type shall be applied to the *occupant load* of each sex in accordance with Table 2902.1. Fractional numbers resulting from applying the fixture ratios of Table 2902.1 shall be rounded up to the next whole number. For calculations involving multiple occupancies, such fractional numbers for each occupancy shall first be summed and then rounded up to the next whole number.

Exception: The total *occupant load* shall not be required to be divided in half where *approved* statistical data indicate a distribution of the sexes of other than 50 percent of each sex.

2902.1.2 Family or assisted-use toilet and bath fixtures. Fixtures located within family or assisted-use toilet and bathing rooms required by Section 1109.2.1 are permitted to be included in the number of required fixtures for either the male or female occupants in assembly and mercantile occupancies.

TABLE 2902.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a]
(See Sections 2902.1.1 and 2902.2)

No.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2 OF THE *PLUMBING CODE*)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAINS (SEE SECTION 410 OF THE *PLUMBING CODE*)	OTHER
				Male	Female	Male	Female			
1	Assembly (continued)	A-1[d]	Theaters and other buildings for the performing arts and motion pictures	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
		A-2[d]	Nightclubs, bars, taverns, dance halls and buildings for similar purposes	1 per 40	1 per 40	1 per 75		—	1 per 500	1 service sink
			Restaurants, banquet halls and food courts	1 per 75	1 per 75	1 per 200		—	1 per 500	1 service sink
		A-3[d]	Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
			Passenger terminals and transportation facilities	1 per 500	1 per 500	1 per 750		—	1 per 1,000	1 service sink
			Places of worship and other religious services	1 per 150	1 per 75	1 per 200		—	1 per 1,000	1 service sink

(continued)

TABLE 2902.1—(continued)
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a]
(See Sections 2902.1.1 and 2902.2)

No.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2 OF THE *PLUMBING CODE*)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAINS (SEE SECTION 410 OF THE *PLUMBING CODE)*	OTHER
				Male	Female	Male	Female			
1	Assembly	A-4	Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
		A-5	Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
2	Business	B	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50		1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80		—	1 per 100	1 service sink[e]
3	Educational	E	Educational facilities	1 per 50		1 per 50		—	1 per 100	1 service sink
4	Factory and industrial	F-1 and F-2	Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials	1 per 100		1 per 100		See Section 411 of the *Plumbing Code*	1 per 400	1 service sink
5	Institutional	I-1	Residential care	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		I-2	Hospitals, ambulatory nursing home care recipient[b]	1 per room[c]		1 per room[c]		1 per 15	1 per 100	1 service sink
			Employees, other than residential care[b]	1 per 25		1 per 35		—	1 per 100	—
			Visitors, other than residential care	1 per 75		1 per 100		—	1 per 500	—
		I-3	Prisons[b]	1 per cell		1 per cell		1 per 15	1 per 100	1 service sink
		I-3	Reformatories, detention centers and correctional centers[b]	1 per 15		1 per 15		1 per 15	1 per 100	1 service sink
			Employees[b]	1 per 25		1 per 35		—	1 per 100	—
		I-4	Adult day care and child day care	1 per 15		1 per 15		1[h]	1 per 100	1 service sink

(continued)

TABLE 2902.1—continued
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a]
(See Sections 2902.1.1 and 2902.2)

No.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2 OF THE *PLUMBING CODE*)		LAVATORIES		BATHTUBS OR SHOWERS	DRINKING FOUNTAINS (SEE SECTION 410 OF THE *PLUMBING CODE)*	OTHER
				Male	Female	Male	Female			
6	Mercantile	M	Retail stores, service stations, shops, salesrooms, markets and shopping centers	1 per 500		1 per 750		—	1 per 1,000	1 service sink[e]
7	Residential	R-1	Hotels, motels, boarding houses (transient)	1 per sleeping unit		1 per sleeping unit		1 per sleeping unit	—	1 service sink
		R-2	Dormitories, fraternities, sororities and boarding houses (not transient)	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		R-2	Apartment house	1 per dwelling unit		1 per dwelling unit		1 per dwelling unit	—	1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per 20 dwelling units
		R-3	One- and two-family dwellings and lodging houses with five or fewer guest rooms	1 per dwelling unit		1 per 10		1 per dwelling unit	—	1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per dwelling unit
		R-3	Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		R-4	Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
8	Storage	S-1 S-2	Structures for the storage of goods, warehouses, storehouses and freight depots, low and moderate hazard	1 per 100		1 per 100		See Section 411 of the *Plumbing Code*	1 per 1,000	1 service sink

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by this code.
b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.
c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient *sleeping units* shall be permitted, provided that each patient *sleeping unit* has direct access to the toilet room and provisions for privacy for the toilet room user are provided.
d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.
e. For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required.
h. For child day care occupancies, bathtubs/showers shall not be required.

2902.2 Separate facilities. Where plumbing fixtures are required, separate facilities shall be provided for each sex.

Exceptions:

1. Separate facilities shall not be required for *dwelling units* and *sleeping units*.
2. Separate facilities shall not be required in structures or tenant spaces with a total *occupant load*, including both employees and customers, of 15 or fewer.
3. Separate facilities shall not be required in mercantile occupancies in which the maximum occupant load is 100 or less.
4. Separate facilities shall not be required in *buildings* or tenant spaces where single-occupancy gender-neutral public toilet facilities are provided in accordance with Section 2902.4.

2902.2.1 Family or assisted-use toilet facilities serving as separate facilities. Where a building or tenant space requires a separate toilet facility for each sex and each toilet facility is required to have only one water closet, two family or assisted-use toilet facilities shall be permitted to serve as the required separate facilities. Family or assisted-use toilet facilities shall not be required to be identified for exclusive use by either sex as required by Section 2902.4.

2902.3 Employee and public toilet facilities. Customers, patrons and visitors shall be provided with public toilet facilities in structures and tenant spaces intended for public utilization. The number of plumbing fixtures located within the required toilet facilities shall be provided in accordance with Section 2902.1 for all users. Employees shall be provided with toilet facilities in all occupancies. Employee toilet facilities shall be either separate or combined employee and public toilet facilities.

Exception: Public toilet facilities shall not be required in:

1. Open or enclosed parking garages where there are no parking attendants.
2. Structures and tenant spaces intended for quick transactions, including takeout, pickup and drop-off, having a public access area less than or equal to 300 square feet (28 m^2).

2902.3.1 Access. The route to the public toilet facilities required by Section 2902.3 shall not pass through kitchens, storage rooms or closets. Access to the required facilities shall be from within the building or from the exterior of the building. Routes shall comply with the accessibility requirements of this code. The public shall have access to the required toilet facilities at all times that the building is occupied.

2902.3.2 Location of toilet facilities in occupancies other than malls. In occupancies other than covered and open mall buildings, the required public and employee toilet facilities shall be located not more than one *story* above or below the space required to be provided with toilet facilities, and the path of travel to such facilities shall not exceed a distance of 500 feet (152 m).

Exception: The location and maximum distances of travel to required employee facilities in factory and industrial occupancies are permitted to exceed that required by this section, provided that the location and maximum distance of travel are *approved*.

2902.3.3 Location of toilet facilities in malls. In covered and open mall buildings, the required public and employee toilet facilities shall be located not more than one story above or below the space required to be provided with toilet facilities, and the path of travel to such facilities shall not exceed a distance of 300 feet (91 mm). In mall buildings, the required facilities shall be based on total square footage (m^2) within a covered mall building or within the perimeter line of an open mall building, and facilities shall be installed in each individual store or in a central toilet area located in accordance with this section. The maximum distance of travel to central toilet facilities in mall buildings shall be measured from the main entrance of any store or tenant space. In mall buildings, where employees' toilet facilities are not provided in the individual store, the maximum distance of travel shall be measured from the employees' work area of the store or tenant space.

2902.3.4 Pay facilities. Where pay facilities are installed, such facilities shall be in excess of the required minimum facilities. Required facilities shall be free of charge.

2902.3.5 Door locking. Where a toilet room is provided for the use of multiple occupants, the egress door for the room shall not be lockable from the inside of the room. This section does not apply to family or assisted-use toilet rooms.

2902.3.6 Prohibited toilet room location. Toilet rooms shall not open directly into a room used for the preparation of food for service to the public.

2902.4 Signage. Multi-occupancy public toilet facilities shall be designated by a legible sign for each sex. Single-occupancy public facilities shall be designated with gender-neutral signage. Signs shall be readily visible and located near the entrance to each toilet facility. Signs for *accessible* toilet facilities shall comply with Section 1111.

2902.4.1 Directional signage. Directional signage indicating the route to the required public toilet facilities shall be posted in a lobby, corridor, aisle or similar space, such that the sign can be readily seen from the main entrance to the building or tenant space.

2902.5 Drinking fountain location. Drinking fountains shall not be required to be located in individual tenant spaces provided that public drinking fountains are located within a distance of travel of 500 feet (152 m) of the most remote location in the tenant space and not more than one story above or below the tenant space. Where the tenant space is in

a covered or open mall, such distance shall not exceed 300 feet (91 440 mm). Drinking fountains shall be located on an accessible route.

2902.5.1 Drinking fountain substitution. Drinking fountains shall not be required in restaurants that provide drinking water in a container free of charge. In establishments of occupancies B or M, with an area of 1,500 square feet (139.4 m^2) or less, a water cooler or a bottled water dispenser may be substituted for the required drinking fountain. In other occupancies, including B or M occupancies with an area of more than 1,500 square feet (139.4 m^2), water coolers or bottled water dispensers shall be permitted to be substituted for not more than 50 percent of the required number of drinking fountains.

2902.6 Small occupancies. Drinking fountains shall not be required for an occupant load of 15 or fewer.

CHAPTER 30

ELEVATORS AND CONVEYING SYSTEMS

SECTION 3001 GENERAL

3001.1 Scope. This chapter governs the design, construction, installation, *alteration*, *repair* and maintenance of elevators and conveying systems, including but not limited to, escalators, platform and stairway chair lifts, dumbwaiters, and moving walks, and their components.

3001.2 Referenced standards. Except as otherwise provided for in this code, the design, construction, installation, *alteration*, *repair* and maintenance of elevators and conveying systems and their components shall conform to ASME A17.1/CSA B44, ASME A18.1, ASME A90.1, ASME B20.1, ANSI MH29.1, ALI ALCTV, ASCE 24 for construction in flood hazard areas as established in Section 1612.3, and ICC A117.1. *Alteration* and repair of existing elevators and conveying systems shall comply with the *Existing Building Code*. Maintenance of existing elevators and conveying systems shall also comply with the requirements of the *Property Maintenance Code*.

3001.3 Accessibility. Passenger elevators required to be accessible or to serve as part of an *accessible means of egress* shall comply with Sections 1009 and 1109.7.

3001.4 Change in use. A change in use of an elevator from freight to passenger, passenger to freight, or from one freight class to another freight class shall comply with Section 8.7 of ASME A17.1/CSA B44.

SECTION 3002 HOISTWAY ENCLOSURES

3002.1 Hoistway enclosure protection. Elevator, dumbwaiter and other hoistway enclosures shall be *shaft enclosures* complying with Section 713.

3002.1.1 Opening protectives. Openings in hoistway enclosures shall be protected as required in Chapter 7.

Exception: The elevator car doors and the associated hoistway enclosure doors at the floor level designated for recall in accordance with Section 3003.2 shall be permitted to remain open during Phase I Emergency Recall Operation.

3002.1.2 Hardware. Hardware on opening protectives shall be of an *approved* type installed as tested, except that *approved* interlocks, mechanical locks and electric contacts, door and gate electric contacts and door-operating mechanisms shall be exempt from the fire test requirements.

3002.2 Number of elevator cars in a hoistway. Where four or more elevator cars serve all or the same portion of a building, the elevators shall be located in not fewer than two separate hoistways. Not more than four elevator cars shall be located in any single hoistway enclosure.

3002.3 Emergency signs. An *approved* pictorial sign of a standardized design shall be posted adjacent to each elevator call station on all floors instructing occupants to use the *exit stairways* and not to use the elevators in case of fire. The sign shall read: IN CASE OF FIRE, ELEVATORS ARE OUT OF SERVICE. USE EXIT STAIRS.

Exceptions:

1. The emergency sign shall not be required for elevators that are part of an *accessible means of egress* complying with Section 1009.4.
2. The emergency sign shall not be required for elevators that are used for occupant self-evacuation in accordance with Section 3008.

3002.4 Elevator car to accommodate ambulance stretcher. Where elevators are provided in buildings four or more *stories* above, or four or more *stories* below, *grade plane*, not fewer than one elevator shall be provided for fire department emergency access to all floors. The elevator car shall be of such a size and arrangement to accommodate an ambulance stretcher 24 inches by 84 inches (610 mm by 2134 mm) with not less than 5-inch (127 mm) radius corners, in the horizontal, open position and shall be identified by the international symbol for emergency medical services (star of life). The symbol shall be not less than 3 inches (76 mm) in height and shall be placed inside on both sides of the hoistway door frame.

3002.5 Emergency doors. Where an elevator is installed in a single blind hoistway or on the outside of a building, there shall be installed in the blind portion of the hoistway or blank face of the building, an emergency door in accordance with ASME A17.1/CSA B44.

3002.6 Prohibited doors. Doors, other than hoistway doors and the elevator car door, shall be prohibited at the point of access to an elevator car unless such doors are readily openable from the car side without a key, tool, special knowledge or effort.

3002.7 Common enclosure with stairway. Elevators shall not be in a common *shaft enclosure* with a *stairway*.

Exception: Elevators within o*pen parking garages need not be separated from stairway enclosures*.

3002.8 Glass in elevator enclosures. Glass in elevator enclosures shall comply with Section 2409.2.

3002.9 Plumbing and mechanical systems. Plumbing and mechanical systems shall not be located in an elevator hoistway enclosure.

Exceptions:

1. Floor drains, sumps and sump pumps shall be permitted at the base of the hoistway enclosure provided that they are indirectly connected to the plumbing system.

2. Machinery and equipment serving the elevator shall be permitted in an elevator hoistway enclosure in conformance with ASME A17.1/CSA B44, Section 2.8.

SECTION 3003
EMERGENCY OPERATIONS

3003.1 Standby power. In buildings and structures where standby power is required or furnished to operate an elevator, the operation shall be in accordance with Sections 3003.1.1 through 3003.1.4.

3003.1.1 Manual transfer. Standby power shall be manually transferable to all elevators in each bank.

3003.1.2 One elevator. Where only one elevator is installed, the elevator shall automatically transfer to standby power within 60 seconds after failure of normal power.

3003.1.3 Two or more elevators. Where two or more elevators are controlled by a common operating system, all elevators shall automatically transfer to standby power within 60 seconds after failure of normal power where the standby power source is of sufficient capacity to operate all elevators at the same time. Where the standby power source is not of sufficient capacity to operate all elevators at the same time, all elevators shall transfer to standby power in sequence, return to the designated landing and disconnect from the standby power source. After all elevators have been returned to the designated level, at least one elevator shall remain operable from the standby power source.

3003.1.4 Venting. Where standby power is connected to elevators, the machine room *ventilation* or air conditioning shall be connected to the standby power source.

3003.2 Fire fighters' emergency operation. Elevators shall be provided with Phase I emergency recall operation and Phase II emergency in-car operation in accordance with ASME A17.1/CSA B44.

3003.3 Standardized fire service elevator keys. All elevators shall be equipped to operate with a standardized fire service elevator key in accordance with the *Fire Code*.

SECTION 3004
CONVEYING SYSTEMS

3004.1 General. Escalators, moving walks, conveyors, personnel hoists and material hoists shall comply with the provisions of Sections 3004.2 through 3004.4.

3004.2 Escalators and moving walks. Escalators and moving walks shall be constructed of *approved* noncombustible and fire-retardant materials. This requirement shall not apply to electrical equipment, wiring, wheels, handrails and the use of $^{1}/_{28}$-inch (0.9 mm) wood veneers on balustrades backed up with noncombustible materials.

3004.2.1 Enclosure. Escalator floor openings shall be enclosed with *shaft enclosures* complying with Section 713.

3004.2.2 Escalators. Where provided in below-grade transportation stations, escalators shall have a clear width of not less than 32 inches (815 mm).

Exception: The clear width is not required in existing facilities undergoing *alterations*.

3004.3 Conveyors. Conveyors and conveying systems shall comply with ASME B20.1.

3004.3.1 Enclosure. Conveyors and related equipment connecting successive floors or levels shall be enclosed with *shaft enclosures* complying with Section 713.

3004.3.2 Conveyor safeties. Power-operated conveyors, belts and other material-moving devices shall be equipped with automatic limit switches that will shut off the power in an emergency and automatically stop all operation of the device.

3004.4 Personnel and material hoists. Personnel and material hoists shall be designed utilizing an *approved* method that accounts for the conditions imposed during the intended operation of the hoist device. The design shall include, but is not limited to, anticipated loads, structural stability, impact, vibration, stresses and seismic restraint. The design shall account for the construction, installation, operation and inspection of the hoist tower, car, machinery and control equipment, guide members and hoisting mechanism. Additionally, the design of personnel hoists shall include provisions for field testing and maintenance that will demonstrate that the hoist device functions in accordance with the design. Field tests shall be conducted upon the completion of an installation or following a major *alteration* of a personnel hoist.

SECTION 3005
MACHINE ROOMS

3005.1 Access. An *approved* means of access shall be provided to elevator machine rooms, control rooms, control spaces and machinery spaces.

3005.2 Venting. Elevator machine rooms, machinery spaces that contain the driving machine, and control rooms or spaces that contain the operation or motion controller for elevator operation shall be provided with an independent *ventilation* or air-conditioning system to protect against the overheating of the electrical equipment. The system shall be capable of maintaining temperatures within the range established for the elevator equipment.

3005.3 Pressurization. The elevator machine room, control rooms or control space with openings into a pressurized elevator hoistway shall be pressurized upon activation of a *heat or smoke detector* located in the elevator machine room, control room or control space.

3005.4 Machine rooms, control rooms, machinery spaces, and control spaces. Elevator machine rooms, control rooms, control spaces and machinery spaces outside of but attached to a hoistway that have openings into the hoistway shall be enclosed with *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. The *fire-resistance rating* shall be not less than the required rating of the hoistway enclosure served by the machinery. Openings in the *fire barriers* shall be protected with assemblies having a f*ire protection rating* not less than that required for the hoistway enclosure doors.

Exceptions:

1. For other than fire service access elevators and occupant evacuation elevators, where machine rooms, machinery spaces, control rooms and control spaces do not abut and have no openings to the hoistway enclosure they serve, the *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both, shall be permitted to be reduced to a 1-hour *fire-resistance rating*.
2. For other than fire service access elevators and occupant evacuation elevators, in buildings four *stories* or less above *grade plane* where machine room, machinery spaces, control rooms and control spaces do not abut and have no openings to the hoistway enclosure they serve, the machine room, machinery spaces, control rooms and control spaces are not required to be fire-resistance rated.

3005.5 Shunt trip. Where elevator hoistways, elevator machine rooms, control rooms and control spaces containing elevator control equipment are protected with automatic sprinklers, a means installed in accordance with Section 21.4 of NFPA 72 shall be provided to disconnect automatically the main line power supply to the affected elevator prior to the application of water. This means shall not be self-resetting. The activation of automatic sprinklers outside the hoistway, machine room, machinery space, control room or control space shall not disconnect the main line power supply.

3005.6 Plumbing systems. Plumbing systems shall not be located in elevator equipment rooms.

SECTION 3006
ELEVATOR LOBBIES AND HOISTWAY OPENING PROTECTION

3006.1 General. Elevator hoistway openings and enclosed elevator lobbies shall be provided in accordance with the following:

1. Where hoistway opening protection is required by Section 3006.2, such protection shall be in accordance with Section 3006.3.
2. Where enclosed elevator lobbies are required for underground buildings, such lobbies shall comply with Section 405.4.3.
3. Where an area of refuge is required and an enclosed elevator lobby is provided to serve as an area of refuge, the enclosed elevator lobby shall comply with Section 1009.6.
4. Where fire service access elevators are provided, enclosed elevator lobbies shall comply with Section 3007.6.
5. Where occupant evacuation elevators are provided, enclosed elevator lobbies shall comply with Section 3008.6.
6. Where an elevator hoistway serves one or more levels of an underground enclosed parking garage and also serves levels above the ground floor, an elevator lobby shall be provided at each garage level served to separate the hoistway openings from the enclosed parking garage. The enclosure of such lobby shall be of smoke-tight construction and extend from slab to slab, so as to oppose the propagation of smoke and gases, and shall not be required to be fire-resistance rated.

3006.2 Hoistway opening protection required. Elevator hoistway door openings shall be protected in accordance with Section 3006.3 where:

1. An elevator hoistway connects more than three stories,
2. Is required to be enclosed within a shaft enclosure in accordance with Section 712.1.1 and
3. Any of the following conditions apply:
   - 3.1. The building is not protected throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.
   - 3.2. The building contains a Group I-1 Condition 2 occupancy.
   - 3.3. The building contains a Group I-2 occupancy.
   - 3.4. The building contains a Group I-3 occupancy.

Exceptions:

1. Protection of elevator hoistway door openings is not required where the elevator serves only open parking garages in accordance with Section 406.5.
2. Protection of elevator hoistway door openings is not required at the *level(s) of exit discharge*, provided that the *level(s) of exit discharge* is equipped with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. Enclosed elevator lobbies and protection of elevator hoistway door openings are not required on levels where the elevator hoistway opens to the exterior.

3006.3 Hoistway opening protection. Where Section 3006.2 requires protection of the elevator hoistway door opening, the protection shall be provided by one of the following:

1. An enclosed elevator lobby shall be provided at each floor to separate the elevator hoistway shaft enclosure doors from each floor by fire partitions in accordance with Section 708. In addition, doors protecting openings in the elevator lobby enclosure walls shall comply with Section 716.5.3 as required for corridor walls.

Penetrations of the enclosed elevator lobby by ducts and air transfer openings shall be protected as required for corridors in accordance with Section 717.5.4.1.

2. An enclosed elevator lobby shall be provided at each floor to separate the elevator hoistway shaft enclosure doors from each floor by smoke partitions in accordance with Section 710 where the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2. In addition, doors protecting openings in the smoke partitions shall comply with Sections 710.5.2.2, 710.5.2.3 and 716.5.9. Penetrations of the enclosed elevator lobby by ducts and air transfer openings shall be protected as required for corridors in accordance with Section 717.5.4.1.
3. Additional doors shall be provided at each elevator hoistway door opening in accordance with Section 3002.6. Such door shall comply with the smoke and draft control door assembly requirements in Section 716.5.3.1 when tested in accordance with UL 1784 without an artificial bottom seal.
4. The elevator hoistway shall be pressurized in accordance with Section 909.21.

3006.4 Means of egress. Elevator lobbies shall be provided with at least one means of egress complying with Chapter 10 and other provisions in this code. Egress through an elevator lobby shall be permitted in accordance with Item 1 of Section 1016.2.

SECTION 3007
FIRE SERVICE ACCESS ELEVATOR

3007.1 General. Where required by Section 403.6.1, every floor of the building shall be served by fire service access elevators complying with Sections 3007.1 through 3007.9. Except as modified in this section, fire service access elevators shall be installed in accordance with this chapter and ASME A17.1/CSA B44.

3007.2 Automatic sprinkler system. The building shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, except as otherwise permitted by Section 903.3.1.1.1 and as prohibited by Section 3007.2.1.

3007.2.1 Prohibited locations. Automatic sprinklers shall not be installed in machine rooms, elevator machinery spaces, control rooms, control spaces and elevator hoistways of fire service access elevators.

3007.2.2 Sprinkler system monitoring. The sprinkler system shall have a sprinkler control valve supervisory switch and water-flow-initiating device provided for each floor that is monitored by the building's *fire alarm system.*

3007.3 Water protection. An *approved* method to prevent water from infiltrating into the hoistway enclosure from the operation of the *automatic sprinkler system* outside the enclosed fire service access elevator lobby shall be provided.

3007.4 Shunt trip. Means for elevator shutdown in accordance with Section 3005.5 shall not be installed on elevator systems used for fire service access elevators.

3007.5 Hoistway enclosures. The fire service access elevator hoistway shall be located in a *shaft enclosure* complying with Section 713.

3007.5.1 Structural integrity of hoistway enclosures. The fire service access elevator hoistway enclosure shall comply with Sections 403.2.3.1 through 403.2.3.4.

3007.5.2 Hoistway lighting. When fire-fighters' emergency operation is active, the entire height of the hoistway shall be illuminated at not less than 1 footcandle (11 lux) as measured from the top of the car of each fire service access elevator.

3007.6 Fire service access elevator lobby. The fire service access elevator shall open into a fire service access elevator lobby in accordance with Sections 3007.6.1 through 3007.6.5. Egress is permitted through the elevator lobby in accordance with Item 1 of Section 1016.2.

Exception: Where a fire service access elevator has two entrances onto a floor, the second entrance shall be permitted to open into an elevator lobby in accordance with Section 3006.3.

3007.6.1 Access to interior exit stairway or ramp. The fire service access elevator lobby shall have direct access from the enclosed elevator lobby to an enclosure for an *interior exit stairway* or *ramp*.

Exception: Access to an *interior exit stairway* or *ramp* shall be permitted to be through a protected path of travel that has a level of fire protection not less than the elevator lobby enclosure. The protected path shall be separated from the enclosed elevator lobby through an opening protected by a smoke and draft control assembly in accordance Section 716.5.3.

3007.6.2 Lobby enclosure. The fire service access elevator lobby shall be enclosed with a *smoke barrier* having a *fire-resistance rating* of not less than 1 hour, except that lobby doorways shall comply with Section 3007.6.3.

Exception: Enclosed fire service access elevator lobbies are not required at the *levels of exit discharge*.

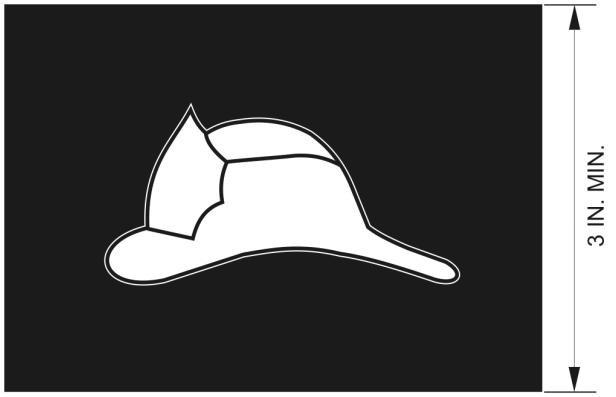
3007.6.3 Lobby doorways. Other than doors to the hoistway, elevator control room or elevator control space, each doorway to a fire service access elevator lobby shall be provided with a $^{3}/_{4}$-hour *fire door assembly* complying with Section 716.5. The *fire door assembly* shall comply with the smoke and draft control door assembly requirements of Section 716.5.3.1 with the UL 1784 test conducted without the artificial bottom seal.

3007.6.4 Lobby size. Regardless of the number of fire service access elevators served by the same elevator lobby, the enclosed fire service access elevator lobby shall be not less than 150 square feet (14 m^2) in an area with a dimension of not less than 8 feet (2440 mm).

3007.6.5 Fire service access elevator symbol. A pictorial symbol of a standardized design designating which elevators are fire service access elevators shall be installed on

each side of the hoistway door frame on the portion of the frame at right angles to the fire service access elevator lobby. The fire service access elevator symbol shall be designed as shown in Figure 3007.6.5 and shall comply with the following:

1. The fire service access elevator symbol shall be not less than 3 inches (76 mm) in height.
2. The helmet shall contrast with the background, with either a light helmet on a dark background or a dark helmet on a light background.
3. The vertical center line of the fire service access elevator symbol shall be centered on the hoistway door frame. Each symbol shall be not less than 78 inches (1981 mm), and not more than 84 inches (2134 mm) above the finished floor at the threshold.



For SI: 1 inch = 25.4 mm.

FIGURE 3007.6.5
FIRE SERVICE ACCESS ELEVATOR SYMBOL

3007.7 Elevator system monitoring. The fire service access elevator shall be continuously monitored at the *fire command center* by a standard emergency service interface system meeting the requirements of NFPA 72.

3007.8 Electrical power. The following features serving each fire service access elevator shall be supplied by normal power and Type 60/Class 2/Level 1 standby power:

1. Elevator equipment.
2. Elevator hoistway lighting.
3. *Ventilation* and cooling equipment for elevator machine rooms, control rooms, machine spaces and control spaces.
4. Elevator car lighting.
5. Lighting of elevator machine rooms, control rooms, machine spaces and control spaces.

3007.8.1 Protection of wiring or cables. Wires or cables that are located outside of the elevator hoistway and machine room and that provide normal or standby power, control signals, communication with the car, lighting, heating, air conditioning, *ventilation* and fire-detecting systems to fire service access elevators shall be protected by construction having a *fire-resistance rating* of not less than 2 hours, shall be a circuit integrity cable having a *fire-resistance rating* of not less than 2 hours or shall be protected by a listed electrical protective system having a *fire-resistance rating* of not less than 2 hours.

Exception: Wiring and cables to control signals are not required to be protected provided that wiring and cables do not serve Phase II emergency in-car operations.

3007.9 Standpipe hose connection. A Class I standpipe hose connection in accordance with Section 905 shall be provided in the *interior exit stairway* and *ramp* having direct access from the fire service access elevator lobby.

3007.9.1 Access. The *exit* enclosure containing the standpipe shall have access to the floor without passing through the fire service access elevator lobby.

SECTION 3008
OCCUPANT EVACUATION ELEVATORS

3008.1 General. Where elevators are to be used for occupant self-evacuation during fires, all passenger elevators for general public use shall comply with Sections 3008.1 through 3008.10. Where other elevators are used for occupant self-evacuation, those elevators shall comply with these sections.

3008.1.1 Additional exit stairway. Where an additional *means of egress* is required in accordance with Section 403.5.2, an additional *exit stairway* shall not be required to be installed in buildings provided with occupant evacuation elevators complying with Section 3008.1.

3008.1.2 Fire safety and evacuation plan. The building shall have an *approved* fire safety and evacuation plan in accordance with the applicable requirements of Section 404 of the *Fire Code*. The fire safety and evacuation plan shall incorporate specific procedures for the occupants using evacuation elevators.

3008.1.3 Operation. The occupant evacuation elevators shall be used for occupant self-evacuation in accordance with the occupant evacuation operation requirements in ASME A17.1/CSA B44 and the building's fire safety and evacuation plan.

3008.2 Automatic sprinkler system. The building shall be equipped throughout with an *approved*, electrically supervised *automatic sprinkler system* in accordance with Section 903.3.1.1, except as otherwise permitted by Section 903.3.1.1.1 and as prohibited by Section 3008.2.1.

3008.2.1 Prohibited locations. Automatic sprinklers shall not be installed in elevator machine rooms, machinery spaces, control rooms, control spaces and elevator hoistways of occupant evacuation elevators.

3008.2.2 Sprinkler system monitoring. The automatic sprinkler system shall have a sprinkler control valve supervisory switch and water-flow-initiating device provided for each floor that is monitored by the building's *fire alarm system*.

3008.3 Water protection. An *approved* method to prevent water from infiltrating into the hoistway enclosure from the operation of the *automatic sprinkler system* outside the enclosed occupant evacuation elevator lobby shall be provided.

3008.4 Shunt trip. Means for elevator shutdown in accordance with Section 3005.5 shall not be installed on elevator systems used for occupant evacuation elevators.

3008.5 Hoistway enclosure protection. Occupant evacuation elevator hoistways shall be located in *shaft enclosures* complying with Section 713.

3008.5.1 Structural integrity of hoistway enclosures. Occupant evacuation elevator hoistway enclosures shall comply with Sections 403.2.3.1 through 403.2.3.4.

3008.6 Occupant evacuation elevator lobby. Occupant evacuation elevators shall open into an elevator lobby in accordance with Sections 3008.6.1 through 3008.6.6. Egress is permitted through the elevator lobby in accordance with Item 1 of Section 1016.2.

3008.6.1 Access to interior exit stairway or ramp. The occupant evacuation elevator lobby shall have direct access from the enclosed elevator lobby to an *interior exit stairway* or *ramp*.

Exception: Access to an *interior exit stairway* or *ramp* shall be permitted to be through a protected path of travel that has a level of fire protection not less than the elevator lobby enclosure. The protected path shall be separated from the enclosed elevator lobby through an opening protected by a smoke and draft control assembly in accordance Section 716.5.3.

3008.6.2 Lobby enclosure. The occupant evacuation elevator lobby shall be enclosed with a *smoke barrier* having a *fire-resistance rating* of not less than 1 hour, except that lobby doorways shall comply with Section 3008.6.3.

Exception: Enclosed occupant evacuation elevator lobbies are not required at the *levels of exit discharge*.

3008.6.3 Lobby doorways. Other than the doors to the hoistway, elevator machine rooms, machinery spaces, control rooms and control spaces within the lobby enclosure smoke barrier, each doorway to an occupant evacuation elevator lobby shall be provided with a $^{3}/_{4}$-hour *fire door assembly* complying with Section 716.5. The *fire door assembly* shall comply with the smoke and draft control assembly requirements of Section 716.5.3.1 with the UL 1784 test conducted without the artificial bottom seal.

3008.6.3.1 Vision panel. A vision panel shall be installed in each *fire door assembly* protecting the lobby doorway. The vision panel shall consist of fire-protection-rated glazing and shall be located to furnish clear vision of the occupant evacuation elevator lobby.

3008.6.3.2 Door closing. Each *fire door assembly* protecting the lobby doorway shall be automatic-closing upon receipt of any fire alarm signal from the *emergency voice/alarm communication system* serving the building.

3008.6.4 Lobby size. Each occupant evacuation elevator lobby shall have minimum floor area as follows:

1. The occupant evacuation elevator lobby floor area shall accommodate, at 3 square feet (0.28 m^2) per person, not less than 25 percent of the *occupant load* of the floor area served by the lobby.
2. The occupant evacuation elevator lobby floor area shall accommodate one *wheelchair space* of 30 inches by 48 inches (760 mm by 1220 mm) for each 50 persons, or portion thereof, of the *occupant load* of the floor area served by the lobby.

Exception: The size of lobbies serving multiple banks of elevators shall have the minimum floor area *approved* on an individual basis and shall be consistent with the building's fire safety and evacuation plan.

3008.6.5 Signage. An *approved* sign indicating elevators are suitable for occupant self-evacuation shall be posted on all floors adjacent to each elevator call station serving occupant evacuation elevators.

3008.6.6 Two-way communication system. A two-way communication system shall be provided in each occupant evacuation elevator lobby for the purpose of initiating communication with the *fire command center* or an alternate location *approved* by the fire department. The two-way communication system shall be designed and installed in accordance with Sections 1009.8.1 and 1009.8.2.

3008.7 Elevator system monitoring. The occupant evacuation elevators shall be continuously monitored at the *fire command center* or a central control point *approved* by the fire department and arranged to display all of the following information:

1. Floor location of each elevator car.
2. Direction of travel of each elevator car.
3. Status of each elevator car with respect to whether it is occupied.
4. Status of normal power to the elevator equipment, elevator machinery and electrical apparatus cooling equipment where provided, elevator machine room, control room and control space *ventilation* and cooling equipment.
5. Status of standby or emergency power system that provides backup power to the elevator equipment, elevator machinery and electrical cooling equipment where provided, elevator machine room, control room and control space *ventilation* and cooling equipment.
6. Activation of any fire alarm initiating device in any elevator lobby, elevator machine room, machine space containing a motor controller or electric driving machine, control space, control room or elevator hoistway.

3008.7.1 Elevator recall. The *fire command center* or an alternate location *approved* by the fire department shall be provided with the means to manually initiate a Phase I Emergency Recall of the occupant evacuation elevators in accordance with ASME A17.1/CSA B44.

3008.8 Electrical power. The following features serving each occupant evacuation elevator shall be supplied by normal power and Type 60/Class 2/Level 1 standby power:

1. Elevator equipment.

2. *Ventilation* and cooling equipment for elevator machine rooms, control rooms, machinery spaces and control spaces.
3. Elevator car lighting.
4. Lighting of elevator machine rooms, control rooms, machine spaces and control spaces.

3008.8.1 Protection of wiring or cables. Wires or cables that are located outside of the elevator hoistway, machine room, control room and control space and that provide normal or standby power, control signals, communication with the car, lighting, heating, air conditioning, *ventilation* and fire-detecting systems to occupant evacuation elevators shall be protected by construction having a *fire-resistance rating* of not less than 2 hours, shall be circuit integrity cable having a fire-resistance rating of not less than 2 hours or shall be protected by a listed electrical circuit protective system having a *fire-resistance rating* of not less than 2 hours.

Exception: Wiring and cables to control signals are not required to be protected provided that wiring and cables do not serve Phase II emergency in-car operation.

3008.9 Emergency voice/alarm communication system. The building shall be provided with an *emergency voice/alarm communication system*. The *emergency voice/alarm communication system* shall be accessible to the fire department. The system shall be provided in accordance with Section 907.5.2.2.

3008.9.1 Notification appliances. Not fewer than one audible and one visible notification appliance shall be installed within each occupant evacuation elevator lobby.

3008.10 Hazardous material areas. No building areas shall contain hazardous materials exceeding the maximum allowable quantities per *control area* as addressed in Section 414.2.

SECTION 3009
CERTIFICATE OF INSPECTION

3009.1 General. No elevator or conveying system, including, but not limited to, escalators, dumbwaiters, wheelchair lifts, cartveyors, manlifts and moving walks, shall be operated without a valid certificate of inspection issued by the *code official*.

Exceptions:

1. Where the *code official* authorizes limited approval of use in accordance with the provisions of Section 3009.2.
2. Elevators and conveying systems covered by the *Residential Code* where the equipment is serving one *dwelling unit*.
3. In Groups R-2 and R-3 occupancies where the equipment is serving one *dwelling unit*.

3009.2 Limited approval of use. The *code official* is authorized to grant limited approval of use for any equipment covered by this chapter.

3009.2.1 Work performed under permit. A permit issued to install, relocate, *alter* or repair any equipment covered by this chapter, shall serve as limited approval of use of the equipment by the permit holder during the period of such installation, relocation, *alteration* or repair.

3009.2.2 Construction use. Limited approval of use of an elevator may be granted by the *code official* during authorized construction or demolition to provide transportation for construction personnel, tools, and materials, provided that full compliance with ASME A17.1-5.10 has been confirmed by the testing, inspection and certification of the elevator by the *code official* or by an *approved* Third-Party Inspector. Public use of an elevator with limited approval of use in accordance with this section is prohibited. Equipment other than elevators shall be tested and protective measures shall be provided as deemed necessary by the *code official* to ensure safe operation for the limited service specified.

3009.2.2.1 Time limitation. For elevators approved for "Construction Use" in accordance with ASME A17.1-5.10, the limited approval of use shall be valid a period of time not exceeding 90 days. The *code official* is authorized to renew the limited approval of use, after performance of the required inspections and/or tests required by ASME A17.1-8.11.5.13, for additional periods of time not exceeding 90 days each.

3009.3 Final inspection. Upon installation, relocation or *alteration* of an elevator or conveying system for which a permit is required, a final inspection of the equipment is required to verify that all required inspections have been performed and approved. The permit holder shall apply for and obtain a valid certificate of inspection from the Department within 30 working days after completion of the final inspection.

3009.4 Content of certificate of inspection; posting. The certificate of inspection shall contain the following information:

1. The address of the structure.
2. The name and address of the owner.
3. A description of the vertical transportation equipment (*e.g.,* escalator, elevator, dumbwaiter, wheelchair lift, moving walk or conveyor).
4. The rated load and speed.
5. A statement that the described equipment has been inspected for compliance with the requirements of the *Construction Codes*.
6. The name of the *code official*.
7. Any special stipulations and conditions of the permit under which the equipment was installed, relocated or altered.

3009.4.1 Posting of certificate. A copy of the most current certificate of inspection shall be conspicuously displayed at all times within the elevator car or attached to the conveying system unless exempted pursuant to Section 3009.6. If the building operator maintains an office in the same building, the certificate of inspection may be made

available for public inspection in the office instead of being on display within the elevator.

3009.5 Maintenance, testing, inspections. Periodic tests and inspections shall be made by the *code official*, or by an *approved third-party agency*, and shall be made at the expense and responsibility of the *owner*. Except as otherwise provided for in this code, the maintenance, inspection and testing of all elevators and conveying systems and their components, including the frequency of inspections and testing, shall conform to:

3009.5.1 Elevators, escalators and other conveyances listed in ASME A17.1, Appendix N. Inspection and tests shall be performed at not less than the periodic intervals listed in ASME A17.1, Appendix N, except where otherwise specified by the *code official*.

Exception: Units in residential use serving one family *dwelling units.*

3009.5.2 Platform lifts and stairway chair lifts. Inspections and testing of platform lifts and stairway chair lifts shall be performed for all units as stated in ASME A18.1, Section 10.

Exception: Units in residential use serving one family *dwelling units.*

3009.5.3 Manlifts. Inspections and testing of manlifts shall be performed for all units as stated in ASME A90.1, Safety Standard for Manlifts.

3009.5.4 Conveyors and related equipment. Inspections and testing of conveyors and related equipment shall be performed as stated in ASME B20.1, Safety Standard for Conveyors and Related Equipment.

3009.5.4.1 Cartveyors. Cartveyors shall be maintained in accordance with original equipment manufacturer's recommendations. Inspection and testing shall be at the same frequency as escalators in ASME A17.1, Appendix N.

3009.6 Reports and certificates. Where inspections and tests are not made by the *code official*, the *approved* agency shall submit a report of the inspections and tests to the *code official* on *approved* forms not more than 30 days after completion of the inspection and tests. Upon receipt of satisfactory inspection and test reports, the *code official* shall authorize the issuance of a certificate of inspection, or a renewal certificate as provided in Section 3009.9, for each unit of equipment.

Exception: The submission of test reports to the *code official* and the issuance of certificates and display of certificates is not required:

1. In Groups R-2 and R-3 occupancies where the equipment is serving one *dwelling unit*.
2. In buildings under the jurisdiction of the *Residential Code* where the equipment is serving one *dwelling unit*.

3009.7 Out of service; temporarily dormant. A permit from the *Department* shall be required: to take an elevator or conveying system out of service pursuant to ASME A17.1, Section 8.11.1.4; or to place an elevator or conveying system in temporarily dormant status as set forth in Section 3009.7.1.

3009.7.1 Temporarily dormant. An elevator or conveying system shall be temporarily dormant where removed from its normal class of service for an extended period of time (not to exceed 5 years) by an owner's decision and not due to maintenance or repair. During this period of time, the equipment shall be secured for the benefit of public safety in accordance with the following requirements:

1. The power supply shall be disconnected by removing fuses and placing a padlock on the mainline disconnect switch in the "OFF" position. The padlock shall not be removed without permission from the *code official*.
2. The unit shall be parked and the hoistway/runway doors securely bolted from opening in any plane. The means of securing the doors shall be exclusive of the interlocks. A wire seal shall be installed on the mainline disconnect switch by an elevator inspector accredited by a national certifying agency and *approved* by the *code official*. The wire seal shall not be removed without permission from the *code official*.
3. The equipment shall not be used again until it has been put in safe running order and passed an acceptance test, congruent with the installation date or the Code Data Tag posted on the equipment, as provided in ASME A17.1, Section 8.10 and the *owner* has obtained a valid certificate of inspection from the *code official*.
4. Annual inspections shall continue for the duration of the period that the elevator is temporarily dormant, and the inspector shall file an annual report with the *code official*, to confirm that the requirements set forth in this section are met.

3009.8 Equipment in operation. In buildings equipped with passenger elevators, at least one elevator shall be maintained in operation at all times when the building is occupied.

Exception: Buildings equipped with only one elevator or conveying system shall be permitted to have the elevator or conveying system temporarily out of service for testing, maintenance and/or repair.

3009.9 Renewal of certificates. The certificate of inspection, for each elevator and conveying system, must be renewed every 24 months, or at an alternate interval specified by the *code official*, as long as the unit is in service. Renewal of the certificate of inspection will be granted upon satisfactory demonstration to the *code official* that the unit of equipment has met all of the inspections and testing required by the *Construction Codes* and referenced standards.

3009.10 Unsafe equipment. When, in the opinion of the *code official*, an elevator or conveying system or its components are unsafe or unlawful, the code official is authorized and empowered to place the unit out of service, and to prohibit the operation of the equipment until the unsafe or unlawful condition is corrected. The *code official* shall post on the unsafe equipment a placard or notice bearing the

words "Unsafe to Use" and may also attach a lead seal to prevent the equipment from being operated.

3009.10.1 Notification of unsafe or unlawful condition. When an *approved* Third-Party Inspection Agency inspector observes or identifies unsafe or unlawful condition(s) causing an elevator to be removed from service, the inspector shall immediately notify the *code official*. The inspector is authorized to place on the unit adjudged to be unsafe or unlawful an "Unsafe to Use" placard. The *code official* must be notified immediately of the Third-Party Inspector's action, pursuant to the notification procedures established by the *code official*.

3009.10.2. Placard removal. The *code official* shall remove the "Unsafe to Use" notice whenever the defect or defects upon which the closure action was based have been eliminated. Any person who defaces or removes an "Unsafe to Use" notice or lead seal without the approval of the *code official*, or operates the placarded equipment, shall be subject to the penalties provided by this code.

An *approved* Third-Party Inspector is permitted to remove an "Unsafe to Use Notice" issued by that inspector, after abatement of the unsafe or unlawful condition and appropriate reinspection of the conveyance.

Exception: Placarded equipment may be operated solely as necessary to effectuate repairs.

3009.10.3 Abatement methods. The *owner* of the equipment deemed unsafe by the *code official* shall abate or cause to be abated or corrected such unsafe conditions either by repair, rehabilitation, replacement or other *approved* corrective action.

SECTION 3010
REQUIRED ELEVATOR SIGNAGE

3010.1 Required elevator signage. A permanent sign of durable material, with lettering no smaller than $^1/_4$ inch (6 mm) high shall be placed in all elevator cars, with the following wording:

ALL ACCIDENTS ON OR DAMAGE TO ELEVATORS ARE TO BE REPORTED TO THE DEPARTMENT OF CONSUMER AND REGULATORY AFFAIRS 202 442-4400; OR AFTER WORKING HOURS BY CALLING 311.

SECTION 3011
AMENDMENTS TO STANDARD ASME A17.1

3011.1 ASME A17.1, Section 1.2.1.

1.2.1 Purpose. The purpose of ASME A17.1/CSA B44, Safety Code for Elevators and Escalators, is to provide for the safety of life and limb, and to promote the public welfare. Compliance with this Safety Code shall be achieved by either of the following:

1. Conformance with the requirements in ASME A17.1/CSA B44.
2. Using alternative materials, equipment, or methods of construction and design approved in conformance with the requirements of Section 104.11, 12-A DCMR for systems, subsystems, components, or functions that do not conform with requirements in ASME A17.1/CSA B44.

3011.2 ASME A17.1, Section 2.2.

2.2.2.7 The sump pump located in the elevator pit shall be connected to a non GFCI dedicated single receptacle or outlet compliant with NEMA 4 "Wet Duty."

2.2.4.2.2 The ladder rungs, cleats, or steps shall be a minimum of 400 mm (16 in.) wide. When obstructions are encountered, the width shall be permitted to be decreased to less than 400 mm (16 in.). The reduced width shall be as wide as the available space permits, but not less than 304.8 mm (12 in.).

3011.3 ASME A17.1, Section 2.27.

2.27.1.1.1 A two-way communications means between the car and a location staffed by authorized personnel shall be provided and an audible signaling device shall be provided. It shall be operable from the emergency stop switch, where required by Section 2.26.2.5, and from a switch identified as "ALARM," which shall be provided in or adjacent to each car operating panel. The "ALARM" switch or visual identification shall illuminate when the "ALARM" switch is actuated. One audible signaling device shall be permitted to be used for a group of elevators. The audible signaling device shall:

(a) Have a rated sound pressure rating of not less than 80 dBA and no more than 90 dBA at 3 m (10 ft);

(b) Respond without delay after the switch has been activated;

(c) Be located inside the building and audible inside the car and outside the hoistway; and

(d) For elevators with a travel greater than 30 m (100 ft), be duplicated as follows:

(1) One device shall be mounted on the car; and

(2) A second device shall be placed at the designated level.

2.27.1.1.5 If the two-way emergency communications or if the audible signaling device means are normally connected to the building power supply, they shall automatically transfer to a source of standby or emergency power as required by the applicable building code, or where applicable, Standard for Health Care Facilities (ANSI/NFPA-99) after the normal power supply fails. The power source shall be capable of providing power for illumination of the visual indication [see 2.27.1.1.3(c)] within the car, and the means of emergency communications for at least 4 hours; and the audible signaling device (see 2.27.1.1.1 and 2.27.1.2) for at least 1 hour.

3011.4 ASME A17.1, Section 3.26.

3.26.10 Auxiliary Power Lowering Operation. In the absence of an emergency power supply, an auxiliary power supply shall be provided solely for the purpose of lowering the car in the case of main power failure. The

auxiliary lowering operation shall conform to 3.26.10.1 through 3.26.10.3.

3.26.10.1 Auxiliary lowering shall be permitted to be initiated, provided that all operating and control devices, including door open and close buttons function as with normal power supply, except that the following devices shall be permitted to be bypassed or made inoperative:

(a) Landing and car floor registration devices (or call buttons);

(b) Devices enabling operation by designated attendant (hospital service, attendant operation);

(c) Devices initiating emergency recall operation to the recall level, unless otherwise specified in Section 3.27; and

(d) "FIRE OPERATION" switch, unless otherwise specified in Section 3.27.

3.26.10.2 When the auxiliary lowering operation has been initiated, the car shall descend directly to the lowest landing, except that the operating system shall be permitted to allow one or more intermediate stops, and then, after a predetermined interval, the car shall proceed to the lowest landing, provided that the auxiliary power supply is of sufficient capacity to open and close doors at each intermediate stop.

3.26.10.3 If the car and landing doors are power operated, and if the auxiliary power supply is of adequate capacity, the doors shall open when the car stops at the lowest landing and shall close after a predetermined interval.

NOTE (3.26.10): For the main disconnect switch auxiliary contact, see ANSI/NFPA 70 and CSA-C22.1 requirements, where applicable (see Part 9).

3011.5 ASME A17.1, Section 8.6.

8.6.4.19.7 Standby or Emergency Power Operation. Operation of elevators equipped with standby or emergency power shall be tested to determine conformance with the applicable requirements. Automatic sequence of operation, if provided, shall be tested. Tests shall be performed with no load in the car.

8.6.5.14.3(f) Additional Tests. The following tests shall also be performed:

(f) Standby or Power Operation (8.6.4.19.7). Automatic sequence of operation, if provided, shall be tested.

CHAPTER 31

SPECIAL CONSTRUCTION

SECTION 3101 GENERAL

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, and towers and antennas.

3101.2 Other requirements. Special construction encroaching into the *public right-of-way* or *public space* shall conform to the pertinent standards set forth in Chapter 32, and other applicable requirements, including the DC Department of Transportation (DDOT) regulations set forth in 24 DCMR, and DC Official Code, Title 10, Subtitle III.

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 Section 3103 as applicable, except that membrane structures erected on a building, balcony, deck or other structure for any period of time shall comply with Sections 3102.1 through 3102.8. 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.

3102.1.1 Tensile membrane structures. Tensile membrane 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.

3102.2 Definitions. The following terms are defined in Chapter 2:

AIR-INFLATED STRUCTURE.

AIR-SUPPORTED STRUCTURE.

Double skin.

Single skin.

CABLE-RESTRAINED, AIR-SUPPORTED STRUCTURE.

MEMBRANE-COVERED CABLE STRUCTURE.

MEMBRANE-COVERED FRAME STRUCTURE.

NONCOMBUSTIBLE MEMBRANE STRUCTURE.

TENSILE MEMBRANE STRUCTURE.

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 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 the membrane is not less than 20 feet (6096 mm) above any floor, balcony or gallery.

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 and V construction, pro-

vided 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. This 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*.

3102.8.2 Standby power. Wherever an auxiliary inflation system is required, an *approved* 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 power 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

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.

Exception: Tents and other membrane structures erected for a period of less than 180 days shall comply with the provisions of Sections 3103 and 3104 of the *Fire Code*. Those erected for a longer period of time shall comply with applicable sections of this code. Membrane structures erected on a building, balcony, deck or other structure for any period of time shall comply with Sections 3102.1 through 3102.8.

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 150 square feet (13.9 m^2), including connecting areas or spaces with a common *means of egress* or entrance shall not be erected, operated or maintained for any purpose without obtaining a *permit* from the *code official*. Activities or uses regulated by Chapter 3 of the *Fire Code* require a separate permit issued by the *fire code official*.

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*.

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.

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 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 a minimum of 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 wall and doors or glass 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 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.

3104.6 Public way. *Pedestrian walkways* over a *public way* shall comply with Chapter 32.

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 Table 716.5.

SECTION 3105
AWNINGS AND CANOPIES

3105.1 General. *Awnings* and *canopies* shall comply with the requirements of this section, other applicable sections of the *Construction Codes*, the *Zoning Regulations* and other applicable requirements. Awnings or canopies projecting over or into *public space* shall also comply with Section 3202.12.

3105.2 Definition. The following term is defined in Chapter 2:

RETRACTABLE AWNING.

3105.3 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*, wood of Type IV size, or 1-hour construction with combustible or noncombustible covers and shall be either fixed, retractable, folding or collapsible.

3105.4 Awnings and canopy materials. Awnings and *canopies* shall be provided with an *approved* covering that meets the fire propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of NFPA 701 or has a *flame spread index* not greater than 25 when tested in accordance with ASTM E84 or UL 723.

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

3105.5 Fixed or permanent awnings. The clearance from the sidewalk or any other space used by the public to the lowest part of any fixed or permanent *awning* shall be not less than 8 feet (2438 mm). Fixed or permanent *awnings* installed above the first story shall not project more than 5 feet (1524 mm) from the face of the building.

Exception: Above doors on detached one- and two-family *dwellings*, and townhouses not more than three stories above grade in height with a separate *means of egress*, the clearance from the sidewalk or any other space used by the public to the lowest part of the *awning* shall be not less than 80 inches (2032 mm).

3105.6 Retractable awnings. The clearance from the sidewalk or any other space used by the public to the lowest part of any *retractable awning* shall be not less than 8 feet (2438 mm). *Retractable awnings* shall be securely fastened to the building and, in the fully extended position, no part of the awning shall be closer than 12 inches (305 mm) to the vertical plane of the *lot line*. *Retractable awnings* shall be equipped with a mechanism or device for raising and holding the awning in a retracted or closed position against the face of the building.

Exception: Above doors on detached one- and two-family dwellings and townhouses not more than three stories above grade in height with a separate *means of egress*, the clearance from the sidewalk or any other space used by the public to the lowest part of the *awning* shall be not less than 80 inches (2032 mm).

3105.7 Canopies. *Canopies* shall not extend closer than 2 feet (610 mm) from the *lot line*. The clearance from the sidewalk or any other space used by the public to the lowest part of any canopy shall be not less than 8 feet (2438 mm).

3105.8 Lettering on awnings or canopies. Lettering on *awnings* or canopies shall comply with Appendix N or any superseding regulations adopted pursuant to the *Sign Legislation*.

SECTION 3106
MARQUEES

3106.1 General. Marquees shall comply with Sections 3106.3 through 3106.5 and other applicable sections of this code. Marquees projecting over or into *public space* shall also comply with Section 3202.12.3.

3106.2 [Reserved]

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.

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.

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

3107.1 General. Signs shall be designed, constructed and maintained in accordance with the applicable requirements of the *Construction Codes*, including, but not limited to, the *Property Maintenance Code*, and Chapters 1, 16, 24 and 26 and Appendix N of this code, except to the extent that any of the provisions of the *Construction Codes* are superseded by regulations adopted in the District of Columbia pursuant to the *Sign Legislation*.

SECTION 3108
TELECOMMUNICATION AND BROADCAST TOWERS

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.

3108.2 Location and access. Towers shall be located such that guy wires and other accessories shall not cross or encroach upon any street or other public space, or over above-ground electric utility lines, or encroach upon 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

3109.1 General. The design and construction of swimming pools, spas and hot tubs shall comply with the *Swimming Pool and Spa Code*.

SECTION 3110
AUTOMATIC VEHICULAR GATES

3110.1 General. *Automatic vehicular gates* shall comply with the requirements of Sections 3110.2 through 3110.4 and other applicable sections of this code.

3110.2 Definition. The following term is defined in Chapter 2:

VEHICULAR GATE.

3110.3 Vehicular gates intended for automation. *Vehicular gates* intended for automation shall be designed, constructed and installed to comply with the requirements of ASTM F2200.

3110.4 Vehicular gate openers. *Vehicular gate* openers, where provided, shall be *listed* in accordance with UL 325.

SECTION 3111
PHOTOVOLTAIC PANELS AND MODULES

3111.1 General. Photovoltaic panels and modules shall comply with the requirements of this code and the *Fire Code*.

3111.1.1 Rooftop-mounted photovoltaic panels and modules. Photovoltaic panels and modules installed on a roof or as an integral part of a roof assembly shall comply with the requirements of Chapter 15 and the *Fire Code*.

SECTION 3112
FENCES

3112.1 General. Fences shall comply with the requirements of this section, other applicable sections of the *Construction Codes* and other municipal regulations. All barbed wire and similar fences shall comply with the requirements of Section 3112.4.

Exception: Fences or portions of fences located on privately-owned land beyond a *building restriction line* shall comply with the requirements for fences in *public space* set forth in 24 DCMR § 103.

3112.1.1 Fence walls. Fence walls shall conform to the requirements for fences.

3112.1.2 Screens or trellises. Screens or trellises shall conform to the requirements for fences.

3112.1.3 Height measurement. The measurement of the height of a fence shall be made from the top of the fence to grade, on the side of the fence where grade level is higher.

3112.1.4 Permit applications. Application for permits to erect or increase the height of a fence, or change the grade adjacent to a fence, shall be accompanied by an official building plat upon which the proposed fence location is indicated. Review and approval by the *Zoning Administrator* shall be required before a permit shall be issued.

Exception: Review or approval by the *Zoning Administrator* shall not be required where: (a) an existing lawful fence is replaced; (b) the extent, location, and the height of the fence is unchanged; and (c) the adjacent grade is unchanged.

3112.2 Party line fences. Only those portions of the length of a fence, including footings, which are partly on each side of a *party line* shall be considered as *party line* fences. Permit applications for *party line* fences shall be signed by the owners of the adjoining properties on which the fence is to be located.

3112.2.1 Fence materials. A *party line* fence shall be a wood, woven wire, or iron fence of open pattern, unless otherwise agreed upon by the adjoining owners.

3112.2.2 Height agreements. Where owners propose to erect a *party line* fence over 7 feet (2134 mm) in height in *Residential Zones* or on properties with frontage on the Anacostia or Potomac Rivers, or over 10 feet (3048 mm) in *Mixed Use*, *Special Purpose, Commercial*, or *PDR Zones*, a written agreement as to the height of the *party line fence* shall be executed by the *owners* of the properties on which the fence is to be located and such agreement shall be filed with the *code official* before issuance of a permit.

3112.3 Other fences. Fences other than *party line* fences shall comply with Sections 3112.3.1 through 3112.3.5.

3112.3.1 Fences abutting streets. Fences abutting a street shall not exceed 7 feet (2134 mm) in height in *Residential Zones* or on properties with frontage on the Anacostia or Potomac Rivers, nor 10 feet (3048 mm) in height in *Mixed Use*, *Special Purpose*, *Commercial*, or *PDR Zones*.

3112.3.1.1 Special provisions applicable to historic districts and landmarks. Within a historic district or at a designated historic landmark, fences or walls between the front façade of a structure and the front lot line shall not exceed 3 feet 6 inches (1067 mm) in height. Fences between the front façade of a structure and the front lot line shall be at least 50 percent open. (The ratio shall be computed in elevation by dividing the fence elements themselves by the open space between the fence elements.) The *code official* is authorized to allow fences or walls covered by this section to exceed 3 feet 6 inches (1067 mm) in height upon recommendation of the Historic Preservation Office.

3112.3.2 Fences abutting alleys. Fences abutting alleys shall not exceed 7 feet (2134 mm) in height in *Residential Zones* or on properties with frontage on the Anacostia or Potomac Rivers, nor 10 feet (3048 mm) in *Mixed Use*, *Special Purpose*, *Commercial*, or *PDR Zones*.

Exception: The *code official* is authorized to approve a greater height where the alley is 15 feet (4572 mm) wide or more.

3112.3.3 Fences near party lines. Fences located 10 feet (3048 mm) or less from a *party line* shall not exceed 7 feet (2134 mm) in height in *Residential Zones* or on properties with frontage on the Anacostia or Potomac Rivers, nor 10 feet (3048 mm) in *Special Purpose*, *Mixed Use*, *Commercial*, or *PDR Zones*. Fences shall not obstruct light or ventilation for any required window.

Exception: Where the written consent of the adjoining owners is filed with the *code official,* the *code official* is authorized to approve a greater height, not to exceed 10 feet (3048 mm).

3112.3.4 Fences located in lot interior. Fences more than 10 feet (3048 mm) from a lot *line*, including a *party line*; an *alley*; or if applicable, a *building restriction line*, shall not be subject to height limitations except as necessary to avoid either of the following:

1. Encroachment on a required yard or court.
2. Obstruction of the light or ventilation for any required window.

3112.3.5 Gate height. Gates shall not exceed the height of the fence.

3112.4 Barbed wire fences. Fences, barriers or obstructions, composed in whole, or in any part, of barbed wire (collectively referred to as "*barbed wire fences*") are prohibited in the District of Columbia, except as expressly permitted by this section. The term *barbed wire* shall include any of the following:

1. Barbed, razor or electrified wire.
2. Sharp or jagged glass.
3. Metal such as, but not limited to, razor-spikes.
4. Similar materials.

3112.4.1 Barbed wire fences on private property. *Barbed wire fences* on private property that meet all of the following conditions are permitted:

1. The *barbed wire fence* is not located in a *Residential Zone* or along the zoning boundary lines of any *Residential Zone*, except where the *code official* determines that the condition or the nature of the improvements located upon the *premises* pose a significant, demonstrable hazard to members of the public.
2. The *barbed wire fence* is not located on the *lot line*, or *building restriction line* if one exists, and does not project beyond the *lot line* or *building restriction line*.
3. The minimum height of the lowest strand of *barbed wire* is 6 feet (1829 mm) above adjacent ground.
4. The *barbed wire fence* complies with any other applicable requirements, including, but not limited to, Sections 802.17, 804.14 and 825.13 of the *Zoning Regulations.*

3112.4.2 Barbed wire fences in public space. No *barbed wire fence* shall be erected, constructed, or maintained, along the *lot line* or *building restriction line*, if one exists, or in or upon any *street*, or other *public space*, including but not limited to any sidewalk, *public parking* or *building restriction area*, in the District of Columbia.

CHAPTER 32

ENCROACHMENTS INTO THE PUBLIC RIGHT-OF-WAY

SECTION 3201
GENERAL

3201.1 Scope. The provisions of this chapter shall govern the encroachment of *structures* or any portion thereof into the *public right-of-way*, *public space* or *building restriction area*. Such encroachments are referred to as *projections* in this chapter.

3201.1.1 Other requirements. All *projections* shall also comply with other applicable requirements, including DC Department of Transportation (DDOT) regulations set forth in 24 DCMR, and DC Official Code, Title 10, Subtitle III, Chapter 11.

3201.2 Measurement. The projection of any structure or portion thereof shall be the distance measured horizontally from the *lot line* to the outermost point of the projection.

3201.3 Other laws. The provisions of this chapter shall not be construed to permit the violation of other laws or ordinances regulating the use and occupancy of public property.

3201.4 Drainage. Drainage water collected from a roof, *awning*, canopy or marquee, and condensate from mechanical equipment shall not flow over a public walking surface.

3201.5 Code official authority. The *code official* is authorized to approve the *projections* expressly which meet the parameters set forth in Section 3202, in acting upon permit applications required by Section 105 of this code, unless approval of the Public Space Committee and/or DDOT is expressly required. Notwithstanding the foregoing, a separate public space permit issued by DDOT shall be obtained for any excavation in *public space* or changes to grade of *public space*.

3201.6 Vaults. Construction or alteration of *vaults* shall also require a public space permit.

3201.7 Definitions. The following terms are defined in Chapter 2:

AREAWAY.

AWNING.

BAY WINDOW (for Chapter 32).

BUILDING RESTRICTION LINE.

BUILDING RESTRICTION AREA.

CANOPY.

COLONNADE.

EMBELLISHMENT.

MARQUEE.

ORIEL WINDOW.

PORCH (for Chapter 32).

PORTE-COCHERE.

PROJECTIONS (for Chapter 32).

PUBLIC PARKING.

PUBLIC RIGHT-OF-WAY.

PUBLIC SPACE.

SHOW WINDOW (for Chapter 32).

STORY ABOVE GRADE PLANE.

STREET (for Chapter 32).

TERRACE (for Chapter 32).

TOWER (for Chapter 32).

VAULT (for Chapter 32).

ZONE, COMMERCIAL.

ZONE, MIXED-USE.

ZONE, PRODUCTION, DISTRIBUTION AND REPAIR (PDR).

ZONE, RESIDENTIAL.

ZONE, SPECIAL PURPOSE.

SECTION 3202
PROJECTIONS

3202.1 Character of projections. *Projections* are a privilege, and cannot be claimed as a right. The provisions of Chapter 32 establish limitations on the *projections* that the *code official* is authorized to approve. The *code official* is authorized to further restrict or refuse proposed projections if the *code official* considers such action best for the public interest.

3202.2 Removal of projections. Approval of *projections* shall be issued with the understanding and agreement by the *applicant* that any and all such *projections* shall be promptly removed upon notice from the *code official.*

3202.3 [Reserved]

3202.4 Modification of projection requirements. Where an *owner* proposes a *projection*, associated with a project requiring a permit pursuant to Section 105, and the projection is not authorized by the provisions of Chapter 32, the *owner* shall obtain a modification from the *code official* as authorized by Section 3202.4.1 where the modification is deemed in the general public interest; or, in the case of foregone construction, as set forth in Section 3202.4.2 obtain approval from the Public Space Committee.

3202.4.1 Modifications in the general public interest. The *code official* is authorized to grant modifications in

the general public interest for *embellishments* or to enhance views along a *street*, subject to all of the conditions set forth:

1. The applicant shall submit a written modification request to the *code official* on an *approved* form that complies with Section 104.10, as applicable.

2. The modification request shall be referred by the *code official* to the DDOT and the Office of Planning (OP) for their review and recommendation.

3. No modification request shall be approved without a written report from the Directors of DDOT and OP, or their designees, that covers the review criteria set forth in Section 3202.4.1.1, provided that the *code official* is authorized to proceed without such a report if DDOT or OP fail to comply with the time period for review provided in Section 3202.4.1.1.

4. The *code official* determines: the primary objective of the modification is not changing of interior arrangements; the modification will not interfere with adjacent buildings; and the modification will not create an unsafe condition for occupants of the *premises* or any portion thereof or for occupants of adjacent *premises*.

3202.4.1.1 DDOT and OP review and recommendation. DDOT and OP shall have 10 *business days* from the referral date to submit a written recommendation to the *code official*, provided that the *code official* may allow for an extension of this period for good cause when requested by DDOT or OP. If DDOT or OP fail to provide the written recommendation required by this section within the specified 10 *business day* period or any extension thereto, DDOT or OP, as applicable, shall be deemed to have no objection to the modification request.

3202.4.1.1.1 Relevant criteria. In reviewing the modification request, DDOT and OP shall consider the following criteria:

1. Whether the proposed modification is inconsistent with the District of Columbia's policies for use of *public space* and will negatively impact current or future use of the transportation network and infrastructure systems.

2. Whether the proposed modification is not an *embellishment*.

3. Whether the proposed modification detracts from the *public parking* and experience of *public space*.

4. Whether the primary effect of the modification is the private occupation of *public space*.

3202.4.1.2 Action on modification request. The *code official* shall review and approve or deny a *projection* modification request after considering timely-submitted reports provided by the Department of Transportation and the Office of Planning pursuant to Section 3202.4.1.1.

3202.4.2 Foregone construction. Foregone construction is deemed to occur when, in conformity with a plan previously approved by the National Capital Planning Commission for improvement of any *street* or thoroughfare, the *owner* will permanently forego construction on, or the use of a portion of the *owner's lot*. In such cases, the *code official* is authorized to grant a *projection* modification to authorize projections which shall equitably compensate such *owner*, if: the *code official* determines the public interest will thereby be better served; and the *projection* modification complies with the limitations and conditions set forth in Sections 3202.4.2.1 through 3202.4.2.5.

3202.4.2.1 Width. The width of projections allowed under Section 3202.4.2 shall be limited as follows:

1. The proposed *projection* shall be authorized to be constructed to the *lot line extended*, on the side of any adjoining structure that contains *projections*, facing the same *public right-of-way*, that project into *public space* at least as much as the proposed *projection*.

2. The proposed *projection* shall not extend to within 10 feet (3048 mm) of the *lot line extended*, on the side of any adjoining structure that does not project or that only contains *projections*, facing the same *public right-of-way*, that project into *public space* less than the proposed *projection*.

   Exception: A portion of the proposed *projection* shall be allowed to encroach into this 10-foot (3048 mm) restriction zone if the angle formed by the *lot line* and the face of that portion of the projection does not exceed 45 degrees.

3. *Projections* at the corner of two *streets* shall be allowed to continue around the corner if similar *projections* are approved for both *streets*.

3202.4.2.2 Height. The height above grade of *projections* approved under Section 3202.4.2 shall be limited to the height of the building. A clearance of not less than 20 feet (6096 mm) above the sidewalk or parking grade shall be maintained under any portion of such *projections* or supports thereof. Balconies or other *projections* which in the judgment of the *code official* will embellish the area, when *approved*, shall be allowed to be constructed with lower clearances above grade; provided that such clearances shall be at least 8 feet (2438 mm) above walkways and at least 15 feet (4572 mm) above driveways.

3202.4.2.3 Projecting distance. The footprint of *projections* approved under Section 3202.4.2 shall be entirely located between the *lot line* and the outer edge of the curb, and the outer face of all projections shall be at least 4 feet (1219 mm) from the outer edge of the curb. In addition, the projecting distance of the *projection* shall be limited as specified in Table 3202.4.2.

TABLE 3202.4.2
MAXIMUM PROJECTIONS
UNDER FOREGONE CONSTRUCTION MODIFICATIONS

TYPE OF STREET	WIDTH OF STREET (feet)	MAXIMUM PROJECTING DISTANCE (feet)[a]
Streets without public parking	40 to 45 feet	4
Streets without public parking	More than 45 feet; up to, and including, 70 feet	6
Streets without public parking	More than 70 feet; up to, and including, 80 feet	8
Streets without public parking	40 to 45 feet	14
Streets with public parking	Any width	14

For SI: foot = 304.8 mm.

3202.4.2.4 Covenant for modification of projection requirements for foregone construction. Prior to the issuance of a building permit, the *owner* who applies for a *projection* modification under Section 3202.4.2 shall submit a certified copy of a written covenant, complying with Section 120.2, that establishes such limitations and conditions as shall be imposed by the *code official*, which shall include, but not be limited to, an agreement to hold harmless the District of Columbia, its officers and agents, from liability by virtue of the grant of authority to construct said *projection*, and to landscape or otherwise treat, and thereafter maintain, to the satisfaction of the *code official*, the area upon which the covenanter has forborne to build.

3202.4.2.5 Referral to public space committee. The *code official* shall refer to the Public Space Committee, for consideration and recommendation, all applications for modification of projection requirements for foregone construction proposed under Section 3202.4.2.

3202.5 Projections on streets to be widened. Except as otherwise permitted by this chapter, no projections shall be allowed on the parts of *streets* to be widened in conformity with adopted and recorded highway extension plans, including a *building restriction area* where the same exists on a lot, until such parts of *streets* are so widened.

3202.5.1 Existing buildings. Where existing *streets* are widened, or new *streets* are laid out and opened, in conformity with the adopted and recorded highway extension plans, in subdivisions existing at the time of record of such plans, and such widening or opening shall leave buildings or parts of buildings on such *streets*, such buildings or parts of buildings will be allowed to remain as projections beyond the new *lot line* or *building restriction line* if one exists. Such grandfathered projections of such existing buildings shall be limited in projection distance to that allowed for porches by Section 3202.11.2.3, but no limitations shall be placed upon the kind of *projection* unless the façade is structurally altered. Such buildings are permitted to be moved under permit to another location on the same *lot*, upon compliance with applicable regulations.

3202.5.1.1 Structurally altered façades of existing buildings. Where the façade of an existing building covered by Section 3202.5.1 is structurally altered, the *projections* resulting from such alterations shall conform in all respects to the requirements of Chapter 32 for new *projections*.

3202.6 Streets on which projections are prohibited. *Projections* shall not be permitted on the following street segments:

1. North side of Good Hope Road SE, between Martin Luther King, Jr. Avenue SE and 18th Street SE.
2. Florida Avenue NW, from 7th Street NW to 9th Street NW.
3. Maine Avenue SW, from 7th Street SW to 14th Street SW.
4. M Street NW, from 29th Street NW to 36th Street NW.
5. K Street NW, from Rock Creek westward to Wisconsin Avenue NW.
6. Water Street NW, from Wisconsin Avenue NW westward to the termination of said street.
7. Wisconsin Avenue NW, from the angle south of N Street NW to the north roadway of Q Street NW.
8. Twelfth Street NW, from Monroe Street NW to the angle north of Otis Street NW.
9. Martin Luther King, Jr. Avenue SE from Good Hope Road SE to the northern boundary of the grounds of St. Elizabeth's Hospital.

Exception: Projecting cornices, bases, sills, belt courses, pilasters and *water tables* are not restricted by this section.

3202.7 General restrictions. All *projections* shall comply with the provisions of Sections 3202.7.1 through 3202.7.6.

3202.7.1 Limitations based on street width and zoning zone. Except as otherwise permitted by this chapter, *projections* shall not be allowed on any *street* less than 60 feet (18 288 mm) in width subject to specific requirements that may be applicable to *buildings* and *structures* located in certain zoning zones as identified in Section 3202.7.

Exception: Projecting cornices, bases, *water tables*, pilasters or uncovered steps.

3202.7.1.1 Minimum clearance to curb line. A minimum clear space from the outer edge of the curb to the outer face of all *projections* and steps shall be preserved, as follows:

1. Ten feet (3048 mm) on *streets* 40 feet (18288 mm) to and including 80 feet (24 384 mm) wide;
2. Twelve feet (3658 mm) on *streets* more than 80 feet (24384 mm) to and including 90 feet (27 432 mm) wide; and
3. Fifteen feet (4572 mm) on *streets* more than 90 feet (27 432 mm) wide.

For purposes of Section 3202.7.1.1, the term "*street*" shall include the public thoroughfare and any adjoining *building restriction areas*.

3202.7.1.2 Minimum sidewalk clearance. No *projection* shall be approved where the *projection* limits or encroaches upon the sidewalk width or sidewalk clearance for the specific Zoning Zone or use as specified in Chapter 31 of the DDOT Design and Engineering Manual (June 2017).

3202.7.2 Projection clearances. Clearances adjacent to *projections* shall comply with the following distances:

1. A clear space of at least 8 inches (203 mm) shall be preserved between *party lines extended* or *alley lines extended* and the outer walls or sides of *projections*.
2. A clear space equal to or greater than the distance that a *projection* extends over the *lot line* or *building restriction line* shall be preserved between separate *bay window*, *tower*, *oriel window*, balcony, and *porch projections*.
3. A clear space of at least 42 inches (1067 mm) shall be preserved between *show windows* and a clear space of at least 48 inches (1219 mm) shall be preserved between *show windows* and *bay windows* or *oriel windows.*

Exception: Cornices, belt courses, pilasters, bases, *water tables*, and walls of *areaways*, are permitted to extend to, but not over, *party lines extended* or *alley lines extended*. Such *projections* shall be constructed so that the removal of one structure or its *projections* will not affect or damage the adjoining structure or *projections* and will not interfere with the construction or reconstruction of *projections* or buildings on the adjoining property.

3202.7.3 Chimneys. Chimneys shall not project beyond the *lot line* or *building restriction line*, if one exists.

3202.7.4 Plumbing fixtures. Plumbing fixtures shall not be located in *projections*.

Exception: *Areaway* drains and roof drains.

3202.7.5 Overhead projections. The footprint of any projecting sign, *awning*, *canopy*, *marquee*, or *port-cochere* shall not extend over *public space* or into the *public right of way* beyond a line 18 inches (457 mm) behind the curb line.

Exception: Market sheds, as provided for in Sections 3202.12.4 through 3202.12.4.3.

3202.7.6 Construction of projections. *Projections* shall be constructed of any materials permitted by the *Construction Codes* for the type of construction of the building.

Exceptions:

1. Roofing, skylights and roof domes in projecting structures are permitted to be of the same materials allowed for similar nonprojecting structures.
2. Where noncombustible materials are specifically required elsewhere in this chapter for specific *projections*.
3. Where combustible materials are specifically allowed elsewhere in these regulations for specific *projections*.

3202.8 Projections requiring special approval. *Projections* regulated under Sections 3202.8.1 and 3202.8.2 shall require approval by the *Public Space Committee*.

3202.8.1 Pedestrian walkways and tunnels. Pedestrian walkways and tunnels shall meet the requirements of Section 3104. In addition, the vertical clearance above the *public right-of-way* or the surface of *public space* to the lowest part of an elevated pedestrian walkway shall be not less than 15 feet (4572 mm).

3202.8.2 Porte-cocheres. *Porte-cocheres* shall be permitted one story in height. All driveways and approaches that serve a *porte-cochere* and cross sidewalks or parking lots shall be paved and otherwise improved to the satisfaction of DDOT.

3202.9 Subsurface projections. *Areaway* and *vault projections* shall comply with the requirements of Sections 3202.9.1, 3202.9.2 and 3202.9.3, respectively.

3202.9.1 Areaways. *Areaway projections* shall comply with the requirements of Sections 3202.9.1.1 through 3202.9.1.5.

3202.9.1.1 Width. The width of an *areaway*, measured from outside to outside of the *areaway's* enclosing walls, shall not be limited if located between *party lines extended*.

3202.9.1.2 Enclosure height. The height of *areaway* enclosures shall be limited to the highest point of the surface of the adjoining pavement or grade.

Exception: Copings not over 8 inches (203 mm) high, and railings or guardrails.

3202.9.1.3 Projection. The extent of *areaway* projection shall be measured from the *lot line* or *building restriction line*, if one exists, to the inside face of the *areaway* wall. Projection beyond the *lot line* or *building restriction line*, if one exists, shall be limited as follows:

1. Four feet (1219 mm) on streets in *Commercial* and *PDR Zones*.
2. Four feet (1219 mm) on *streets* without *public parking* in *Residential, Mixed Use* and *Special Purpose Zones*, more than 60 feet (18288 mm) wide.
3. Six feet (1829 mm) on streets with *public parking* in *Residential, Mixed Use* and *Special Purpose Zones*, 60 to 70 feet (18 288 mm to 21336 mm) wide.
4. Six and a half feet (1981 mm) on *streets* with *public parking* in *Residential, Mixed Use* and *Special Purpose Zones*, more than 70 feet (21 336 mm) wide.

5. Seven feet (2134 mm) on *streets* with *public parking* in *Residential, Mixed Use* and *Special Purpose Zones*, where *public parking* is 20 feet (6096 mm) or more in width.

3202.9.1.4 Other requirements. *Areaways* shall be protected by substantial metal guardrails not less than 42 inches (1067 mm) nor more than 48 inches (1219 mm) high. Proper protection by metal railings that meet the guardrail requirements of Section 1013 of this code shall be provided where steps or platforms are built over *areaways*, subject to the requirements of 24 DCMR § 103. Basement or cellar steps in *areaways* shall be protected in the same way and shall have gates at top of the steps unless otherwise protected. Steps leading to an *areaway* are considered part of an *areaway*.

3202.9.1.5 Locations prohibited. *Areaways* shall not be located in an alley.

3202.9.2 Vaults. *Vaults* shall comply with the requirements of Sections 3202.9.2.1 through 3202.9.2.5.

3202.9.2.1 Public space permit required. In addition to a permit issued by DCRA, construction or alteration of a *vault* shall require a public space permit issued by DDOT, and the *owner* proposing to construct or alter a *vault* shall be responsible for obtaining the required public space permit prior to permit issuance by DCRA. The provisions of DC Official Code, Title 10, Chapter 11 also apply to construction, maintenance and use of *vaults* in *public space*.

3202.9.2.2 Size and openings. *Vault* design shall comply with the following:

1. Approval of the size and extent of *vaults*, and of the number and size of *vault* openings, shall be a matter of special determination in each case by the *code official* and the *Public Space Committee*.
2. *Vaults* extending under *alleys* shall have no openings in the *alley* pavement, and shall not extend within 2.5 feet (762 mm) of the center of the *alley*.

3202.9.2.3 Use of vault space. The use of the *vault* space shall be subject to the following conditions:

1. The *code official* is authorized to approve transformer *vaults* exclusively to house utility equipment. Storage in such *vaults* shall be prohibited.
2. *Vaults* in *Commercial*, *Mixed Use, Special Purpose* or *PDR Zones* shall not be used for the following purposes: public entrances to basements; means of egress corridors; housing of boilers; housing of plumbing fixtures; housing of storage tanks for propane or other flammable gas; or the housing of mechanical appliances or any equipment not removable within 24 hours.
3. *Vaults* shall be allowed to be used for the following purposes: access to open areaway stairs; storage of readily movable personal property and equipment; sales or office space; housing of fuel oil storage tanks; parking of motor vehicles; installation of ducts, pipes or wiring; location of ducted air shafts; housing of fans; and housing of similar items which can be removed or relocated if vault space is removed.
4. Fuel oil filling pipes, in *vaults* in *Commercial*, *Mixed Use, Special Purpose* or *PDR Zones*, shall be extended to within 18 inches (457 mm) of the curb line when physically possible. Such pipes shall terminate in filling boxes of approved design. A separate permit shall be required for such filling pipes and filling boxes.
5. If openings in the roofs of *vaults* are used for sidewalk elevators or for runways, they shall be located as near to the curb as possible and shall be equipped with heavy metal safety doors and frames.
6. The *code official* is authorized to approve other uses not forbidden by law, code, or regulation.

3202.9.2.4 Vault cover. Coverings over *vaults* shall comply with the following:

1. Vaults located in the sidewalk shall have a solid cover with paving that matches the adjacent sidewalk. The paving over *vaults* shall be laid according to specifications of DDOT for surface paving and shall conform to established grades. All such coverings shall be so constructed as to be flush with pavement, and have a roughened surface to provide security to persons passing over them.
2. When paving over *vaults* is installed pursuant to a public space permit or order issued by DDOT, the paving shall be laid at the expense and risk of the *person* doing the work.
3. The roof of a *vault* located between the curb and the *lot line*, or in a *building restriction area*, shall at no place be less than 4 inches (102 mm) below the approved sidewalk grade at that point.
4. *Vaults* shall be roofed over within a reasonable time or within the time fixed by the public space permit.
5. Whenever the grade over the *vault* is changed, the *vault* covering shall be changed and repaved at the expense of the *person* doing the work, except where the grade change impacts the top of the *vault*, in which case the *owner* of the abutting property shall pay for that portion of the work required to conform the *vault* to the new grade.

Exception. Transformer *vaults* shall be allowed to have grated openings at the level of the sidewalk in *public space*.

3202.9.2.5 Interference with utilities. Construction of *vaults* shall be subject to the following conditions:

1. *Vaults* shall be constructed so as not to interfere with sewers, water mains, gas mains, electric or telephone conduits, signal conduits, manholes,

lamp posts, trees, or any other public or public utility works or improvements.

2. If construction or alteration of a *vault* requires the removal or relocation of utilities, and if by agreement a public utility or District utility arranges to alter its facilities, the *owner* of the abutting *lot* shall notify the appropriate utility company or utility office concerned when a permit has been issued and construction or alteration work is ready to commence.

3202.10 Balconies, windows, towers and structural trim. Balconies, windows, towers and structural trim shall conform to the provisions of Sections 3202.10.1 through 3202.10.9.

3202.10.1 Prohibition on alley location. Balconies, *bay windows*, *oriel windows* or *show windows,* or *towers* shall not project into or over an *alley*.

3202.10.2 Balconies. Balconies shall comply with the width and projection requirements of Sections 3202.10.2.1 and 3202.10.2.2.

3202.10.2.1 Width. Balconies shall maintain an 8-inch (203 mm) separation from *party lines extended*. Aggregate balcony width is otherwise unlimited. Where balconies are connected to *bay windows*, the width of the balconies shall be included in the width of the bay windows and the combined width shall comply with the requirements for *bay windows*. A balcony at the corner of two *streets* is permitted to be continued around the corner. The portion of such a continued balcony that is located beyond *party lines extended* shall not be counted in the width of projections on either front.

3202.10.2.2 Projection. Balcony *projections* shall be limited as follows:

1. Three feet (914 mm) beyond the *lot line* or *building restriction line*, if one exists, on *streets* more than 60 feet (18 288 mm) and less than 70 feet (21 336 mm) wide.
2. Four feet (1219 mm) beyond the *lot line* or *building restriction line*, if one exists, on *streets* 70 feet (21 336 mm) or more in width.

For purposes of Section 3202.10.2.2, the term "*street*" shall include the public thoroughfare and any adjoining *building restriction areas*.

3202.10.2.3. Other restrictions. Balconies with railings that are more than 50 percent solid or opaque shall comply with maximum width requirements for *bay windows*.

3202.10.3 Bay windows. *Bay window projections* shall comply with the requirements of Sections 3202.10.3.1 through 3202.10.3.4.

3202.10.3.1 Width. The width of *bay windows* at each *lot line* or *building restriction line*, if one exists, shall be limited as follows:

1. A *bay window projection* shall not be allowed on buildings less than 16 feet (4877 mm) wide at the *lot line* or *building restriction line*, if one exists.
2. A single *projection* of up to 9 feet (2743 mm) in width shall be allowed for all buildings having a width of 16 feet (4877 mm) or more at the *lot line* or *building restriction line*, if one exists.
3. The allowable width of a single *projection* shall increase 6 inches (152 mm) for every foot (305 mm) of increase in the width of the building between 16 feet (4877 mm) and 24 feet (7315 mm) wide at the *lot line* or *building restriction line*, if one exists.
4. For buildings over 24 feet (7315 mm) in width the allowable width of a single *projection* shall increase 2 inches (51 mm) for every foot (305 mm) of increase in width of the building over 24 feet (7315 mm).
5. Multiple projections (two or more separate projections) shall not be allowed on buildings less than 34 feet (10 363 mm) wide at the *lot line* or *building restriction line*, if one exists.

6 The allowable aggregate width of multiple projections on buildings exceeding 34 feet (10 363 mm) in width at the *lot line* or *building restriction line*, if one exists shall be increased 6 inches (152 mm) for each foot (305 mm) of increased building width over 34 feet (10 363 mm).

7. The width of bay window projections shall be measured at a distance of 1 foot (305 mm) from the *lot line* or *building restriction line*, if one exists.
8. Bay window projections of buildings on interior lots shall not extend beyond *party lines extended*.
9. A bay window at the corner of two streets is permitted to be continued around the corner. The portion of such a continued bay window that is located beyond *party lines extended* shall not be counted in the width of projections on either front.

3202.10.3.2 Height. The height of bay windows shall not be limited.

3202.10.3.3 Projection. The *projection* of *bay windows* shall be limited as follows:

1. Three feet (914 mm) on *streets* 60 feet (18 288 mm) to 70 feet (21 336 mm) wide.
2. Four feet (1219 mm) on streets more than 70 feet (21 336 mm) wide.

For purposes of Section 3202.10.3.3, the term "*street*" shall include the *public thoroughfare* and any adjoining *building restriction areas*.

3202.10.3.4 Other restrictions. Stairways shall not be permitted in *bay window projections*. Doors in *bay windows* that do not swing beyond the *projection* shall be permitted.

3202.10.4 Oriel and show windows.

3202.10.4.1 Oriel windows. *Oriel window* projections shall conform to all the requirements governing bay window projection.

3202.10.4.2 Show windows. *Show window projections* shall comply with the requirements of Sections 3202.10.4.2.1 through 3202.10.4.2.4.

3202.10.4.2.1 Projection. The maximum amount that a *show window* can project into *public space* shall be 3 feet (305 mm).

3202.10.4.2.2 Width. The maximum width of an individual *show window* is limited to 20 feet (6096 mm) and the total width of multiple windows is unlimited except as to leaving 8 inches (203 mm) from the *party line extended*.

3202.10.4.2.3 Height. The height of *show window projections* shall not exceed 18 feet (5486 mm) above the sidewalk.

3202.10.4.2.4 Other requirements. Design of *show windows projections* shall use a base wall of opaque material up to a maximum height of 36 inches (914 mm) from the sidewalk level and the enclosing wall shall be of a transparent material.

3202.10.5 Towers. *Tower projections* shall conform with the width and height requirements of Sections 3202.10.5.1 and 3202.10.5.2.

3202.10.5.1 Width. *Tower projections* shall conform with all width requirements governing *bay window projections*.

3202.10.5.2 Height. *Tower projection* heights shall extend above the roof height of the part of the building to which it is attached.

3202.10.6 Colonnades. *Colonnade projections* shall comply with the width, height and projection requirements of Sections 3202.10.6.1 through 3202.10.6.3.

3202.10.6.1 Width. *Colonnade projections* are subject to the minimum clearance of 8 inches (203 mm) from *party lines extended* and *alley lines extended*, required under Section 3202.7.2.

3202.10.6.2 Height. The height of *colonnade projections* is limited to two stories above grade.

3202.10.6.3 Projection. *Colonnade projection* is limited to 6 feet (1829 mm) where *public parking* exists and the depth of *public parking* is 17 feet (5182 mm) or more wide. *Colonnade projections* shall not be permitted on streets where *public parking* exists and the depth of *public parking* is less than 17 feet (5182 mm) wide.

3202.10.7 Pilasters. Pilasters not more than 5 feet (1524 mm) wide are permitted to project up to 4 inches (102 mm) beyond the *lot line* or *building restriction line*, if one exists. Pilaster bases are permitted to project 8 inches (203 mm) beyond the *lot line* or *building restriction line*, if one exists.

3202.10.8 Bases, water tables and sills. Bases, *water tables*, window and other sills are permitted to project up to 8 inches (203 mm) beyond the *lot line* or a *building restriction line*, if one exists. Projecting bases and *water tables* shall not be more than 4 feet (1219 mm) above grade at the building wall nor above window sill level of the main story. Their length is not limited.

3202.10.9 Belt courses, cornices and roof overhangs. Belt courses are permitted to project up to 8 inches (203 mm), and cornices and roof overhangs are permitted to project up to 60 inches (1524 mm), beyond the *lot line* or *building restriction line*, if one exists. The length and height of projecting belt courses, cornices, and roof overhangs are not limited.

3202.11 Porches, steps, ramps and doors. *Porches*, step, ramp and door *projections* shall conform to the provisions of Sections 3202.11.1 through 3202.11.4.

3202.11.1 Restrictions by zoning zone. *Porch* and step *projections* shall be allowed only in *Residential, Mixed Use* and *Special Purpose Zones*.

3202.11.2 Porches. *Porch projections* shall have open balustrades or guardrails and shall be open to the roof. The floor of the *porch* shall be not more than 5 feet (1524 mm) above the *terrace, public parking*, adjacent grade or pavement.

3202.11.2.1 Width. Where there are no *bay window*, *oriel window* or *tower projections*, one-story high porches shall not be limited in width. Where there are *bay window*, *oriel window* or *tower projections* in the same story, the aggregate width of porch, *bay window*, *oriel window*, or *tower projections* shall not exceed the limits specified for multiple *bay window projections* in Section 3202.10.3.1. The width of porches of more than one story in height shall conform to the provisions for *bay window projections* in Section 3202.10.3.1.

3202.11.2.2 Height. *Porch projections* of wood frame construction shall be limited to one story. *Porch projections* of more than one story in height shall be of noncombustible construction throughout.

3202.11.2.3 Projection. *Projection* of one-story high *porches* shall be limited as follows:

1. Three feet (914 mm) on streets without *public parking*, 60 feet (18 288 mm) to 70 feet (21 336 mm) wide.
2. Four feet (1219 mm) on *streets* without *public parking*, more than 70 feet (21 336 mm) wide.
3. Five feet (1524 mm) on *streets* with *public parking*. Porches more than one story in height shall conform to the provisions for bay windows in Section 3202.10.3.3 as to the extent of projection beyond the *building line*.

For purposes of Section 3202.11.2.3, the term "*street*" shall include the public thoroughfare and any adjoining *building restriction areas*.

3202.11.2.4 Rear porches. *Porches* on rear of *dwellings* shall not project over the *lot line* or a *building restriction line*, if one exists.

3202.11.3 Steps and ramps. Projecting steps and ramps are not limited in width but shall comply with the following height and projection requirements.

3202.11.3.1 Height. Step and ramp *projections* shall not extend above the finished floor of the *story above grade plane*.

3202.11.3.2 Projection. Step and ramp *projections* shall be limited as follows:

1. Three feet (914 mm) on *streets* without *public parking*, 40 feet (12 192 mm) or more in width, but less than 45 feet (13 716 mm) wide.
2. Four feet (12 192 mm) on *streets* without *public parking*, 45 feet (13 716 mm) or more in width, but less than 70 feet (21 336 mm) wide.
3. Five feet (1524 mm) on *streets* without *public parking*, 70 feet (21 336 mm) or more in width, but less than 80 feet (24 384 mm) wide.
4. Six feet (1829 mm) on *streets* without *public parking*, 80 feet (24 384 mm) or more in width.
5. Ten feet (3048 mm) on streets with public parking, 80 feet (24 384 mm) or more in width.

For purposes of Section 3202.11.3.2, the term "*street*" shall include the public thoroughfare and any adjoining *building restriction areas*.

3202.11.3.3 Steps and ramps below grade. Steps and ramp *projections* that are below grade shall conform with the requirements for *areaways*.

3202.11.4 Projecting doors and windows. Door and window *projections* shall conform to the provisions of Sections 3202.11.4.1 through 3202.11.4.2.

3202.11.4.1 Permanent doors or windows. Permanent doors or windows shall not open outward into *public space* where the base of the door or window opening is less than 12 feet (3658 mm) above the sidewalk grade.

Exception: Where the line of travel is protected by an adjoining *porch*, *terrace*, *bay window*, *areaway*, or similar construction, projecting not less than the outward swing of the door, permanent doors or windows are permitted to open outward.

3202.11.4.2 Restrictions by zoning zone. Permanent doors and windows in *Residential, Mixed Use* and *Special Purpose Zones* shall be allowed to open on public parking, provided they do not encroach on any sidewalk or driveway.

3202.12 Awnings, canopies, marquees, market sheds, platforms, and scales. Projecting *awnings*, *canopies*, *marquees*, market sheds, platforms, and scales shall conform to the applicable provisions of Section 3202.12, in addition to complying with any structural or design requirements set forth in Section 3105 or elsewhere in the *Construction Codes*.

3202.12.1 Projecting awnings. Folding, hinged or fixed type *awnings* attached only to the structure are permitted to be erected over windows, *show windows* and doors, and shall comply with the provisions of Sections 3202.12.1.1 through 3202.12.1.3.

Exception: The openings of projecting *porches* in *Residential Zones* are permitted to be covered with an awning.

3202.12.1.1 Clearance. Projecting *awnings* shall have a minimum clear height of 8 feet (2438 mm) above the sidewalk or the surface of any other adjacent *public space.*

3202.12.1.2 Width. The width of projecting *awnings* shall be limited to the width of the window, *show window*, door or opening and a reasonable distance each side thereof.

3202.12.1.3 Projection. Projecting *awnings* shall not extend over 5 feet (1524 mm) beyond the vertical plane of the point of attachment into a *public right-of-way*.

3202.12.2 Projecting canopies. *Canopies* are permitted to be erected over doors, windows, *show windows* or other display openings and loading platforms, subject to the limitations of Sections 3202.12.2.1 through 3202.12.2.5.

3202.12.2.1 Restrictions based on zoning zone. *Canopies* projecting over or into a *public space* or *public right-of-way* are permitted to be erected in *Commercial* and *PDR Zones*. Canopies approved pursuant to Section 3202.12.2.5 shall not be restricted based on zoning zone.

3202.12.2.2 Width. *Canopy projections* are permitted to extend laterally on a *building* to cover the width of a *show window* or other display opening and a reasonable distance on each side thereof.

3202.12.2.3 Clearance. Projecting *canopies* shall have a minimum clear height of 8 feet (2438 mm) above the sidewalk or the surface of any other *public space*.

3202.12.2.4 Projection. *Canopy* projections shall not exceed 5 feet (1524 mm) into *public space* unless the plans are submitted to and approved by the *code official*.

3202.12.2.5 Canopies over public parking and sidewalks. The *code official* is authorized to approve permits for *canopies* with fixed iron posts and frames to be erected beyond the *lot line* or *building restriction line*, if one exists, to the inner line of the sidewalk where such *canopies* will be used in conjunction with any of the following:

1. A Group A occupancy having an *occupant load* greater than 100 persons.
2. A Group R occupancy having more than 50 *dwelling units.*
3. A Group M or B occupancy with a frontage of 100 feet (30 480 mm) or more on the *street* on which the *canopy* is proposed.
4. A Group M or B occupancy that contains more than 15,000 square feet (1395 m^2) in area per floor.

3202.12.2.5.1. Special merit cases. In specific cases where the *code official* determines that such an installation would be of merit without being detrimental to the public, the *code official* is authorized to grant approval of *canopies* over sidewalks that extend as close as 18 inches (457 mm) from the curb, when the *code official* determines that: (a) pedestrian traffic flow will not be impeded; (b) the presence of such a *canopy* will not detract from the appearance of the neighborhood; and (c) such a *canopy* will be of convenience to the patrons of the establishment served by the *awning*, especially in the loading and unloading of vehicular traffic in inclement weather.

3202.12.2.5.2 Canopy design. The width of *canopies* over *public parking* or sidewalks shall be limited to the width of the door or opening and a reasonable distance each side thereof. *Canopies* shall be of *approved* fire-retardant material, preserving a minimum clearance of 8 inches (203 mm) from the *party lines extended*. Permit applications for these *canopies* shall be accompanied by drawings showing the spacing of all posts and method of anchoring. The frames shall be structurally stable and posts shall be so located as not to impede the principal flow of pedestrian traffic. Posts shall be rigidly secured at the base in sockets or by other approved means.

3202.12.2.5.3 Temporary canopies. Installation of sockets in the sidewalk for temporary covered ways across sidewalks or *public parking*, as provided in Section 105 of DCMR Title 24 (Public Space and Safety), Chapter 1 (Occupations and Use of Public Space) requires a public space permit issued by the *Public Space Committee*. Permits for sockets confer no authority to erect temporary covered ways across sidewalks or any other space used by the public. Where sockets have been regularly installed, the Metropolitan Police Department will thereafter issue temporary permits authorizing the use of the temporary covered way in inclement weather.

3202.12.3 Projecting marquees. *Marquee projections* shall conform to the provisions of this section, and shall also comply with the structural and design requirements set forth in Section 3106 and other applicable sections of the *Construction Codes*.

3202.12.3.1 Width. *Projecting marquees* supported directly from the building, shall not be permitted to extend laterally on a building more than a sufficient length to cover the entrance and a reasonable distance on each side thereof.

3202.12.3.2 Clearance. The clearance from the sidewalk or any other space used by the public to the lowest part of any *marquee* shall be not less than 8 feet (2438 mm).

3202.12.3.3 Projections. *Marquee projections* shall not exceed 5 feet (1524 mm) into *public space*.

3202.12.4 Market sheds. A market shed shall be permitted only on a site occupied by a market or building whose predominant purpose is to sell agricultural produce, when such site has been specifically designated as a market area.

3202.12.4.1 Design. The design of market sheds shall be approved by the *code official*, a permit shall be required, and all market sheds shall comply with the following provisions:

1. The shed roof is permitted over *public parking* and public sidewalk of a building or buildings used for market purposes, extending from the *lot line* or *building restriction line*, if one exists, to the curb.
2. The line of supports for the shed roof shall be at the inner edge of the sidewalk, the overhang being supported as a cantilever, unless the location of supports is otherwise approved by DDOT. The shed is permitted to be supported by hanging from the wall of the building when approved by the *code official*.
3. Gutters shall be provided throughout the length of all shed roofs, with downspouts equivalent to a $2^1/_2$-inch (63.7 mm) pipe per 200 square feet (18.6 m^2) of surface drains, the pitch of the roof to be at least $^1/_2$ inch (12.7 mm) per foot.
4. Shed roofs shall be furnished with electric lights that provide levels of illumination in compliance with Section 1205.3.
5. Shed roofs shall comply with all structural requirements of Chapter 16 and other applicable Sections of the *Construction Codes*.

3202.12.4.2 Use of space. No *public space* beneath a shed constructed pursuant to Section 3202.12.4 shall be used for the display, sale or storage of produce or containers. This restriction shall not apply to the temporary storage of materials incident to loading and unloading.

Exception: An area specifically designated as a market area for the retail or wholesale sale of produce on the premises is permitted to be used for the display, sale or storage of produce or containers.

3202.12.4.3 Special conditions. The foregoing rules shall be observed by the *code official* as a guide in issuing permits for market sheds except where the conditions are so obviously at variance with these general rules as to require special consideration. Cases requiring special consideration shall be reviewed as modifications pursuant to Section 104.10.

3202.12.5 Loading platforms. The *code official* is authorized to approve loading platforms projecting more than 5 feet (1524 mm) beyond the *lot line* or *building restriction line*, if one exists, in *Commercial* and *PDR Zones*. Canopies over such platforms shall be permitted. Special approval by the *code official* shall be required for such platforms and canopies.

3202.12.6 Platform scales. Platform scales projecting on *public space* are permitted in *Commercial* and *PDR Zones*.

Plans for such platform scales shall be submitted to and approved by DDOT.

3202.13 Enclosed sidewalk cafés. Enclosed sidewalk cafés including enclosed cafés located wholly or partially beyond the *lot line* or within a *building restriction area*, if one exists, shall comply with Sections 3202.13.1 through 3202.13.2 and all other applicable sections of the *Construction Codes*.

3202.13.1 Permits. Permits for enclosed sidewalk cafés shall be issued by the *code official* and shall comply with all applicable laws and regulations. Each application shall be accompanied by drawings of the structure, prepared and signed by a structural engineer registered in the District of Columbia. Other enforceable laws and regulations governing sidewalk cafés include: Section 5 of the Enclosed Sidewalk Cafés Act of 1982, effective September 17, 1982 [DC Law 4-148; DC Official Code § 10-1102.02 (2012 Repl. & 2018 Supp.)]; DCMR Title 24, Chapter 2 (Rental of Public Space) and Chapter 3 (Administrative Procedures for Sidewalk Cafés); Mayor's Order No. 77-150, dated August 31, 1977; and regulations of the Department of Public Works, 30 DCR 4346, August 26, 1983, now delegated to DDOT.

3202.13.2 Design. Enclosed sidewalk cafés shall comply with Sections 3202.13.2.1 through 3202.13.2.5.

3202.13.2.1 Walls and roofs. Enclosed sidewalk cafés shall have walls and roofs constructed of noncombustible materials.

3202.13.2.2 Flooring. Flooring shall comply with Section 804.

3202.13.2.3 Enclosure materials. Any enclosure materials, and the contents enclosed therein, must be capable of being removed within 24 hours.

3202.13.2.4 Structural requirements. Enclosed sidewalk cafés shall be constructed in accordance with Chapter 16, Chapter 24 and other applicable sections of the *Building Code*.

3202.13.2.5 Means of egress. When the combined occupant loads of the sidewalk café and the adjacent restaurant exceed 75 persons, two *means of egress* shall be provided from the sidewalk café, one of which shall open directly to the sidewalk, public alley, or *public space* abutting the café. The second *means of egress* is allowed through the abutting restaurant. If two *means of egress* are required for the adjacent restaurant, two *means of egress* shall be required for the sidewalk café. If one of the *means of egress* of the café serves the interior of the restaurant, the width of the respective egress aisle across the café shall meet the requirement for a corridor serving the combined occupant load of the sidewalk café and the restaurant.

3202.14 Façades on existing buildings. *Alteration* of a façade attached to the *primary structural frame* of an *existing building* that causes the altered façade to project beyond the *lot line*, or *building restriction line* if one exists, into the *public right-of-way*, shall be allowed when all of the following conditions are met:

1. A permit authorizing construction of the *primary structural frame* of the *existing building* was issued by the *Department* prior to (the date of adoption of this provision).
2. The *owner* submits a report, sealed by the Structural Engineer of Record, as part of the permit application covering the proposed façade *alteration* that describes in detail the technical reasons why it is infeasible to alter the existing *primary structural frame* to accommodate the altered façade to be within the *lot line*, or *building restriction line* if applicable.
3. The depth of the altered façade shall be the minimum dimension required for structural integrity and attachment of the altered façade to the existing *primary structural frame*.
4. The altered façade shall not project more than 6 inches (152 mm) beyond the *lot line*, or *building restriction line* if one exists, into the *public right-of-way*.
5. All façade and window projections on the *building* that are beyond the *lot line*, or *building restriction line* if one exists, into the *public right-of-way* shall not exceed in aggregate the total square footage that would otherwise be allowed at each *lot line* or *building restriction line* in compliance with Section 3202.10.3, Bay Windows.
6. All façades on *additions* to *existing buildings* shall be within the *lot line*, or *building restriction line* if applicable.
7. Façade *alterations* shall not project into or over an *alley*.
8. All other *projections* shall comply with other requirements of Chapter 32, Encroachments Into The Public Right-Of-Way.
9. Projecting façades shall be constructed of fired brick, natural or manufactured stone, precast concrete, terra-cotta, architectural metal panels, clear/low emissivity glass or other high quality or innovative materials deemed appropriate by the *code official*.

CHAPTER 33

SAFEGUARDS DURING CONSTRUCTION

SECTION 3301
GENERAL

3301.1 Scope. The provisions of this chapter shall govern safety during construction and the protection of adjacent public and private properties.

3301.2 Storage and placement. Construction equipment and materials shall be stored and placed so as not to endanger the public, the workers or adjoining property for the duration of the construction project.

SECTION 3302
CONSTRUCTION SAFEGUARDS

3302.1 Alterations, repairs and additions. Required *exits*, existing structural elements, fire protection devices and sanitary safeguards shall be maintained at all times during *alterations*, *repairs* or *additions* to any building or structure.

Exceptions:

1. Where such required elements or devices are being altered or repaired, adequate substitute provisions shall be made.
2. Maintenance of such elements and devices is not required when the existing building is not occupied.

3302.2 Manner of removal. Waste materials shall be removed in a manner that prevents injury or damage to persons, adjoining properties and public rights-of-way.

3302.3 Fire safety during construction. Fire safety during construction shall comply with the applicable requirements of this code and the applicable provisions of Chapter 33 of the *Fire Code*.

SECTION 3303
DEMOLITION

3303.1 Construction documents. *Construction documents* and a schedule for demolition shall be submitted where required by the *building official*. Where such information is required, no work shall be done until such *construction documents* or schedule, or both, are *approved*.

3303.2 Pedestrian protection. The work of demolishing any building shall not be commenced until pedestrian protection is in place as required by this chapter.

3303.3 Means of egress. A *horizontal exit* shall not be destroyed unless and until a substitute *means of egress* has been provided and *approved*.

3303.4 Vacant lot. Where a structure has been demolished or removed, the vacant lot shall be filled and maintained to the existing grade or in accordance with the ordinances of the jurisdiction having authority.

3303.5 Water accumulation. Provision shall be made to prevent the accumulation of water or damage to any foundations on the premises or the adjoining property.

3303.6 Utility connections. Service utility connections shall be discontinued and capped in accordance with the *approved* rules and the requirements of the applicable governing authority.

3303.7 Fire safety during demolition. Fire safety during demolition shall comply with the applicable requirements of this code and the applicable provisions of Chapter 33 of the *Fire Code.*

SECTION 3304
SITE WORK

3304.1 Excavation and fill. Excavation and fill for buildings and structures shall be constructed or protected so as not to endanger life or property. Stumps and roots shall be removed from the soil to a depth of not less than 12 inches (305 mm) below the surface of the ground in the area to be occupied by the building. Wood forms that have been used in placing concrete, if within the ground or between foundation sills and the ground, shall be removed before a building is occupied or used for any purpose. Before completion, loose or casual wood shall be removed from direct contact with the ground under the building.

3304.1.1 Slope limits. Slopes for permanent fill shall be not steeper than one unit vertical in two units horizontal (50-percent slope). Cut slopes for permanent excavations shall be not steeper than one unit vertical in two units horizontal (50-percent slope). Deviation from the foregoing limitations for cut slopes shall be permitted only upon the presentation of a soil investigation report acceptable to the *building official*.

3304.1.2 Surcharge. No fill or other surcharge loads shall be placed adjacent to any building or structure unless such building or structure is capable of withstanding the additional loads caused by the fill or surcharge. Existing footings or foundations that can be affected by any excavation shall be underpinned adequately or otherwise protected against settlement and shall be protected against lateral movement.

3304.1.3 Footings on adjacent slopes. For footings on adjacent slopes, see Chapter 18.

3304.1.4 Fill supporting foundations. Fill to be used to support the foundations of any building or structure shall comply with Section 1804.6. *Special inspections* of compacted fill shall be in accordance with Section 1705.6.

SECTION 3305
SANITARY

3305.1 Facilities required. Sanitary facilities shall be provided during construction, remodeling or demolition activities in accordance with the *Plumbing Code*.

SECTION 3306
PROTECTION OF PEDESTRIANS

3306.1 Protection required. Pedestrians shall be protected during construction, remodeling and demolition activities as required by this chapter and Table 3306.1. Signs shall be provided to direct pedestrian traffic.

3306.2 Walkways. A walkway shall be provided for pedestrian travel in front of every construction and demolition site unless the applicable governing authority authorizes the sidewalk to be fenced or closed. Walkways shall be of sufficient width to accommodate the pedestrian traffic, but in no case shall they be less than 4 feet (1219 mm) in width. Walkways shall be provided with a durable walking surface. Walkways shall be *accessible* in accordance with Chapter 11 and shall be designed to support all imposed loads and in no case shall the design live load be less than 150 pounds per square foot (psf) (7.2 kN/m^2).

3306.3 Directional barricades. Pedestrian traffic shall be protected by a directional barricade where the walkway extends into the street. The directional barricade shall be of sufficient size and construction to direct vehicular traffic away from the pedestrian path.

3306.4 Construction railings. Construction railings shall be not less than 42 inches (1067 mm) in height and shall be sufficient to direct pedestrians around construction areas.

3306.5 Barriers. Barriers shall be not less than 8 feet (2438 mm) in height and shall be placed on the side of the walkway nearest the construction. Barriers shall extend the entire length of the construction site. Openings in such barriers shall be protected by doors that are normally kept closed.

3306.6 Barrier design. Barriers shall be designed to resist loads required in Chapter 16 unless constructed as follows:

1. Barriers shall be provided with 2-inch by 4-inch (51 mm by 102 mm) top and bottom plates.
2. The barrier material shall be boards not less than $^3/_4$-inch (19.1 mm) thick or wood structural panels not less than $^1/_4$-inch (6.4 mm) thick.
3. Wood structural use panels shall be bonded with an adhesive identical to that for exterior wood structural use panels.
4. Wood structural use panels $^1/_4$ inch (6.4 mm) or $^5/_{16}$ inch (23.8 mm) in thickness shall have studs spaced not more than 2 feet (610 mm) on center.
5. Wood structural use panels $^3/_8$ inch (9.5 mm) or $^1/_2$ inch (12.7 mm) in thickness shall have studs spaced not more than 4 feet (1219 mm) on center provided a 2-inch by 4-inch (51 mm by 102 mm) stiffener is placed horizontally at mid-height where the stud spacing is greater than 2 feet (610 mm) on center.
6. Wood structural use panels $^5/_8$ inch (15.9 mm) or thicker shall not span over 8 feet (2438 mm).

3306.7 Covered walkways. Covered walkways shall have a clear height of not less than 8 feet (2438 mm) as measured from the floor surface to the canopy overhead. Adequate lighting shall be provided at all times. Covered walkways shall be designed to support all imposed loads. In no case shall the design live load be less than 150 psf (7.2 kN/m^2) for the entire structure.

Exception: Roofs and supporting structures of covered walkways for new, light-frame construction not exceeding two *stories* above *grade plane* are permitted to be designed for a live load of 75 psf (3.6kN/m^2) or the loads imposed on them, whichever is greater. In lieu of such designs, the roof and supporting structure of a covered walkway are permitted to be constructed as follows:

1. Footings shall be continuous 2-inch by 6-inch (51 mm by 152 mm) members.
2. Posts not less than 4 inches by 6 inches (102 mm by 152 mm) shall be provided on both sides of the roof and spaced not more than 12 feet (3658 mm) on center.
3. Stringers not less than 4 inches by 12 inches (102 mm by 305 mm) shall be placed on edge upon the posts.
4. Joists resting on the stringers shall be not less than 2 inches by 8 inches (51 mm by 203 mm) and shall be spaced not more than 2 feet (610 mm) on center.
5. The deck shall be planks not less than 2 inches (51 mm) thick or wood structural panels with an exterior

TABLE 3306.1
PROTECTION OF PEDESTRIANS

HEIGHT OF CONSTRUCTION	DISTANCE FROM CONSTRUCTION TO LOT LINE	TYPE OF PROTECTION REQUIRED
8 feet or less	Less than 5 feet	Construction railings
	5 feet or more	None
More than 8 feet	Less than 5 feet	Barrier and covered walkway
	5 feet or more, but not more than one-fourth the height of construction	Barrier and covered walkway
	5 feet or more, but between one-fourth and one-half the height of construction	Barrier
	5 feet or more, but exceeding one-half the height of construction	None

For SI: 1 foot = 304.8 mm.

exposure durability classification not less than $^{23}/_{32}$ inch (18.3 mm) thick nailed to the joists.

6. Each post shall be knee braced to joists and stringers by members not less than 2 inches by 4 inches (51 mm by 102 mm); 4 feet (1219 mm) in length.

7. A curb that is not less than 2 inches by 4 inches (51 mm by 102 mm) shall be set on edge along the outside edge of the deck.

3306.8 Repair, maintenance and removal. Pedestrian protection required by this chapter shall be maintained in place and kept in good order for the entire length of time pedestrians are subject to being endangered. The *owner* or the *owner's* authorized agent, upon the completion of the construction activity, shall immediately remove walkways, debris and other obstructions and leave such public property in as good a condition as it was before such work was commenced.

3306.9 Adjacent to excavations. Every excavation on a site located 5 feet (1524 mm) or less from the street *lot line* shall be enclosed with a barrier not less than 6 feet (1829 mm) in height. Where located more than 5 feet (1524 mm) from the street *lot line*, a barrier shall be erected where required by the *building official*. Barriers shall be of adequate strength to resist wind pressure as specified in Chapter 16.

SECTION 3307
PROTECTION OF ADJOINING PROPERTY

3307.1 Protection required. Adjoining public and private property shall be protected from damage during construction, *alteration*, repair, *demolition* or *raze* of a *premises* at the expense of the *person* causing the work. Protection must be provided for lots, and for all elements of a building or other structure, including, but not limited to, footings, foundations, party walls, chimneys, vents, skylights, porches, decks, roofs, roof outlets, roof structures and flashing. Provisions shall be made to control water runoff and erosion during construction or demolition or *raze* activities. This section shall also apply where (1) the work will cause operable chimneys or vents on adjoining premises to become noncompliant with the Chimney Provisions (as defined in Section 3307.1.1) or (2) the work will cause the live load of the roof of an adjoining or adjacent *premises* to exceed the design capacity as a result of the increased snow drift load.

3307.1.1. Definitions. For purposes of Section 3307, the following terms shall have the meaning stated:

CHIMNEY PROVISIONS. Section 2113 (Masonry Chimneys), Chapter 5 of the *Fuel Gas Code* (Chimneys and Vents), Chapter 8 of the *Mechanical Code* (Chimneys and Vents), Chapter 10 of the *Residential Code* (Chimneys and Fireplaces) and Section 903.1 of the *Plumbing Code*.

ORIGINAL WORK SITE. The *premises* or portion thereof where the work causing the required Protective Work is performed.

PARTY WALL. A wall that straddles, or is in close proximity to, a *lot line*, which is used for structural support by two or more adjoining *buildings* or *structures*.

PROTECTIVE WORK. Work required by Section 3307.1.

PROTECTIVE WORK REQUIRING ACCESS. Protective Work that requires access to adjoining or adjacent *premises* to be completed.

3307.1.2 Notice requirements for protective work. *Persons* proposing work on an Original Work Site that requires or potentially requires Protective Work on an adjoining or adjacent *premises* shall comply with the notice requirements set forth in Section 106.2.18.3, as applicable.

3307.1.3 Protective work requiring access. In situations involving Protective Work Requiring Access, the *person* requiring access to the adjoining or adjacent *premises* for the purpose of performing Protective Work, or determining whether Protective Work is required, shall be responsible for obtaining a legal right of access from the *owner* of the adjoining or adjacent *premises*, as applicable, or a court order authorizing such access in accordance with the requirements of Section 106.2.18.4.

Exceptions:

1. A limited or temporary right of access is expressly granted in Section 3307.2.2 or 3307.4.1 for the specific Protective Work required.
2. A revised work plan is submitted to the *Department* that eliminates the need for Protective Work Requiring Access.
3. A written agreement signed by the *person* proposing work an Original Work Site that requires or potentially requires Protective Work on an adjoining or adjacent *premises*, and the *owner* of such *premises* that denies access and acknowledges the *owner's* obligation to be responsible for any Protective Work Requiring Access.

3307.1.3.1 Where responsibility for protective work requiring access shifts to owner of adjoining premises. Where the *owner* of the *premises* adjoining an Original Work Site (or adjacent to the Original Work Site in the case of snow drift loads) is responsible for Protective Work on the *owner's premises*, then said *owner* shall execute such measures to make safe the said *owner's premises*, and to obtain any necessary permits for the Protective Work from the *Department*, without delay so as not to impede or materially delay the construction work subject to the permit application that required the Protective Work. Any permit application filed by the *owner* in these circumstances shall be exempted from the notification requirements in Section 106.2.18.3.

3307.1.3.1.1 Access to Original Work Site. Where the *owner* of the *premises* adjoining or adjacent to the Original Work Site is responsible for Protective Work on the *owner's premises*, and the Protective Work requires access to the Original Work Site, the

owner of the adjoining or adjacent *premises*, as applicable, shall obtain written permission to gain such access from the *owner* of the Original Work Site. If the owner of the Original Work Site fails to grant written permission (conditional or unconditional) for entry to the *owner* of the adjoining or adjacent *premises* to undertake the Protective Work then any Protective Work requiring access to the Original Work Site shall be the responsibility of the *owner* of the Original Work Site, who shall execute such measures to make safe the Original Work Site.

3307.2 Party walls.

3307.2.1 Responsibility of person doing construction work. Where construction work occurs that could affect the structural integrity of a *party wall*, the *person* causing the work shall preserve the *party wall* from injury and ensure the structural stability of the *party wall*, subject to the provisions for Protective Work Requiring Access in Section 3307.1.3.

3307.2.1.1 Underpinning. Proper underpinning of existing *party walls* which require underpinning shall be provided in accordance with applicable sections of the *Construction Codes*, including Sections 1705.19 and 1804.2.

3307.2.2 Limited access authorized. Where a *party wall* requires underpinning as a result of the proposed work, a limited right of access to adjoining *premises* is authorized where all of the following conditions are met:

1. The underpinning can be provided by the *owner* undertaking the work from said *owner's premises*, even if the footing extends onto the adjoining *owner's* premises.
2. Extension of the footing is required to stabilize and support the adjoining *owner's* building or structure, and to avoid unreasonable delay in excavation and development of the permitted project.
3. The *owner* undertaking the work has provided notice to the *owner* of the adjoining *premises* in accordance with Section 106.2.18 where required.

Where the conditions set forth in Section 3307.2.2. are met, the *person* doing the work is not required to obtain a right of access to the adjoining or adjacent *premises*, as required by Section 3307.1.3.

3307.2.3 Demolition or raze. During a demolition or *raze*, the *person* undertaking the work must maintain fire and life safety and structural integrity of the *party wall*. If any *party wall* or portion thereof which is left standing and exposed after a building is demolished or razed is deemed unsafe or dangerous by the *code official*, then the *owner* of the building that is being demolished or razed shall either remove and reconstruct, or anchor, brace, or buttress all of those portions of the *party wall* deemed unsafe or dangerous, and shall do all other work necessary to enclose properly the building or structure left standing.

3307.2.4 Party wall weatherization. The party wall shall be properly maintained and weatherized in accordance with Sections 3307.2.4.1 through 3307.2.4.3, as applicable.

3307.2.4.1 Temporary protection. If the party wall is to remain exposed for 60 days or less, the exposed portions of the wall shall be protected from weather damage by tarpaulins, waterproof paper, or other temporary means approved for use by the *code official*. Such temporary protection shall be maintained in a weatherproof condition.

3307.2.4.2 Intermediate protection. If the party wall is to remain exposed for more than 60 days, but less than 18 months, the exposed wall shall be restored and weatherproofed in accordance with the requirements for the particular type of construction involved. All plaster and other material not commonly used for exterior construction shall be removed; all holes shall be properly filled; and masonry party walls shall be repointed.

3307.2.4.3 Permanent protection. If the party wall is to remain exposed for 18 months or longer, the party walls shall be permanently restored and weatherproofed in accordance with the requirements for the particular type of construction involved. Party walls shall be faced with material commonly used for exterior finish, or restored as closely as practicable with the facing material and construction of the other exterior walls of the building left standing, and shall be painted or otherwise finished in a manner similar to other parts of the building.

3307.3 Chimneys and vents. Whenever a *building* or *structure* is erected, altered, or increased in height so that any portion of such *building* or *structure* causes any previously constructed chimneys or vents on an adjoining *premises* to become noncompliant with the Chimney Provisions (as defined in Section 3307.1.1), the *owner* of such new or altered *building* or *structure* shall have the responsibility of altering any such operable chimneys or vents to make them conform with the requirements of the Chimney Provisions, subject to the provisions for Protective Work Requiring Access in Section 3307.1.3. The requirements of Sections 3307.3 and 3307.3.1 shall not dispense with or modify any additional requirements that may be applicable pursuant to federal or local environmental laws or regulations.

Exceptions:

1. Where the chimney or vent is no longer connected with a fireplace or combustion or other equipment for which the chimney or vent was required, or where the chimney or vent is otherwise inoperable.
2. Any existing violations on previously constructed equipment shall be corrected by the owner of the equipment before any equipment is added or alterations made at the expense of the *owner* of the new or altered building.

3307.3.1 Required alterations. Protective Work required by Section 3307.3 shall be accomplished by one of the following means or a combination thereof:

1. Carry up the previously constructed chimneys or vents to the height required by the Chimney Provisions (as defined in Section 3307.1.1).
2. Offset such chimneys or vents to a distance beyond that required in the Chimney Provisions from the new or altered building provided that the new location of the outlet of the offset chimney or vent shall otherwise comply with the requirements of the Chimney Provisions.
3. Provide any alternate materials or methods of construction pursuant to Section 104.11 that satisfy the intent of the Chimney Provisions for mechanical drafting of chimney or vents.

3307.3.1.1 Approval. The plans and method of alteration shall be subject to the approval of the *code official*, and any *approved* work needed to accomplish the alteration shall be authorized pursuant to a permit application submitted by the *owner* of the existing adjoining *premises* with the previously constructed chimneys or vents.

3307.3.2 Protection of draft. Where a chimney or vent is altered pursuant to Section 3307.4 through the provision of any mechanical equipment or devices necessary to maintain the proper draft in the chimney or vent, the maintenance of such mechanical equipment or devices shall be the responsibility of the *owner* who is responsible for installing such equipment or devices unless otherwise agreed.

3307.3.3 Procedure for chimney or vent alterations. Where the alterations required by Section 3307.4 are the obligation of the *owner* of the new or altered building or structure, such *owner* shall be subject to the following requirements:

1. Schedule the Protective Work so as to create a minimum of disturbance to the occupants of the affected building.
2. Provide such essential services as are normally supplied by the equipment while it is out of service.
3. Where necessary, support such extended chimneys, vents and equipment from the new or altered building or structure or carry up such chimneys or vents within the new or altered building or structure.
4. Provide for the maintenance, repair, and/or replacement of such extensions and added equipment.
5. Make such alterations of the same material as the original chimney or vent so as to maintain the same quality and appearance, except where the affected owner of the chimney or vent shall give his or her consent to do otherwise. All work shall be done in such fashion as to maintain the architectural aesthetics of the existing building. Where there is practical difficulty in complying strictly with the provisions of this item, the *code official* may permit an equally safe alternative.

3307.4 Roofs, roof outlets, roof structures and flashing. Subject to the provisions for Protective Work Requiring Access in Section 3307.1.3, where a new *building* or *structure* is being constructed, or a *demolition* or *raze* of an existing *building* or *structure* is being conducted, the roof, roof outlets and roof structures of adjoining *buildings* or other *structures* shall be protected against damage with adequate safeguards by the *person* doing the work.

3307.4.1 Flashing repairs. Without excluding other repairs or protective measures that may be required pursuant to Section 3307, and subject to the provisions for Protective Work Requiring Access in Section 3307.1.3, the *owner* undertaking the work shall repair and restore all flashing on any adjoining building or structure which has been broken or damaged during any construction, *demolition* or raze operations. The *owner* undertaking the repairs shall also install such new flashing as may be required to protect any joints exposed or created by such *owner's* operations. The *owner* of the adjoining *premises* shall be deemed to have authorized temporary access to his, her or its property to effectuate repairs to the extent that repairs are required under this section.

3307.4.2 Snow loads. Subject to the provisions for Protective Work Requiring Access in Section 3307.1.3,whenever a building or structure is erected, enlarged or increased in height so that any portion of such building or structure extends higher than the top of an adjoining or adjacent existing building or structure, it shall be the responsibility of the *owner* of the Original Work Site to strengthen the roof of the adjoining or adjacent existing *building* or *structure* to support any additional snow drift loads caused by the new work or to provide permanent means of removing the additional snow load such that the existing roof will comply with the snow load requirements in Section 1603.1.3 or Section R301.2.3 of the *Residential Code,* as applicable.

SECTION 3308
TEMPORARY USE OF STREETS, ALLEYS AND PUBLIC PROPERTY

3308.1 Storage and handling of materials. The temporary use of streets or public property for the storage or handling of materials or of equipment required for construction or demolition, and the protection provided to the public shall comply with the provisions of the applicable governing authority and this chapter.

3308.1.1 Obstructions. Construction materials and equipment shall not be placed or stored so as to obstruct access to fire hydrants, standpipes, fire or police alarm boxes, catch basins or manholes, nor shall such material or equipment be located within 20 feet (6096 mm) of a street intersection, or placed so as to obstruct normal observations of traffic signals or to hinder the use of public transit loading platforms.

3308.2 Utility fixtures. Building materials, fences, sheds or any obstruction of any kind shall not be placed so as to obstruct free approach to any fire hydrant, fire department connection, utility pole, manhole, fire alarm box or catch basin, or so as to interfere with the passage of water in the gutter. Protection against damage shall be provided to such utility fixtures during the progress of the work, but sight of them shall not be obstructed.

SECTION 3309
FIRE EXTINGUISHERS

3309.1 Where required. Structures under construction, *alteration* or demolition shall be provided with no fewer than one *approved* portable fire extinguisher in accordance with Section 906 and sized for not less than ordinary hazard as follows:

1. At each *stairway* on all floor levels where combustible materials have accumulated.
2. In every storage and construction shed.
3. Additional portable fire extinguishers shall be provided where special hazards exist, such as the storage and use of flammable and combustible liquids.

3309.2 Fire hazards. The provisions of this code and the *Fire Code* shall be strictly observed to safeguard against all fire hazards attendant upon construction operations.

SECTION 3310
MEANS OF EGRESS

3310.1 Stairways required. Where a building has been constructed to a *building height* of 50 feet (15 240 mm) or four *stories*, or where an existing building exceeding 50 feet (15 240 mm) in *building height* is altered, no fewer than one temporary lighted *stairway* shall be provided unless one or more of the permanent stairways are erected as the construction progresses.

3310.2 Maintenance of means of egress. Required *means of egress* shall be maintained at all times during construction, demolition, remodeling or *alterations* and *additions* to any building.

Exception: Existing means of egress need not be maintained where a*pproved* temporary *means of egress* systems and facilities are provided.

SECTION 3311
STANDPIPES

3311.1 Where required. In buildings required to have standpipes by Section 905.3.1, no fewer than one standpipe shall be provided for use during construction. Such standpipes shall be installed prior to construction exceeding 40 feet (12 192 mm) in height above the lowest level of fire department vehicle access. Such standpipes shall be provided with fire department hose connections at accessible locations adjacent to usable *stairways*. Such standpipes shall be extended as construction progresses to within one floor of the highest point of construction having secured decking or flooring.

3311.2 Buildings being demolished. Where a building is being demolished and a standpipe exists within such a building, such standpipe shall be maintained in an operable condition so as to be available for use by the fire department. Such standpipe shall be demolished with the building but shall not be demolished more than one floor below the floor being demolished.

3311.3 Detailed requirements. Standpipes shall be installed in accordance with the provisions of Chapter 9.

Exception: Standpipes shall be either temporary or permanent in nature, and with or without a water supply, provided that such standpipes conform to the requirements of Section 905 as to capacity, outlets and materials.

SECTION 3312
AUTOMATIC SPRINKLER SYSTEM

3312.1 Completion before occupancy. In buildings where an *automatic sprinkler system* is required by this 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 111.3.

3312.2 Operation of valves. Operation of sprinkler control valves shall be permitted only by properly authorized personnel and shall be accompanied by notification of duly designated parties. When the sprinkler protection is being regularly turned off and on to facilitate connection of newly completed segments, the sprinkler control valves shall be checked at the end of each work period to ascertain that protection is in service.

SECTION 3313
WATER SUPPLY FOR FIRE PROTECTION

3313.1 Where required. An *approved* water supply for fire protection, either temporary or permanent, shall be made available as soon as combustible material arrives on the site.

CHAPTER 34

EXISTING BUILDINGS

SECTION 3401
GENERAL

3401 General. *Alteration*, *repair*, *addition* and change of occupancy of *existing buildings* and structures shall be governed by the *Existing Building Code*.

CHAPTER 35

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 102.4.

AA

Aluminum Association
1525 Wilson Boulevard, Suite 600
Arlington, VA 22209

Standard reference number	Title	Referenced in code section number
ADM1—2015	Aluminum Design Manual: Part 1—A Specification for Aluminum Structures	1604.3.5, 2002.1
ASM 35—00	Aluminum Sheet Metal Work in Building Construction (Fourth Edition)	2002.1

AAMA

American Architectural Manufacturers Association
1827 Waldon Office Square, Suite 550
Schaumburg, IL 60173

Standard reference number	Title	Referenced in code section number
1402—09	Standard Specifications for Aluminum Siding, Soffit and Fascia	1404.5.1
AAMA/WDMA/CSA 101/I.S.2/A440—11	North American Fenestration Standard/Specifications for Windows, Doors and Skylights	1709.5.1, 2405.5

ACI

American Concrete Institute
38800 Country Club Drive
Farmington Hills, MI 48331

Standard reference number	Title	Referenced in code section number
216.1—14	Code Requirements for Determining Fire Resistance of Concrete and Masonry Construction Assemblies	Table 721.1(2), 722.1
318—14	*Building Code* Requirements for Structural Concrete	1604.3.2, 1615.3.1, 1615.4.1, 1704.5, Table 1705.3, 1705.3.2, 1705.12.1, 1808.8.2, Table 1808.8.2, 1808.8.5, 1808.8.6, 1810.1.3, 1810.2.4.1, 1810.3.2.1.1, 1810.3.2.1.2, 1810.3.8.3.1, 1810.3.8.3.3, 1810.3.9.4.2.1, 1810.3.9.4.2.2, 1810.3.10.1, 1810.3.11.1, 1901.2, 1901.3, 1902.1, 1903.1, 1904.1, 1904.2, 1905.1, 1905.1.1, 1905.1.2, 1905.1.3, 1905.1.4, 1905.1.5, 1905.1.6, 1905.1.7, 1905.1.8 1906.1, 2108.3, 2206.1
530—13	*Building Code* Requirements for Masonry Structures	1405.6, 1405.6.1, 1405.6.2, 1405.10, 1604.3.4, 1705.4, 1705.4.1, 1807.1.6.3, 1807.1.6.3.2, 1808.9 2101.2, 2106.1, 2107.1, 2107.2, 2107.3, 2107.4, 2108.1, 2108.2, 2108.3, 2109.1, 2109.1.1, 2109.2, 2109.2.1, 2109.3, 2110.1
530.1—13	Specifications for Masonry Structures	1405.6.1, 1705.4, 1807.1.6.3, 2103.1, 2103. 2.1, 2103.3, 2103.4, 2105.1

AISC

American Institute of Steel
Construction One East Wacker Drive, Suite 700
Chicago, IL 60601-18021

Standard reference number	Title	Referenced in code section number
341—10	Seismic Provisions for Structural Steel Buildings	1613.4.1, 1705.12.1.1, 1705.12.1.2, 1705.13.1.1, 1705.13.1.2, 2205.2.1.1, 2205.2.1.2, 2205.2.2, 2206.2.1
360—10	Specification for Structural Steel Buildings	722.5.2.2.1, 1604.3.3, 1705.2.1, 2203.1, 2203.2, 2205.1, 2205.2.1.1, 2206.1

AISI

American Iron and Steel Institute
25 Massachusetts Avenue NW, Suite 800
Washington, DC 20001

Standard reference number	Title	Referenced in code section number
AISI S100—12	North American Specification for the Design of Cold-formed Steel Structural Members, 2012	1604.3.3, 1905.1.8, 2203.1, 2203.2, 2210.1, 2210.2, 2211.2, 2211.4, 2211.6
AISI S110—07/ S1-09 (2012)	Standard for Seismic Design of Cold-Formed Steel Structural Systems—Special Moment Frames, 2007 with Supplement 1, dated 2009 (Reaffirmed 2012)	2210.2
AISI S200—12	North American Standard for Cold-Formed Steel Framing-General Provisions, 2012	2203.1, 2203.2, 2211.1, Table 2603.12.1, Table 2603.12.2
AISI S210—07(2012)	North American Standard for Cold-Formed Steel Framing-Floor and Roof System Design, 2007 (Reaffirmed 2012)	2211.5
AISI S211—07/ S1-12(2012)	North American Standard for Cold-Formed Steel Framing-Wall Stud Design, 2007 including Supplement 1, dated 2012 (Reaffirmed 2012)	2211.4
AISI S212—07(2012)	North American Standard for Cold-Formed Steel Framing-Header Design, 2007, (Reaffirmed 2012)	2211.2
AISI S213—07/ S1-09 (2012)	North American Standard for Cold-Formed Steel Framing-Lateral Design, 2007, with Supplement 1, dated 2009, (Reaffirmed 2012)	2211.6
AISI S214—12	North American Standard for Cold-formed Steel Framing-Truss Design, 2012	2211.3, 2211.3.1, 2211.3.2
AISI S220—11	North American Standard for Cold-formed Steel Framing-Nonstructural Members	2203.1, 2203.2, 2211.1, Table 2506.2, Table 2507.2
AISI S230—07/ S3-12(2012)	Standard for Cold-formed Steel Framing-Prescriptive Method for One- and Two-family Dwellings, 2007, with Supplement 3, dated 2012 (Reaffirmed 2012)	1609.1.1, 1609.1.1.1, 2211.7

ALI

Automotive Lift Institute
P.O. Box 85
Courtland, NY 13045

Standard reference number	Title	Referenced in code section number
ALI ALCTV—2011	Standard for Automotive Lifts—Safety Requirements for Construction, Testing and Validation (ANSI)	3001.2

AMCA

Air Movement and Control Association International
30 West University Drive
Arlington Heights, IL 60004

Standard reference number	Title	Referenced in code section number
540—08	Test Method for Louvers Impacted by Wind Borne Debris	1609.1.2.1

ANSI

American National Standards Institute
25 West 43rd Street, Fourth Floor
New York, NY 10036

Standard reference number	Title	Referenced in code section number
A13.1—2007	Scheme for the Identification of Piping Systems	415.11.6.5
A108.1A—99	Installation of Ceramic Tile in the Wet-set Method, with Portland Cement Mortar	2103.2.3
A108.1B—99	Installation of Ceramic Tile, quarry Tile on a Cured Portland Cement Mortar Setting Bed with Dry-set or Latex-Portland Mortar	2103.2.3
A108.4—99	Installation of Ceramic Tile with Organic Adhesives or Water-cleanable Tile-setting Epoxy Adhesive	2103.2.3.6
A108.5—99	Installation of Ceramic Tile with Dry-set Portland Cement Mortar or Latex-Portland Cement Mortar	2103.2.3.1, 2103.2.3.2
A108.6—99	Installation of Ceramic Tile with Chemical-resistant, Water Cleanable Tile-setting and -grouting Epoxy	2103.2.3.3
A108.8—99	Installation of Ceramic Tile with Chemical-resistant Furan Resin Mortar and Grout	2103.2.3.4
A108.9—99	Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout	2103.2.3.5
A108.10—99	Installation of Grout in Tilework	2103.2.3.7
A118.1—99	American National Standard Specifications for Dry-set Portland Cement Mortar	2103.2.3.1
A118.3—99	American National Standard Specifications for Chemical-resistant, Water-cleanable Tile-setting and -grouting Epoxy and Water Cleanable Tile-setting Epoxy Adhesive	2103.2.3.3
A118.4—99	American National Standard Specifications for Latex-Portland Cement Mortar	2103.2.3.2, 2103.3.2.4
A118.5—99	American National Standard Specifications for Chemical Resistant Furan Mortar and Grouts for Tile Installation.	2103.2.3.4
A118.6—99	American National Standard Specifications for Cement Grouts for Tile Installation	2103.2.3.7
A118.8—99	American National Standard Specifications for Modified Epoxy Emulsion Mortar/Grout	2103.2.3.5
A136.1—99	American National Standard Specifications for Organic Adhesives for Installation of Ceramic Tile	2103.2.3.6
A137.1—12	American National Standard Specifications for Ceramic Tile	202
ANSI/A 190.1—12	Structural Glued Laminated Timber	2303.1.3, 2306.1
Z 97.1—14	Safety Glazing Materials Used in Buildings—Safety Performance Specifications and Methods of Test	2406.1.2, 2406.2, Table 2406.2(2), 2406.3.1, 2407.1, 2407.1.4.1, 2408.2.1, 2408.3, 2409.2, 2409.3, 2409.4.1

APA

APA - Engineered Wood Association
7011 South 19th
Tacoma, WA 98466

Standard reference number	Title	Referenced in code section number
ANSI/A 190.1—12	Structural Glued Laminated Timber	2303.1.3, 2306.1
ANSI/APA PRP 210—08	Standard for Performance-Rated Engineered Wood Siding	2303.1.5, 2304.7, 2306.3, Table 2306.3(1)
ANSI/APA PRR 410—11	Standard for Performance-Rated Engineered Wood Rim Boards	2303.1.13
APA PDS—12	Panel Design Specification	2306.1
APA PDS Supplement 1—12	Design and Fabrication of Plywood Curved Panels (revised 2013)	2306.1
APA PDS Supplement 2—12	Design and Fabrication of Plywood-lumber Beams (revised 2013)	2306.1
APA PDS Supplement 3—12	Design and Fabrication of Plywood Stressed-skin Panels (revised 2013)	2306.1

APA—continued

APA PDS Supplement 4—12	Design and Fabrication of Plywood Sandwich Panels (revised 2013)	2306.1
APA PDS Supplement 5—12	Design and Fabrication of All-plywood Beams (revised 2013)	2306.1
APA PRG 320—11	Standard for Performance-Rated Cross-Laminated Timber	2303.1.4
EWS R540—12	Builders Tips: Proper Storage and Handling of Glulam Beams	2306.1
EWS S475—07	Glued Laminated Beam Design Tables	2306.1
EWS S560—10	Field Notching and Drilling of Glued Laminated Timber Beams	2306.1
EWS T300—07	Glulam Connection Details	2306.1
EWS X440—08	Product Guide-Glulam	2306.1
EWS X450—01	Glulam in Residential Construction-Western Edition	2306.1

ASABE

American Society of Agricultural and Biological Engineers
2950 Niles Road
St. Joseph, MI 49085

Standard reference number	Title	Referenced in code section number
EP 484.2 June 1998 (R2008)	Diaphragm Design of Metal-clad, Wood-frame Rectangular Buildings	2306.1
EP 486.2 OCT 2012	Shallow-post and Pier Foundation Design	2306.1
EP 559.1 W/Corr.1 AUG 2010	Design Requirements and Bending Properties for Mechanically Laminated Wood Assemblies	2306.1

ASCE/SEI

American Society of Civil Engineers
Structural Engineering Institute
1801 Alexander Bell Drive
Reston, VA 20191-4400

Standard reference number	Title	Referenced in code section number
5—13	*Building Code* Requirements for Masonry Structures	1405.6, 1405.6.1, 1405.6.2, 1405.10, 1604.3.4, 1705.4, 1705.4.1, 1807.1.6.3, 1807.1.6.3.2, 1808.9, 2101.2, 2106.1, 2107.1, 2107.2, 2107.3, 2107.4, 2108.1, 2108.2, 2108.3, 2109.1, 2109.1.1, 2109.2, 2109.2.1, 2109.3, 2110.1
6—13	Specification for Masonry Structures	1405.6.1, 1705.4, 1807.1.6.3, 2103.1, 2103.2.1, 2103.3, 2103.4, 2104.1, 2105.1
7—10	Minimum Design Loads for Buildings and Other Structures with Supplement No. 1	202, Table 1504.8, 1602.1, 1604.3, Table 1604.5, 1604.8.2, 1604.10, 1605.1, 1605.2.1, 1605.3.1, 1605.3.1.2, 1605.3.2, 1605.3.2.1, 1607.8.1, 1607.8.1.1, 1607.8.1.2, 1607.8.3, 1607.12.1, 1608.1, 1608.2, 1608.3, 1609.1.1, 1609.1.2, 1609.3, 1609.5.1, 1609.5.3, 1609.6, 1609.6.1, 1609.6.1.1, 1609.6.2, Table 1609.6.2, 1609.6.3, 1609.6.4.1, 1609.6.4.2, 1609.6.4.4.1, 1611.2, 1612.4, 1613.1, 1613.3.2, Table 1613.3.3(1), Table 1613.3.3(2), 1613.3.5, 1613.3.5.1, 1613.3.5.2, 1613.4, 1613.4.1, 1613.5.1, 1613.6, 1614.1, 1704.6.1, 1705.12, 1705.12.4, 1705.13.2, 1705.13.3, 1705.13.4, 1803.5.12, 1808.3.1, 1810.3.6.1, 1810.3.9.4, 1810.3.11.2, 1810.3.12, 1905.1.1, 1905.1.2, 1905.1.8, 2205.2.1.1, 2205.2.1.2, 2205.2.2, 2206.2.1, 2209.1, 2210.2, 2304.6.1, 2404.1, 2505.1, 2505.2, 2506.2.1
8—14	Standard Specification for the Design of Cold-formed Stainless Steel Structural Members	1604.3.3, 2210.1, 2210.2
19—09	Structural Applications of Steel Cables for Buildings	2208.1, 2208.2
24—14	Flood Resistant Design and Construction	1203.4.2, 1612.4, 1612.5, 2702.1.7, 3001.2
29—14	Standard Calculation Methods for Structural Fire Protection	722.1
32—01	Design and Construction of Frost Protected Shallow Foundations	1809.5
49—07	Wind Tunnel Testing for Buildings and Other Structures	1609.1.1
55—10	Tensile Membrane Structures	3102.1.1

ASME

American Society of Mechanical Engineers
Two Park Avenue
New York, NY 10016-5990

Standard reference number	Title	Referenced in code section number
ASME/A17.1—13 CSA B44—2013	Safety Code for Elevators and Escalators	907.3.3, 911.1.5, 1009.4, 1607.9.1, 3001.2, 3001.4, 3002.5, 3003.2, 3007.1, 3008.1.3, 3008.7.1, 3009.2.2.1, 3009.5.4.1
A18.1—2014	Safety Standard for Platform Lifts and Stairway Chairlifts	1109.8, 3001.2, 3009.5.2
A90.1—2015	Safety Standard for Belt Manlifts	3001.2, 3009.5.3
B16.18—2012	Cast Copper Alloy Solder Joint Pressure Fittings	909.13.1
B16.22—2001(R2010)	Wrought Copper and Copper Alloy Solder Joint Pressure Fittings	909.13.1
B20.1—2015	Safety Standard for Conveyors and Related Equipment	3001.2, 3004.3, 3009.5.4
B31.3—2012	Process Piping	415.11.6

ASSE

American Society of Safety Engineers
1800 East Oakton Street
Des Plaines, IL 60018

Standard reference number	Title	Referenced in code section number
ANSI/ASSE Z359.1-2007	Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components, Part of the Fall Protection Code	1015.6, 1015.7

ASTM

ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959

Standard reference number	Title	Referenced in code section number
A6/A6M—11	Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes and Sheet	1810.3.2.3, 1810.3.5.3.1, 1810.3.5.3.3
A36/A36M—08	Specification for Carbon Structural Steel	1810.3.2.3
A153/A153M—09	Specification for Zinc Coating (Hot-dip) on Iron and Steel Hardware	2304.10.5
A240/A240M—13A	Standard Specification for Chromium and Chromium-nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels and for General Applications	Table 1507.4.3(1)
A252—10	Specification for Welded and Seamless Steel Pipe Piles	1810.3.2.3
A283/A283M—12A	Specification for Low and Intermediate Tensile Strength Carbon Steel Plates	1810.3.2.3
A416/A416M—12A	Specification for Steel Strand, Uncoated Seven-wire for Prestressed Concrete	1810.3.2.2
A463/A463M—10	Standard Specification for Steel Sheet, Aluminum-coated, by the Hot-dip Process	Table 1507.4.3(2)
A572/A572M—12A	Specification for High-strength Low-alloy Columbium-Vanadium Structural Steel	1810.3.2.3
A588/A588M—10	Specification for High-strength Low-alloy Structural Steel with 50 ksi (345 MPa) Minimum Yield Point with Atmospheric Corrosion Resistance	1810.3.2.3
A615/A615M—12	Specification for Deformed and Plain Billet-steel Bars for Concrete Reinforcement	1704.5, 1810.3.10.2
A653/A653M—11	Specification for Steel Sheet, Zinc-coated Galvanized or Zinc-iron Alloy-coated Galvannealed by the Hot-dip Process	Table 1507.4.3(1), Table 1507.4.3(2), 2304.10.5.1
A690/A690M—07(2012)	Standard Specification for High-strength Low-alloy Nickel, Copper, Phosphorus Steel H-piles and Sheet Piling with Atmospheric Corrosion Resistance for Use in Marine Environments	1810.3.2.3
A706/A706M—09b	Specification for Low-alloy Steel Deformed and Plain Bars for Concrete Reinforcement	1704.5, 2107.4, 2108.3
A722/A722M—12	Specification for Uncoated High-strength Steel Bar for Prestressing Concrete	1810.3.10.2
A755/A755M—2011	Specification for Steel Sheet, Metallic-coated by the Hot-dip Process and Prepainted by the Coil-coating Process for Exterior Exposed Building Products	Table 1507.4.3(1), Table 1507.4.3(2)

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A792/A792M—10	Specification for Steel Sheet, 55% Aluminum-zinc Alloy-coated by the Hot-dip Process . . . . . Table 1507.4.3(1), Table 1507.4.3(2)
A875/A875M—13	Standard Specification for Steel Sheet Zinc-5 percent, Aluminum Alloy-coated by the Hot-dip Process . . . . . Table 1507.4.3(2)
A924/A924M—13	Standard Specification for General Requirements for Steel Sheet, Metallic-coated by the Hot-dip Process . . . . . Table 1507.4.3(1)
B42—10	Specification for Seamless Copper Pipe, Standard Sizes 909.13.1
B43—09	Specification for Seamless Red Brass Pipe, Standard Sizes 909.13.1
B68—11	Specification for Seamless Copper Tube, Bright Annealed (Metric) 909.13.1
B88—09	Specification for Seamless Copper Water Tube 909.13.1
B101—12	Specification for Lead-coated Copper Sheet and Strip for Building Construction . . . . . 1404.5.3, Table 1507.2.9.2, Table 1507.4.3(1)
B209—10	Specification for Aluminum and Aluminum Alloy Steel and Plate . . . . . Table 1507.4.3(1)
B251—10	Specification for General Requirements for Wrought Seamless Copper and Copper-alloy Tube 909.13.1
B280—08	Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service 909.13.1
B370—12	Specification for Copper Sheet and Strip for Building Construction . . . . . 1404.5.2, Table 1507.2.9.2, Table 1507.4.3(1)
B695—04(2009)	Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel Strip for Building Construction 2304.10.5.1, 2304.10.5.3
C5—10	Specification for Quicklime for Structural Purposes . . . . . Table 2507.2
C22/C22M-00(2010)	Specification for Gypsum . . . . . Table 2506.2
C27—98(2008)	Specification for Classification of Fireclay and High-alumina Refractory Brick 2111.6
C28/C28M—10	Specification for Gypsum Plasters . . . . . Table 2507.2
C31/C31M—12	Practice for Making and Curing Concrete Test Specimens in the Field . . . . . Table 1705.3
C33/C33M—13	Specification for Concrete Aggregates 722.3.1.4, 722.4.1.1.3
C35/C35M-1995(2009)	Specification for Inorganic Aggregates for Use in Gypsum Plaster . . . . . Table 2507.2
C55—2011	Specification for Concrete Building Brick . . . . . Table 722.3.2
C59/C59M—00 (2011)	Specification for Gypsum Casting Plaster and Molding Plaster . . . . . Table 2507.2
C61/C61M—00 (2011)	Specification for Gypsum Keene's Cement . . . . . Table 2507.2
C62—13	Standard Specification for Building Brick (Solid Masonry Units Made from Clay or Shale) 1807.1.6.3
C67—13	Test Methods of Sampling and Testing Brick and Structural Clay Tile 721.4.1.1.1, 2109.3.1.1
C73—10	Specification for Calcium Silicate Brick (Sand-lime Brick) . . . . . Table 722.3.2
C90—13	Specification for Loadbearing Concrete Masonry Units . . . . . Table 722.3.2, 1807.1.6.3
C91—12	Specification for Masonry Cement . . . . . Table 2507.2
C94/C94M—13	Specification for Ready-Mixed Concrete 110.3.1
C140—13	Test Method Sampling and Testing Concrete Masonry Units and Related Units 722.3.1.2
C150—12	Specification for Portland Cement . . . . . 1903.1, Table 2507.2
C172/C172M—10	Practice for Sampling Freshly Mixed Concrete . . . . . Table 1705.3
C199—84 (2011)	Test Method for Pier Test for Refractory Mortars 2111.6, 2111.9, 2113.12
C206—13	Specification for Finishing Hydrated Lime . . . . . Table 2507.2
C208—12	Specification for Cellulosic Fiber Insulating Board . . . . . Table 1508.2, 2303.1.6
C216—13	Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale) 1807.1.6.3
C270—12a	Specification for Mortar for Unit Masonry 2103.3.2.4
C315—07(2011)	Specification for Clay Flue Liners and Chimney Pots . . . . . 2111.9, 2113.11.1, Table 2113.16(1)
C317/C317M—00(2010)	Specification for Gypsum Concrete 2514.1
C330/C330M—2009	Specification for Lightweight Aggregates for Structural Concrete 202
C331/C331M—2010	Specification for Lightweight Aggregates for Concrete Masonry Units 722.3.1.4, 722.4.1.1.3
C406/C406M—2010	Specification for Roofing Slate 1507.7.5
C472—99 (2009)	Specification for Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete . . . . . Table 2506.2
C473—12	Test Method for Physical Testing of Gypsum Panel Products . . . . . Table 2506.2
C474—13	Test Methods for Joint Treatment Materials for Gypsum Board Construction . . . . . Table 2506.2
C475/C475M—12	Specification for Joint Compound and Joint Tape for Finishing Gypsum Board . . . . . Table 2506.2
C514—04(2009)e1	Specification for Nails for the Application of Gypsum Board . . . . . Table 721.1(2), Table 721.1(3), Table 2306.7, Table 2506.2
C516—08	Specifications for Vermiculite Loose Fill Thermal Insulation 722.3.1.4, 722.4.1.1.3
C547—12	Specification for Mineral Fiber Pipe Insulation . . . . . Table 721.1(2), Table 721.1(3)
C549—06(2012)	Specification for Perlite Loose Fill Insulation 722.3.1.4, 722.4.1.1.3
C552—12b	Standard Specification for Cellular Glass Thermal Insulation . . . . . Table 1508.2
C557—03(2009)e01	Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing . . . . . Table 2506.2
C578—12b	Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation . . . . . Table 1508.2, 2603.10, Table 2603.12.1, Table 2603.12.2

ASTM—continued

C587—04(2009)	Specification for Gypsum Veneer Plaster	Table 2507.2
C595/C595—13	Specification for Blended Hydraulic Cements	1903.1, Table 2507.2
C631—09	Specification for Bonding Compounds for Interior Gypsum Plastering	Table 2507.2
C635/C635M—13	Specification for the Manufacture, Performance and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings	808.1.1, 2506.2.1
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Standard reference number	Title	Referenced in code section number
AWC WCD No. 4—2003	Wood Construction Data—Plank and Beam Framing for Residential Buildings	2306.1.2
AWC WFCM—2015	Wood Frame Construction Manual for One- and Two-Family Dwellings	1609.1.1, 1609.1.1.1, 2301.2, 2308.2.4, 2309.1

AWC—continued

ANSI/AWC NDS—2015	National Design Specification (NDS) for Wood Construction with 2015 NDS Supplement	202, 722.1, Table 1604.3, 1809.12, 1810.3.2.4, Table 1810.3.2.6, 1905.1.8, 2304.13, 2306.1, Table 2306.2(1), Table 2306.2(2), Table 2306.3(1), Table 2306.3(2), 2307.1
AWC STJR—2015	Span Tables for Joists and Rafters	2306.1.1, 2308.4.2.1, 2308.7.1, 2308.7.2
ANSI/AWC PWF—2015	Permanent Wood Foundation Design Specification	1805.2, 1807.1.4, 2304.10.5.2
AWC SDPWS—2015	Special Design Provisions for Wind and Seismic	202, 2305.1, 2305.2, 2305.3, 2306.1, 2306.2, 2306.3, Table 2306.3(1), Table 2306.3(3), 2307.1

AWCI

Association of the Wall and Ceiling Industry
513 West Broad Street, Suite 210
Falls Church, VA 22046

Standard reference number	Title	Referenced in code section number
12-B—04	Technical Manual 12-B Standard Practice for the Testing and Inspection of Field Applied Thin Film Intumescent Fire-resistive Materials; an Annotated Guide, Second Edition	1705.15

AWPA

American Wood Protection Association
P.O. Box 361784
Birmingham, AL 35236-1784

Standard reference number	Title	Referenced in code section number
C1—03	All Timber Products-Preservative Treatment by Pressure Processes	1505.6
M4—11	Standard for the Care of Preservative-treated Wood Products	1810.3.2.4.1, 2303.1.9
U1—14	USE CATEGORY SYSTEM: User Specification for Treated Wood Except Section 6, Commodity Specification H	1403.6, Table 1507.9.6, 1807.1.4, 1807.3.1, 1809.12, 1810.3.2.4.1, 2303.1.9, 2304.12.1, 2304.12.2, 2304.12.3, 2304.2.4, 2304.12.5

AWS

American Welding Society
8669 NW 36 Street, #130
Doral, FL 33166

Standard reference number	Title	Referenced in code section number
D1.4/D1.4M—2011	Structural Welding Code-Reinforcing Steel Including Metal Inserts and Connections In Reinforced Concrete Construction	1704.5, 1705.3.1, Table 1705.3, 2107.4

BHMA

Builders Hardware Manufacturers' Association
355 Lexington Avenue, 17th Floor
New York, NY 10017-6603

Standard reference number	Title	Referenced in code section number
A 156.10—2011	Power Operated Pedestrian Doors	1010.1.4.2
A 156.19—2013	Standard for Power Assist and Low Energy Operated Doors	1010.1.4.2
A 156.27—11	Power and Manual Operated Revolving Pedestrian Doors	1010.1.4.1

CEN

European Committee for Standardization (CEN)
Central Secretariat
Rue de Stassart 36
B-10 50 Brussels

Standard reference number	Title	Referenced in code section number
EN 1081—98	Resilient Floor Coverings—Determination of the Electrical Resistance	406.7.1
BS EN 15250—2007	Slow Heat Release Appliances Fired By Solid Fuel Requirements and Test Methods	2112.2, 2112.5

CGSB

Canadian General Standards Board
Place du Portage 111, 6B1
11 Laurier Street
Gatineau, Quebec, Canada KIA 1G6

Standard reference number	Title	Referenced in code section number
37-GP-52M (1984)	Roofing and Waterproofing Membrane, Sheet Applied, Elastomeric	1504.7, 1507.12.2
37-GP-56M (1980)	Membrane, Modified, Bituminous, Prefabricated and Reinforced for Roofing—with December 1985 Amendment	1507.11.2
CAN/CGSB 37.54—95	Polyvinyl Chloride Roofing and Waterproofing Membrane	1507.13.2

CPA

Composite Panel Association
19465 Deerfield Avenue, Suite 306
Leesburg, VA 20176

Standard reference number	Title	Referenced in code section number
ANSI A135.4—2012	Basic Hardboard	1404.3.1, 2303.1.7
ANSI A135.5—2012	Prefinished Hardboard Paneling	2303.1.7, 2304.7
ANSI A135.6—2012	Engineered Wood Siding	1404.3.2, 2303.1.7
A208.1—09	Particleboard	2303.1 8, 2303.1. 8.1

CPSC

Consumer Product Safety Commission
4330 East West Highway
Bethesda, MD 20814-4408

Standard reference number	Title	Referenced in code section number
16 CFR Part 1201 (2002)	Safety Standard for Architectural Glazing Material	2406.2, Table 2406.2(1), 2406.3.1, 2407.1, 2407.1.4.1, 2408.2.1, 2408.3, 2409.2, 2409.3.1, 2409.4.1
16 CFR Part 1209 (2002)	Interim Safety Standard for Cellulose Insulation	720.6
16 CFR Part 1404 (2002)	Cellulose Insulation	720.6
16 CFR Part 1500 (2009)	Hazardous Substances and Articles; Administration and Enforcement Regulations	202
16 CFR Part 1500.44(2009)	Method for Determining Extremely Flammable and Flammable Solids	202
16 CFR Part 1507 (2002)	Fireworks Devices	202
16 CFR Part 1630 (2007)	Standard for the Surface Flammability of Carpets and Rugs	804.4.1

CSA

Canadian Standards Association
8501 East Pleasant Valley
Cleveland, OH 44131-5516

Standard reference number	Title	Referenced in code section number
AAMA/WDMA/CSA 101/I.S.2/A440—11	Specifications for Windows, Doors and Unit Skylights	1709.5.1, 2405.5

CSSB

Cedar Shake and Shingle Bureau
P. O. Box 1178
Sumas, WA 98295-1178

Standard reference number	Title	Referenced in code section number
CSSB—97	Grading and Packing Rules for Western Red Cedar Shakes and Western Red Shingles of the Cedar Shake and Shingle Bureau	Table 1507.8.5, Table 1507.9.6

DASMA

Door and Access Systems Manufacturers Association International
1300 Summer Avenue
Cleveland, OH 44115-2851

Standard reference number	Title	Referenced in code section number
ANSI/DASMA 107—1997 (R2012)	Room Fire Test Standard for Garage Doors Using Foam Plastic Insulation	2603.4.1.9
108—12	Standard Method for Testing Sectional Garage Doors and Rolling Doors: Determination of Structural Performance Under Uniform Static Air Pressure Difference	1709.5.2
115—12	Standard Method for Testing Sectional Garage Doors and Rolling Doors: Determination of Structural Performance Under Missile Impact and Cyclic Wind Pressure	1609.1.2.3

DOC

U.S. Department of Commerce
National Institute of Standards and Technology
1401 Constitution Avenue NW
Washington, DC 20230

Standard reference number	Title	Referenced in code section number
PS-1—09	Structural Plywood	2303.1.5, 2304.7, Table 2304.7(4), Table 2304.7(5), Table 2306.2(1), Table 2306.2(2)
PS-2—10	Performance Standard for Wood-based Structural-use Panels	2303.1.5, 2304.7, Table 2304.7(5), Table 2306.2(1), Table 2306.2(2)
PS 20—05	American Softwood Lumber Standard	202, 1810.3.2.4, 2303.1.1

DOE

U.S. Department of Energy
1000 Independence Avenue SW
Washington, DC 20585

Standard reference number	Title	Referenced in code section number
DOE Zero Energy Ready Homes 2017	Zero Energy Ready Homes	101.10.7.5

DOL

U.S. Department of Labor
Frances Perkins Building
200 Constitution Avenue NW
Washington, DC 20210

Standard reference number	Title	Referenced in code section number
29 CFR Part 1910.1000 (2009)	Air Contaminants	202

DOTn

U.S. Department of Transportation
c/o Superintendent of Documents
East Building, 2nd floor
Washington, DC 20590

Standard reference number	Title	Referenced in code section number
49 CFR Parts 100—185 2005	Hazardous Materials Regulations	202
49 CFR Parts 173.137 (2009)	Shippers—General Requirements for Shipments and Packaging—Class 8—Assignment of Packing Group	202
49 CFR—1998	Specification of Transportation of Explosive and Other Dangerous Articles, UN 0335, UN 0336 Shipping Containers	202

ENTERPRISE COMMUNITY PARTNERS

Enterprise Community Partners, Inc.
1000 Broken Land Parkway, Suite 700
Columbia, MD 21044

Standard reference number	Title	Referenced in code section number
E 329—14a Enterprise Green Communities Criteria 2015	Enterprise Green Communities Criteria	1704.2.1, 1101.12.5.3

EPA

Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue NW
Washington, DC 20460

Standard reference number	Title	Referenced in code section number
Energy Star Certified Homes Version 3.1	Energy Star Certified Homes	101.12.5.2, 101.12.5.3, 101.12.5.4
Energy Star Multifamily New Construction, Version 1	Energy Star Multifamily New Construction	101.12.5.2, 101.12.5.3, 101.12.5.4

FEMA

Federal Emergency Management Agency
Federal Center Plaza
500 C Street S.W.
Washington, DC 20472

Standard reference number	Title	Referenced in code section number
FEMA-TB-11—01	Crawlspace Construction for Buildings Located in Special Flood Hazard Areas	1805.1.2.1

FM

Factory Mutual Global Research
Standards Laboratories Department
1301 Atwood Avenue, P.O. Box 7500
Johnston, RI 02919

Standard reference number	Title	Referenced in code section number
4430 (2012)	Approval Standard for Heat and Smoke Vents	910.3.1
4470 (2012)	Approval Standard for Single-Ply Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) And Liquid Applied Roof Assemblies for use in Class 1 and Noncombustible Roof Deck Construction	1504.7
4474 (2011)	American National Standard for Evaluating the Simulated Wind Uplift Resistance of Roof Assemblies Using Static Positive and/or Negative Differential Pressures	1504.3.1, 1504.3.2
4880-2010	Approval Standard for Class 1 Fire Rating of Insulated Wall or Wall and Roof/Ceiling Panels, Interior Finish Materials or Coatings and Exterior Wall Systems	2603.4, 2603.9

GA

Gypsum Association
6525 Belcrest Road, Suite 480
Hyattsville, MD 20782

Standard reference number	Title	Referenced in code section number
GA 216—13	Application and Finishing of Gypsum Panel Products	Table 2508.1, 2509.2
GA 600—12	Fire-Resistance Design Manual, 20th Edition	Table 721.1(1), Table 721.1(2), Table 721.1(3)

HPVA

Hardwood Plywood Veneer Association
1825 Michael Faraday Drive
Reston, VA 20190

Standard reference number	Title	Referenced in code section number
HP-1—2013	Standard for Hardwood and Decorative Plywood	2303.3, 2304.7

ICC

International Code Council, Inc.
500 New Jersey Ave NW
6th Floor
Washington, DC 20001

Standard reference number	Title	Referenced in code section number
ICC A117.1—09	Accessible and Usable Buildings and Facilities	202, 907.5.2.3.3, 1009.8.2, 1009.9, 1009.11, 1010.1.9.7, 1012.1, 1012.6.5, 1012.10, 1013.4, 1023.9, 1101.2, 1111.2, 1111.3, 1111.4, 1111.4.2
ICC 300—12	ICC Standard on Bleachers, Folding and Telescopic Seating and Grandstands	1029.1.1 Table 1607.1
ICC 400—12	Standard on Design and Construction of Log Structures	2301.2
ICC 500—14	ICC/NSSA Standard on the Design and Construction of Storm Shelters	202, 423.1, 423.3, 423.4
ICC 600—14	Standard for Residential Construction in High-wind Regions	1609.1.1, 1609.1.1.1, 2308.2.1
ICC 700—15	National Green Building Standard	101.12.5.4
IEBC—15	International Existing *Building Code*®	101.4.7, 116.5, 201.3
IECC—15	International Energy Conservation Code®	101.4.6, 201.3, 202, 1203.1, 1301.1.1, 1405.3
IFC—15	International Fire Code®	101.4.5, 102.6, 201.3, 202, 307.1, Table 307.1(1), Table 307.1(2), 307.1.1, 307.1.2, 403.4.5, 404.2, 406.7, 406.8, 407.2.6, 407.4, 410.3.6, 411.1, 412.1, 412.6.1, 413.1, 414.1.1, 414.1.2, 414.1.2.1, 414.2, 414.2.5, Table 414.2.5(1), Table 414.2.5(2), 414.3, 414.5, 414.5.1, Table 414.5.1, 414.5.2, 414.5.3, 414.5.4, 414.6, 415.1, 415.6, 415.6.1, 415.6.1.1, 415.6.1.4, Table 415.6.2, 415.7.3, 415.8.2, 415.9, 415.9.1, 415.9.1.3, 415.9.1.4, 415.9.1.6, 415.9.1.7, 415.9.1.8, 415.9.2, 415.9.3, 415.10, 415.11, 415.11.1.7, 415.11.4, 415.11.7.2, 415.11.9.3, 415.11.10.1, 416.1, 416.4, 421.1, 422.3.1, 426.1.4, Table 504.3, Table 504.4, Table 506.2, 507.4, 507.8.1.1.1, 507.8.1.1.2, 507.8.1.1.3, 705.8.1, 707.1, 901.2, 901.3, 901.5, 901.6.2, 901.6.3, 903.1.1, 903.2.7.1, 903.2.11.6, 903.2.12, 903.5, 904.2.1, 904.12.3, 905.1, 905.3.6, 906.1, 907.1.8, 907.2.5, 907.2.13.2, 907.2.15, 907.2.16, 907.6.5, 907.8, 909.20, 910.2.2, 1001.3, 1001.4, 1010.1.9.6, 1203.5.2, 1203.6, 1507.16, 1512.1, Table 1604.5, 2603.4.1.12, 2702.1, 2702.1.2, 2702.2.3, 2702.2.8, 2702.2.9, 2702.2.11, 2702.2.12, 2702.2.13, 2702.4, 3003.3, 3008.1.2, 3102.1, 3103.1, 3111.1, 3111.1.1, 3302.3, 3303.7, 3309.2
IFGC—15	International *Fuel Gas Code*®	101.4.1, 201.3, Table 307.1(1), 415.9.2, 2113.11.1.2, 2113.15, 2801.1
IMC—15	International *Mechanical Code*®	101.4.2, 201.3, 307.1.1, Table 307.1(1), 406.6.2, 406.8.2, 406.8.4, 409.3, 412.6.6, 414.1.2, 414.3, 415.8.1.4, 415.8.2, 415.8.2.7, 415.8.3, 415.8.4, 415.10.11, 415.10.11.1, 416.2.2, 413.3, 416.3, 417.1, 419.8, 421.5, 603.1, 603.1.1, 603.1.2, 712.1.6, 717.2.2, 717.5.3, 717.5.4, 717.6.1, 717.6.2, 717.6.3, 718.5, 720.1, 720.7, 903.2.11.4, 904.2.1, 904.11, 907.3.1, 908.6, 909.1, 909.10.2, 909.13.1, 1006.2.2.3, 1011.6, 1020.5.1, 1203.1, 1203.2.1, 1203.5.2, 1203.5.2.1, 1203.6, 1209.3, 2801.1
IPC—15	International Plumbing Code®	101.4.3, 201.3, 415.9.3, 603.1.2, 718.5, 903.3.5, 904.12.1.3, 912.6, 1206.3.3, 1503.4, 1503.4.1, 1805.4.3, 2901.1, Table 2902.1, 3305.1, A101.2
IPMC—15	International Property Maintenance Code®	101.4.4, 102.6, 103.3
IPSDC—15	International Private Sewage Disposal Code®	101.4.3, 2901.1
IRC—15	International *Residential Code*®	101.2, 305.2.3, 308.3.4, 308.4.2, 308.6.4, 310.1, 310.5.1, 310.5.2, 2308.1
IWUIC—15	International Wildland-Urban Interface Code®	Table 1505.1
SBCCI SSTD 11—97	Test Standard for Determining Wind Resistance of Concrete or Clay Roof Tiles	1504.2.1.1, 1504.2.1.2

International Living Future Institute

International Living Future Institute
1501 E Madison Street
#100
Seattle, WA 98122

Standard reference number	Title	Referenced in code section number
Living Building Challenge 3.1 Standard	Living Building Challenge Certification	101.10.6.2, 101.10.7.3, 101.12.5.1
Zero Energy Building Certification 3.1	Zero Energy Building Certification	101.10.6.3, 101.10.7.4

ISO

International Organization for Standardization
ISO Central Secretariat
1 ch, de la Voie-Creuse, Case Postale 56
CH-1211 Geneva 20, Switzerland

Standard reference number	Title	Referenced in code section number
ISO 8115—86	Cotton Bales—Dimensions and Density	Table 307.1(1), Table 415.11.1.1.1
ISO 8336—09	Fiber-Cement Flat Sheets - Product Specification and Test Methods	1404.10, 1405.16.1, 1405.16.2, Table 2509.2

MHI

Material Handling Institute
8720 Red Oak Blvd. Suite 201
Charlotte, NC 28217

Standard reference number	Title	Referenced in code section number
ANSI MH29.1—08	Safety Requirements for Industrial Scissors Lifts	3001.2

NAAMM

National Association of Architectural Metal Manufacturers
800 Roosevelt Road, Bldg. C, Suite 312
Glen Ellyn, IL 60137

Standard reference number	Title	Referenced in code section number
FP 1001—07	Guide Specifications for Design of Metal Flag Poles	1609.1.1

NCMA

National Concrete Masonry Association
13750 Sunrise Valley
Herndon, VA 22071-4662

Standard reference number	Title	Referenced in code section number
TEK 5—84 (1996)	Details for Concrete Masonry Fire Walls	Table 721.1(2)

NFPA

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169-7471

Standard reference number	Title	Referenced in code section number
10—13	Standard for Portable Fire Extinguishers	906.2, 906.3.2, 906.3.4, Table 906.3(1), Table 906.3(2)
11—10	Standard for Low Expansion Foam	904.7
12—11	Standard on Carbon Dioxide Extinguishing Systems	904.8, 904.11
12A—09	Standard on Halon 1301 Fire Extinguishing Systems	904.9
13—13	Installation of Sprinkler Systems	708.2, 903.3.1.1, 903.3.2, 903.3.8.2, 903.3.8.5 904.11, 905.3.4, 907.6.4, 1019.3
13D—13	Standard for the Installation of Sprinkler Systems in One- and Two-family Dwellings and Manufactured Homes	903.3.1.3
13R—13	Standard for the Installation of Sprinkler Systems in Low Rise Residential Occupancies	903.3.1.2, 903.3.5.2, 903.4
14—13	Standard for the Installation of Standpipe and Hose System	905.2, 905.3.4, 905.4.2, 905.6.2, 905.8
16—15	Standard for the Installation of Foam-water Sprinkler and Foam-water Spray Systems	904.7, 904.11
17—13	Standard for Dry Chemical Extinguishing Systems	904.6, 904.11
17A—13	Standard for Wet Chemical Extinguishing Systems	904.5, 904.11
20—13	Standard for the Installation of Stationary Pumps for Fire Protection	913.1, 913.2.1, 913.5
30—12	Flammable and Combustible Liquids Code	415.6, 507.8.1.1.1, 507.8.1.1.2
31—11	Standard for the Installation of Oil-burning Equipment	2113.15
32—11	Standard for Dry Cleaning Plants	415.9.3
40—11	Standard for the Storage and Handling of Cellulose Nitrate Film	409.1
58—14	Liquefied Petroleum Gas Code	415.9.2
61—13	Standard for the Prevention of Fires and Dust Explosions in Agricultural and Food Product Facilities	426.1
70—14	National Electrical Code	108.3, 415.11.1.8, 904.3.1, 907.6.1, 909.12.2, 909.16.3, 1205.4.1, 2701.1, 2702.1.2, G501.4, G1001.6, H106.1, H106.2, K101, K111.1
72—13	National Fire Alarm and Signaling Code	407.4.4.3, 407.4.4.5, 407.4.4.5.1, 901.6, 903.4.1, 904.3.5, 907.2, 907.2.6, 907.2.11, 907.2.13.2, 907.3, 907.3.3, 907.3.4, 907.5.2.1.2, 907.5.2.2, 907.5.2.2.5, 907.6, 907.6.1, 907.6.2, 907.6.6, 907.7, 907.7.1, 907.7.2, 907.2.9.3, 911.1.5, 2702.2.4, 3005.5, 3007.7
80—13	Standard for Fire Doors and Other Opening Protectives	410.3.5, 509.4.2, 716.5, 716.5.7, 716.5.8.1, 716.5.9.2, 716.6, 716.6.4, 1010.1.4.3
82—14	Standard on Incinerators and Waste and Linen Handling Systems and Equipment	713.13
85—15	Boiler and Combustion System Hazards Code	415.8.1
92—15	Standard for Smoke Control Systems	909.7, 909.8
99—15	Health Care Facilities Code	407.10, 425.1
101—15	Life Safety Code	1029.6.2
105—13	Standard for Smoke Door Assemblies and Other Opening Protectives	405.4.2, 710.5.2.2, 716.5.3.1, 909.20.4.1
110—13	Standard for Emergency and Standby Power Systems	2702.1.2
111—13	Standard on Stored Electrical Energy Emergency and Standby Power Systems	2702.1.2
120—15	Standard for Fire Prevention and Control in Coal Mines	426.1
211—13	Standard for Chimneys, Fireplaces, Vents and Solid Fuel-burning Appliances	2112.5
221—15	Standard for High Challenge Fire Walls, Fire Walls, and Fire Barrier Walls	706.2
252—12	Standard Methods of Fire Tests of Door Assemblies	715.4.2, 715.4.3, 715.4.7.3.1, Table 716.3, 716.3.1, 716.4, 716.5.1, 716.5.3, 716.5.8, 716.5.8.1.1
253—15	Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source	406.8.3, 424.2, 804.2, 804.3
257—12	Standard for Fire Test for Window and Glass Block Assemblies	Table 716.3, 716.4, 716.5.3.2, 716.6, 716.6.1, 716.6.2, 716.6.7.3
259—13	Standard Test Method for Potential Heat of Building Materials	2603.4.1.10, 2603.5.3
265—11	Standard Methods of Fire Tests for Evaluating Room Fire Growth Contribution of Textile Wall Coverings on Full Height Panels and Walls	803.1.3, 803.1.3.1
268—12	Standard Test Method for Determining Ignitability of Exterior Wall Assemblies Using a Radiant Heat Energy Source	1406.2.1.1, 1406.2.1.1.1, 1406.2.1.1.2, 2603.5.7, D105.1
275—13	Standard Method of Fire Tests for the Evaluation of Thermal Barriers	1407.10.2, 2603.4

NFPA—continued

276—11	Standard Method of Fire Tests for Determining the Heat Release Rate of Roofing Assemblies With Combustible Above-Deck Roofing Components	1508.1, 2603.3, 2603.4.1.5
285—12	Standard Fire Test Method for the Evaluation of Fire Propagation Characteristics of Exterior Nonload-bearing Wall Assemblies Containing Combustible Components	718.2.6, 1403.5, 1407.10.4, 1409.10.4, 1510.6.2, 2603.5.5
286—15	Standard Methods of Fire Test for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth	402.6.4.4, 803.1.2, 803.1.2.1, 803.11, 2603.4, 2603.7.2, 2603.9, 2604.2.4, 2614.4
288—12	Standard Methods of Fire Tests of Horizontal Fire Door Assemblies Installed in Horizontal in Fire-resistance-rated Floor Systems	712.1.13.1
289—13	Standard Method of Fire Test for Individual Fuel Packages	402.6.2, 424.2
409—11	Standard for Aircraft Hangars	412.4.6, Table 412.4.6, 412.4.6.1, 412.6.5
418—11	Standard for Heliports	412.8.4
484—15	Standard for Combustible Metals	426.1
654—13	Standard for the Prevention of Fire & Dust Explosions from the Manufacturing, Processing and Handling of Combustible Particulate Solids	426.1
655—12	Standard for the Prevention of Sulfur Fires and Explosions	426.1
664—12	Standard for the Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities	426.1
701—10	Standard Method of Fire Tests for Flame-Propagation of Textiles and Films	410.3.6, 424.2, 801.4, 806.1, 806.3, 806.4, 3102.3, 3102.3.1, 3102.6.1.1, 3105.4, D102.2.8, H106.1.1
704—12	Standard System for the Identification of the Hazards of Materials for Emergency Response	202, 415.5.2
720—15	Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment	9151.6.1, 915.1.6.2
750—14	Standard on Water Mist Fire Protection Systems	904.12.1.1
1124—06	Code for the Manufacture, Transportation and Storage of Fireworks and Pyrotechnic Articles	415.6.1.1
2001—15	Standard on Clean Agent Fire Extinguishing Systems	904.10

Passive House Institute

Passive House Institute
Rheinstraße 44/46
64283 Darmstadt, Germany

Standard reference number	Title	Referenced in code section number
Passive House Version 9f, 2016	Passive House Institute Standard, Version 9f, 2016	101.10.6.5, 101.10.7.7

Passive House Institute US

Passive House Institute US (PHIUS)
116 West Illinois Street
Suite 5E
Chicago, IL 60654, USA

Standard reference number	Title	Referenced in code section number
PHIUS+ 2018	PHIUS+ 2018 Passive House Building Standard	101.10.6.4, 101.10.7.6

PCI

Precast Prestressed Concrete Institute
200 West Adams Street, Suite 2100
Chicago, IL 60606-6938

Standard reference number	Title	Referenced in code section number
MNL 124—11	Design for Fire Resistance of Precast Prestressed Concrete	722.2.3.1
MNL 128—01	Recommended Practice for Glass Fiber Reinforced Concrete Panels	1903.3

PTI

Post-Tensioning Institute
38800 Country Club Drive
Farmington Hills, MI 48331

Standard reference number	Title	Referenced in code section number
PTI DC—10.5-12	Standard Requirements for Design and Analysis of Shallow Concrete Foundations on Expansive Soils	1808.6.2

RMI

Rack Manufacturers Institute
8720 Red Oak Boulevard, Suite 201
Charlotte, NC 28217

Standard reference number	Title	Referenced in code section number
ANSI/MH16.1—12	Specification for Design, Testing and Utilization of Industrial Steel Storage Racks	2209.1

SBCA

Structural Building Components Association
6300 Enterprise Lane
Madison, WI 53719

Standard reference number	Title	Referenced in code section number
ANSI/FS 100-12	Standard Requirements for Wind Pressure Resistance of Foam Plastic Insulating Sheathing Used in Exterior Wall Covering Assemblies	2603.10

SDI

Steel Deck Institute
P. O. Box 426
Glenshaw, PA 15116

Standard reference number	Title	Referenced in code section number
ANSI/NC1.0—10	Standard for Noncomposite Steel Floor Deck	2210.1.1.1
ANSI/RD1.0—10	Standard for Steel Roof Deck	2210.1.1.2
SDI-C—2011	Standard for Composite Steel Floor Deck Slabs	2210.1.1.3
SDI-QA/QC—2011	Standard for Quality Control and Quality Assurance for Installation of Steel Deck	1705.2.2

SJI

Steel Joist Institute
1173B London Links Drive
Forest, VA 24551

Standard reference number	Title	Referenced in code section number
CJ—10	Standard Specification for Composite Steel Joists, CJ-series	1604.3.3, 2203.2, 2207.1
JG—10	Standard Specification for Joist Girders	1604.3.3, 2203.2, 2207.1
K—10	Standard Specification for Open Web Steel Joists, K-series	1604.3.3, 2203.2, 2207.1
LH/DLH—10	Standard Specification for Longspan Steel Joists, LH-series and Deep Longspan Steel Joists, DLH-series	1604.3.3, 2203.2, 2207.1

SPRI

Single-Ply Roofing Institute
411 Waverly Oaks Road, Suite 331B
Waltham, MA 02452

Standard reference number	Title	Referenced in code section number
ANSI/SPRI/ FM4435-ES-1—11	Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems	1504.5
ANSI/SPRI RP-4—13	Wind Design Guide for Ballasted Single-ply Roofing Systems	1504.4
ANSI/SPRI VF1—10	External Fire Design Standard for Vegetative Roofs	1505.10

TIA

Telecommunications Industry Association
1320 N. Courthouse Road
Arlington, VA 22201-3834

Standard reference number	Title	Referenced in code section number
222-G—05	Structural Standards for Antenna Supporting Structures and Antennas, including—Addendum 1, 222-G-1, Dated 2007, Addendum 2, 222-G-2 Dated 2009 Addendum 3, 222-3 dated 2013 and Addendum 4, 222-G-4 dated 2014	1609.1.1, 3108.1, 3108.2

TMS

The Masonry Society
105 South Sunset Street, Suite Q
Longmont, CO 80501

Standard reference number	Title	Referenced in code section number
216—2013	Standard Method for Determining Fire Resistance of Concrete and Masonry Construction Assemblies	Table 721.1(2), 722.1

TMS—continued

302—2012	Standard Method for Determining the Sound Transmission Class Rating for Masonry Walls	1207.2.1
402—2013	*Building Code* for Masonry Structures	1405.6, 1405.6.1, 1405.6.2, 1405.10, 1604.3.4, 1705.4, 1705.4.1, 1807.1.6.3, 1807.1.6.3.2, 1808.9 2101.2, 2106.1, 2107.1, 2107.2, 2107.3, 2107.4, 2108.1, 2108.2, 2108.3, 2109.1, 2109.1.1, 2109.2, 2109.2.1, 2109.3, 2110.1
403—2013	Direct Design Handbook for Masonry Structures	2101.2
602—2013	Specification for Masonry Structures	1405.6.1, 1705.4, 1807.1.6.3, 2103.1, 2103.2.1, 2103.3, 2103.4, 2104.1, 2105.1

TPI

Truss Plate Institute
218 N. Lee Street, Suite 312
Alexandria, VA 22314

Standard reference number	Title	Referenced in code section number
TPI 1—2014	National Design Standard for Metal-plate-connected Wood Truss Construction	2303.4.6, 2306.1

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062-2096

Standard reference number	Title	Referenced in code section number
9—2009	Fire Tests of Window Assemblies	715.5.2, 716.3.2, 716.4, 716.5.3.2, 716.6, 716.6.1, 716.6.2, 716.6.8.1
10A—2009	Tin Clad Fire Doors	716.5
10B—2008	Fire Tests of Door Assemblies—with Revisions through April 2009	716.5.2
10C—2009	Positive Pressure Fire Tests of Door Assemblies	716.5.1, 716.5.3, 1010.1.10.1
14B—2008	Sliding Hardware for Standard Horizontally mounted Tin Clad Fire Doors—with Revisions through May 3, 2013	716.5
14C—06	Swinging Hardware for Standard Tin Clad Fire Doors Mounted Singly and in Pairs—with Revisions through May 2013	716.5
55A—04	Materials for Built-Up Roof Coverings	1507.10.2
103—2010	Factory-built Chimneys, for Residential Type and Building Heating Appliances—with Revisions through July 2012	718.2.5.1
127—2011	Factory-built Fireplaces	718.2.5.1, 2111.11
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 April 2012	907.2.11
263—11	Standard for Fire Tests of Building Construction and Materials	703.2, 703.2.1, 703.2.3, 703.3, 703.4, 703.6, 704.12, 705.7, 705.8.5, 707.7, 711.3.2, 714.3.1, 714.4.1.1, 715.1, 716.2, Table 716.3, 716.5.6, 716.5.8.1.1, 716.7.1, 717.5.2, 717.5.3, 717.6.2.1, Table 721.1(1), 1407.10.2, 2103.1, 2603.4, 2603.5.1
268—09	Smoke Detectors for Fire Alarm Systems	407.8, 907.2.6.2, 907.2.11.7
294—1999	Access Control System Units—with Revisions through September 2010	1010.1.9.6, 1010.1.9.8, 1010.1.9.9
300—05(R2010)	Fire Testing of Fire Extinguishing Systems for Protection of Commercial Cooking Equipment—with Revisions through July 16, 2010	904.11
300A—06	Outline of Investigation for Extinguishing System Units for Residential Range Top Cooking Surfaces	407.2.6, 904.13
305—2012	Panic Hardware	1010.1.10.1
325—02	Door, Drapery, Gate, Louver and Window Operations and Systems—with Revisions through June 2013	406.3.6, 3110.4
555—2006	Fire Dampers—with Revisions through May 2012	717.3
555C—2006	Ceiling Dampers—with Revisions through May 2010	717.3
555S—99	Smoke Dampers—with Revisions through May 2012	717.3, 717.3.1
580—2006	Test for Uplift Resistance of Roof Assemblies—with Revisions through July 2009	1504.3.1, 1504.3.2
641—2010	Type L Low-temperature Venting Systems—with Revisions through May 2013	2113.11.1.4
710B—2011	Recirculating Systems	904.11

UL—continued

723—2008	Standard for Test for Surface Burning Characteristics of Building Materials—with Revisions through September 2010	202, 402.6.4.4, 406.7.2, 703.5.2, 720.1, 720.4, 803.1.1, 803.1.4, 803.10, 803.11, 806.7, 1404.12.1, 1407.9, 1407.10.1, 1409.9, 1409.10.1, 1510.6.2, 1510.6.3, 2303.2, 2603.3, 2603.4.1.13, 2606.3.5.4, 2603.7.1, 2603.7.2, 2603.7.3, 2604.2.4, 2606.4, 2612.3, 2614.3, 3105.4
790—04	Standard Test Methods for Fire Tests of Roof Coverings—with Revisions through October 2008	1505.1, 2603.6, 2610.2, 2610.3
793—08	Standards for Automatically Operated Roof Vents for Smoke and Heat—with Revisions through September 2011	406.8.5.1.1, 910.3.1
864—03	Standards for Control Units and Accessories for Fire Alarm Systems—with Revisions through August 2012	421.6.2, 909.12
924—06	Standard for Safety Emergency Lighting and Power Equipment—with Revisions through February 2011	1013.5
1040—96	Fire Test of Insulated Wall Construction—with Revisions through October 2012	1407.10.3, 1409.10.3, 2603.4, 2603.9
1256—02	Fire Test of Roof Deck Construction—with Revisions through January 2007	1508.1, 2603.3, 2603.4.1.5
1479—03	Fire Tests of Through-penetration Firestops—with Revisions through October 2012	202, 714.3.1.2, 714.3.2, 714.4.1.2, 714.4.4
1482—2011	Solid-Fuel-type Room Heaters	2112.2, 2112.5
1703—02	Flat-Plate Photovoltaic Modules and Panels—with Revisions through November 2014	1505.9, 1507.17.1, 1507.17.6, 1509.7.4
1715—97	Fire Test of Interior Finish Material—with Revisions through January 2013	1407.10.3, 1409.10.2, 1409.10.3, 2603.4, 2603.9, 2614.4
1777—2007	Chimney Liners—with Revisions through July 2009	2113.11.1, 2113.19
1784—01	Air Leakage Tests of Door Assemblies—with Revisions through July 2009	710.5.2.2, 710.5.2.2.1, 716.5.3.1, 716.5.7.1, 716.5.7.3, 3006.3, 3007.6.3, 3008.6.3
1897—12	Uplift Tests for Roof Covering Systems	1504.3.1
1975—06	Fire Test of Foamed Plastics Used for Decorative Purposes	402.6.2, 402.6.4.5, 424.2
1994—04	Luminous Egress Path Marking Systems—with Revisions through November 2010	411.7
2017—2008	Standards for General-purpose Signaling Devices and Systems—with Revisions through May 2011	406.8.5.1.1
2034—2008	Standard for Single- and Multiple-Station Carbon Monoxide Alarm—with Revisions through February 2009	915.4.2, 915.4.3
2075—2013	Standard for Gas and Vapor Detectors and Sensors	421.6.2, 406.8.5.1.1, 915.5.1, 915.5.3
2079—04	Tests for Fire Resistance of Building Joint Systems—with Revisions through December 2012	202, 715.3, 715.6
2196—2001	Tests for Fire Resistive Cables—with Revisions through March 2012	913.2.2, 2702.3
2200—2012	Stationary Engine Generator Assemblies—with Revisions through June 2013	2702.1.1

ULC

Underwriters Laboratories of Canada
7 Underwriters Road
Toronto, Ontario, Canada M1R3B4

Standard reference number	Title	Referenced in code section number
CAN/ULC S 102.2—2010	Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings and Miscellaneous Materials and Assemblies—with 2000 Revisions	720.4

USC

United States Code
c/o Superintendent of Documents
U.S. Government Printing Office
732 North Capitol Street NW
Washington, DC 20401

Standard reference number	Title	Referenced in code section number
18 USC Part 1, Ch.40	Importation, Manufacture, Distribution and Storage of Explosive Materials	202

USGBC

U.S. Green Building Council
2101 L Street NW, Suite 500
Washington, DC 20037

Standard reference number	Title	Referenced in code section number
LEED BD+C v.4	New Construction and Major Renovations, Core and Shell, Healthcare, Retail, Schools, Homes and Multifamily Lowrise, Homes Multifamily Midrise	101.10.6.6, 101.10.6.7, 101.10.7.8, 101.10.7.9, 101.12.5.2
LEED ID+C v.4	Commercial Interiors	101.10.6.6, 101.10.6.7, 101.10.7.8, 101.10.7.9, 101.12.5.2
LEED Zero Carbon v.1	LEED Zero Carbon	101.10.6.6, 101.10.7.8
LEED Zero Energy v.1	LEED Zero Energy	101.10.6.7, 101.10.7.9

WCLIB

West Coast Lumber Inspection Bureau
P. O. Box 23145
Portland, OR 97281

Standard reference number	Title	Referenced in code section number
AITC Technical Note 7—96	Calculation of Fire Resistance of Glued Laminated Timbers	722.6.3.3
AITC 104—03	Typical Construction Details	2306.1
AITC 110—01	Standard Appearance Grades for Structural Glued Laminated Timber	2306.1
AITC 113—10	Standard for Dimensions of Structural Glued Laminated Timber	2306.1
AITC 117—10	Standard Specifications for Structural Glued Laminated Timber of Softwood Species	2306.1
AITC 119—96	Standard Specifications for Structural Glued Laminated Timber of Hardwood Species	2306.1
AITC 200—09	Manufacturing Quality Control Systems Manual for Structural Glued Laminated Timber	2306.1

WDMA

Window and Door Manufacturers Association
2025 M Street NW, Suite 800
Washington, DC 20036-3309

Standard reference number	Title	Referenced in code section number
AAMA/WDMA/CSA 101/I.S.2/A440—11	Specifications for Windows, Doors and Unit Skylights	1709.5.1, 2405.5

WRI

Wire Reinforcement Institute, Inc.
942 Main Street, Suite 300
Hartford, CT 06103

Standard reference number	Title	Referenced in code section number
WRI/CRSI—81	Design of Slab-on-ground Foundations—with 1996 Update	1808.6.2

APPENDIX A

EMPLOYEE QUALIFICATIONS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION A101
BUILDING OFFICIAL QUALIFICATIONS

A101.1 Building official. The *building official* shall have at least 10 years' experience or equivalent as an architect, engineer, inspector, contractor or superintendent of construction, or any combination of these, 5 years of which shall have been supervisory experience. The *building official* should be certified as a *building official* through a recognized certification program. The building official shall be appointed or hired by the applicable governing authority.

A101.2 Chief inspector. The *building official* can designate supervisors to administer the provisions of this code and the *Mechanical*, *Plumbing* and *Fuel Gas Codes*. Each supervisor shall have at least 10 years' experience or equivalent as an architect, engineer, inspector, contractor or superintendent of construction, or any combination of these, 5 years of which shall have been in a supervisory capacity. They shall be certified through a recognized certification program for the appropriate trade.

A101.3 Inspector and plans examiner. The *building official* shall appoint or hire such number of officers, inspectors, assistants and other employees as shall be authorized by the jurisdiction. A person shall not be appointed or hired as inspector of construction or plans examiner who has not had at least 5 years' experience as a contractor, engineer, architect, or as a superintendent, foreman or competent mechanic in charge of construction. The inspector or plans examiner shall be certified through a recognized certification program for the appropriate trade.

A101.4 Termination of employment. Employees in the position of *building official*, chief inspector or inspector shall not be removed from office except for cause after full opportunity has been given to be heard on specific charges before such applicable governing authority.

SECTION A102
REFERENCED STANDARDS

IBC—15	International *Building Code*	A101.2
IMC—15	International *Mechanical Code*	A101.2
IPC—15	International Plumbing Code	A101.2
IFGC—15	International *Fuel Gas Code*	A101.2

APPENDIX B

BOARD OF APPEALS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION B101
GENERAL

B101.1 Application. The application for appeal shall be filed on a form obtained from the *building official* within 20 days after the notice was served.

B101.2 Membership of board. The board of appeals shall consist of persons appointed by the chief appointing authority as follows:

1. One for 5 years; one for 4 years; one for 3 years; one for 2 years; and one for 1 year.
2. Thereafter, each new member shall serve for 5 years or until a successor has been appointed.

The *building official* shall be an ex officio member of said board but shall have no vote on any matter before the board.

B101.2.1 Alternate members. The chief appointing authority shall appoint two alternate members who shall be called by the board chairperson to hear appeals during the absence or disqualification of a member. Alternate members shall possess the qualifications required for board membership and shall be appointed for 5 years, or until a successor has been appointed.

B101.2.2 Qualifications. The board of appeals shall consist of five individuals, one from each of the following professions or disciplines:

1. Registered design professional with architectural experience or a builder or superintendent of building construction with at least 10 years' experience, 5 of which shall have been in responsible charge of work.
2. Registered design professional with structural engineering experience.
3. Registered design professional with mechanical and plumbing engineering experience or a mechanical contractor with at least 10 years' experience, 5 of which shall have been in responsible charge of work.
4. Registered design professional with electrical engineering experience or an electrical contractor with at least 10 years' experience, 5 of which shall have been in responsible charge of work.
5. Registered design professional with fire protection engineering experience or a fire protection contractor with at least 10 years' experience, 5 of which shall have been in responsible charge of work.

B101.2.3 Rules and procedures. The board is authorized to establish policies and procedures necessary to carry out its duties.

B101.2.4 Chairperson. The board shall annually select one of its members to serve as chairperson.

B101.2.5 Disqualification of member. A member shall not hear an appeal in which that member has a personal, professional or financial interest.

B101.2.6 Secretary. The chief administrative officer shall designate a qualified clerk to serve as secretary to the board. The secretary shall file a detailed record of all proceedings in the office of the chief administrative officer.

B101.2.7 Compensation of members. Compensation of members shall be determined by law.

B101.3 Notice of meeting. The board shall meet upon notice from the chairperson, within 10 days of the filing of an appeal or at stated periodic meetings.

B101.3.1 Open hearing. All hearings before the board shall be open to the public. The appellant, the appellant's representative, the building official and any person whose interests are affected shall be given an opportunity to be heard.

B101.3.2 Procedure. The board shall adopt and make available to the public through the secretary procedures under which a hearing will be conducted. The procedures shall not require compliance with strict rules of evidence, but shall mandate that only relevant information be received.

B101.3.3 Postponed hearing. When five members are not present to hear an appeal, either the appellant or the appellant's representative shall have the right to request a postponement of the hearing.

B101.4 Board decision. The board shall modify or reverse the decision of the *building official* by a concurring vote of two-thirds of its members.

B101.4.1 Resolution. The decision of the board shall be by resolution. Certified copies shall be furnished to the appellant and to the *building official*.

B101.4.2 Administration. The *building official* shall take immediate action in accordance with the decision of the board.

APPENDIX C

GROUP U—AGRICULTURAL BUILDINGS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION C101
GENERAL

C101.1 Scope. The provisions of this appendix shall apply exclusively to agricultural buildings. Such buildings shall be classified as Group U and shall include the following uses:

1. Livestock shelters or buildings, including shade structures and milking barns.
2. Poultry buildings or shelters.
3. Barns.
4. Storage of equipment and machinery used exclusively in agriculture.
5. Horticultural structures, including detached production greenhouses and crop protection shelters.
6. Sheds.
7. Grain silos.
8. Stables.

SECTION C102
ALLOWABLE HEIGHT AND AREA

C102.1 General. Buildings classified as Group U Agricultural shall not exceed the area or height limits specified in Table C102.1.

C102.2 One-story unlimited area. The area of a one-story Group U agricultural building shall not be limited if the building is surrounded and adjoined by *public ways* or yards not less than 60 feet (18 288 mm) in width.

C102.3 Two-story unlimited area. The area of a two-story Group U agricultural building shall not be limited if the building is surrounded and adjoined by *public ways* or *yards* not less than 60 feet (18 288 mm) in width and is provided with an *approved automatic sprinkler system* throughout in accordance with Section 903.3.1.1.

SECTION C103
MIXED OCCUPANCIES

C103.1 Mixed occupancies. Mixed occupancies shall be protected in accordance with Section 508.

SECTION C104
EXITS

C104.1 Exit facilities. Exits shall be provided in accordance with Chapters 10 and 11.

Exceptions:

1. The maximum travel distance from any point in the building to an approved exit shall not exceed 300 feet (91 440 mm).
2. One exit is required for each 15,000 square feet (1393.5 m^2) of area or fraction thereof.

TABLE C102.1
BASIC ALLOWABLE AREA FOR A GROUP U, ONE STORY IN HEIGHT AND MAXIMUM HEIGHT OF SUCH OCCUPANCY

I		II		III and IV		V	
A	B	A	B	III A and IV	III B	A	B
ALLOWABLE AREA (square feet)[a]							
Unlimited	60,000	27,100	18,000	27,100	18,000	21,100	12,000
MAXIMUM HEIGHT IN STORIES							
Unlimited	12	4	2	4	2	3	2
MAXIMUM HEIGHT IN FEET							
Unlimited	160	65	55	65	55	50	40

For SI: 1 square foot = 0.0929 m^2.

a. See Section C102 for unlimited area under certain conditions.

APPENDIX D
FIRE DISTRICTS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION D101
GENERAL

D101.1 Scope. The fire district shall include such territory or portion as outlined in an ordinance or law entitled "An Ordinance (Resolution) Creating and Establishing a Fire District." Wherever, in such ordinance creating and establishing a fire district, reference is made to the fire district, it shall be construed to mean the fire district designated and referred to in this appendix.

D101.1.1 Mapping. The fire district complying with the provisions of Section D101.1 shall be shown on a map that shall be available to the public.

D101.2 Establishment of area. For the purpose of this code, the fire district shall include that territory or area as described in Sections D101.2.1 through D101.2.3.

D101.2.1 Adjoining blocks. Two or more adjoining blocks, exclusive of intervening streets, where at least 50 percent of the ground area is built upon and more than 50 percent of the built-on area is devoted to hotels and motels of Group R-1; Group B occupancies; theaters, nightclubs, restaurants of Group A-1 and A-2 occupancies; garages, express and freight depots, warehouses and storage buildings used for the storage of finished products (not located with and forming a part of a manufactured or industrial plant); or Group S occupancy. Where the average height of a building is two and one-half *stories* or more, a block should be considered if the ground area built upon is at least 40 percent.

D101.2.2 Buffer zone. Where four contiguous blocks or more comprise a fire district, there shall be a buffer zone of 200 feet (60 960 mm) around the perimeter of such district. Streets, rights-of-way and other open spaces not subject to building construction can be included in the 200-foot (60 960 mm) buffer zone.

D101.2.3 Developed blocks. Where blocks adjacent to the fire district have developed to the extent that at least 25 percent of the ground area is built upon and 40 percent or more of the built-on area is devoted to the occupancies specified in Section D101.2.1, they can be considered for inclusion in the fire district, and can form all or a portion of the 200-foot (60 960 mm) buffer zone required in Section D101.2.2.

SECTION D102
BUILDING RESTRICTIONS

D102.1 Types of construction permitted. Within the fire district every building hereafter erected shall be either Type I, II, III or IV, except as permitted in Section D104.

D102.2 Other specific requirements.

D102.2.1 Exterior walls. Exterior walls of buildings located in the fire district shall comply with the requirements in Table 601 except as required in Section D102.2.6.

D102.2.2 Group H prohibited. Group H occupancies shall be prohibited from location within the fire district.

D102.2.3 Construction type. Every building shall be constructed as required based on the type of construction indicated in Chapter 6.

D102.2.4 Roof covering. Roof covering in the fire district shall conform to the requirements of Class A or B roof coverings as defined in Section 1505.

D102.2.5 Structural fire rating. Walls, floors, roofs and their supporting structural members shall be a minimum of 1-hour fire-resistance-rated construction.

Exceptions:

1. Buildings of Type IV construction.
2. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. Automobile parking structures.
4. Buildings surrounded on all sides by a permanently open space of not less than 30 feet (9144 mm).
5. Partitions complying with Section 603.1, Item 11.

D102.2.6 Exterior walls. Exterior load-bearing walls of Type II buildings shall have a *fire-resistance rating* of 2 hours or more where such walls are located within 30 feet (9144 mm) of a common property line or an assumed property line. Exterior nonload-bearing walls of Type II buildings located within 30 feet (9144 mm) of a common property line or an assumed property line shall have fire-resistance ratings as required by Table 601, but not less than 1 hour. Exterior walls located more than 30 feet (9144 mm) from a common property line or an assumed property line shall comply with Table 601.

Exception: In the case of one-story buildings that are 2,000 square feet (186 m^2) or less in area, exterior walls located more than 15 feet (4572 mm) from a common property line or an assumed property line need only comply with Table 601.

D102.2.7 Architectural trim. Architectural *trim* on buildings located in the fire district shall be constructed of *approved* noncombustible materials or *fire-retardant-treated wood*.

D102.2.8 Permanent canopies. Permanent canopies are permitted to extend over adjacent open spaces provided all of the following are met:

1. The canopy and its supports shall be of noncombustible material, *fire-retardant-treated wood*, Type IV construction or of 1-hour fire-resistance-rated construction.

   Exception: Any textile covering for the canopy shall be flame resistant as determined by tests conducted in accordance with NFPA 701 after both accelerated water leaching and accelerated weathering.
2. Any canopy covering, other than textiles, shall have a *flame spread index* not greater than 25 when tested in accordance with ASTM E84 or UL 723 in the form intended for use.
3. The canopy shall have at least one long side open.
4. The maximum horizontal width of the canopy shall not exceed 15 feet (4572 mm).
5. The *fire resistance* of *exterior walls* shall not be reduced.

D102.2.9 Roof structures. Structures, except aerial supports 12 feet (3658 mm) high or less, flagpoles, water tanks and cooling towers, placed above the roof of any building within the fire district shall be of noncombustible material and shall be supported by construction of noncombustible material.

D102.2.10 Plastic signs. The use of plastics complying with Section 2611 for signs is permitted provided the structure of the sign in which the plastic is mounted or installed is noncombustible.

D102.2.11 Plastic veneer. Exterior plastic veneer is not permitted in the fire district.

SECTION D103
CHANGES TO BUILDINGS

D103.1 Existing buildings within the fire district. An existing building shall not hereafter be increased in height or area unless it is of a type of construction permitted for new buildings within the fire district or is altered to comply with the requirements for such type of construction. Nor shall any existing building be hereafter extended on any side, nor square footage or floors added within the existing building unless such modifications are of a type of construction permitted for new buildings within the fire district.

D103.2 Other alterations. Nothing in Section D103.1 shall prohibit other alterations within the fire district provided there is no change of occupancy that is otherwise prohibited and the fire hazard is not increased by such *alteration*.

D103.3 Moving buildings. Buildings shall not hereafter be moved into the fire district or to another lot in the fire district unless the building is of a type of construction permitted in the fire district.

SECTION D104
BUILDINGS LOCATED PARTIALLY IN THE FIRE DISTRICT

D104.1 General. Any building located partially in the fire district shall be of a type of construction required for the fire district, unless the major portion of such building lies outside of the fire district and no part is more than 10 feet (3048 mm) inside the boundaries of the fire district.

SECTION D105
EXCEPTIONS TO RESTRICTIONS IN FIRE DISTRICT

D105.1 General. The preceding provisions of this appendix shall not apply in the following instances:

1. Temporary buildings used in connection with duly authorized construction.
2. A private garage used exclusively as such, not more than one *story* in height, nor more than 650 square feet (60 m^2) in area, located on the same lot with a *dwelling*.
3. Fences not over 8 feet (2438 mm) high.
4. Coal tipples, material bins and trestles of Type IV construction.
5. Water tanks and cooling towers conforming to Sections 1509.3 and 1509.4.
6. Greenhouses less than 15 feet (4572 mm) high.
7. Porches on dwellings not over one *story* in height, and not over 10 feet (3048 mm) wide from the face of the building, provided such porch does not come within 5 feet (1524 mm) of any property line.
8. Sheds open on a long side not over 15 feet (4572 mm) high and 500 square feet (46 m^2) in area.
9. One- and two-family *dwellings* where of a type of construction not permitted in the fire district can be extended 25 percent of the floor area existing at the time of inclusion in the fire district by any type of construction permitted by this code.
10. Wood decks less than 600 square feet (56 m^2) where constructed of 2-inch (51 mm) nominal wood, pressure treated for exterior use.
11. Wood veneers on *exterior walls* conforming to Section 1405.5.
12. Exterior plastic veneer complying with Section 2605.2 where installed on exterior walls required to have a *fire-resistance rating* not less than 1 hour, provided the exterior plastic veneer does not exhibit sustained flaming as defined in NFPA 268.

SECTION D106
REFERENCED STANDARDS

ASTM E84—2013A	Test Method for Surface Burning Characteristics of Building Materials	D102.2.8
NFPA 268—12	Test Method for Determining Ignitability of Exterior Wall Assemblies Using a Radiant Heat Energy Source	D105.1
NFPA 701—10	Methods of Fire Tests for Flame-Propagation of Textiles and Films	D102.2.8
UL 723—08	Standard for Test for Surface Burning Characteristics of Building Materials, with Revisions through September 2010	D102.2.8

APPENDIX E

SUPPLEMENTARY ACCESSIBILITY REQUIREMENTS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION E101
GENERAL

E101.1 Scope. The provisions of this appendix shall control the supplementary requirements for the design and construction of facilities for *accessibility* for individuals with disabilities.

E101.2 Design. Technical requirements for items herein shall comply with this code and ICC A117.1.

SECTION E102
DEFINITIONS

E102.1 General. The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of this code for general definitions.

CLOSED-CIRCUIT TELEPHONE. A telephone with a dedicated line such as a house phone, courtesy phone or phone that must be used to gain entrance to a facility.

MAILBOXES. Receptacles for the receipt of documents, packages or other deliverable matter. *Mailboxes* include, but are not limited to, post office boxes and receptacles provided by commercial mail-receiving agencies, apartment houses and schools.

TRANSIENT LODGING. A building, facility or portion thereof, excluding inpatient medical care facilities and long-term care facilities, that contains one or more *dwelling units* or *sleeping units*. Examples of *transient lodging* include, but are not limited to, resorts, group homes, hotels, motels, dormitories, homeless shelters, halfway houses and social service lodging.

TTY. An abbreviation for teletypewriter. Machinery that employs interactive text-based communication through the transmission of coded signals across the telephone network. TTYs may include, for example, devices known as TDDs (telecommunication display devices or telecommunication devices for deaf persons), or computers with special modems. TTYs are also called text telephones.

SECTION E103
ACCESSIBLE ROUTE

E103.1 Raised platforms. In banquet rooms or spaces where a head table or speaker's lectern is located on a raised platform, an *accessible* route shall be provided to the platform.

SECTION E104
SPECIAL OCCUPANCIES

E104.1 General. *Transient lodging* facilities shall be provided with *accessible* features in accordance with Sections E104.2 and E104.3. Group I-3 occupancies shall be provided with *accessible* features in accordance with Section E104.2.

E104.2 Communication features. *Accessible* communication features shall be provided in accordance with Sections E104.2.1 through E104.2.4.

E104.2.1 Transient lodging. In *transient lodging* facilities, *sleeping units* with *accessible* communication features shall be provided in accordance with Table E104.2.1. Units required to comply with Table E104.2.1 shall be dispersed among the various classes of units.

TABLE E104.2.1
DWELLING OR SLEEPING UNITS WITH ACCESSIBLE COMMUNICATION FEATURES

TOTAL NUMBER OF DWELLING OR SLEEPING UNITS PROVIDED	MINIMUM REQUIRED NUMBER OF DWELLING OR SLEEPING UNITS WITH ACCESSIBLE COMMUNICATION FEATURES
1	1
2 to 25	2
26 to 50	4
51 to 75	7
76 to 100	9
101 to 150	12
151 to 200	14
201 to 300	17
301 to 400	20
401 to 500	22
501 to 1,000	5% of total
1,001 and over	50 plus 3 for each 100 over 1,000

E104.2.2 Group I-3. In Group I-3 occupancies at least 2 percent, but no fewer than one of the total number of general holding cells and general housing cells equipped with audible *emergency alarm systems* and permanently installed telephones within the cell, shall comply with Section E104.2.4.

E104.2.3 Dwelling units and sleeping units. Where *dwelling units* and *sleeping units* are altered or added, the requirements of Section E104.2 shall apply only to the units being altered or added until the number of units with *accessible* communication features complies with the minimum number required for new construction.

E104.2.4 Notification devices. Visual notification devices shall be provided to alert room occupants of incoming telephone calls and a door knock or bell. Notification devices shall not be connected to visual alarm signal appliances. Permanently installed telephones shall have volume controls and an electrical outlet complying with ICC A117.1 located within 48 inches (1219 mm) of the telephone to facilitate the use of a TTY.

E104.3 Vanity countertop space. In *transient lodging* facilities, if vanity countertop space is provided in toilet or bathing rooms serving sleeping units that are not required to be *accessible*, *accessible* vanity countertop space, comparable in terms of size and proximity to the lavatory, shall also be provided in *toilet rooms* or *bathrooms* serving *accessible units.*

SECTION E105
OTHER FEATURES AND FACILITIES

E105.1 Portable toilets and bathing rooms. Where multiple single-user portable toilet or bathing units are clustered at a single location, at least 5 percent, but not less than one toilet unit or bathing unit at each cluster, shall be *accessible*. Signs containing the International Symbol of Accessibility shall identify *accessible* portable toilets and bathing units.

Exception: Portable toilet units provided for use exclusively by construction personnel on a construction site.

E105.2 Laundry equipment. Where provided in spaces required to be *accessible*, washing machines and clothes dryers shall comply with this section.

E105.2.1 Washing machines. Where three or fewer washing machines are provided, at least one shall be *accessible*. Where more than three washing machines are provided, at least two shall be *accessible*.

E105.2.2 Clothes dryers. Where three or fewer clothes dryers are provided, at least one shall be *accessible*. Where more than three clothes dryers are provided, at least two shall be *accessible*.

E105.3 Gaming machines, depositories, vending machines, change machines and similar equipment. At least one of each type of depository, vending machine, change machine and similar equipment shall be *accessible*. Two percent of gaming machines shall be *accessible* and provided with a front approach. *Accessible* gaming machines shall be distributed throughout the different types of gaming machines provided.

Exception: Drive-up-only depositories are not required to comply with this section.

E105.4 Mailboxes. Where *mailboxes* are provided in an interior location, at least 5 percent, but not less than one, of each type shall be *accessible*. In residential and institutional facilities, where *mailboxes* are provided for each *dwelling unit* or *sleeping unit*, *accessible mailboxes* shall be provided for each unit required to be an *Accessible unit*.

E105.5 Automatic teller machines and fare machines. Where automatic teller machines or self-service fare vending, collection or adjustment machines are provided, at least one machine of each type at each location where such machines are provided shall be *accessible*. Where bins are provided for envelopes, wastepaper or other purposes, at least one of each type shall be *accessible*.

E105.6 Two-way communication systems. Where two-way communication systems are provided to gain admittance to a building or facility or to restricted areas within a building or facility, the system shall be *accessible*.

SECTION E106
TELEPHONES

E106.1 General. Where coin-operated public pay telephones, coinless public pay telephones, public *closed-circuit telephones*, courtesy phones or other types of public telephones are provided, *accessible* public telephones shall be provided in accordance with Sections E106.2 through E106.5 for each type of public telephone provided. For purposes of this section, a bank of telephones shall be considered two or more adjacent telephones.

E106.2 Wheelchair-accessible telephones. Where public telephones are provided, wheelchair-accessible telephones shall be provided in accordance with Table E106.2.

Exception: Drive-up-only public telephones are not required to be *accessible*.

TABLE E106.2
WHEELCHAIR-ACCESSIBLE TELEPHONES

NUMBER OF TELEPHONES PROVIDED ON A FLOOR, LEVEL OR EXTERIOR SITE	MINIMUM REQUIRED NUMBER OF WHEELCHAIR-ACCESSIBLE TELEPHONES
1 or more single unit	1 per floor, level and exterior site
1 bank	1 per floor, level and exterior site
2 or more banks	1 per bank

E106.3 Volume controls. All public telephones provided shall have *accessible* volume control.

E106.4 TTYs. TTYs shall be provided in accordance with Sections E106.4.1 through E106.4.9.

E106.4.1 Bank requirement. Where four or more public pay telephones are provided at a bank of telephones, at least one public TTY shall be provided at that bank.

Exception: TTYs are not required at banks of telephones located within 200 feet (60 960 mm) of, and on the same floor as, a bank containing a public TTY.

E106.4.2 Floor requirement. Where four or more public pay telephones are provided on a floor of a privately owned building, at least one public TTY shall be provided on that floor. Where at least one public pay telephone is provided on a floor of a publicly owned building, at least one public TTY shall be provided on that floor.

E106.4.3 Building requirement. Where four or more public pay telephones are provided in a privately owned building, at least one public TTY shall be provided in the building. Where at least one public pay telephone is provided in a publicly owned building, at least one public TTY shall be provided in the building.

E106.4.4 Site requirement. Where four or more public pay telephones are provided on a site, at least one public TTY shall be provided on the site.

E106.4.5 Rest stops, emergency road stops and service plazas. Where a public pay telephone is provided at a public rest stop, emergency road stop or service plaza, at least one public TTY shall be provided.

E106.4.6 Hospitals. Where a public pay telephone is provided in or adjacent to a hospital emergency room, hospital recovery room or hospital waiting room, at least one public TTY shall be provided at each such location.

E106.4.7 Transportation facilities. Transportation facilities shall be provided with TTYs in accordance with Sections E109.2.5 and E110.2 in addition to the TTYs required by Sections E106.4.1 through E106.4.4.

E106.4.8 Detention and correctional facilities. In detention and correctional facilities, where a public pay telephone is provided in a secured area used only by detainees or inmates and security personnel, then at least one TTY shall be provided in at least one secured area.

E106.4.9 Signs. Public TTYs shall be identified by the International Symbol of TTY complying with ICC A117.1. Directional signs indicating the location of the nearest public TTY shall be provided at banks of public pay telephones not containing a public TTY. Additionally, where signs provide direction to public pay telephones, they shall also provide direction to public TTYs. Such signs shall comply with visual signage requirements in ICC A117.1 and shall include the International Symbol of TTY.

E106.5 Shelves for portable TTYs. Where a bank of telephones in the interior of a building consists of three or more public pay telephones, at least one public pay telephone at the bank shall be provided with a shelf and an electrical outlet.

Exceptions:

1. In secured areas of detention and correctional facilities, if shelves and outlets are prohibited for purposes of security or safety shelves and outlets for TTYs are not required to be provided.
2. The shelf and electrical outlet shall not be required at a bank of telephones with a TTY.

SECTION E107
SIGNAGE

E107.1 Signs. Required *accessible* portable toilets and bathing facilities shall be identified by the International Symbol of Accessibility.

E107.2 Designations. Interior and exterior signs identifying permanent rooms and spaces shall be visual characters, raised characters and braille complying with ICC A117.1. Where pictograms are provided as designations of interior rooms and spaces, the pictograms shall have visual characters, raised characters and braille complying with ICC A117.1.

Exceptions:

1. Exterior signs that are not located at the door to the space they serve are not required to comply.
2. Building directories, menus, seat and row designations in assembly areas, occupant names, building addresses and company names and logos are not required to comply.
3. Signs in parking facilities are not required to comply.
4. Temporary (seven days or less) signs are not required to comply.
5. In detention and correctional facilities, signs not located in public areas are not required to comply.

E107.3 Directional and informational signs. Signs that provide direction to, or information about, permanent interior spaces of the site and facilities shall contain visual characters complying with ICC A117.1.

Exception: Building directories, personnel names, company or occupant names and logos, menus and temporary (seven days or less) signs are not required to comply with ICC A117.1.

E107.4 Other signs. Signage indicating special accessibility provisions shall be provided as follows:

1. At bus stops and terminals, signage must be provided in accordance with Section E108.4.
2. At fixed facilities and stations, signage must be provided in accordance with Sections E109.2.2 through E109.2.2.3.
3. At airports, terminal information systems must be provided in accordance with Section E110.3.

SECTION E108
BUS STOPS

E108.1 General. Bus stops shall comply with Sections E108.2 through E108.5.

E108.2 Bus boarding and alighting areas. Bus boarding and alighting areas shall comply with Sections E108.2.1 through E108.2.4.

E108.2.1 Surface. Bus boarding and alighting areas shall have a firm, stable surface.

E108.2.2 Dimensions. Bus boarding and alighting areas shall have a clear length of 96 inches (2440 mm) minimum, measured perpendicular to the curb or vehicle roadway edge, and a clear width of 60 inches (1525 mm) minimum, measured parallel to the vehicle roadway.

E108.2.3 Connection. Bus boarding and alighting areas shall be connected to streets, sidewalks or pedestrian paths by an *accessible route* complying with Section 1104.

E108.2.4 Slope. Parallel to the roadway, the slope of the bus boarding and alighting area shall be the same as the roadway, to the maximum extent practicable. For water drainage, a maximum slope of 1:48 perpendicular to the roadway is allowed.

E108.3 Bus shelters. Where provided, new or replaced bus shelters shall provide a minimum clear floor or ground space complying with ICC A117.1, Section 305, entirely within the shelter. Such shelters shall be connected by an *accessible route* to the boarding area required by Section E108.2.

E108.4 Signs. New bus route identification signs shall have finish and contrast complying with ICC A117.1. Additionally, to the maximum extent practicable, new bus route identification signs shall provide visual characters complying with ICC A117.1.

Exception: Bus schedules, timetables and maps that are posted at the bus stop or bus bay are not required to meet this requirement.

E108.5 Bus stop siting. Bus stop sites shall be chosen such that, to the maximum extent practicable, the areas where lifts or ramps are to be deployed comply with Sections E108.2 and E108.3.

SECTION E109
TRANSPORTATION FACILITIES AND STATIONS

E109.1 General. Fixed transportation facilities and stations shall comply with the applicable provisions of Section E109.2.

E109.2 New construction. New stations in rapid rail, light rail, commuter rail, intercity rail, high speed rail and other fixed guideway systems shall comply with Sections E109.2.1 through E109.2.8.

E109.2.1 Station entrances. Where different entrances to a station serve different transportation fixed routes or groups of fixed routes, at least one entrance serving each group or route shall comply with Section 1104.

E109.2.2 Signs. Signage in fixed transportation facilities and stations shall comply with Sections E109.2.2.1 through E109.2.2.3.

E109.2.2.1 Raised character and braille signs. Where signs are provided at entrances to stations identifying the station or the entrance, or both, at least one sign at each entrance shall be raised characters and braille. A minimum of one raised character and braille sign identifying the specific station shall be provided on each platform or boarding area. Such signs shall be placed in uniform locations at entrances and on platforms or boarding areas within the transit system to the maximum extent practicable.

Exceptions:

1. Where the station has no defined entrance but signs are provided, the raised characters and braille signs shall be placed in a central location.
2. Signs are not required to be raised characters and braille where audible signs are remotely transmitted to hand-held receivers, or are user or proximity actuated.

E109.2.2.2 Identification signs. Stations covered by this section shall have identification signs containing visual characters complying with ICC A117.1. Signs shall be clearly visible and within the sightlines of a standing or sitting passenger from within the train on both sides when not obstructed by another train.

E109.2.2.3 Informational signs. Lists of stations, routes and destinations served by the station that are located on boarding areas, *platforms* or *mezzanines* shall provide visual characters complying with ICC A117.1. Signs covered by this provision shall, to the maximum extent practicable, be placed in uniform locations within the transit system.

E109.2.3 Fare machines. Self-service fare vending, collection and adjustment machines shall comply with ICC A117.1, Section 707. Where self-service fare vending, collection or adjustment machines are provided for the use of the general public, at least one *accessible* machine of each type provided shall be provided at each *accessible* point of entry and *exit*.

E109.2.4 Rail-to-platform height. Station platforms shall be positioned to coordinate with vehicles in accordance with the applicable provisions of 36 CFR, Part 1192. Low-level platforms shall be 8 inches (250 mm) minimum above top of rail.

Exception: Where vehicles are boarded from sidewalks or street level, low-level platforms shall be permitted to be less than 8 inches (250 mm).

E109.2.5 TTYs. Where a public pay telephone is provided in a transit facility (as defined by the Department of Transportation), at least one public TTY complying with ICC A117.1, Section 704.4, shall be provided in the station. In addition, where one or more public pay telephones serve a particular entrance to a transportation facility, at least one TTY telephone complying with ICC A117.1, Section 704.4, shall be provided to serve that entrance.

E109.2.6 Track crossings. Where a circulation path serving boarding platforms crosses tracks, an *accessible* route shall be provided.

Exception: Openings for wheel flanges shall be permitted to be $2^{1}/_{2}$ inches (64 mm) maximum.

E109.2.7 Public address systems. Where public address systems convey audible information to the public, the same or equivalent information shall be provided in a visual format.

E109.2.8 Clocks. Where clocks are provided for use by the general public, the clock face shall be uncluttered so that its elements are clearly visible. Hands, numerals and digits shall contrast with the background either light-on-dark or dark-on-light. Where clocks are mounted overhead, numerals and digits shall comply with visual character requirements.

SECTION E110
AIRPORTS

E110.1 New construction. New construction of airports shall comply with Sections E110.2 through E110.4.

E110.2 TTYs. Where public pay telephones are provided, at least one TTY shall be provided in compliance with ICC A117.1, Section 704.4. Additionally, if four or more public pay telephones are located in a main terminal outside the security areas, a concourse within the security areas or a baggage claim area in a terminal, at least one public TTY complying with ICC A117.1, Section 704.4, shall also be provided in each such location.

E110.3 Terminal information systems. Where terminal information systems convey audible information to the public, the same or equivalent information shall be provided in a visual format.

E110.4 Clocks. Where clocks are provided for use by the general public, the clock face shall be uncluttered so that its elements are clearly visible. Hands, numerals and digits shall contrast with the background either light-on-dark or dark-on-light. Where clocks are mounted overhead, numerals and digits shall comply with visual character requirements.

SECTION E111
REFERENCED STANDARDS

DOJ 36 CFR Part 1192	Americans with Disabilities Act (ADA) Accessibility Guidelines for Transportation Vehicles (ADAAG). Washington, DC: Department of Justice, 1991	E109.2.4
IBC-15	*International Building Code*	E102.1
ICC A117.1-09	Accessible and Usable Buildings and Facilities	E101.2, E104.2.4, E106.4.9, E107.2, E107.3, E108.3, E108.4, E109.2.2.2, E109.2.2.3, E109.2.3, E109.2.5, E110.2

APPENDIX F

RODENTPROOFING

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION F101
GENERAL

F101.1 General. Buildings or structures and the walls enclosing habitable or occupiable rooms and spaces in which persons live, sleep or work, or in which feed, food or foodstuffs are stored, prepared, processed, served or sold, shall be constructed in accordance with the provisions of this section.

F101.2 Foundation wall ventilation openings. Foundation wall ventilation openings shall be covered for their height and width with perforated sheet metal plates no less than 0.070 inch (1.8 mm) thick, expanded sheet metal plates not less than 0.047 inch (1.2 mm) thick, cast-iron grills or grating, extruded aluminum load-bearing vents or with hardware cloth of 0.035 inch (0.89 mm) wire or heavier. The openings therein shall not exceed $^1/_4$ inch (6.4 mm).

F101.3 Foundation and exterior wall sealing. Annular spaces around pipes, electric cables, conduits or other openings in the walls shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry or noncorrosive metal.

F101.4 Doors. Doors on which metal protection has been applied shall be hinged so as to be free swinging. When closed, the maximum clearance between any door, door jambs and sills shall be not greater than $^3/_8$ inch (9.5 mm).

F101.5 Windows and other openings. Windows and other openings for the purpose of light or ventilation located in exterior walls within 2 feet (610 mm) above the existing ground level immediately below such opening shall be covered for their entire height and width, including frame, with hardware cloth of at least 0.035-inch (0.89 mm) wire or heavier.

F101.5.1 Rodent-accessible openings. Windows and other openings for the purpose of light and ventilation in the exterior walls not covered in this chapter, accessible to rodents by way of exposed pipes, wires, conduits and other appurtenances, shall be covered with wire cloth of at least 0.035-inch (0.89 mm) wire. In lieu of wire cloth covering, said pipes, wires, conduits and other appurtenances shall be blocked from rodent usage by installing solid sheet metal guards 0.024 inch (0.61 mm) thick or heavier. Guards shall be fitted around pipes, wires, conduits or other appurtenances. In addition, they shall be fastened securely to and shall extend perpendicularly from the exterior wall for a minimum distance of 12 inches (305 mm) beyond and on either side of pipes, wires, conduits or appurtenances.

F101.6 Pier and wood construction.

F101.6.1 Sill less than 12 inches above ground. Buildings not provided with a continuous foundation shall be provided with protection against rodents at grade by providing either an apron in accordance with Section F101.6.1.1 or a floor slab in accordance with Section F101.6.1.2.

F101.6.1.1 Apron. Where an apron is provided, the apron shall be not less than 8 inches (203 mm) above, nor less than 24 inches (610 mm) below, grade. The apron shall not terminate below the lower edge of the siding material. The apron shall be constructed of an approved nondecayable, water-resistant rodentproofing material of required strength and shall be installed around the entire perimeter of the building. Where constructed of masonry or concrete materials, the apron shall be not less than 4 inches (102 mm) in thickness.

F101.6.1.2 Grade floors. Where continuous concrete-grade floor slabs are provided, open spaces shall not be left between the slab and walls, and openings in the slab shall be protected.

F101.6.2 Sill at or above 12 inches above ground. Buildings not provided with a continuous foundation and that have sills 12 inches (305 mm) or more above ground level shall be provided with protection against rodents at grade in accordance with any of the following:

1. Section F101.6.1.1 or F101.6.1.2.
2. By installing solid sheet metal collars at least 0.024 inch (0.6 mm) thick at the top of each pier or pile and around each pipe, cable, conduit, wire or other item that provides a continuous pathway from the ground to the floor.
3. By encasing the pipes, cables, conduits or wires in an enclosure constructed in accordance with Section F101.6.1.1.

APPENDIX G
FLOOD-RESISTANT CONSTRUCTION

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION G101
ADMINISTRATION

G101.1 Purpose. The purpose of this appendix is to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific *flood hazard areas* through the establishment of comprehensive regulations in the *Construction Codes* for management of construction activities in *flood hazard areas* that meet the requirements of the National Flood Insurance Program for District of Columbia participation as set forth in the Code of Federal Regulations, Title 44, Section 59.22.

G101.2 Floodplain Management Regulations of the District of Columbia. The flood-resistant construction provisions of the *Construction Codes*, including this appendix, in combination with the Department of Energy and Environment (DOEE)'s flood resilience rules, set forth in Title 20, Chapter 31 of the District of Columbia Municipal Regulations (DCMR) (DOEE Flood Resilience Rules), and Section 6-502 of the DC Official Code (2018 Repl.), comprise the *Floodplain Management Regulations of the District of Columbia*. The *Floodplain Administrator* retains all floodplain management responsibilities that are not assigned to the *code official*.

G101.2.1 Conflict between DOEE Flood Resilience Rules and Flood-Resistant Construction Provisions of the Construction Codes. The flood-resistant construction provisions of the *Construction Codes*, including but not limited to those set forth in Chapter 1 and Appendix G of the *Building Code*, are intended to meet requirements necessary for the District of Columbia to participate in the National Flood Insurance Program, and shall take precedence over any provisions in Title 20, Chapter 31 of the DCMR that apply to proposed *development* of a *development site* located wholly or partially within a *flood hazard area* that is within the scope of Appendix G, except to the extent that Appendix G requires the *code official* to seek review, approval and/or involvement by the *Floodplain Administrator*. Floodplain management responsibilities delegated by Appendix G to the *building code official*, include, but are not limited to, permitting of work in *flood hazard areas* and inspection of work in *flood hazard areas* for which permits have been issued.

G101.3 Objectives. The objectives of this appendix, in combination with the flood-resistant construction provisions of the *Construction Codes*, are to protect human life, minimize the expenditure of public money for flood control projects, minimize the need for rescue and relief efforts associated with flooding, minimize prolonged business interruption, minimize damage to public facilities and utilities, help maintain a stable tax base by providing for the sound use and development of flood-prone areas, contribute to improved construction techniques in the floodplain and ensure that potential owners and occupants are notified that property is within *flood hazard areas*.

G101.4 Scope. The provisions of this appendix, in combination with the flood-resistant construction provisions of the *Construction Codes*, shall apply to all proposed development on a development site that is wholly or partially within a *flood hazard area* established in 20 DCMR, Chapter 31, including certain work exempt from permit under Section 105.2 of the *Building Code*, 12-A DCMR.

G101.5 Administration and enforcement. The administrative and enforcement provisions of Chapter 1 of the *Building Code*, 12-A DCMR, shall apply to any development within the scope of this appendix, and to any permits and inspections relating thereto.

G101.6 Violations. Any violation of a provision of this appendix, or failure to comply with a *permit* or code modification associated with a permit issued pursuant to this appendix or any requirement of this appendix, shall be handled in accordance with the administration and enforcement provisions set forth in Chapter 1 of the *Building Code*, 12-A DCMR.

G101.7 Warning. The degree of flood protection required by the *Floodplain Management Regulations of the District of Columbia* is considered the minimum reasonable degree of protection for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur. Flood heights may be increased by man-made or natural causes. This appendix does not imply that land outside of mapped *flood hazard areas*, or that uses permitted within such *flood hazard areas*, will be free from flooding or flood damage. No guarantee of vested use, existing use, or future use is implied or expressed by compliance with the *Floodplain Management Regulations of the District of Columbia*.

G101.8 Disclaimer of liability. The *Floodplain Management Regulations of the District of Columbia* shall not create liability on the part of the District of Columbia or by any official or employee thereof for any flood damage that results from reliance on the *Floodplain Management Regulations of the District of Columbia* or any administrative decision lawfully made thereunder.

SECTION G102
APPLICABILITY

G102.1 General. This appendix, in conjunction with the *Construction Codes*, provides minimum requirements for *development* on a *development site* located wholly or partially within a *flood hazard area*.

G102.2 Establishment of flood hazard areas. *Flood hazard areas* are established in 20 DCMR, Chapter 31.

SECTION G103
POWERS AND DUTIES

G103.1 Permit applications. The *code official* shall review all *permit* applications to determine whether the proposed *development* is located on a *development site* that is wholly or partially within *flood hazard areas* established in Section G102.2. Where a proposed *development site* is located wholly or partially within a *flood hazard area*, all development to which this appendix is applicable as specified in Section G102.1 shall be designed and constructed with methods, practices and materials that minimize *flood* damage and that are in accordance with the *Construction Codes* and ASCE 24.

G103.1.1 Determinations of substantial improvement and substantial damage. For applications for reconstruction, rehabilitation, *repair*, *alteration*, *addition* or other improvement of existing buildings or structures located in *flood hazard areas*, the *code official*, in coordination with the *Floodplain Administrator*, shall determine if the proposed work constitutes *substantial improvement* or *repair* of *substantial damage*. Where the *code official* determines that the proposed work constitutes *substantial improvement* or *repair* of *substantial damage*, and where required by the *Construction Codes*, the *code official* shall require the *building* or *structure* to meet the flood-resistant construction requirements of the *Construction Codes,* as applicable. The *code official's* determinations of *substantial damage* and *substantial improvement* shall be subject to review by the *Floodplain Administrator*, and receipt of recommendations and comments from the *Floodplain Administrator* regarding disposition of the application by the *code official*.

G103.1.1.1 Authority to request data. The *code official* shall have authority to request submission by a permit applicant of any information or documentation that the code official deems necessary to make a determination of *substantial improvement* and *substantial damage*, including but not limited to estimates of the improvement or repair costs pursuant to the methodology set forth in the *Substantial Improvement/Substantial Damage Desk Reference*.

G103.2 Determination of design flood elevations. *Design flood elevations* shall be reviewed and approved by the *Floodplain Administrator* in accordance with 20 DCMR. If *design flood elevations* are not specified on the FIRM, the *code official* is authorized to require the applicant to do either of the following:

1. Obtain, review and reasonably utilize data available from a federal, state or other source.
2. Determine the *design flood elevation* in accordance with accepted hydrologic and hydraulic engineering techniques. Such analyses shall be performed and sealed by a *registered design professional*. Studies, analyses and computations shall be submitted in sufficient detail to allow review and approval by the *code official*. The accuracy of data submitted for such determination shall be the responsibility of the applicant.

G103.3 Activities in riverine flood hazard areas. In riverine *flood hazard areas* where design flood elevations are specified but *floodways* have not been designated, the *code official* shall not permit any new construction, substantial improvement or other *development*, including fill, on a *development site*, unless the applicant submits an engineering analysis prepared by a *registered design professional* in accordance with Section 1612.3.2; and such analysis is reviewed and approved by the *Floodplain Administrator* pursuant to 20 DCMR, Chapter 31.

G103.4 Floodway encroachment. Prior to issuing a *permit* for any *floodway encroachment*, including fill, new construction, *substantial improvements* and other *development* or land-disturbing activity, the applicant shall submit a "no-rise" certification, prepared by a *registered design professional*, along with supporting technical data, demonstrating that such *development* will not cause any increase of the *base flood* level. The *code official* shall refer the certification to the *Floodplain Administrator* for review and approval before issuing a permit for any *floodway encroachment*.

G103.5 Watercourse alteration. Authorization to alter or relocate any watercourse shall be obtained from the *Floodplain Administrator* pursuant to 20 DCMR, Chapter 31.

G103.6 Review and consultation by Floodplain Administrator. No permit application within the scope of this appendix and the flood-resistant construction provisions of the *Construction Codes* shall be granted without review by the *Floodplain Administrator*. The *Floodplain Administrator* shall review applications and make recommendations to the *code official* pursuant to his or her responsibilities as set forth in 20 DCMR, Chapter 31.

G103.7 Coordination of duties. The *code official* and the *Floodplain Administrator* shall coordinate duties and responsibilities relating to *development* on a *development site* located wholly or partially within a *flood hazard area* as necessary to achieve compliance with the requirements of the National Flood Insurance Program for District of Columbia participation (Title 44 CFR, Section 59.22), and to streamline the permitting and inspection process for such *development*, consistent with this appendix.

G103.8 Records. The *code official* shall comply with the record retention requirements applicable to *permits* and associated documentation related to *development* on a *development site* wholly or partially within a *flood hazard area*, as set forth in 12-A DCMR, Section 104.7.

SECTION G104
PERMITS

G104.1 Required. Any *person*, owner or *owner's* authorized agent who intends to conduct any *development* of a *development site* located wholly or partially within a *flood hazard area* shall first make application to the *code official* and shall obtain the required *permit* in accordance with the administrative procedures set forth in Chapter 1 of the *Building Code* and this appendix.

G104.2 Application for permit. All applications proposing *development* of a *development site* located wholly or partially within a *flood hazard area* that is within the scope of this appendix shall comply with the requirements of the *Building Code*, 12-A DCMR, Sections 105 and 106, and this appendix.

G104.2.1 Additional information and data required. Permit applications within the scope of this appendix shall, in addition to the information and data required by Sections 105 and 106 of the *Building Code*, include the following additional information and data, as applicable:

1. A site plan showing the delineation of *flood hazard areas*, *floodway* boundaries, *base flood elevation*(s), flood zones, *design flood elevations*, ground elevations, proposed fill and excavation and drainage patterns and facilities. Where not included on the *Flood Insurance Rate Map* (FIRM) or in the *Flood Insurance Study*, *base flood elevations* or *floodway* data shall be established in accordance with Section G103.2 of this appendix.
2. For proposed developments with more than 50 *tax lots* or *record lots* or larger than 5 acres (20 234 m²), *base flood elevation* data in accordance with Section G103.2 if such data are not identified for the *flood hazard areas* established in 20 DCMR, Chapter 31. Where the *base flood elevations* are not included on the *FIRM* or in the *Flood Insurance Study*, such elevations shall be established in accordance with Section G103.3.
3. Location of the proposed work and proposed structures, and locations of existing buildings and structures.
4. Location, extent, amount, and proposed final grades of any filling, grading, or excavation.
5. Where the placement of fill is proposed, the amount, type, and source of fill material; compaction specifications; a description of the intended purpose of the fill areas; and evidence that the proposed fill areas are the minimum necessary to achieve the intended purpose.
6. Existing watercourse[s] and approval by the *Floodplain Administrator* for any proposed alignment or proposed alteration thereof in accordance with Section G103.5.
7. Information or data deemed necessary by the *code official* to make determinations of *substantial improvement* or *substantial damage*.
8. "No-rise" certification for *floodway encroachments* in accordance with Section G103.4, as applicable.
9. A *floodway* analysis for riverine *flood hazard areas* in accordance with G103.3, as applicable.
10. Elevation Certificate(s) as required by Sections 105.3.2 and 1612.5.
11. Floodproofing Certificate(s) as required by Sections 105.3.2 and 1612.5.
12. *Letter of Map Change*, if applicable.
13. An approved code modification in accordance with Section G105 for mixed-use projects with Residential Group R occupancies proposing underground garages located in *basements (for flood loads)*.
14. Such other data and information as required by the *code official*.

G104.3 Validity of permit. The issuance of a *permit* under this appendix shall not be construed to be a *permit* for, or approval of, any violation of this appendix or any other District of Columbia law or regulation. The issuance of a *permit* based on submitted documents and information shall not prevent the *code official* from requiring the correction of errors. The *code official* is authorized to prevent occupancy or use of a structure or site that is in violation of this appendix or other ordinances of this jurisdiction.

G104.4 Expiration. Expiration and extensions of permits issued under this appendix shall be governed by Sections 105.5 and 105.5.1 of the *Building Code*, 12-A DCMR.

G104.5 Suspension or revocation. Suspension or revocation of a permit issued under this appendix shall be governed by Section 111 of the *Building Code*, 12-A DCMR.

SECTION G105
CODE MODIFICATIONS

G105.1 General. The *code official* shall not grant modifications to any provision in the *Construction Codes* required in *flood hazard areas*, including but not limited to provisions of this appendix, unless the code modification complies with the procedures set forth in Section 104.10 of this code; the code modification request has been referred to the *Floodplain Administrator* for review and recommendation pursuant to 20 DCMR; and after the *Floodplain Administrator's* review and recommendation, a determination has been made by the *code official* that all of the following criteria are met:

1. A technical showing of good and sufficient cause that the unique characteristics of the size, configuration or topography of the site render the elevation standards inappropriate.
2. Failure to grant the code modification would result in exceptional hardship by rendering the lot undevelopable.
3. Granting of a code modification will not result in increased flood heights, additional threats to public safety, extraordinary public expense, cause fraud on or victimization of the public, or conflict with existing laws or ordinances.

4. The code modification is the minimum necessary to afford relief, considering the flood hazard.
5. The applicant has been provided with written notice by the *code official* specifying the difference between the *design flood elevation* and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the *design flood elevation* increases risks to life and property.

Exceptions:

1. No code modifications shall be issued for any proposed *development* in a *floodway* if any increase in flood levels would result during the *base flood discharge*.
2. The *code official* shall not issue a code modification that affects the *base flood elevation* without approval of the *Floodplain Administrator* pursuant to 20 DCMR, Chapter 31.

G105.2 Historic structures. Subject to review and approval by the *Floodplain Administrator*, the *code official* shall have authority to issue a code modification for proposed *development* of a *historic structure* on a *development site* located wholly or partially in a *flood hazard area*, upon the certification of the *state historic preservation officer* that: the proposed *development* will not preclude the *structure's* continued designation as a *historic structure*, and the code modification is the minimum necessary to preserve the historic character and design of the *structure*.

G105.3 Functionally dependent facilities. A code modification is authorized to be issued for the construction or *substantial improvement* of a *functionally dependent facility* provided that the criteria in Section 1612.1 are met and the code modification is the minimum necessary to allow the construction or substantial improvement, and that all due consideration has been given to methods and materials that minimize flood damages during the design flood and create no additional threats to public safety.

SECTION G106
INSPECTIONS

G106.1 General. Work under a permit within the scope of this appendix shall be subject to inspection by the *code official* in accordance with Section 109 of this code.

G106.2 Elevation Certificate. An *elevation certificate* in accordance with Section 1612.5 shall be submitted to the *code official* and reviewed and approved by the *Floodplain Administrator* in accordance with the following:

1. Upon placement of the *lowest floor* and prior to further vertical construction, as specified in Section 109.3.1.5.
2. Prior to the final inspection or prior to the issuance of a conditional certificate of occupancy for core and shell, whichever is earlier as specified in Section 109.3.1.11.1.

G106.3 Floodproofing Certificate. A *floodproofing certificate* in accordance with Section 1612.5 shall be submitted to the *code official* and reviewed and approved by the *Floodplain Administrator* prior to: (a) the final inspection, or (b) the issuance of a certificate of completion or the issuance of the first certificate of occupancy for a occupied space at grade or above, whichever of (a) or (b) is earlier, to certify a floodproofing design for a nonresidential building that is permitted as an alternative to elevating to or above the *base flood elevation* as specified in Section 109.3.1.11.1.

SECTION G107
VIOLATIONS

G107.1 General. The administrative and enforcement provisions of Chapter 1, 12-A DCMR are applicable to any violations of this appendix.

G107.1.1 Presumptive violation. A *building* or *structure* located on a *development site* wholly or partially within a *flood hazard area*, that is constructed or substantially improved pursuant to a permit issued by the *code official* after the effective date of the *Construction Codes*, but without the documentation of elevation of the lowest floor, other required design certifications, or other evidence of compliance required by the *Construction Codes,* shall be deemed to be in violation of the *Construction Codes* until such time as the requisite documentation is provided.

SECTION G201
DEFINITIONS

G201.1 General. The following words and terms are defined in Chapter 2 of the *Building Code*.

ACCESSORY (for Appendix G)

ALTERATION OF A WATERCOURSE.

BASE FLOOD.

BASE FLOOD ELEVATION.

BASEMENT (for flood loads).

DESIGN FLOOD.

DESIGN FLOOD ELEVATION.

DEVELOPMENT.

DEVELOPMENT SITE.

ELEVATION CERTIFICATE.

ENCROACHMENT (for Appendix G).

FLOOD HAZARD AREA.

FLOOD INSURANCE RATE MAP (FIRM).

FLOOD INSURANCE STUDY (FIS).

FLOODPROOFING CERTIFICATE.

FLOODWAY.

FUNCTIONALLY DEPENDENT FACILITY.

HISTORIC STRUCTURE (for Appendix G).

LETTER OF MAP CHANGE.

LOWEST FLOOR.

MANUFACTURED HOME (for Appendix G).

MANUFACTURED HOME PARK OR SUBDIVISION (for Appendix G).

MARKET VALUE.

RECREATIONAL VEHICLE (for Appendix G).

SUBSTANTIAL DAMAGE.

SUBSTANTIAL IMPROVEMENT.

SECTION G301
SUBDIVISIONS

G301.1 General. Each application for subdivision of land in the District of Columbia sought pursuant to the provisions of the *Subdivision Regulations of the District of Columbia* (10-B DCMR §§ 2700 *et seq*.) shall be referred to the *Floodplain Administrator* for a determination as to whether the proposed development site that is the subject of the application is located wholly or partially within a *flood hazard area*.

G301.2 Subdivision requirements. The following requirements shall apply in the case of any proposed subdivision, including proposals for manufactured home parks and subdivisions, any portion of which lies within a *flood hazard area*:

1. The *flood hazard area*, including *floodways*, coastal high-hazard areas and coastal A zones, as appropriate, shall be delineated on tentative and final subdivision plats.
2. Design flood elevations shall be shown on tentative and final subdivision plats.
3. Residential building lots shall be provided with adequate buildable area outside the *floodway*.
4. The design criteria for utilities and facilities set forth in this appendix and appropriate International Codes shall be met.

SECTION G401
SITE IMPROVEMENT

G401.1 Compliance with DOEE's Resilience Rules. Any site improvements in a *flood hazard area* shall comply with requirements in 20 DCMR, Chapter 31.

G401.2 Approval of Site Improvements. The *owner* shall obtain *code official* approval of civil drawings for site work/ groundwork pursuant to an application for a civil site work (BCIV) permit, as part of a building permit application, or as otherwise directed by the *code official* for any proposed *development* on a *development site* that is located wholly or partially within a *flood hazard area*.

G401.3 Sewer facilities. All new or replaced sanitary sewer facilities, private sewage treatment plants (including all pumping stations and collector systems) and on-site waste disposal systems for any proposed *development* on a *development site* that is located wholly or partially within a *flood hazard area* shall be designed in accordance with Chapter 7, ASCE 24, to minimize or eliminate infiltration of flood waters into the facilities and discharge from the facilities into floodwaters, or impairment of the facilities and systems.

G401.4 Water facilities. All new or replacement water facilities for any proposed *development* on a *development site* that is located wholly or partially within a *flood hazard area* shall be designed in accordance with the provisions of Chapter 7, ASCE 24, to minimize or eliminate infiltration of floodwaters into the systems.

SECTION G501
MANUFACTURED HOMES

G501.1 Elevation. All new and replacement *manufactured homes* to be placed or substantially improved on a *development site* that is located wholly or partially within a *flood hazard area* shall be elevated such that the lowest floor of the manufactured home is elevated to or above the design flood elevation.

G501.2 Foundations. All new and replacement *manufactured homes*, including substantial improvement of existing manufactured homes, shall be placed on a permanent, reinforced foundation on a *development site* that is located wholly or partially within a *flood hazard area* that is designed in accordance with Section R322 of the *Residential Code*.

G501.3 Anchoring. All new and replacement *manufactured homes* to be placed or substantially improved on a *development site* that is located wholly or partially within a *flood hazard area* shall be installed using methods and practices that minimize flood damage. *Manufactured homes* shall be securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement. Methods of anchoring are authorized to include, but are not limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable state and local anchoring requirements for resisting wind forces.

G501.4 Protection of mechanical equipment and outside appliances. Mechanical equipment and outside appliances for any proposed *development* on a *development site* that is located wholly or partially within a *flood hazard area* shall be elevated to or above the *design flood elevation*.

> **Exception:** Where such equipment and appliances are designed and installed to prevent water from entering or accumulating within their components and the systems are constructed to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding up to the elevation required by Section R322 of the *Residential Code*, the systems and equipment shall be permitted to be located below the elevation required by Section R322 of the *Residential Code*. Electrical wiring systems shall be permitted below the *design flood elevation* provided that they conform to the provisions of NFPA 70.

G501.5 Enclosures. Fully enclosed areas below elevated *manufactured homes* that are located wholly or partially within a *flood hazard area* shall comply with the requirements of Section R322 of the *Residential Code*.

SECTION G601
RECREATIONAL VEHICLES

G601.1 Placement prohibited. The placement of *recreational vehicles* wholly or partially within a *flood hazard area* shall not be authorized in coastal high-hazard areas and in *floodways*.

G601.2 Temporary placement. *Recreational vehicles* located wholly or partially within a *flood hazard area* shall be fully licensed and ready for highway use, and shall be placed on a site for not more than 180 consecutive days.

G601.3 Permanent placement. *Recreational vehicles* located wholly or partially within a *flood hazard area* that are not fully licensed and ready for highway use, or that are to be placed on a site for more than 180 consecutive days, shall meet the requirements of Section G501 for *manufactured homes*.

SECTION G701
TANKS

G701.1 Tanks. Underground and above-ground tanks located wholly or partially within *flood hazard areas* shall be designed, constructed, installed and anchored in accordance with ASCE 24.

SECTION G801
OTHER BUILDING WORK

G801.1 Garages and accessory structures. Garages and *accessory structures* located wholly or partially within *flood hazard areas* shall be designed and constructed in accordance with ASCE 24 and comply with the following conditions as applicable.

G801.1.1 DOEE covenant required. A permit to construct or to make *substantial improvement* in an *accessory structure* located wholly or partially within a *flood hazard area* will not be issued by the *Department* without evidence of DOEE's approval of a nonconversion agreement not to convert the *accessory structure* to a residential use.

G801.1.2 Size limitation. Code modifications or variances will not be granted to allow an *accessory structure* located wholly or partially within a *flood hazard area* to exceed 600 square feet (55.74 m^2).

G801.1.3 Exception to Chapter 16 requirements for certain accessory structures. *Accessory structures* that are less than 600 square feet (55.74 m^2) in area and are not elevated or dry floodproofed in accordance with Chapter 16 are allowed where the *accessory structure* meets all of the following conditions:

1. Constructed with flood damage-resistant materials below the *design flood elevation*.
2. Constructed and placed to offer the minimum resistance to the flow of floodwaters.
3. Anchored to prevent flotation.
4. Electrical service and mechanical equipment elevated to or above the *design flood elevation*.
5. Provided with flood openings that meet the following criteria:
   a. There shall be a minimum of two flood openings on different sides of each enclosed area; if an *accessory structure* has more than one enclosure below the *lowest floor*, each such enclosure shall have flood openings on exterior walls;
   b. The total net area of all flood openings shall be at least 1 square inch (645.16 mm^2) for each 1 square foot (0.093 m^2) of enclosed area (non-engineered flood openings), or the flood openings shall be engineered flood openings that are designed and certified by a licensed professional engineer to automatically allow entry and exit of floodwaters; the certification requirement is allowed to be met by the professional engineer's certification or by submission of an Evaluation Report issued by the ICC Evaluation Service or another *approved* entity;
   c. The bottom of each flood opening shall be 1 foot (305 mm) or less above the higher of either the interior floor or grade or the exterior grade immediately below the opening; and
   d. Any louvers, screens, or other covers for the flood openings shall allow the automatic flow of floodwaters into and out of the enclosed area.

G801.1.4 Underground garages in basements. Underground garages located in *basements (for flood loads)* of an existing or proposed *building* or *structure* that: is located on a *development site* wholly or partially within a *flood hazard area,* and is used or will be used partially for Residential Group R occupancies, including a mixed use *building* with Residential Group R occupancies, will not be approved in permit applications for new construction or *substantial improvement*, without a code modification granted pursuant to Section G105.

G801.2 Fences. Fences in *floodways* that may block the passage of floodwaters, such as stockade fences and wire mesh fences, shall meet the requirement of Section G103.4.

G801.3 Oil derricks. Oil derricks located wholly or partially in *flood hazard areas* shall be designed in conformance with the flood loads in Sections 1603.1.7 and 1612.

G801.4 Retaining walls, sidewalks and driveways. Retaining walls, sidewalks and driveways located wholly or partially within *flood hazard areas* shall meet the requirements of Section 1804.5.

G801.5 Swimming pools. Swimming pools located wholly or partially within *flood hazard areas* shall be designed and constructed in accordance with ASCE 24. Above-ground swimming pools, on-ground swimming pools and in-ground swimming pools that involve placement of fill in *floodways* shall also meet the requirements of Section G103.4.

G801.6 Decks, porches, and patios. Decks, porches and patios located wholly or partially within *flood hazard areas* shall be designed and constructed in accordance with ASCE 24.

G801.7 Roads and watercourse crossings in regulated floodways. Roads and watercourse crossings that encroach into regulated *floodways*, including roads, bridges, culverts, low-water crossings and similar means for vehicles or pedestrians to travel from one side of a watercourse to the other, shall meet the requirement of Section G103.4.

SECTION G802
MIXED-USE BUILDINGS

G802.1 Lowest floor. The *lowest floor* (including *basement* or underground parking garage) of any new construction of, or *substantial improvement* to, a mixed-used building located on a *development site* wholly or partially within a *flood hazard area* shall either be at or above the *design flood elevation*, or be designed and constructed to be dry floodproofed during any flood up to the *design flood elevation*.

G802.2 Residential portion. The *lowest floor* of the residential portion of any new construction of, or *substantial improvement* to, a mixed-use building located on a *development site* wholly or partially within a *flood hazard area* shall be at or above the *design flood elevation*.

G802.3 Nonresidential portion. The *lowest floor* of the nonresidential portion of any new construction of, or *substantial improvement* to, a mixed-use building located on a *development site* wholly or partially within a *flood hazard area* shall either be at or above the *design flood elevation*, or be designed and constructed to be dry floodproofed during any flood up to the *design flood elevation*.

G802.4 Ancillary residential use portion. The *lowest floor* of the ancillary residential use portion of any new construction of, or *substantial improvement* to, a mixed-use building located on a *development site* wholly or partially within a *flood hazard area* shall be at or above the *design flood elevation*.

SECTION G901
TEMPORARY STRUCTURES AND TEMPORARY STORAGE

G901.1 Temporary structures. Temporary structures located wholly or partially within *flood hazard areas* shall comply with Section 119 of the *Building Code*, 12-A DCMR, and with the following conditions:

1. Temporary structures shall be anchored to prevent flotation, collapse or lateral movement resulting from hydrostatic loads, including the effects of buoyancy, during conditions of the *design flood*.
2. Fully enclosed temporary structures shall have flood openings that are in accordance with ASCE 24 to allow for the automatic entry and exit of floodwaters.

G901.2 Floodway encroachment. Temporary structures and temporary storage in *floodways* shall meet the requirements of Section G103.4.

SECTION G1001
UTILITY AND MISCELLANEOUS GROUP U

G1001.1 Utility and miscellaneous Group U. Utility and miscellaneous Group U includes buildings that are accessory in character and miscellaneous structures not classified in any specific occupancy in this code, including, but not limited to, agricultural buildings, aircraft hangars (accessory to a one- or two-family residence), barns, carports, fences more than 6 feet (1829 mm) high, grain silos (accessory to a residential occupancy), greenhouses, livestock shelters, private garages, retaining walls, sheds, stables and towers.

G1001.2 Flood loads. Utility and miscellaneous Group U buildings and structures located wholly or partially within *flood hazard areas*, including substantial improvement of such *buildings* and *structures*, shall be anchored to prevent flotation, collapse or lateral movement resulting from flood loads, including the effects of buoyancy, during conditions of the design flood.

G1001.3 Elevation. Utility and miscellaneous Group U buildings and structures located wholly or partially within *flood hazard areas*, including substantial improvement of such *buildings* and *structures*, shall be elevated such that the lowest floor, including basement, is elevated to or above the *design flood elevation* in accordance with Section 1612 of this code.

G1001.4 Enclosures below design flood elevation. Fully enclosed areas located wholly or partially within flood hazard areas below the *design flood elevation* shall be constructed in accordance with ASCE 24.

G1001.5 Flood damage-resistant materials. Flood damage-resistant materials shall be used below the *design flood elevation*.

G1001.6 Protection of mechanical, plumbing and electrical systems. Mechanical, plumbing and electrical systems, including plumbing fixtures, located wholly or partially within *flood hazard areas* shall be elevated to or above the *design flood elevation*.

Exception: Electrical systems, equipment and components; heating, ventilating, air conditioning and plumbing appliances; plumbing fixtures, duct systems and other service equipment shall be permitted to be located below the design flood elevation provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the design flood elevation in compliance with the flood-resistant construction requirements of this code. Electrical wiring systems shall be permitted to be located below the design flood elevation provided that they conform to the provisions of NFPA 70.

SECTION G1101
REFERENCED STANDARDS

ASCE 24—14	Flood Resistant Design and Construction	G103.1, G401.3, G401.4, G701.1, G801.1, G801.5, G801.6, G801.7, G901.1, G1001.4
HUD 24 CFR Part 3280 (2008)	Manufactured Home Construction and Safety Standards	G201
NFPA 70—14	*National Electrical Code*	G501.4, G1001.6
FEMA P-758 (May 2010)	Substantial Improvement/ *Substantial Damage Desk Reference*	G103.1.1

APPENDIX H

SIGNS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION H101
GENERAL

H101.1 General. A sign shall not be erected in a manner that would confuse or obstruct the view of or interfere with exit signs required by Chapter 10 or with official traffic signs, signals or devices. Signs and sign support structures, together with their supports, braces, guys and anchors, shall be kept in repair and in proper state of preservation. The display surfaces of signs shall be kept neatly painted or posted at all times.

H101.2 Signs exempt from permits. The following signs are exempt from the requirements to obtain a *permit* before erection:

1. Painted nonilluminated signs.
2. Temporary signs announcing the sale or rent of property.
3. Signs erected by transportation authorities.
4. Projecting signs not exceeding 2.5 square feet (0.23 m^2).
5. The changing of moveable parts of an approved sign that is designed for such changes, or the repainting or repositioning of display matter shall not be deemed an alteration.

SECTION H102
DEFINITIONS

H102.1 General. The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of this code for general definitions.

COMBINATION SIGN. A sign incorporating any combination of the features of pole, projecting and roof signs.

DISPLAY SIGN. The area made available by the sign structure for the purpose of displaying the advertising message.

ELECTRIC SIGN. A sign containing electrical wiring, but not including signs illuminated by an exterior light source.

GROUND SIGN. A billboard or similar type of sign that is supported by one or more uprights, poles or braces in or upon the ground other than a combination sign or pole sign, as defined by this code.

POLE SIGN. A sign wholly supported by a sign structure in the ground.

PORTABLE DISPLAY SURFACE. A display surface temporarily fixed to a standardized advertising structure that is regularly moved from structure to structure at periodic intervals.

PROJECTING SIGN. A sign other than a wall sign that projects from and is supported by a wall of a building or structure.

ROOF SIGN. A sign erected on or above a roof or parapet of a building or structure.

SIGN. Any letter, figure, character, mark, plane, point, marquee sign, design, poster, pictorial, picture, stroke, stripe, line, trademark, reading matter or illuminated service, which shall be constructed, placed, attached, painted, erected, fastened or manufactured in any manner whatsoever, so that the same shall be used for the attraction of the public to any place, subject, person, firm, corporation, public performance, article, machine or merchandise, whatsoever, which is displayed in any manner outdoors. Every sign shall be classified and conform to the requirements of that classification as set forth in this chapter.

SIGN STRUCTURE. Any structure that supports or is capable of supporting a sign as defined in this code. A sign structure is permitted to be a single pole and is not required to be an integral part of the building.

WALL SIGN. Any sign attached to or erected against the wall of a building or structure, with the exposed face of the sign in a plane parallel to the plane of said wall.

SECTION H103
LOCATION

H103.1 Location restrictions. Signs shall not be erected, constructed or maintained so as to obstruct any fire escape or any window or 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 thereof. A sign shall not be attached in any form, shape or manner to a fire escape, nor be placed in such manner as to interfere with any opening required for ventilation.

SECTION H104
IDENTIFICATION

H104.1 Identification. Every outdoor advertising display sign hereafter erected, constructed or maintained, for which a permit is required, shall be plainly marked with the name of the person, firm or corporation erecting and maintaining such sign and shall have affixed on the front thereof the permit number issued for said sign or other method of identification *approved* by the *building official*.

SECTION H105
DESIGN AND CONSTRUCTION

H105.1 General requirements. Signs shall be designed and constructed to comply with the provisions of this code for use of materials, loads and stresses.

H105.2 Permits, drawings and specifications. Where a permit is required, as provided in Chapter 1, construction documents shall be required. These documents shall show the dimensions, material and required details of construction, including loads, stresses and anchors.

H105.3 Wind load. Signs shall be designed and constructed to withstand wind pressure as provided for in Chapter 16.

H105.4 Seismic load. Signs designed to withstand wind pressures shall be considered capable of withstanding earthquake loads, except as provided for in Chapter 16.

H105.5 Working stresses. In outdoor advertising display signs, the allowable working stresses shall conform to the requirements of Chapter 16. The working stresses of wire rope and its fastenings shall not exceed 25 percent of the ultimate strength of the rope or fasteners.

Exceptions:

1. The allowable working stresses for steel and wood shall be in accordance with the provisions of Chapters 22 and 23.
2. The working strength of chains, cables, guys or steel rods shall not exceed one-fifth of the ultimate strength of such chains, cables, guys or steel.

H105.6 Attachment. Signs attached to masonry, concrete or steel shall be safely and securely fastened by means of metal anchors, bolts or approved expansion screws of sufficient size and anchorage to safely support the loads applied.

SECTION H106
ELECTRICAL

H106.1 Illumination. A sign shall not be illuminated by other than electrical means, and electrical devices and wiring shall be installed in accordance with the requirements of NFPA 70. Any open spark or flame shall not be used for display purposes unless specifically approved.

H106.1.1 Internally illuminated signs. Except as provided for in Sections 402.16 and 2611, where internally illuminated signs have facings of wood or approved plastic, the area of such facing section shall be not more than 120 square feet (11.16 m^2) and the wiring for electric lighting shall be entirely enclosed in the sign cabinet with a clearance of not less than 2 inches (51 mm) from the facing material. The dimensional limitation of 120 square feet (11.16 m^2) shall not apply to sign facing sections made from flame-resistant-coated fabric (ordinarily known as "flexible sign face plastic") that weighs less than 20 ounces per square yard (678 g/m^2) and that, when tested in accordance with NFPA 701, meets the fire propagation performance requirements of both Test 1 and Test 2 or that, when tested in accordance with an approved test method, exhibits an average burn time of 2 seconds or less and a burning extent of 5.9 inches (150 mm) or less for 10 specimens.

H106.2 Electrical service. Signs that require electrical service shall comply with NFPA 70.

SECTION H107
COMBUSTIBLE MATERIALS

H107.1 Use of combustibles. Wood, approved plastic or plastic veneer panels as provided for in Chapter 26, or other materials of combustible characteristics similar to wood, used for moldings, cappings, nailing blocks, letters and latticing, shall comply with Section H109.1 and shall not be used for other ornamental features of signs, unless approved.

H107.1.1 Plastic materials. Notwithstanding any other provisions of this code, plastic materials that burn at a rate no faster than 2.5 inches per minute (64 mm/s) when tested in accordance with ASTM D635 shall be deemed approved plastics and can be used as the display surface material and for the letters, decorations and facings on signs and outdoor display structures.

H107.1.2 Electric sign faces. Individual plastic facings of electric signs shall not exceed 200 square feet (18.6 m^2) in area.

H107.1.3 Area limitation. If the area of a display surface exceeds 200 square feet (18.6 m^2), the area occupied or covered by approved plastics shall be limited to 200 square feet (18.6 m^2) plus 50 percent of the difference between 200 square feet (18.6 m^2) and the area of display surface. The area of plastic on a display surface shall not in any case exceed 1,100 square feet (102 m^2).

H107.1.4 Plastic appurtenances. Letters and decorations mounted on an approved plastic facing or display surface can be made of approved plastics.

SECTION H108
ANIMATED DEVICES

H108.1 Fail-safe device. Signs that contain moving sections or ornaments shall have fail-safe provisions to prevent the section or ornament from releasing and falling or shifting its center of gravity more than 15 inches (381 mm). The fail-safe device shall be in addition to the mechanism and the mechanism's housing that operate the movable section or ornament. The fail-safe device shall be capable of supporting the full dead weight of the section or ornament when the moving mechanism releases.

SECTION H109
GROUND SIGNS

H109.1 Height restrictions. The structural frame of ground signs shall not be erected of combustible materials to a height of more than 35 feet (10 668 mm) above the ground. Ground signs constructed entirely of noncombustible material shall not be erected to a height of greater than 100 feet (30 480

mm) above the ground. Greater heights are permitted where approved and located so as not to create a hazard or danger to the public.

H109.2 Required clearance. The bottom coping of every ground sign shall be not less than 3 feet (914 mm) above the ground or street level, which space can be filled with platform decorative trim or light wooden construction.

H109.3 Wood anchors and supports. Where wood anchors or supports are embedded in the soil, the wood shall be pressure treated with an approved preservative.

SECTION H110
ROOF SIGNS

H110.1 General. Roof signs shall be constructed entirely of metal or other approved noncombustible material except as provided for in Sections H106.1.1 and H107.1. Provisions shall be made for electric grounding of metallic parts. Where combustible materials are permitted in letters or other ornamental features, wiring and tubing shall be kept free and insulated therefrom. Roof signs shall be so constructed as to leave a clear space of not less than 6 feet (1829 mm) between the roof level and the lowest part of the sign and shall have at least 5 feet (1524 mm) clearance between the vertical supports thereof. No portion of any roof sign structure shall project beyond an exterior wall.

Exception: Signs on flat roofs with every part of the roof accessible.

H110.2 Bearing plates. The bearing plates of roof signs shall distribute the load directly to or upon masonry walls, steel roof girders, columns or beams. The building shall be designed to avoid overstress of these members.

H110.3 Height of solid signs. A roof sign having a solid surface shall not exceed, at any point, a height of 24 feet (7315 mm) measured from the roof surface.

H110.4 Height of open signs. Open roof signs in which the uniform open area is not less than 40 percent of total gross area shall not exceed a height of 75 feet (22 860 mm) on buildings of Type 1 or Type 2 construction. On buildings of other construction types, the height shall not exceed 40 feet (12 192 mm). Such signs shall be thoroughly secured to the building upon which they are installed, erected or constructed by iron, metal anchors, bolts, supports, chains, stranded cables, steel rods or braces and they shall be maintained in good condition.

H110.5 Height of closed signs. A closed roof sign shall not be erected to a height greater than 50 feet (15 240 mm) above the roof of buildings of Type 1 or Type 2 construction or more than 35 feet (10 668 mm) above the roof of buildings of Type 3, 4 or 5 construction.

SECTION H111
WALL SIGNS

H111.1 Materials. Wall signs that have an area exceeding 40 square feet (3.72 m^2) shall be constructed of metal or other approved noncombustible material, except for nailing rails and as provided for in Sections H106.1.1 and H107.1.

H111.2 Exterior wall mounting details. Wall signs attached to *exterior walls* of solid masonry, concrete or stone shall be safely and securely attached by means of metal anchors, bolts or expansion screws of not less than $^3/_8$ inch (9.5 mm) diameter and shall be embedded at least 5 inches (127 mm). Wood blocks shall not be used for anchorage, except in the case of wall signs attached to buildings with walls of wood. A wall sign shall not be supported by anchorages secured to an unbraced parapet wall.

H111.3 Extension. Wall signs shall not extend above the top of the wall or beyond the ends of the wall to which the signs are attached unless such signs conform to the requirements for roof signs, projecting signs or ground signs.

SECTION H112
PROJECTING SIGNS

H112.1 General. Projecting signs shall be constructed entirely of metal or other noncombustible material and securely attached to a building or structure by metal supports such as bolts, anchors, supports, chains, guys or steel rods. Staples or nails shall not be used to secure any projecting sign to any building or structure. The *dead load* of projecting signs not parallel to the building or structure and the load due to wind pressure shall be supported with chains, guys or steel rods having net cross-sectional dimension of not less than $^3/_8$ inch (9.5 mm) diameter. Such supports shall be erected or maintained at an angle of at least 45 percent (0.78 rad) with the horizontal to resist the *dead load* and at angle of 45 percent (0.78 rad) or more with the face of the sign to resist the specified wind pressure. If such projecting sign exceeds 30 square feet (2.8 m^2) in one facial area, there shall be provided at least two such supports on each side not more than 8 feet (2438 mm) apart to resist the wind pressure.

H112.2 Attachment of supports. Supports shall be secured to a bolt or expansion screw that will develop the strength of the supporting chains, guys or steel rods, with a minimum $^5/_8$-inch (15.9 mm) bolt or lag screw, by an expansion shield. Turnbuckles shall be placed in chains, guys or steel rods supporting projecting signs.

H112.3 Wall mounting details. Chains, cables, guys or steel rods used to support the live or dead load of projecting signs are permitted to be fastened to solid masonry walls with expansion bolts or by machine screws in iron supports, but such supports shall not be attached to an unbraced parapet wall. Where the supports must be fastened to walls made of wood, the supporting anchor bolts must go through the wall and be plated or fastened on the inside in a secure manner.

H112.4 Height limitation. A projecting sign shall not be erected on the wall of any building so as to project above the roof or cornice wall or above the roof level where there is no cornice wall; except that a sign erected at a right angle to the building, the horizontal width of which sign is perpendicular to such a wall and does not exceed 18 inches (457 mm), is permitted to be erected to a height not exceeding 2 feet (610 mm) above the roof or cornice wall or above the roof level

where there is no cornice wall. A sign attached to a corner of a building and parallel to the vertical line of such corner shall be deemed to be erected at a right angle to the building wall.

H112.5 Additional loads. Projecting sign structures that will be used to support an individual on a ladder or other servicing device, whether or not specifically designed for the servicing device, shall be capable of supporting the anticipated additional load, but not less than a 100-pound (445 N) concentrated horizontal load and a 300-pound (1334 N) concentrated vertical load applied at the point of assumed or most eccentric loading. The building component to which the projecting sign is attached shall also be designed to support the additional loads.

SECTION H113
MARQUEE SIGNS

H113.1 Materials. Marquee signs shall be constructed entirely of metal or other approved noncombustible material except as provided for in Sections H106.1.1 and H107.1.

H113.2 Attachment. Marquee signs shall be attached to approved marquees that are constructed in accordance with Section 3106.

H113.3 Dimensions. Marquee signs, whether on the front or side, shall not project beyond the perimeter of the marquee.

H113.4 Height limitation. Marquee signs shall not extend more than 6 feet (1829 mm) above, nor 1 foot (305 mm) below such marquee, but under no circumstances shall the sign or signs have a vertical dimension greater than 8 feet (2438 mm).

SECTION H114
PORTABLE SIGNS

H114.1 General. Portable signs shall conform to requirements for ground, roof, projecting, flat and temporary signs where such signs are used in a similar capacity. The requirements of this section shall not be construed to require portable signs to have connections to surfaces, tie-downs or foundations where provisions are made by temporary means or configuration of the structure to provide stability for the expected duration of the installation.

TABLE 4-A
SIZE, THICKNESS AND TYPE OF GLASS PANELS IN SIGNS

MAXIMUM SIZE OF EXPOSED PANEL		MINIMUM THICKNESS OF GLASS (inches)	TYPE OF GLASS
Any dimension (inches)	Area (square inches)		
30	500	1/8	Plain, plate or wired
45	700	3/16	Plain, plate or wired
144	3,600	1/4	Plain, plate or wired
> 144	> 3,600	1/4	Wired glass

For SI: 1 inch = 25.4 mm, 1 square inch = 645.16 mm^2.

TABLE 4-B
THICKNESS OF PROJECTION SIGN

PROJECTION (feet)	MAXIMUM THICKNESS (feet)
5	2
4	2.5
3	3
2	3.5
1	4

For SI: 1 foot = 304.8 mm.

SECTION H115
REFERENCED STANDARDS

ASTM D635—10	Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position	H107.1.1
NFPA 70—11	National Electrical Code	H106.1, H106.2
NFPA 701—10	Methods of Fire Test for Flame Propagation of Textiles and Films	H106.1.1

APPENDIX I

PATIO COVERS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION I101
GENERAL

I101.1 General. Patio covers shall be permitted to be detached from or attached to *dwelling units*. Patio covers shall be used only for recreational, outdoor living purposes and not as carports, garages, storage rooms or habitable rooms.

SECTION I102
DEFINITION

I102.1 General. The following term shall, for the purposes of this appendix, have the meaning shown herein. Refer to Chapter 2 of this code for general definitions.

PATIO COVER. A structure with open or glazed walls that is used for recreational, outdoor living purposes associated with a *dwelling unit.*

SECTION I103
EXTERIOR WALLS AND OPENINGS

I103.1 Enclosure walls. Enclosure walls shall be permitted to be of any configuration, provided the open or glazed area of the longer wall and one additional wall is equal to at least 65 percent of the area below a minimum of 6 feet 8 inches (2032 mm) of each wall, measured from the floor. Openings shall be permitted to be enclosed with insect screening, approved translucent or transparent plastic not more than 0.125 inch (3.2 mm) in thickness, glass conforming to the provisions of Chapter 24 or any combination of the foregoing.

I103.2 Light, ventilation and emergency egress. Exterior openings of the *dwelling unit* required for light and ventilation shall be permitted to open into a patio structure. However, the patio structure shall be unenclosed if such openings are serving as emergency egress or rescue openings from sleeping rooms. Where such exterior openings serve as an exit from the dwelling unit, the patio structure, unless unenclosed, shall be provided with exits conforming to the provision of Chapter 10.

SECTION I104
HEIGHT

I104.1 Height. Patio covers shall be limited to one-story structures not more than 12 feet (3657 mm) in height.

SECTION I105
STRUCTURAL PROVISIONS

I105.1 Design loads. Patio covers shall be designed and constructed to sustain, within the stress limits of this code, all *dead loads* plus a minimum vertical live load of 10 pounds per square foot (0.48 kN/m^2) except that snow loads shall be used where such snow loads exceed this minimum. Such patio covers shall be designed to resist the minimum wind and seismic loads set forth in this code.

I105.2 Footings. In areas with a frost depth of zero, a patio cover shall be permitted to be supported on a concrete slab on grade without footings, provided the slab conforms to the provisions of Chapter 19 of this code, is not less than $3^1/_2$ inches (89 mm) thick and further provided that the columns do not support loads in excess of 750 pounds (3.36 kN) per column.

APPENDIX J

GRADING

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION J101
GENERAL

J101.1 Scope. The provisions of this chapter apply to grading, excavation and earthwork construction, including fills and embankments. Where conflicts occur between the technical requirements of this chapter and the geotechnical report, the geotechnical report shall govern.

J101.2 Flood hazard areas. Unless the applicant has submitted an engineering analysis, prepared in accordance with standard engineering practice by a *registered design professional,* that demonstrates the proposed work will not result in any increase in the level of the base flood, grading, excavation and earthwork construction, including fills and embankments, shall not be permitted in *floodways* that are in *flood hazard areas* established in Section 1612.3 or in *flood hazard areas* where design flood elevations are specified but *floodways* have not been designated.

SECTION J102
DEFINITIONS

J102.1 Definitions. The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of this code for general definitions.

BENCH. A relatively level step excavated into earth material on which fill is to be placed.

COMPACTION. The densification of a fill by mechanical means.

CUT. See "Excavation."

DOWN DRAIN. A device for collecting water from a swale or ditch located on or above a slope, and safely delivering it to an approved drainage facility.

EROSION. The wearing away of the ground surface as a result of the movement of wind, water or ice.

EXCAVATION. The removal of earth material by artificial means, also referred to as a cut.

FILL. Deposition of earth materials by artificial means.

GRADE. The vertical location of the ground surface.

GRADE, EXISTING. The grade prior to grading.

GRADE, FINISHED. The grade of the site at the conclusion of all grading efforts.

GRADING. An excavation or fill or combination thereof.

KEY. A compacted fill placed in a trench excavated in earth material beneath the toe of a slope.

SLOPE. An inclined surface, the inclination of which is expressed as a ratio of horizontal distance to vertical distance.

TERRACE. A relatively level step constructed in the face of a graded slope for drainage and maintenance purposes.

SECTION J103
PERMITS REQUIRED

J103.1 Permits required. Except as exempted in Section J103.2, no grading shall be performed without first having obtained a *permit* therefor from the *building official*. A grading *permit* does not include the construction of retaining walls or other structures.

J103.2 Exemptions. A grading *permit* shall not be required for the following:

1. Grading in an isolated, self-contained area, provided there is no danger to the public and that such grading will not adversely affect adjoining properties.
2. Excavation for construction of a structure permitted under this code.
3. Cemetery graves.
4. Refuse disposal sites controlled by other regulations.
5. Excavations for wells, or trenches for utilities.
6. Mining, quarrying, excavating, processing or stockpiling rock, sand, gravel, aggregate or clay controlled by other regulations, provided such operations do not affect the lateral support of, or significantly increase stresses in, soil on adjoining properties.
7. Exploratory excavations performed under the direction of a *registered design professional.*

Exemption from the *permit* requirements of this appendix shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this jurisdiction.

SECTION J104
PERMIT APPLICATION AND SUBMITTALS

J104.1 Submittal requirements. In addition to the provisions of Section 105.3, the applicant shall state the estimated quantities of excavation and fill.

J104.2 Site plan requirements. In addition to the provisions of Section 107, a grading plan shall show the existing grade and finished grade in contour intervals of sufficient clarity to indicate the nature and extent of the work and show in detail that it complies with the requirements of this code. The plans shall show the existing grade on adjoining properties in suffi-

cient detail to identify how grade changes will conform to the requirements of this code.

J104.3 Geotechnical report. A geotechnical report prepared by a *registered design professional* shall be provided. The report shall contain at least the following:

1. The nature and distribution of existing soils.
2. Conclusions and recommendations for grading procedures.
3. Soil design criteria for any structures or embankments required to accomplish the proposed grading.
4. Where necessary, slope stability studies, and recommendations and conclusions regarding site geology.

Exception: A geotechnical report is not required where the *building official* determines that the nature of the work applied for is such that a report is not necessary.

J104.4 Liquefaction study. For sites with mapped maximum considered earthquake spectral response accelerations at short periods (S_s) greater than 0.5g as determined by Section 1613, a study of the liquefaction potential of the site shall be provided and the recommendations incorporated in the plans.

Exception: A liquefaction study is not required where the *building official* determines from established local data that the liquefaction potential is low.

SECTION J105
INSPECTIONS

J105.1 General. Inspections shall be governed by Section 110 of this code.

J105.2 Special inspections. The *special inspection* requirements of Section 1705.6 shall apply to work performed under a grading permit where required by the *building official*.

SECTION J106
EXCAVATIONS

J106.1 Maximum slope. The slope of cut surfaces shall be no steeper than is safe for the intended use, and shall be not more than one unit vertical in two units horizontal (50-percent slope) unless the owner or the owner's authorized agent furnishes a geotechnical report justifying a steeper slope.

Exceptions:

1. A cut surface shall be permitted to be at a slope of 1.5 units horizontal to one unit vertical (67-percent slope) provided that all of the following are met:
    1.1. It is not intended to support structures or surcharges.
    1.2. It is adequately protected against erosion.
    1.3. It is no more than 8 feet (2438 mm) in height.
    1.4. It is approved by the building code official.
    1.5. Ground water is not encountered.
2. A cut surface in bedrock shall be permitted to be at a slope of one unit horizontal to one unit vertical (100-percent slope).

SECTION J107
FILLS

J107.1 General. Unless otherwise recommended in the geotechnical report, fills shall comply with the provisions of this section.

J107.2 Surface preparation. The ground surface shall be prepared to receive fill by removing vegetation, topsoil and other unsuitable materials, and scarifying the ground to provide a bond with the fill material.

J107.3 Benching. Where existing grade is at a slope steeper than one unit vertical in five units horizontal (20-percent slope) and the depth of the fill exceeds 5 feet (1524 mm) benching shall be provided in accordance with Figure J107.3. A key shall be provided that is at least 10 feet (3048 mm) in width and 2 feet (610 mm) in depth.

J107.4 Fill material. Fill material shall not include organic, frozen or other deleterious materials. No rock or similar irreducible material greater than 12 inches (305 mm) in any dimension shall be included in fills.

J107.5 Compaction. All fill material shall be compacted to 90 percent of maximum density as determined by ASTM D1557, Modified Proctor, in lifts not exceeding 12 inches (305 mm) in depth.

J107.6 Maximum slope. The slope of fill surfaces shall be no steeper than is safe for the intended use. Fill slopes steeper than one unit vertical in two units horizontal (50-percent slope) shall be justified by a geotechnical report or engineering data.

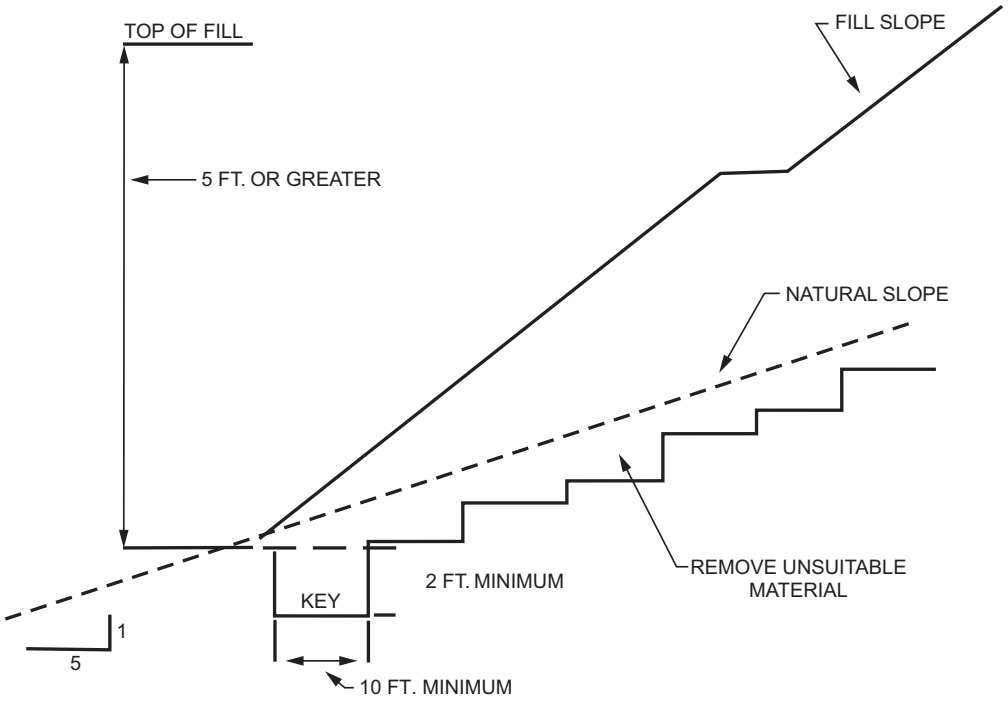
SECTION J108
SETBACKS

J108.1 General. Cut and fill slopes shall be set back from the property lines in accordance with this section. Setback dimensions shall be measured perpendicular to the property line and shall be as shown in Figure J108.1, unless substantiating data is submitted justifying reduced setbacks.

J108.2 Top of slope. The setback at the top of a cut slope shall be not less than that shown in Figure J108.1, or than is required to accommodate any required interceptor drains, whichever is greater.

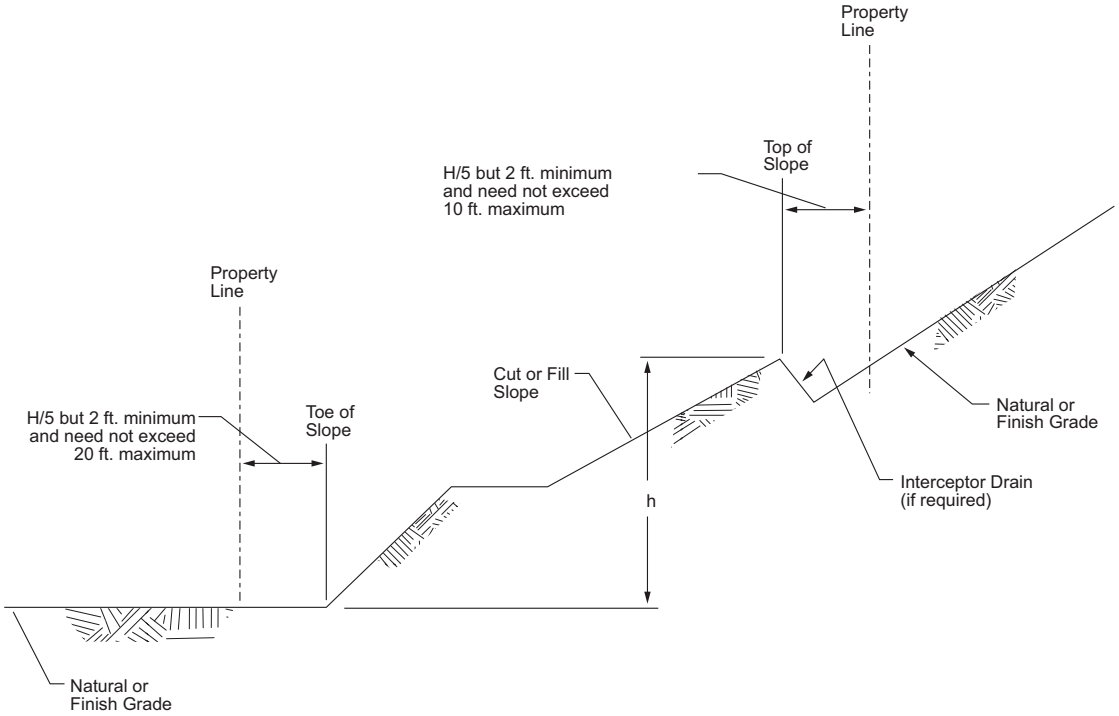
J108.3 Slope protection. Where required to protect adjacent properties at the toe of a slope from adverse effects of the grading, additional protection, approved by the *building official*, shall be included. Such protection may include but shall not be limited to:

1. Setbacks greater than those required by Figure J108.1.
2. Provisions for retaining walls or similar construction.
3. Erosion protection of the fill slopes.
4. Provision for the control of surface waters.



For SI: 1 foot = 304.8 mm.

FIGURE J107.3
BENCHING DETAILS



For SI: 1 foot = 304.8 mm.

FIGURE J108.1
DRAINAGE DIMENSIONS

SECTION J109
DRAINAGE AND TERRACING

J109.1 General. Unless otherwise recommended by a *registered design professional*, drainage facilities and terracing shall be provided in accordance with the requirements of this section.

Exception: Drainage facilities and terracing need not be provided where the ground slope is not steeper than one unit vertical in three units horizontal (33-percent slope).

J109.2 Terraces. Terraces at least 6 feet (1829 mm) in width shall be established at not more than 30-foot (9144 mm) vertical intervals on all cut or fill slopes to control surface drainage and debris. Suitable access shall be provided to allow for cleaning and maintenance.

Where more than two terraces are required, one terrace, located at approximately mid-height, shall be at least 12 feet (3658 mm) in width.

Swales or ditches shall be provided on terraces. They shall have a minimum gradient of one unit vertical in 20 units horizontal (5-percent slope) and shall be paved with concrete not less than 3 inches (76 mm) in thickness, or with other materials suitable to the application. They shall have a depth not less than 12 inches (305 mm) and a width not less than 5 feet (1524 mm).

A single run of swale or ditch shall not collect runoff from a tributary area exceeding 13,500 square feet (1256 m^2) (projected) without discharging into a down drain.

J109.3 Interceptor drains. Interceptor drains shall be installed along the top of cut slopes receiving drainage from a tributary width greater than 40 feet (12 192 mm), measured horizontally. They shall have a minimum depth of 1 foot (305 mm) and a minimum width of 3 feet (915 mm). The slope shall be approved by the *building official*, but shall be not less than one unit vertical in 50 units horizontal (2-percent slope). The drain shall be paved with concrete not less than 3 inches (76 mm) in thickness, or by other materials suitable to the application. Discharge from the drain shall be accomplished in a manner to prevent erosion and shall be approved by the *building official*.

J109.4 Drainage across property lines. Drainage across property lines shall not exceed that which existed prior to grading. Excess or concentrated drainage shall be contained on site or directed to an approved drainage facility. Erosion of the ground in the area of discharge shall be prevented by installation of nonerosive down drains or other devices.

SECTION J110
EROSION CONTROL

J110.1 General. The faces of cut and fill slopes shall be prepared and maintained to control erosion. This control shall be permitted to consist of effective planting.

Exception: Erosion control measures need not be provided on cut slopes not subject to erosion due to the erosion-resistant character of the materials.

Erosion control for the slopes shall be installed as soon as practicable and prior to calling for final inspection.

J110.2 Other devices. Where necessary, check dams, cribbing, riprap or other devices or methods shall be employed to control erosion and provide safety.

SECTION J111
REFERENCED STANDARDS

ASTM D1557-12	Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort [56,000 ft-lb/ft^3 (2,700kN-m/m^3)].	J107.5

APPENDIX K
ADMINISTRATIVE PROVISIONS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

With the exception of Section K111, this appendix contains only administrative provisions that are intended to be used by a jurisdiction to implement and enforce NFPA 70, the National Electrical Code. Annex H of NFPA 70 also contains administrative and enforcement provisions, and these provisions may or may not be completely compatible with or consistent with Chapter 1 of the IBC, whereas the provisions in IBC Appendix K are compatible and consistent with Chapter 1 of the IBC and other ICC codes. Section K111 contains technical provisions that are unique to this appendix and are in addition to those of NFPA 70.

The provisions of Appendix K are specific to what might be designated as an Electrical Department of Inspection and Code Enforcement and could be implemented where other such provisions are not adopted.

SECTION K101
GENERAL

K101.1 Purpose. A purpose of this code is to establish minimum requirements to safeguard public health, safety and general welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of electrical systems and equipment.

K101.2 Scope. This code applies to the design, construction, installation, *alteration*, repairs, relocation, replacement, *addition* to, use or maintenance of electrical systems and equipment.

SECTION K102
APPLICABILITY

K102.1 General. The provisions of this code apply to all matters affecting or relating to structures and premises, as set forth in Section K101.

K102.2 Existing installations. Except as otherwise provided for in this chapter, a provision in this code shall not require the removal, *alteration* or abandonment of, or prevent the continued utilization and maintenance of, existing electrical systems and equipment lawfully in existence at the time of the adoption of this code.

K102.3 Maintenance. Electrical systems, equipment, materials and appurtenances, both existing and new, and parts thereof shall be maintained in proper operating condition in accordance with the original design and in a safe, hazard-free condition. Devices or safeguards that are required by this code shall be maintained in compliance with the code edition under which installed. The *owner* or the *owner's* authorized agent shall be responsible for the maintenance of the electrical systems and equipment. To determine compliance with this provision, the *building official* shall have the authority to require that the electrical systems and equipment be reinspected.

K102.4 Additions, alterations and repairs. *Additions*, *alterations*, renovations and *repairs* to electrical systems and equipment shall conform to that required for new electrical systems and equipment without requiring that the existing electrical systems or equipment comply with all of the requirements of this code. *Additions*, *alterations* and *repairs* shall not cause existing electrical systems or equipment to become unsafe, hazardous or overloaded.

Minor *additions*, *alterations*, renovations and *repairs* to existing electrical systems and equipment shall meet the provisions for new construction, except where such work is performed in the same manner and arrangement as was in the existing system, is not hazardous and is *approved*.

K102.5 Subjects not regulated by this code. Where no applicable standards or requirements are set forth in this code, or are contained within other laws, codes, regulations, ordinances or bylaws adopted by the jurisdiction, compliance with applicable standards of nationally recognized standards as are *approved* shall be deemed as prima facie evidence of compliance with the intent of this code. Nothing herein shall derogate from the authority of the *building official* to determine compliance with codes or standards for those activities or installations within the building official's jurisdiction or responsibility.

SECTION K103
PERMITS

K103.1 Types of permits. An *owner*, authorized agent or contractor who desires to construct, enlarge, alter, *repair*, move, demolish or change the occupancy of a building or structure, or to erect, install, enlarge, alter, *repair*, remove, convert or replace electrical systems or equipment, the installation of which is regulated by this code, or to cause such work to be done, shall first make application to the *building official* and obtain the required *permit* for the work.

Exception: Where *repair* or replacement of electrical systems or equipment must be performed in an emergency situation, the *permit* application shall be submitted within the next working business day of the department of electrical inspection.

K103.2 Work exempt from permit. The following work shall be exempt from the requirement for a *permit*:

1. Listed cord- and plug-connected temporary decorative lighting.
2. Reinstallation of attachment plug receptacles, but not the outlets therefor.

3. Replacement of branch circuit overcurrent devices of the required capacity in the same location.
4. Temporary wiring for experimental purposes in suitable experimental laboratories.
5. Electrical wiring, devices, appliances, apparatus or equipment operating at less than 25 volts and not capable of supplying more than 50 watts of energy.

Exemption from the permit requirements of this code shall not be deemed to grant authorization for work to be done in violation of the provisions of this code or other laws or ordinances of this jurisdiction.

SECTION K104
CONSTRUCTION DOCUMENTS

K104.1 Information on construction documents. *Construction documents* shall be drawn to scale upon suitable material. Electronic media documents are permitted to be submitted where *approved* by the *building official*. *Construction documents* shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that such work will conform to the provisions of this code and relevant laws, ordinances, rules and regulations, as determined by the *building official*.

K104.2 Penetrations. *Construction documents* shall indicate where penetrations will be made for electrical systems and shall indicate the materials and methods for maintaining required structural safety, *fire-resistance rating* and *fireblocking*.

K104.3 Load calculations. Where an *addition* or *alteration* is made to an existing electrical system, an electrical load calculation shall be prepared to determine if the existing electrical service has the capacity to serve the added load.

SECTION K105
ALTERNATIVE ENGINEERED DESIGN

K105.1 General. The design, documentation, inspection, testing and approval of an alternative engineered design electrical system shall comply with this section.

K105.2 Design criteria. An alternative engineered design shall conform to the intent of the provisions of this code and shall provide an equivalent level of quality, strength, effectiveness, *fire resistance*, durability and safety. Materials, equipment or components shall be designed and installed in accordance with the manufacturer's instructions.

K105.3 Submittal. The *registered design professional* shall indicate on the *permit* application that the electrical system is an alternative engineered design. The *permit* and permanent *permit* records shall indicate that an alternative engineered design was part of the *approved* installation.

K105.4 Technical data. The *registered design professional* shall submit sufficient technical data to substantiate the proposed alternative engineered design and to prove that the performance meets the intent of this code.

K105.5 Construction documents. The *registered design professional* shall submit to the *building official* two complete sets of signed and sealed *construction documents* for the alternative engineered design. The *construction documents* shall include floor plans and a diagram of the work.

K105.6 Design approval. Where the *building official* determines that the alternative engineered design conforms to the intent of this code, the electrical system shall be *approved*. If the alternative engineered design is not *approved*, the *building official* shall notify the *registered design professional* in writing, stating the reasons therefor.

K105.7 Inspection and testing. The alternative engineered design shall be tested and inspected in accordance with the requirements of this code.

SECTION K106
REQUIRED INSPECTIONS

K106.1 General. The *building official*, upon notification, shall make the inspections set forth in this section.

K106.2 Underground. Underground inspection shall be made after trenches or ditches are excavated and bedded, piping and conductors installed, and before backfill is put in place. Where excavated soil contains rocks, broken concrete, frozen chunks and other rubble that would damage or break the raceway, cable or conductors, or where corrosive action will occur, protection shall be provided in the form of granular or selected material, *approved* running boards, sleeves or other means.

K106.3 Rough-in. Rough-in inspection shall be made after the roof, framing, *fireblocking* and bracing are in place and all wiring and other components to be concealed are complete, and prior to the installation of wall or ceiling membranes.

K106.4 Contractors' responsibilities. It shall be the responsibility of every contractor who enters into contracts for the installation or repair of electrical systems for which a *permit* is required to comply with adopted state and local rules and regulations concerning licensing.

SECTION K107
PREFABRICATED CONSTRUCTION

K107.1 Prefabricated construction. Prefabricated construction is subject to Sections K107.2 through K107.5.

K107.2 Evaluation and follow-up inspection services. Prior to the approval of a prefabricated construction assembly having concealed electrical work and the issuance of an electrical *permit*, the *building official* shall require the submittal of an evaluation report on each prefabricated construction assembly, indicating the complete details of the electrical system, including a description of the system and its components, the basis upon which the system is being evaluated, test results and similar information, and other data as necessary for the *building official* to determine conformance to this code.

K107.3 Evaluation service. The *building official* shall designate the evaluation service of an *approved* agency as the evaluation agency and review such agency's evaluation report for adequacy and conformance to this code.

K107.4 Follow-up inspection. Except where ready access is provided to electrical systems, service equipment and accessories for complete inspection at the site without disassembly or dismantling, the *building official* shall conduct the in-plant inspections as frequently as necessary to ensure conformance to the *approved* evaluation report or shall designate an independent, *approved* inspection agency to conduct such inspections. The inspection agency shall furnish the *building official* with the follow-up inspection manual and a report of inspections upon request, and the electrical system shall have an identifying label permanently affixed to the system indicating that factory inspections have been performed.

K107.5 Test and inspection records. Required test and inspection records shall be available to the *building official* at all times during the fabrication of the electrical system and the erection of the building; or such records as the *building official* designates shall be filed.

SECTION K108
TESTING

K108.1 Testing. Electrical work shall be tested as required in this code. Tests shall be performed by the *permit* holder and observed by the *building official*.

K108.1.1 Apparatus, material and labor for tests. Apparatus, material and labor required for testing an electrical system or part thereof shall be furnished by the *permit* holder.

K108.1.2 Reinspection and testing. Where any work or installation does not pass an initial test or inspection, the necessary corrections shall be made so as to achieve compliance with this code. The work or installation shall then be resubmitted to the *building official* for inspection and testing.

SECTION K109
RECONNECTION

K109.1 Connection after order to disconnect. A person shall not make utility service or energy source connections to systems regulated by this code, which have been disconnected or ordered to be disconnected by the *building official*, or the use of which has been ordered to be discontinued by the *building official* until the *building official* authorizes the reconnection and use of such systems.

SECTION K110
CONDEMNING ELECTRICAL SYSTEMS

K110.1 Authority to condemn electrical systems. Wherever the *building official* determines that any electrical system, or portion thereof, regulated by this code has become hazardous to life, health or property, the *building official* shall order in writing that such electrical systems either be removed or restored to a safe condition. A time limit for compliance with such order shall be specified in the written notice. A person shall not use or maintain a defective electrical system or equipment after receiving such notice.

Where such electrical system is to be disconnected, written notice as prescribed in this code shall be given. In cases of immediate danger to life or property, such disconnection shall be made immediately without such notice.

SECTION K111
ELECTRICAL PROVISIONS

K111.1 Adoption. Electrical systems and equipment shall be designed, constructed and installed in accordance with the *Residential Code* or NFPA 70 as applicable, except as otherwise provided in this code.

K111.2 Abatement of electrical hazards. All identified electrical hazards shall be abated. All identified hazardous electrical conditions in permanent wiring shall be brought to the attention of the *building official* responsible for enforcement of this code. Electrical wiring, devices, appliances and other equipment that is modified or damaged and constitutes an electrical shock or fire hazard shall not be used.

K111.3 Appliance and fixture listing. Electrical appliances and fixtures shall be tested and *listed* in published reports of inspected electrical equipment by an *approved* agency and installed in accordance with all instructions included as part of such listing.

K111.4 Nonmetallic-sheathed cable. The use of Type NM, NMC and NMS (nonmetallic sheathed) cable wiring methods shall not be limited based on height, number of stories or construction type of the building or structure.

K111.5 Cutting, notching and boring. The cutting, notching and boring of wood and steel framing members, structural members and engineered wood products shall be in accordance with this code.

K111.6 Smoke alarm circuits. Single- and multiple-station smoke alarms required by this code and installed within *dwelling* units shall not be connected as the only load on a branch circuit. Such alarms shall be supplied by branch circuits having lighting loads consisting of lighting outlets in habitable spaces.

K111.7 Equipment and door labeling. Doors into electrical control panel rooms shall be marked with a plainly visible and legible sign stating ELECTRICAL ROOM or similar *approved* wording. The disconnecting means for each service, feeder or branch circuit originating on a switchboard or panelboard shall be legibly and durably marked to indicate its purpose unless such purpose is clearly evident.

APPENDIX L

EARTHQUAKE RECORDING INSTRUMENTATION

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION L101
GENERAL

L101.1 General. Every structure located where the 1-second spectral response acceleration, S_1, in accordance with Section 1613.3 is greater than 0.40 that either 1 exceeds six stories in height with an aggregate floor area of 60,000 square feet (5574 m^2) or more, or 2 exceeds 10 *stories* in height regardless of floor area, shall be equipped with not less than three approved recording accelerographs. The accelerographs shall be interconnected for common start and common timing.

L101.2 Location. As a minimum, instruments shall be located at the lowest level, mid-height, and near the top of the structure. Each instrument shall be located so that access is maintained at all times and is unobstructed by room contents. A sign stating "MAINTAIN CLEAR ACCESS TO THIS INSTRUMENT" in 1-inch (25 mm) block letters shall be posted in a conspicuous location.

L101.3 Maintenance. Maintenance and service of the instrumentation shall be provided by the owner of the structure. Data produced by the instrument shall be made available to the *building official* on request.

Maintenance and service of the instruments shall be performed annually by an approved testing agency. The owner shall file with the *building official* a written report from an approved testing agency certifying that each instrument has been serviced and is in proper working condition. This report shall be submitted when the instruments are installed and annually thereafter. Each instrument shall have affixed to it an externally visible tag specifying the date of the last maintenance or service and the printed name and address of the testing agency.

APPENDIX M

TSUNAMI-GENERATED FLOOD HAZARD

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION M101
TSUNAMI-GENERATED FLOOD HAZARD

M101.1 General. The purpose of this appendix is to provide tsunami regulatory criteria for those communities that have a tsunami hazard and have elected to develop and adopt a map of their tsunami hazard inundation zone.

M101.2 Definitions. The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of this code for general definitions.

TSUNAMI HAZARD ZONE. The area vulnerable to being flooded or inundated by a design event tsunami as identified on a community's Tsunami Hazard Zone Map.

TSUNAMI HAZARD ZONE MAP. A map adopted by the community that designates the extent of inundation by a design event tsunami. This map shall be based on the tsunami inundation map that is developed and provided to a community by either the applicable state agency or the National Atmospheric and Oceanic Administration (NOAA) under the National Tsunami Hazard Mitigation Program, but shall be permitted to utilize a different probability or hazard level.

M101.3 Establishment of tsunami hazard zone. Where applicable, if a community has adopted a Tsunami Hazard Zone Map, that map shall be used to establish a community's tsunami hazard zone.

M101.4 Construction within the tsunami hazard zone. Construction of structures designated Risk Categories III and IV as specified under Section 1604.5 shall be prohibited within a tsunami hazard zone.

Exceptions:

1. A vertical evacuation tsunami refuge shall be permitted to be located in a tsunami hazard zone provided it is constructed in accordance with FEMA P646.
2. Community critical facilities shall be permitted to be located within the tsunami hazard zone when such a location is necessary to fulfill their function, providing suitable structural and emergency evacuation measures have been incorporated.

SECTION M102
REFERENCED STANDARDS

FEMA P646—12	Guidelines for Design of Structures for Vertical Evacuation from Tsunamis	M101.4

APPENDIX N

SIGNS

SECTION N101
GENERAL

N101.1 General. This section shall govern the erection, hanging, placing, painting, display, and maintenance of outdoor display signs and other forms of exterior advertising. Except as otherwise specifically provided, signs bearing noncommercial statements of fact, belief, or personal or political opinion posted on private property are not subject to the provisions of this section.

N101.2 Definition. The following word and term shall, for the purposes of this section and as used elsewhere in this code, have the meaning shown herein.

BILLBOARD. This term includes billboards and poster panels.

N101.3 Permits. No sign subject to the provisions of Section 101 that exceeds 1 square foot (0.093 m²) in area, unless exempted by Section 101.3.5, shall be erected, made a part of a building, painted, repainted, placed, replaced, hung, rehung, altered, repaired structurally, changed in color, made to flash, or maintained, without a permit issued in accordance with this section by the *code official*.

N101.3.1 Application for permit. Application for sign permit shall be made upon a form provided by the *code official*. Application for a permit to install a sign shall be accompanied by drawings in triplicate, drawn to scale showing details of construction dimensions, lettering, and method of attachment of the sign.

N101.3.2 Dimensions of the premises. The application shall contain a statement of width of premises or width and height of the building, or any other dimensions deemed necessary by the *code official* to determine the allowable area of the sign.

N101.3.3 Materials specifications. The applicant shall furnish specifications or other information covering type and thickness of materials for the sign and its support.

N101.3.4 Permits for electrical signs. Any sign on or in which lighting of any type is to be used, or which will be illuminated by artificial means, or which will contain other electrical features, shall be designed in accordance with Chapter 27 of this code and require the issuance of a separate electrical installation permit.

N101.3.5 Exemptions from permit. The types of signs and advertising specified in Sections N101.3.5.1 through N101.3.5.7 do not require permits unless located within areas requiring review by the Commission of Fine Arts.

N101.3.5.1 Theater bills and changeable copy signs. The changing of bills of acts and features of theaters on established frames at such theaters, and the changing of the copy of any authorized changeable copy sign, the wording of which does not conflict with the provisions of this section.

N101.3.5.2 Billboard advertising. Changing of matter advertised on authorized billboards and poster panels included in the official list of billboards.

N101.3.5.3 Signs within a building. Any sign located entirely inside a building, unless the sign is attached directly or painted on a window; is located within 18 inches (457 mm) of a window or entrance; or contains writing that is legible, or an image that is clearly discernible, from property other than the property on which the sign is located. A sign inside a building that is attached directly or painted on a window; is located within 18 inches (457 mm) of a window or entrance; or contains writing that is legible, or an image that is clearly discernible, from property other than the property on which the sign is located shall require a permit and shall be regulated as a sign under this appendix.

N101.3.5.4 Signs on windows. Signs upon a show window, or upon any other window abutting on, or overlooking a street or public way, within the Commercial and PDR Districts as fixed by the *Zoning Regulations*, which signs advertise only the name of the occupant of the building, office, or store, the business conducted or products sold therein, when the aggregate area of those signs does not exceed 20 percent of the area of the window upon which they are displayed.

N101.3.5.5 Small unilluminated signs. Unilluminated signs located outside of and unattached to buildings in areas zoned Commercial or PDR, otherwise complying with Section N101.6, when such signs do not exceed three per record lot, when each such sign does not exceed 3 feet (914 mm) in its maximum dimension and 4 square feet (0.371 m²) in area, and when each of such signs is located more than 20 feet (6096 mm) back of the building line or of the building restriction line. Such signs shall be allowed in addition to those for which a permit is required under this section.

N101.3.5.6 Real estate signs. Real estate signs not exceeding 6 square feet (0.557 m²) in area.

N101.3.5.7 Vacated property. One sign not to exceed 6 square feet (0.557 m²) in area, giving the name, business, and new address of the former occupant, is permitted to be displayed for not more than 60 days.

N101.3a Notwithstanding the limitations and exemptions stated in Section N101.1 and N101.3.5, a permit is required for the erection, painting, repainting, placement, replacement, hanging, rehanging, alteration, repair, or change of a sign larger than 1 square foot (0.093 m^2) in size on the outside of a building on historic property or located within the first 18 inches (457 mm) inside a glazed opening of a building on historic property.

N101.3a.1 Permits shall be issued or denied for signs on historic property bearing noncommercial statements of

fact, belief, or personal or political opinion that would otherwise be excluded from regulation under this section pursuant to Section N101.1, and for signs on historic property that would otherwise be exempt from the permit requirement pursuant to Section 3103.5, based solely on their compliance with the requirements of 10-A DCMR, Chapter 25.

N101.3b Notwithstanding the limitations stated in Section N101.1, a permit is required for the erection, painting, repainting, placement, replacement, hanging, rehanging, alteration, repair, or change of a sign bearing a noncommercial statement of fact, belief, or personal or political opinion that would otherwise be excluded from regulation under this section pursuant to Section N101.1, if the sign is subject to review by the Commission of Fine Arts under Section N101.4. Permits shall be issued or denied for these signs based solely on their compliance with Section N101.4 and applicable Commission of Fine Arts requirements.

N101.4 Commission of Fine Arts submission. The provisions of Sections N101.4.1 through N101.4.2.9 shall govern applications for review of signs to be made to the Commission of Fine Arts.

N101.4.1 Shipstead-Luce Act area submissions. All applications to erect signs on buildings or land within the area controlled by An Act To regulate, the height, exterior design, and construction of private and semipublic buildings in certain areas of the National Capital ("Shipstead-Luce Act"), approved May 16, 1930 [46 Stat. 366; DC Official Code § 6-611.01 *et seq*. (2018 Repl.)], shall be submitted to the Commission of Fine Arts for review before a permit is issued. In addition to compliance with all other applicable provisions of this section, signs within the meaning of the Shipstead-Luce Act shall comply with the requirements of Sections N101.4.1.1 through N101.4.1.9.

N101.4.1.1 Billboards, roof signs, projecting and revolving signs. Billboards as described in Section N101.7.6, roof signs as described in Section N101.7.2, projecting signs as described in Section N101.7.1, and revolving signs as described in Section N101.7.11, shall not be permitted.

N101.4.1.2 Permissible signs. Single-faced signs, only, shall be permitted upon the exterior walls of buildings, and all signs shall be stationary. The maximum sign projection allowed shall not exceed 12 inches (305 mm) beyond the building or building restriction lines.

N101.4.1.3 Illuminated signs. Illuminated signs shall consist of freestanding, back-lighted, opaque letters, illuminated by steady light. Exposed sources of sign illumination shall be prohibited.

N101.4.1.4 Sign dimensions. The aggregate area of all signs advertising any one business on a building or premises shall be limited to 25 square feet (2.322 m²) per street frontage.

N101.4.1.5 Sign copy. Copy on signs shall be limited to the address or name of the establishment, or both, and the type of business conducted, as indicated by the Certificate of Occupancy issued for the premises involved.

N101.4.1.6 Number of colors on sign. No more than two colors, nor more than one color in addition to black or white, shall be used for any sign, including the illumination of such sign.

N101.4.1.7 Signs on awnings. Signs on awnings shall be limited to the valance and shall otherwise comply with other applicable requirements of this section.

N101.4.1.8 Show window lettering. Lettering of signs limited to a show window, or any other window, abutting on or overlooking a street or public way, shall cover an aggregate area of not more than 25 square feet (2.322 m²), per business, nor more than 20 percent of the area of the window, whichever is less.

N101.4.1.9 Nonconforming signs. Despite the limitations imposed by the requirements above, when the Commission of Fine Arts finds that the sign or the conditions surrounding it justify granting a variance from or exception to any of the requirements of Sections N101.4.1.1 through N101.4.1.8 and the Commission finds that granting such a variance or exception will not impair the intent and purpose of this section or of the Shipstead-Luce Act, the *code official* is authorized to approve an application to erect a sign not conforming to the said requirements.

N101.4.2 Old Georgetown Act area submissions. All applications to erect signs on buildings or land within the area controlled by An Act To regulate the height, exterior design, and construction of private and semipublic buildings in the Georgetown area of the National Capital ("Old Georgetown Act"), approved September 22, 1950 [64 Stat. 903; DC Official Code §§ 6-1201 *et seq*. (2018 Repl.)], shall be submitted to the Commission of Fine Arts for review before a permit is issued. In addition to compliance with all other applicable provisions of this section, signs within the meaning of the Old Georgetown Act shall comply with the requirements of Sections N101.4.2.1 through N101.4.2.9.

N101.4.2.1 Billboards, roof signs, projecting and revolving signs. Billboards as described in Section N101.7.6, roof signs as described in Section N101.7.2, and revolving signs as described in Section N101.7.11, shall not be permitted. Projecting signs as described in Section N101.7.1, shall be allowed upon favorable recommendation by the Commission of Fine Arts, which shall include the maximum allowable projection of the sign.

N101.4.2.2 General restriction. All signs shall be stationary.

N101.4.2.3 Illuminated signs. Illuminated signs shall consist of freestanding, back-lighted, opaque letters,

illuminated by steady light. Exposed sources of sign illumination shall be prohibited.

N101.4.2.4 Sign dimensions. The aggregate area of all signs advertising any one business on a building or premises shall be limited to 25 square feet (2.322 m²) per street frontage.

N101.4.2.5 Sign copy. Copy on signs shall be limited to the address or name of the establishment, or both, and the type of business conducted, as indicated by the Certificate of Occupancy issued for the premises involved.

N101.4.2.6 Number of colors on sign. No more than two colors, nor more than one color in addition to black or white, shall be used for any sign, including the illumination of such sign.

N101.4.2.7 Signs on awnings. Signs on awnings shall be limited to the valance and shall otherwise comply with other applicable requirements of this section.

N101.4.2.8 Show window lettering. Lettering of signs limited to a show window, or any other window, abutting on or overlooking a street or public way, shall cover an aggregate area or not more than 25 square feet (2.322 m²), per business, nor more than 20 percent of the area of the window, whichever is less.

N101.4.2.9 Nonconforming signs. Despite the limitations imposed by the requirements above, when the Commission of Fine Arts finds that the sign or the conditions surrounding it justify granting a variance from or exception to any of the requirements of Sections N101.4.2.1 through N101.4.2.8 and the Commission finds that granting such a variance or exception will not impair the intent and purpose of this section or of the Old Georgetown Act, the *code official* is authorized to approve an application to erect a sign not conforming to the said requirements.

N101.5 Marking of signs. Every sign for which a permit is required shall be marked with letters not less than 1 inch (25.4 mm) in height, giving the permit number and date of permit issuance.

N101.5a Signs on historic property. Signs on historic property shall comply with the requirements of 10-C DCMR, Chapter 25.

N101.6 Character of advertising. No sign subject to the provisions of Section N101 shall be erected, hung, rehung, placed, replaced, painted, repainted, repaired, or maintained upon any structure or upon any wall or roof, or upon any premises, unless such sign advertises a bona fide business conducted on the premises, and for which business a Certificate of Occupancy has been issued. The change of sign copy on any sign other than an authorized "Changeable Copy Sign" shall require issuance of a new sign permit.

Exceptions:

1. Signs covered by Sections N101.3.5.1 through N101.3.5.3, N101.3.5.5 through N101.3.5.8, billboards as described in Sections N101.7.6 through N101.7.6.7.15, and temporary signs as described in Section N101.8.
2. When buildings are under construction or alteration for a specific use, the *code official* is authorized to issue a permit for the construction or erection of a sign complying with these regulations, if such building or alteration has progressed to the satisfaction of the *code official* for its projected use, and application for Certificate of Occupancy has been filed.

N101.6.1 Area use restriction. Not more than 50 percent of the area of any sign shall be used to advertise products or commodities actually sold on the premises.

Exception: Devices indicating only time, temperature, or both, shall not be required to comply with this restriction.

N101.6.2 Removal of signs. Any sign subject to the provisions of Section N101 that was erected, hung, rehung, placed, replaced, painted, repainted, or maintained and which no longer advertises a bona fide business conducted upon the premises as specified in Section N101.6, is not permitted pursuant to Section N101.6a, or is not an authorized billboard or poster panel, shall be taken down, removed, or obliterated within 5 days upon notification by the *code official* or such longer time as may be designated by the *code official*, and failure to so comply on the part of the owner, occupant, agent, or person having beneficial use of any building or premises upon which such sign may be found, shall subject the owner to the fines provided for in Section 4 of An Act To regulate the erection, hanging, placing, painting, display and maintenance of outdoor signs and other forms of exterior advertising within the District of Columbia, approved March 3, 1931 [46 Stat. 1486; DC Official Code § 1-303.23 (2016 Repl. & 2018 Supp.)], or to civil fines, penalties, and fees pursuant to Titles I through III of the Department of Consumer and Regulatory Affairs Civil Infractions Act of 1985, effective October 5, 1985 [DC Law 6-42; DC Official Code §§ 2-1801.01 *et seq*. (2016 Repl. & 2018 Supp.)].

N101.6.3 Street clocks. No lettering or advertising matter shall be placed on any street clock or part thereof, except that the name of the manufacturer of the clock is permitted to be displayed on the dial in small letters not to exceed one-twentieth of the height of the dial.

N101.6.4 Signs on vacant property. Display of any sign, poster, or other advertising medium on or in any part of a vacant building, store, or premises, visible from the street or public way, other than real estate signs, complying with Section N101.16 and authorized billboards or poster panels, is prohibited.

Exception: One sign not more than 6 square feet (0.557 m²) in area giving the name, business, and new address of the former occupant is permitted to be displayed for not more than 60 days on the vacated premises.

N101.6.5 Directional signs. Directional signs shall not be allowed except as permitted under Section N101.7.6 for billboards or poster panels, under Section N101.6.4 on vacated property, and their temporary display for the pur-

pose of indicating the availability of real estate for sale or lease and the holding of an open house at a particular property.

Exception: Signs not more than 6 square feet (.557 m²) in area indicating the location of parking facilities for patrons shall be allowed under permit.

N101.6.6 Special permits. The *code official* is authorized to issue a permit to erect and maintain a sign not conforming with this section if the *code official* finds that such sign or conditions surrounding such sign are unusual in character, of a type infrequently encountered, and that approval of the permit will provide an equitable application of this section basically in keeping with its purpose and intent. The *code official* in each such special permit is authorized to impose such terms and conditions as he or she may deem necessary. Any sign erected pursuant to a special permit shall be removed at or prior to the time specified in the permit for the removal of such sign. If no time is specified, then such sign shall be removed not later than 10 days after notice from the *code official* to do so.

N101.6.6.1 Temporary decorations for buildings. The *code official* is authorized to approve permits for temporary decorations on the fronts of buildings or on legal projections from buildings in the spirit of a holiday period, inauguration, or similar occasion. Temporary decorations are permitted to include greetings, symbols, pictures, and other markings appropriate to the occasion. Any structures, framework, and fastenings shall be subject to the usual requirements. Authority is not granted in this section to approve applications for decorations on, over, along, or across any street or highway, except as provided for in Section N101.6.6.2. Permits for temporary decorations shall be issued for periods not exceeding 40 days.

N101.6.6.2 Temporary decorations for streets. Temporary street decorations shall not be installed on, over, along or across any street or highway until a special permit has been issued by the Director of the Department of Transportation. Street decorations are a privilege, not a right, and the Director of the Department of Transportation is authorized to deny the corresponding permit or impose such conditions as may be deemed necessary, in the interest of public safety or welfare. Street decorations shall comply with the following conditions:

1. Street decorations shall not contain any advertising or any form of explicit or implicit reference to commercial businesses or products.
2. Street decorations shall be substantially related to an event or seasonal festivity of a civic or religious nature, not occurring more frequently than once a year.
3. Street decorations shall be stationary and shall be substantially supported structurally.
4. Street decorations containing electrical wiring or systems shall comply with Chapter 27.

N101.6a Substitution of Content. Any noncommercial message may be substituted for the content of any commercial sign allowed under this section.

N101.7 Types of signs. The provisions of this section shall apply to types of signs and requirements for all signs subject to the provisions of Section N101.

N101.7.1 Projecting signs. Signs projecting from or beyond a building line or building restriction line shall be allowed in Commercial and PDR Districts, as defined in the *Zoning Regulations*, when supported on iron or steel brackets and stayed securely, or affixed in an approved equivalent manner, subject to the limitations imposed by Sections N101.7.1.1 through N101.7.1.3.

N101.7.1.1 Sign projection restrictions. No sign shall project more than 42 inches (1067 mm) beyond the building line or building restriction line, on the street frontage of a building. Hooded lights are permitted to be placed on projecting signs solely to illuminate such signs, but the hoods of such lights shall not project more than an additional 6 inches (152 mm). No part of projecting signs shall have less than 8 feet (2438 mm) clearance above the surface of a sidewalk or any other space used by the public, nor less than 15 feet (4572 mm) clearance above the surface of any driveway in public space. No portion of a sign shall extend over public space closer than 18 inches (457 mm) from the curb lane. No sign, including illumination, shall project more than 6 inches (152 mm) beyond the building line, in alleys.

N101.7.1.2 Double-faced projecting signs. Double-faced projecting signs on the front of buildings shall not extend above the roof or parapet a distance of more than one-third of the height of the sign nor more than 4 feet (1219 mm). Such signs are permitted to return over the roof or parapet not over 18 inches (457 mm) back of the face of the wall.

N101.7.1.3 Rigid attachment of signs. No sign projecting over public space shall be so erected or hung as to swing, sway, or revolve in any manner, except banners or flags. The supports for banners and flags shall also be installed so as to be rigid.

N101.7.2 Roof signs. Roof signs shall not be erected above the height limit established by the *Zoning Regulations*. The base of a roof sign shall not be less than 6 inches (152 mm) nor more than 18 inches (457 mm) above the roof parapet wall on which it is erected or affixed. The height of a roof sign shall not exceed half of the width of its base. In no case shall such sign exceed the maximum area fixed by Section N101.10.

N101.7.2.1 Attachments. All roof signs shall be securely braced and fastened with lag screw expansion bolts, anchor plates, or by another approved structurally sound method, to prevent accidents in high winds. Roof signs shall not be erected or hung so as to swing, sway, or revolve in any manner. Complete structural plans indicating roof construction, method of attachment, and sign framing shall be provided with all applications for roof sign permits.

N101.7.2.2 Height limit. Lettering, advertising, or display of any character, other than religious symbols, is prohibited above the limit of height established by the *Zoning Regulations* on spires, towers, domes, minarets, pinnacles, penthouses, ventilation shafts, chimneys, smokestacks, water storage tanks, cooling towers, or on any other support media extending above said height limit.

N101.7.3 Signs supported by projecting construction. Signs are permitted to be supported by canopies, marquees, porticos, and roofs of show windows constructed so as to safely support the weight of the sign or signs, in addition to the required snow and wind loads. Such signs shall not extend more than 42 inches (1067 mm) beyond the building line, except as provided for in Section N101.7.1.

N101.7.4 Signs on awnings or similar projections. One horizontal line of letters, each letter not more than 12 inches (305 mm) in height, is permitted to be placed or painted on the vertical faces of valances, or on top of or hung from a canopy, marquee, portico, or awning. Where the line of letters is placed on top or hung from a marquee, canopy, portico, or awning, it shall be constructed in the so-called "skeleton" design, composed of separate letters without background or border. The line of letters shall designate only the street number of the premises and the name of the occupant or building or trade name. Such signs shall also be permitted in Residential Districts and Special Purpose Districts for apartment houses and hotels only. Signs on awnings, marquees, and canopies located on historic property shall comply with the requirements of 10A DCMR, Chapter 25.

N101.7.5 Banner signs and flags. No banner, sign or flag used for advertising purposes shall be erected, hung, attached, or affixed to any pole, staff, or other appurtenance, unless a permit for it has been issued, nor shall such banner, sign, or flag extend over public space more than 42 inches (1067 mm), or be hung or maintained less than 14 feet (4267 mm) above a public parking space, sidewalk or roadway.

N101.7.5.1 Barber poles. Barber poles on public space attached to a building shall not project more than 42 inches (1067 mm) from the building line and provide not less than 8 feet (2438 mm) clearance above the sidewalk or existing ground level.

N101.7.6 Billboards. The provisions of this section shall govern billboards in the District of Columbia.

N101.7.6.1 Authorized list. Only those billboards which were in existence as of January 1, 1972, that are contained in the "Authorized List of Billboards, Three-sheet Poster Boards, and Wall Signs," dated November 30, 1931, as amended through December 31, 1971, are authorized to remain in place, subject to the conditions in Sections N101.7.6.1 through N101.7.6.7.15.

N101.7.6.2 Existing authorized billboards. Any existing billboard contained in the authorized list referenced in Section N101.7.6.1 shall be permitted to be maintained, repaired, altered, or rebuilt under authority of permits issued by the *code official*. Change in size or location is not authorized and the maintenance and repair requirements of Section N101.7.6.5 shall be met.

N101.7.6.3 Unauthorized billboards. Billboards which were not included in the authorized list referenced in Section N101.7.6.1 are without authority, unless erected in accordance with Sections N101.7.6.6 and N101.7.6.7. All unauthorized billboards shall be removed by the owner. No such billboard shall be replaced in any form or in any location, unless a new permit is issued in accordance with Sections N101.7.6.6 and N101.7.6.7.

N101.7.6.4 Razed billboards. Any billboard which is included in the authorized list referenced in Section N101.7.6.1 and which is razed, demolished, or obliterated, shall be stricken from the authorized list. Such billboard shall not be replaced in any form or in any location, unless a new permit is issued in accordance with Sections N101.7.6.6 and N101.7.6.7.

N101.7.6.5 Maintenance and repair. Whenever the *code official* finds that any billboard on the authorized list referred to in Section N101.7.6.1, or erected under a permit issued in accordance with Sections N101.7.6.6 and N101.7.6.7, is not maintained in good repair and has not deteriorated more than 50 percent of its replacement value, the *code official* shall notify the owner thereof and order him to repair the billboard within a specified time but not less than 10 calendar days. If the *code official* finds that the billboard has deteriorated more than 50 percent of its replacement value, or is not repaired within the time specified in the repair notice, the *code official* shall notify the owner of the billboard and the owner of the real property on which said billboard is located to remove the billboard from the property within a specified time. All billboards ordered to be removed shall be stricken from the authorized list when the time limit set in the removal notice ends. Failure to comply shall subject said owners, upon conviction or adjudication, to the fines provided for in Section 4 of An Act To regulate the erection, hanging, placing, painting, display and maintenance of outdoor signs and other forms of exterior advertising within the District of Columbia, approved March 3, 1931 (46 Stat. 1486; DC Official Code § 1-303.23), or to civil fines, penalties, and fees pursuant to Titles I through III of the Department of Consumer and Regulatory Affairs Civil Infractions Act of 1985, effective October 5, 1985 (DC Law 6-42; DC Official Code §§ 2-1801.01 *et seq*.).

N101.7.6.6 Permit required. No billboards shall be erected, placed, maintained or relocated within the District of Columbia unless an application for permit is approved by the *code official*.

1. **Permit applications.** Permit applications shall be made upon forms provided by the *code official*. Permit applications shall be accompanied by four sets of drawings showing details of construc-

tion, foundations, lighting, location of the billboard in relation to property lines, and relation to any other billboards located within 500 feet (152 400 mm) of the billboard for which the application is submitted. A separate electrical permit is required for billboards containing any electrical features.

2. **Permit fee.** The permit application must be accompanied by a fee pursuant to Section 108.
3. **Zoning compliance.** Billboard permit applications shall comply with the *Zoning Regulations*. However, where a billboard is to be located in an area, which, in the judgment of the Zoning Administrator is not permitted, the Zoning Administrator shall notify the applicant in writing that the application for permit is denied for failure to conform to the *Zoning Regulations*, indicating the applicable provisions of the *Zoning Regulations*. The Zoning Administrator's decision may be appealed to the Board of Zoning Adjustment as prescribed by its rules.
4. **Shipstead-Luce Act and Old Georgetown Act areas.** Where a billboard is to be located in an area covered either by the Shipstead-Luce Act or the Old Georgetown Act, the application and supporting material shall be transmitted to the Commission of Fine Arts for review under Sections 6-611.01 and 6-1202 of the DC Official Code (2018 Repl.).
5. **Permit denial.** If the *code official* denies a billboard permit, the basis for the denial shall be stated in writing, including references to the statutory or regulatory provisions that would be violated if the permit were granted. The *code official* shall notify the applicant in writing with the reasons for denial of the permit.

N101.7.6.7 Design standards. Billboard permit applications shall comply with Items 1 through 15, before a permit shall be issued:

1. The billboard shall not contain any moving parts, except where such moving parts are used to convey public service information such as time, temperature, date, weather, or similar information.
2. The billboard shall not contain flashing, intermittent, moving, or neon lights; the billboard shall not be lighted so as to permit beams of light to be directed at any portion of a public right-of-way, which beams of light are of such intensity or brilliance as to cause glare or impair the vision of any driver, or otherwise interfere with the driver's operation of a motor vehicle; the billboard shall not obstruct or undermine the traffic information systems of signs and lights.
3. The billboard shall not be located on lots of less than 50 feet (15240 mm) of street frontage, nor shall billboard length be more than half the street frontage of the lot where it is proposed to be erected.
4. The billboard shall not be located within 200 feet (60 960 mm) of an existing billboard.
5. When located along an Interstate Highway or a controlled Access Primary Roadway within the Federal Aid Primary Urban Extension System as designated by the DC Department of Transportation, the billboard shall not be located less than 500 feet (152 400 mm) from an existing billboard.
6. The billboard shall not be located on lots within 200 feet (60 960 mm) of any Residential District, as defined by the *Zoning Regulations*.
7 The billboard shall not be located within 200 feet (60 960 mm) of any park or building owned or under the control of the government of the District of Columbia or of the Federal Government.
8. The billboard shall not be located within 300 feet (91 440 mm) of any Historic Landmark or in or within 300 feet (91 440 mm) of any Historic District as listed in the District of Columbia Inventory of Historic Sites.
9. The billboard shall not be visible from the nearest right-of-way line of any Interstate Highway or Federal Aid Primary Urban Extension System route, as designated by the DC Department of Transportation, or on any surface or elevated right-of-way of the Washington Metropolitan Area Transit Authority (WMATA) system, except as authorized in accordance with Item 10 of this section.
10. Where permitted by the *Zoning Regulations*, billboards shall be permitted that do not comply with Item 9 of this section, provided that such billboards are located more than 200 feet (60 960 mm) from any of the right-of-ways mentioned therein.
11. The billboards shall be set back from each property line of the lot where it is proposed to be erected, a distance of at least 1 foot (305 mm) for each foot (305 mm) of overall billboard height.
12. The billboard shall not have a net advertising area in excess of 300 square feet (27.9 m²) for each sign face. For the purpose of this section, net area shall be considered exclusive of any border, trim, ornamental base, apron supports or other structural members.
13. The billboard shall be designed and installed so as to maintain a minimum clearance of 8 feet (2438 mm) from the ground, as measured from the adjacent grade.
14. The billboard shall not exceed 25 feet (7620 mm) in overall height as measured from grade

at the center line of the billboard to the level of the highest point of the billboard.

15. The billboard shall conform to Section N101.11.

N101.7.7 Signs on side walls. Where no sign or signs exist on the side wall of any building or structure, no permit shall be issued for the erection, hanging or painting of a sign or signs on such side wall, except as provided in Sections N101.7.7.1 and N101.7.7.2.

N101.7.7.1 Corner buildings and alleys entrances. The *code official* shall be authorized to issue permits to erect, hang, or paint a sign or signs on those side walls of a corner building which abut a public street, or on those side walls of buildings which have a public entrance opening for business purposes upon an alley, when such signs comply with the provisions of this section.

N101.7.7.2 Walls facing parking lots. A building with adjoining parking lots used in connection with such building shall be permitted to have side wall signs facing over such parking lots toward a street or alley fronting on such lots.

N101.7.8 Signs on public space. No structure or standard used as a sign, bulletin, or advertisement of any sort shall be built, placed, erected, hung, maintained, or left in or upon any street, avenue, alley, highway, footway, sidewalk, parking or other public space in the District of Columbia, unless specifically approved by the *code official*, including the use of directional signs as described in Section N101.6.5, in accordance with provisions of this section.

N101.7.9 Transported signs or banners. No advertising sign or banner shall be carried or transported on or over any public space. The provisions of this section shall not apply to signs displayed on vehicles and advertising the bona-fide business of the owner. This section shall not be construed to apply to banners or signs carried by members of any labor organization or similar body, whether employers or employees, publicizing the existence of or facts about any labor dispute or to any other sign bearing noncommercial statements of fact, belief, or personal or political opinion.

N101.7.10 Commercial advertising on WMATA vehicles. Despite the provisions of Section N101.7.9, or any other law, the sale and use of commercial revenue advertising space on the rear and side exteriors, or entire exterior surfaces of Metrobus public transit vehicles under the control and operation of the Washington Metropolitan Area Transit Authority (WMATA) shall be permitted for such vehicles operating on public space within the District of Columbia, subject to the conditions of Sections N101.7.10.1 and N101.7.10.2.

N101.7.10.1 Observance of the law. No advertisement shall be accepted by WMATA which violates this code or any other District of Columbia or federal law.

N101.7.10.2 Public service announcements. The rear and side exterior advertising space on at least 10 percent of the total number of Metrobus vehicles available for public transit operations shall be reserved for free public service announcements and advertisements regarding community, art, cultural, educational, and similar events.

N101.7.11 Revolving signs. Revolving signs shall be permitted in Commercial and PDR Districts as defined in the *Zoning Regulations*, when located entirely upon the land of the owner and not projecting beyond the building line, subject to the conditions of Sections N101.7.11.1 and N101.7.11.7. As used in this section, "revolving sign" includes a sign that displays 3-D, moving, animated, or periodically-changing images or text.

N101.7.11.1 Location restriction. Revolving signs shall not be permitted on the roofs of buildings or structures.

N101.7.11.2 Application requirement. Complete details of erection and operation of revolving signs shall be submitted with the sign permit application.

N101.7.11.3 Color and electrical features. The color and electrical features of revolving signs shall be approved by the Department of Transportation before issuance of a revolving sign permit.

N101.7.11.4 Revolving speed. Revolving signs shall not revolve faster than 5 revolutions per minute.

N101.7.11.5 Dimensions. The area of revolving signs shall not exceed 40 square feet (3.72 m²) per face, and the maximum dimension shall not exceed 3 feet (914 mm).

N101.7.11.6 Clearance and height. Revolving signs shall have not less than 8 feet (2438 mm) clearance above the adjacent ground level, and the total height of the sign above grade shall not exceed 20 feet (6096 mm).

N101.7.11.7 Illumination. Exposed lights or tubing shall be prohibited on revolving signs, and illumination shall be from indirect or internal sources.

N101.7.11.8 Vehicular traffic safety. No revolving sign may be installed or maintained if the Department of Transportation has determined that the sign location, size, or height above grade is objectionable with regard to vehicular traffic safety.

N101.7.12 Commercial advertising on Taxicabs. Despite the provisions of Section N101.7.9, or any other law, the sale and use of commercial revenue advertising space on the exterior rooftops of taxicabs shall be permitted, subject to the conditions of Sections N101.7.12.1 through N101.7.12.4.

N101.7.12.1 Advertising dimensions. Exterior rooftop advertising on taxicabs shall not exceed a size of 18 inches (457 mm) in width, 17 inches (431.8 mm) in height or 56 inches (1422 mm) in length.

N101.7.12.2 Illuminated signs. Exterior rooftop advertising signs on taxicabs may be equipped with fluorescent illumination However, flashing, intermittent, moving, or neon lights or parts are prohibited.

N101.7.12.3 Signs violating law. No advertisement shall be permitted that violates any District or federal law, including, but not limited to, Sections 28-3901 through 28-3908 of the DC Official Code.

N101.7.12.4 Public service announcements. Those taxicabs carrying exterior rooftop advertising pursuant to this section shall devote 10 percent of their yearly rooftop advertising to free public service announcements and advertisements regarding health, safety community, art, cultural, educational, or similar subjects or events.

N101.8 Temporary signs during construction. The *code official* is authorized to issue permits for the erection, painting, or affixing of signs on premises where building operations are being conducted, giving the name and address of the engineers, architects, contractors, financing institutions, and identifying the project or purpose of the building. Such signs shall comply with all requirements of this section, and any sign so erected, painted, or affixed shall be removed upon completion of the building operations, or at any time before completion of building operations, when ordered by the *code official* in the interest of public safety, health and welfare.

N101.8.1 Signs in public space. Permits shall be issued for temporary construction signs, as described in Section N101.8 to be erected on temporary barricades, covered walkways, construction offices or public space between the building line and such structures, subject to the conditions of Section N101.8.

N101.8.2 Dimensions. The total area of signs erected on public space pursuant to Sections N101.8 through N101.8.2 shall be limited to 2 square feet (0.186 m²) for each foot of street frontage of the lot, with a maximum sign area of 40 square feet (3.72 m²) for residentially zoned property, and 200 square feet (18.58 m²) for commercially zoned property. An additional 5 square feet (0.465 m²) of sign area shall be permitted on barricades to identify each adjoining premises or business.

N101.9 Residential or Special Purpose District limitations. This section shall govern signs subject to the provisions of Section N101 posted in residential or special purpose districts.

N101.9.1 General Residential District limitation. Signs shall not be permitted in any Residential District, as fixed by the *Zoning Regulations* unless a permit is issued by the *code official* in accordance with the provisions of this section. The exemptions from the permit requirement stated in Section N101.3.5 shall not apply to signs in Residential Districts. Signs posted in Residential Districts that bear noncommercial statements of fact, belief, or personal or political opinion are not subject to the provisions of this section and shall not require a permit unless the sign is posted on historic property or is subject to review by the Commission of Fine Arts and a permit is required pursuant to Section N101.3a or N101.3b.

Exception: A permit shall not be required for a nameplate not exceeding 1 square foot (0.093 m²) in area, to advertise a home occupation, and bearing only the name and occupation of the occupant of the building.

N101.9.2 Zoning restrictions. Nothing within this section shall be construed to grant any greater area nor any greater illumination than limited by specific order of the Board of Zoning Adjustment or Zoning Commission. If such a specific order prohibits any signs or illumination, such specific order shall take precedence over the provisions of this section.

N101.9.3 Location restrictions. Residential district signs subject to the provisions of Section N101 shall be located entirely on private property and shall be located on the portions of the building or premises occupied by the use for which the signs are authorized.

N101.9.4 Illumination. Residential District signs shall be allowed to be illuminated by steady white lighting only. Fluctuating, pulsating, or moving lights or lighting designed to change appearance in any manner shall not be permitted in any Residential District. Where illumination of signs located in any Residential District is by gas tubes, these tubes shall not be visible but shall be allowed to be so arranged as to provide indirect light.

N101.9.5 Authorized signs. The *code official* is authorized to issue a permit for signs complying with any of Sections N101.9.5.1 through N101.9.5.7.

N101.9.5.1 Temporary automobile parking lots. On temporary automobile parking lots approved by the *code official* for such use, the total area of signs shall not be greater than 20 square feet (1.86 m²) facing each street upon which the lot has a vehicular entrance, in addition to separate signs authorized under Section N101.9.5.7.

N101.9.5.2 Nonconforming uses. Signs advertising a nonconforming use, as defined in the *Zoning Regulations*, shall be limited to a total area not to exceed, for each use, the limits permitted by Section N101.10 or 40 square feet (3.72 m²), whichever is less. Separate signs authorized under Section N101.9.5.7 shall be counted towards the limits of this section.

N101.9.5.3 Church bulletins. Church bulletins shall not exceed 20 square feet (1.86 m²) in area for each church. When approved by the *code official*, church bulletins shall be allowed to be placed on public parking upon recommendation of the Public Space Committee.

N101.9.5.4 Nonprofit organization. Signs for each school, college, hotel, philanthropic institution, nonprofit organization, hospital, residential care facility or church, shall be limited to a total area not to exceed 40 square feet (3.73 m²).

1. **Nonprofit organization nameplates.** When approved by the *code official*, a nameplate or nameplates, each such plate not more than 6 square feet (0.56 m²) in area, shall be allowed to be placed on the public parking at entrance driveways, upon recommendation of the Public Space Committee. The area of such nameplates shall not be counted towards the limits on total sign area specified in Section N101.9.5.4.

2. **Sign supports.** Signs pursuant to Section N101.9.5.4 shall be allowed to be supported on posts or pilasters where permits have been secured for posts or pilasters, but shall not be so placed as to extend over any walkway or roadway unless there is at least 8 feet (2438 mm) clearance above such walkway or 15 feet (4572 mm) clearance above such roadway.

N101.9.5.5 Apartment house signs. For apartment houses, signs shall be limited to the name and house number of the building. Such signs shall only be permitted when facing the street or streets upon which entrances to the building are located. Such signs shall not exceed for each building frontage, the limits set forth in Table N101.9.5.5. Signs placed on a marquee, canopy, or awning, as permitted under Section N101.7.4, shall not be counted towards the area limitation given in Table N101.9.5.5. For purposes of this section, a group building erected under a covenant shall be considered as a single building.

TABLE N101.9.5.5
APARTMENT HOUSE SIGNS

STREET FRONTAGE (feet)	MAXIMUM ALLOWABLE SIZE OF SIGN ON STREET FRONTAGE (square feet)
Up to 45	4
45 to 50	5
50 to 55	6
55 to 60	7
60 to 65	8
65 to 70	9
70 to 75	10
75 to 80	11
80 to 85	12
85 to 90	13
90 to 95	14
95 to 100	15
100 to 105	16
105 to 110	17
110 to 115	18
115 to 120	19
120 and above	20

For SI: 1 foot = 304.8 mm, 1 square foot = 0.093 m^2.

N101.9.5.6 Office buildings, commercial or industrial uses. For buildings or premises approved by the Board of Zoning Adjustment or Zoning Commission for office buildings and commercial or industrial uses, the total area of signs, for each such building or premises, shall not exceed the limit prescribed in Section N101.10, or 40 square feet, (3.73 m^2), or such other limitation as may have been imposed by the Board of Zoning Adjustment or Zoning Commission, whichever is less. Such signs shall be attached flat against the wall of the building, unless they conform to Section N101.9.5.6.1.

N101.9.5.6.1 Signs beyond the wall. Signs pursuant to Section N101.9.5.6 shall be permitted on canopies, marquees, porticos, and awnings located entirely on private property, where placed or painted in the manner and with the limitations described in Section N101.7.4. Signs so placed shall be counted towards the maximum allowable area of signs.

N101.9.5.7 Parking rate signs. Where Section 612 of 24 DCMR (Public Space and Safety) requires that a schedule of auto parking charge rates be posted, a separate sign setting forth such schedule, not more than 20 square feet (1.86 m^2) in area, shall be allowed in addition to the areas otherwise permitted in Sections N101.9.5.1 and N101.9.5.2.

N101.9.6 Signs in Special Purpose Districts. For buildings or premises located in a Special Purpose District, as defined in the *Zoning Regulations*, the total area of signs subject to the provisions of Section N101 shall not exceed the limits set forth in Table N101.9.6, nor those imposed by any specific order of the Board of Zoning Adjustment or Zoning Commission.

TABLE N101.9.6
SIGNS IN SPECIAL PURPOSE DISTRICTS

STREET FRONTAGE (feet)	MAXIMUM ALLOWABLE SIZE OF SIGN ON STREET FRONTAGE (square feet)
Up to 40	40
40 to 100	1 per foot of frontage
Over 100	100 plus 0.5 per foot of frontage over 100

For SI: 1 foot = 304.8 mm, 1 square foot = 0.093 m^2.

N101.10 Maximum size of signs. In any district other than Residential or Special Purpose Districts, the total area of sign or signs subject to the provisions of Section N101 and attached to, displayed from, or erected upon any building, lot, or parcel of land, shall not exceed the limits prescribed in Sections N101.10.1 through N101.10.7.

N101.10.1 One story buildings. Two square feet (0.19 m^2) for each foot of width of front of building occupied by the business or profession to be advertised, such signs or signs to be placed on the front under consideration within the limits of the portion of the front in which the business advertised is located. Roof signs shall not exceed 100 square feet (9.29 m^2) facing any one street frontage.

N101.10.2 First floor stores or businesses in multistory buildings. The provisions of Section N101.10.1 shall apply, except that such signs shall be kept within a height of 20 feet (6096 mm) above the sidewalk.

N101.10.3 Upper stories of multistory buildings. The total area of all signs above the 20-foot height specified in Section N101.10.2 shall not exceed the limits set forth in Table N101.10.3, for each street frontage.

TABLE N101.10.3
SIGNS ABOVE THE FIRST STORY

AREA OF WALL ABOVE 20 FEET ABOVE THE SIDWALK, ON STREET FRONTAGE (square feet)	MAXIMUM ALLOWABLE AREA OF SIGNS ABOVE 20 FEET ABOVE SIDEWALK ON STREET FRONTAGE
Up to 1600	40 ft²
1600 to 4000	1/40 of area of wall above 20 ft height
Over 4000	100 ft² roof signs, or 1/40 of area of wall above 20 ft height for signs below roof

For SI: 1 square foot = 0.093 m^2.

N101.10.4 Single occupancy buildings. Where an entire building over one story in height is occupied by one business, store or occupant, the total area of all signs on each street frontage shall not exceed the limits set forth in Table N101.10.4.

TABLE N101.10.4
SIGNS ON SINGLE-OCCUPANT MULTISTORY BUILDINGS

AREA OF WALL ON STREET FRONTAGE (square feet)	MAXIMUM ALLOWABLE AREA OF SIGNS ON STREET FRONTAGE
Up to 4000	100 ft²
Over 4000	1/40 of area of wall, of which not more than 100 ft² above the roof

For SI: 1 square foot = 0.093 m^2.

N101.10.5 Unimproved lots or lots with a small office. Where a business is conducted on an unimproved lot or a lot with a small office, 2 square feet (0.19 m²) of sign area for each foot of street frontage shall be allowed, but not more than 150 square feet (13.95 m²) per frontage under consideration. The area of the signs of such buildings shall not exceed that permitted under Section N101.10.1.

N101.10.6 Parking rate signs. Where Section 612 of DCMR 24, "Public Space and Safety" requires that a schedule of auto parking charge rates be posted, a sign setting forth such schedule, not more than 20 square feet (1.86 m²) in area shall be allowed in addition to the areas otherwise permitted in Sections N101.10.1 through N101.10.5.

N101.10.7 Exemptions. Signs exempted from permit pursuant to Sections N101.3.5 through N101.3.5.8 and signs not subject to the provisions of Section N101 shall not be counted towards the total sign area permitted under Sections N101.10.1 through N101.10.5.

N101.11 Structural and materials requirements. All signs subject to the provisions of Section N101 and their supports, including signs exempted from permit, shall comply with all structural and materials requirements of this section and other applicable sections of this code.

N101.11.1 Wind load. Signs shall be designed and constructed to withstand wind pressure as provided for in Chapter 16.

N101.11.2 Seismic load. Signs designed to withstand wind pressures shall be considered capable of withstanding earthquake loads, except as provided for in Chapter 16.

N101.11.3 Working stresses. The allowable working stresses shall conform with the requirements of Chapter 16. The working stresses of wire rope and its fastenings shall not exceed 25 percent of the ultimate strength of the rope or fasteners.

Exceptions:

1. The allowable working stresses for steel and wood shall be in accordance with the provisions of Chapters 22 and 23.
2. The working strength of chains, cables, guys or steel rods shall not exceed one-fifth of the ultimate strength of such chains, cables, guys or steel.

N101.11.4 Attachment. Signs attached to all structures shall be safely and securely fastened by means of metal anchors, bolts or approved expansion screws of sufficient size and anchorage to safely support the loads applied. The structure to which signs are attached shall be designed to support the loads applied. Signs shall not be attached to or supported by unbraced parapet walls.

N101.11.5 Lateral bracing assumptions. For design of lateral bracing in the direction of the length of the sign, the wind shall be assumed at an angle of 45 degrees with the front or back of the sign, and the bracing designed for the force on the projected area perpendicular to the wind.

N101.11.6 Ground supports. Ground supports for signs shall comply with Sections N101.11.6.1 and N101.11.6.2.

N101.11.6.1 Wood materials. Where wood is embedded in the soil, the wood shall be pressure treated with an approved preservative.

N101.11.6.2 Metal materials. Metal materials shall be protected from corrosion.

N101.11.7 Combustible materials. Plastic materials shall burn at a rate no faster than 2.5 inches per minute (64 mm/min) when tested in accordance with ASTM D635.

N101.11.8 Incombustible materials. Signs as specified in Sections N101.11.8.1 through N101.11.8.5 shall be of incombustible material except that sign cappings, decorations, lettering, and moldings may be of combustible materials.

N101.11.8.1 Wall signs. Wall signs exceeding 40 square feet (3.72 m²) in area, flat against, or supported not more than 15 inches (381 mm) away from the wall.

N101.11.8.2 Projecting signs. Projecting signs exceeding 2.5 square feet (0.23 m²) in area.

N101.11.8.3 Ground-supported signs. Ground-supported signs greater than 15 feet (4572 mm) in height or located 6 feet (1828 mm) or less from any building.

N101.11.8.4 Roof signs. Roof signs, irrespective of height or area.

N101.11.8.5 Electrical signs. Signs using electricity.

N101.11.9 Use of glass. Glass in signs shall be double-strength plain glass, plate glass, or wired glass. Glass shall be designed in accordance with Table N101.11.9, except that no panel of more than 10 square feet (0.93 m²) of glass other than wired glass shall be used in signs projecting over public space.

N101.12 Alteration or relocation of signs. No sign erected before the adoption of these regulations shall be altered structurally or relocated, unless it is brought into compliance with the requirements of all applicable regulations for new signs.

N101.13 Dangerous signs. When any sign, including signs bearing noncommercial statements of fact, belief, or personal or political opinion posted on private property, now or hereafter erected, hung, attached, or maintained becomes structurally unsafe or otherwise dangerous to the safety of any building or premises, or to the public, the *code official* shall order the same to be taken down, removed, or made safe, and such order shall be complied with by the owner, occupant, agent, or person having the beneficial use of any building or premises upon which said dangerous sign may be erected, hung, attached, or maintained. Any such person failing to comply with the orders issued pursuant to this section shall, upon conviction or adjudication, be subject to the fines provided for in the Act of March 3, 1931 [46 Stat. 1486, as amended; DC Official Code Section 1-303.23 (2016 Repl. & 2018 Supp.)], or to civil fines, penalties, and fees pursuant to Titles I through III of the Department of Consumer and Regulatory Affairs, Civil Infractions Act of 1985 (DC Law 6-42, Section 457).

N101.14 Obstructive signs. No sign, including signs bearing noncommercial statements of fact, belief, or personal or political opinion posted on private property, shall be so erected, hung, or attached as to obstruct any window, door, fire escape, balcony, platform, stairway, ladder, stack, vent pipe, or egress from any building.

N101.14.1 Removal of obstructive signs. Signs in violation of Section N101.14 shall be removed or relocated to conform with this code.

N101.15 Display of license or permit. The provisions of this section shall govern licenses, permits and penalties for sign work.

N101.15.1 Display of license. Any person, persons, firm, or corporation engaged in the business of painting, repainting, placing, replacing, hanging, erecting, or maintaining signs within the meaning of this section shall have at his, her, their, or its principal place of business within the District of Columbia the license issued by the Department, available for inspection by the *code official* or by any member of the Metropolitan Police Department, at all appropriate times.

N101.15.2 Display of permit. A permit for the erection, repair, painting, repainting, or as otherwise provided in this section, of a sign shall be kept on the premises where such sign is being erected repaired, painted, repainted, or as otherwise provided in this section, and shall be displayed by the permittee when ordered to do so by the *code official* or by any member of the Metropolitan Police Department, at all appropriate times.

N101.15.3 Penalties. Any person failing to comply with these regulations shall, upon conviction or adjudication, be subject to the fines provided for in the Act of March 3, 1931 [46 Stat. 1486, as amended; DC Official Code Section 1-303.23 (2016 Repl. & 2018 Supp.)], or to civil fines, penalties, and fees pursuant to Titles I through III of the Department of Consumer and Regulatory Affairs Civil Infractions Act of 1985 (DC Law 6-42, Section 457).

N101.16 Real estate signs. The provisions of this section shall govern real estate signs.

N101.16.1 Public space restrictions. No sign or advertisement relating to the sale, rent, or lease of land or premises shall be located on the sidewalk or parking of any street, avenue, or road in the District of Columbia.

N101.16.2 Number, location and size of sign. One painted or printed sign or advertisement for the sale, rent, or lease of land or premises shall be allowed with the written consent of the owner or the owner's agent to be placed, by any one of not more than three real estate agents, on any lot, piece, or parcel of land abutting on a street, avenue, or road in the District of Columbia, or attached to the exterior of any building fronting on them, provided that permits are secured for such sign in accordance with Sec-

TABLE N101.11.9
SIZE, THICKNESS AND TYPE OF GLASS PANELS IN SIGNS

MAXIMUM SIZE OF EXPOSED PANEL (square feet)		MINIMUM THICKNESS OF GLASS	TYPE OF GLASS
Any dimension (inches)	Area (square inches)	(inches)	
30	500	1/8	Plain, plate or wired
45	700	3/16	Plain, plate or wired
144	3,600	1/4	Plain, plate or wired
> 144	> 3,600	1/4	Wired glass

For SI: 1 inch = 25.4 mm, 1 square inch = 645 mm².

tion N101.16.4. The area of any such sign shall not exceed 40 square feet (3.716 m²) if located within a Residential district, or 60 square feet (5.58 m^2) if located within an unsubdivided outlying section of the District of Columbia. This section shall not apply to the temporary placement of directional signs relating to the sale or lease of real estate which indicate the holding of an open house, or a sign attached to the one painted or printed sign allowed by Section N101.3.5.6 which indicates that the premises have been sold, leased, or placed under contract.

N101.16.3 Additional restrictions. Real estate signs shall be located on the premises advertised. Directional signs shall not be permitted.

N101.16.4 Permit for real estate signs. Under the provisions of the Act of March 4, 1913 (37 Stat. 974), a permit shall be issued to erect, hang, place, paint, or display any sign advertising the sale, rent or lease of real estate, or which in any manner pertains to land or buildings, unless exempted by Section N101.3.5.6. No permit shall be required for the temporary placement of directional signs which indicate the holding of an open house at a particular property.

N101.16.5 Penalties. The *code official* is authorized to require the removal of any sign or advertisement in violation of this section and to institute proceedings against persons violating this section, and upon conviction or adjudication, such persons shall be subject to the fines provided for in DC Official Code § 1-303.23 (2016 Repl. & 2018 Supp.), or to civil fines, penalties, and fees pursuant to Titles I through III of the Department of Consumer and Regulatory Affairs Civil Infractions Act of 1985 [DC Official Code §§ 2-1801 *et seq*. (2016 Repl. & 2018 Supp.)].

N101.17 Rules for Special Signs. The *code official* is authorized to issue a permit for a "Special Sign," as defined in Section N101.17.1. Special Signs shall be subject to the rules of this section and not to the rules in this chapter pertaining to billboards, poster panels, wall signs, and other specific types of signs. The rules of this section shall apply only to Special Signs.

N101.17.1 Definitions. As used in this section, the following definitions apply:

Special Sign. A sign which meets the standards listed in Section N101.17.5, that is erected, hung, placed, posted, painted, displayed or maintained on an outdoor or exterior wall or surface of a building pursuant to a Special Sign Permit issued by the Director of the Department. A Special Sign shall only include signs that are erected, hung, placed, painted, displayed or maintained on an outdoor or exterior wall or surface that is not self-standing, except as provided in this section. A Special Sign shall be one of the thirty-two special signs approved by the Director pursuant to the Rules for Special Signs adopted September 22, 2000 (47 DCR 7695 - 7700).

Exception: The 12 self-standing special signs approvals, existing as of January 1, 2004, shall be allowed to remain and/or be transferred within the area specified in Section N101.17.7(b); provided that transfers of existing self-standing signs to a new self-standing location are subject to the following additional conditions: that transferred self-standing signs are permitted only as temporary signs for a 2 year time period beginning on the latter of the dates of issuance of the transfer permit or the date of issuance of the associated building permit for the special sign structure; and that the location to which the self-standing sign is transferred is a future construction site to be developed in the foreseeable future, as demonstrated by development plans, marketing materials, or ongoing administrative processes to develop the site. Sign support structures that are either attached to an adjacent building wall or within 12 inches (308 mm) of an adjacent building wall (to ensure that the wall is not damaged) are not considered "self-standing" for the purposes of the special sign regulations.

Call to Action. An explicit, specific or blatant message to consumers from the sponsor that asks consumers to take action by purchasing, using, utilizing or considering the use of a sponsor's product and/or service, including without limitation providing price or value information (for example, "affordable" or "5% interest rate available") and inducements to act (such as, "one month's free service when you buy").

Logo. The symbol, emblem, typeface, or other visual device used by the sponsor to identify itself and to distinguish itself from others in the marketplace.

Permit Holder. The individual or entity who or which holds a Special Sign Permit validly issued and in good standing in accordance with the requirements of this section and with all other applicable terms and conditions of Chapter 31, and who or which makes such Special Sign available for sponsorship or community service as provided herein.

Sponsor. The entity that contracts with the Permit Holder for the use of a Special Sign to display the Sponsor's artwork that meets the visual and text standards of Section 3115.4.2.5.

N101.17.2 Special Sign Permit. No Special Sign may be erected, hung, placed, posted, painted, displayed, or maintained in the District of Columbia without the owner of such Special Sign first obtaining a Special Sign Permit from the Department in accordance with Section N101.17.3 and approval of the artwork in accordance with Section N101.17.5. A Special Sign Permit authorizes the sign's location and particular artwork.

N101.17.3 Special Sign Permit application. An application for a Special Sign Permit shall be submitted by the owner to the Director of the Department, or his designee, on a form provided by the Department, and shall include the following:

1. Identification of:
   a. The applicant.
   b. The proposed location of the Special Sign, by the street address of the building or premises and the face direction of the wall or surface (for example, "northern-facing").

c. The proposed linear dimensions of the Special Sign.

d. A list of all existing Special Signs, identified by the address of the premises, located within a radius of 1,000 feet (304.8 m) of the center of the proposed Special Sign.

2. An affidavit signed by the applicant or his duly authorized representative, certifying that the applicant is in compliance with the Clean Hands Before Receiving a License or Permit Act of 1996 ("Clean Hands Act"), effective May 11, 1996 [DC Law 11-118; DC Official Code §§ 47-2861 *et seq*. (2015 Repl. & 2018 Supp.)].

3. A permit fee in the amount of one dollar ($1) per square foot of the Special Sign. The permit fee may be paid by check made payable to the order of the "DC Treasurer." The permit fee may be refunded to the applicant if the permit is not issued, in accordance with the provisions of Chapter 1 for the refund of unused permit fees.

N101.17.3.1 Applicant qualifications. The applicant who or which submits an application for a Special Permit shall be licensed to do business in the District of Columbia as a business engaged in outdoor advertising, shall be a business in good standing at the time the application is submitted and for the duration of the permit, as evidenced in the Department's records. The applicant shall not owe more than one hundred dollars ($100) in taxes or delinquent fines to the District of Columbia at the time the application is submitted, as evidenced in the records of the District of Columbia Office of Tax and Revenue, and shall be in compliance with the Clean Hands Act.

N101.17.4 Review, approval and denial of Permit Applications. The Director of the Department, or his or her designee, shall review and approve or deny a Special Sign Permit application within 20 days of its submission. Special Sign Permits shall be issued in the name of the applicant and shall pertain solely to the Special Sign location identified on the permit, subject to the transferability provisions of Section N101.17.7.

N101.17.4.1 Denial of Application. If the Director denies a Special Sign Permit, the denial shall be in writing to the applicant and shall state the statutory or regulatory basis for the denial. The applicant shall have 10 business days from receipt of the denial to correct any defect in the application.

N101.17.5 Approval of Special Sign Artwork. Prior to the erection, hanging, placement, posting, painting, or displaying of any Special Sign artwork, the applicant shall obtain approval of such Special Sign artwork from the Department. The applicant shall submit the Special Sign artwork for approval with the original permit application or obtain approval for the Special Sign artwork subsequent to the issuance of the Special Sign Permit. Special Sign artwork shall be submitted to the Director of the Department or his or her designee, who shall review and act on the Special Sign artwork submission within 10 days of the submission. Special Sign artwork shall not be accepted by the Department when it violates the DC Official Code or any other District of Columbia law or municipal regulation, or federal law. Special Sign artwork shall not be approved by the Department unless:

1. Identification of the Sponsor of the Special Sign, when provided, is limited to the bottom center, bottom right or bottom left corner of the Special Sign artwork, and shall be limited to the words "Sponsored by [Name and/or Logo of Sponsor]." This Sponsor identification shall be no higher than one-tenth of the maximum vertical dimension of the face of the sign, and no wider than one-third of the maximum horizontal width of the face of the sign.

2. The copy of the Special Sign shall be predominantly pictorial and nonverbal, with textual matter on not more than 25 percent of the display area of the sign. The space occupied by any sponsor identification shall not be counted against the 25 percent limitation. Any textual matter or words contained in the pictures of products on the signs, such as the labeling on soft drink cans, and the like, shall be considered pictorial and shall not count in the calculation of the percentage of textual matter.

3. Any words included in the body of the Special Sign artwork shall not directly or indirectly identify the Sponsor or any of the Sponsor's recognizable campaign slogans, or serve as a direct "Call to Action" on behalf of the Sponsor.

4. The Department of Transportation determines that the sign location, size, and height above grade is not objectionable with regard to vehicular traffic safety.

5. The Department determines that the sign location is compatible with any existing park or building under the control of either the District of Columbia or the Federal government, pursuant to applicable laws and regulations.

6. The distance between horizontal projection of the center of the new proposed sign and the horizontal projection of the center of any other existing Special Sign within a 1,000 feet (304.8 m) radius is at least five times the sum of the diagonals of the two signs. This provision shall not affect existing Special Signs but shall apply to all new Special Signs and to the proposed relocation of any existing Special Sign.

7. Subject to the limitations placed on the permitted transfer of self-standing signs in Section N101.17.1, the height of special signs installed as self-standing signs shall be not greater than 30 feet (9144 mm) and shall provide 8 feet (2438 mm) of clearance from the ground, as measured from the adjacent grade.

N101.17.5.1 Submission of color copies. Color copies of the proposed Special Sign artwork shall be submitted to the Department for approval, in duplicate. The color copies shall be legible. Once Special Sign artwork is approved, the two copies shall be stamped "approved" by the Department; one copy shall be placed in the

applicant's permit file with the Department and be made available for inspection by the Department, for as long as the sign shall remain on display, and one copy shall be returned to the applicant reflecting the approval of the Department.

N101.17.6 Changing Special Sign copy. A Special Sign permit holder may change the Special Sign artwork at the permit location by submitting the new artwork for approval in accordance with the provisions of Section N101.17.5. A "change copy" fee in the amount of five hundred dollars ($500) must be paid before each new Special Sign artwork can be approved and changed. The $500 change copy fee in this section is refundable if the request to change the Special Sign artwork by the permit holder is not approved by the Director. Changing the copy of a permitted Special Sign shall not entail an increase of any of the linear dimensions of the sign.

N101.17.7 Transferability of Special Sign Locations. A Special Sign Permit shall be transferable to a new location only under the following conditions:

1. Except for transfers from locations presently lying outside the area defined in Item 2 of this section, the transfer is for cause, which only means that: (a) the lease for the location of the Special Sign is canceled, terminated, or otherwise invalid; (b) the Special Sign is partially or totally obstructed; or (c) the location of the Special Sign is or would be no longer feasible because of construction or development.
2. The new location is within the Central Business District (C-4), as defined by Title 11 of the District of Columbia Municipal Regulations; the commercial or industrial portions of the New York Avenue corridor, areas zoned industrial (M, C-M), as defined in Chapter 8 of Title 11 of the District of Columbia Municipal Regulations (11 DCMR §§ 800 *et seq.*); facilities within the jurisdiction of the District of Columbia Sports Commission as of November 1, 2001; or the following areas within the Central Employment Area which are bounded as follows:
   2.1. Beginning at the corner of F Street NW and 17th Street NW; west along F Street NW to 20th Street NW; north along 20th Street NW to Pennsylvania Avenue NW; west along Pennsylvania Avenue NW to 21st Street NW; north along 21st Street N to M Street NW; east along M Street NW to 20th Street NW; north along 20th Street NW to N Street NW; east along N Street NW to 19th Street NW; south along 19th Street NW to G Street NW; east along G Street NW to 17th Street NW; south along 17th Street NW to F Street NW.
   2.2. Beginning at the corner of Rhode Island Avenue NW and M Street NW; northeast along Rhode Island Avenue NW to Massachusetts Avenue NW; east along Massachusetts Avenue NW to 15th Street NW; south along 15th Street NW to M Street NW; west along M Street NW to 16th Street NW; south along the east side of 16th Street NW to Eye Street NW; north along the west side of 16th Street NW to M Street NW; west along M Street NW to Rhode Island Avenue NW.
   2.3. Beginning at the intersection of Massachusetts Avenue NW and 14th Street NW; east along Massachusetts Avenue NW to 9th Street NW; north along 9th Street NW to N Street NW; east along N Street NW to 7th Street NW; south along 7th Street NW to K Street NW; east along K Street NW to 3rd Street NW; south along 3rd Street NW to Massachusetts Avenue NW; west along Massachusetts Avenue NW to Eye Street NW; west along Eye Street NW to 9th Street NW; south along 9th Street NW to H Street NW; west along H Street NW to 11th Street NW; north along H Street NW to Eye Street NW; west along Eye Street NW to 12th Street NW; north along 12th Street NW to L Street NW; west along L Street NW to 14th Street NW; north along 14th Street NW to Massachusetts Avenue NW.
   2.4. Beginning at the intersection of Massachusetts Avenue NW and H Street NW; east along H Street NW to the closed alley (formerly Smith Court) in the mid-block between 1st Street NW and North Capitol Street; south along that closed alley line to G Street NW; east along G Street NW to North Capitol Street; south along North Capitol Street NW to Massachusetts Avenue NW; northwest on Massachusetts Avenue NW to H Street NW.
   2.5. Beginning at the intersection of Florida Avenue NE and North Capitol Street; southeast along Florida Avenue NE to 4th Street NE; south along 4th Street NE to M Street NE; west along M Street NE to 3rd Street NE; south along 3rd Street NE to K Street NE; west along K Street NE to 1st Street NE; south along 1st Street NE to G Place NE, west along G Place NE to North Capitol Street; north along North Capitol Street to Florida Avenue NE.
   2.6. Beginning at the corner of M Street SE and South Capitol Street; east along M Street SE to 1st Street SE; south along 1st Street SE to Potomac Avenue SE; west along Potomac Avenue SE to South Capitol Street; north along South Capitol Street to M Street SE.
   2.7. Beginning at the intersection of Maryland Avenue SW and Maine Avenue SW; east along Maryland Avenue SW to 9th Street SW; south along 9th Street SW to Interstate 395; west along Interstate 395 to Maine Avenue SW.

3. The Special Sign in its new location is approved by the Department in accordance with all other applicable provisions of Section N101.17.
4. The permit holder pays a "change location" fee in the amount of $500. The $500 change location fee shall be refundable if the transfer of the Special Sign permit to a new location is not approved. If the relocation of the Special Sign is made at the request of the Department, a change location fee shall not be required.
5. If the Special Sign is painted or drawn onto an existing structure, the method of removal shall be that the existing structure where the Special Sign has been placed shall be made neutral prior to the relocation.
6. If a current Special Sign permit for a location that is not in the zone of transferability, as defined in Paragraph (b) of this section, is transferred to another location under this section, the Department shall ensure that the current Special Sign has been removed prior to the relocation and no subsequent Special Sign shall be permitted to be erected in the former location or area outside the zone of transferability.
7. No Special Sign shall be installed so as to extend above the lowest portion of the roofline of an existing building's dimensions.

N101.17.8 Installation of Special Signs. The installation of a Special Sign shall be done in a workmanlike manner and in accordance with the standards of the industry. Special Signs shall be subject to the structural provisions of Section N101.11. Special signs shall not be installed upon building walls so as to cover any existing windows. A Special Sign shall only be installed upon a building and no part of either it or its supporting structure may protrude above the wall upon which it is installed. The topmost point of a Special Sign or of its supporting structure shall not be higher than the allowable height for a new building at the premises, under the *Zoning Regulations*.

N101.17.9 Illumination of Special Signs. Special Signs within 500 feet (152 400 mm) of a residential zone, as established in the *Zoning Regulations*, shall not be illuminated. Other Special Signs may be indirectly illuminated by projecting artificial light on the surface of the sign, but shall not be internally illuminated nor be constructed of or incorporate neon, or any other type of gas or vapor lights. Special Signs shall not contain movable parts, or highly reflective or fluorescent materials, nor shall they contain 3-D, moving, animated, or periodically-changing images or text.

N101.17.10 Limitations on Special Sign Permits. The Department shall not issue any new permit, whether as an initial permit, for changes to artwork pursuant to Section N101.17.5, or for transfer to a new location pursuant to Section N101.17.7, for any Special Sign to be displayed upon buildings or land located in any of the following areas:

1. In or within 100 feet (30 480 mm) of a Residential District, as defined in the *Zoning Regulations*, or within 100 feet (30 480 mm) of a school or church with a valid certificate of occupancy for such use, or within 100 feet (30 480 mm) of a federal or District of Columbia park or monument.
2. Between 100 to 200 feet (30 480 mm to 60 960 mm) of a Residential District, as defined in the *Zoning Regulations*, unless the sign faces away from the Residential District and is placed at an angle of 45 degrees or less with the closest residential zoning district boundary line.
3. In or within 60 feet (18 288 mm) of any Historic District or Historic Landmark or site listed on the most current edition of the "District of Columbia Inventory of Historic Sites" as amended from time to time, unless the Special Sign is located outside a Residential District, on a side-wall or back-wall of the building or site and historic preservation approval is granted if necessary. Special signs in any Historic District or on a Historic Landmark or site shall be removed within 6 months of its erection, hanging, placement or display.
4. In or within 100 feet (30 480 mm) of premises within the area controlled by the Shipstead-Luce Act [DC Official Code § 6-1201.01 (2018 Repl.)].
5. In or within 100 feet (30 480 mm) of premises within the area controlled by the Old Georgetown Act [DC Official Code §§ 6-1201 *et seq*. (2018 Repl.)].
6. In a waterfront district (W) and pursuant to specific prohibitions as may be contained in the *Zoning Regulations*, as amended from time to time.

N101.17.11 Enforcement of regulations and removal of Special Signs. Any unauthorized Special Sign (including a Special Sign without a permit, or a permitted Special Sign with unauthorized artwork) shall be taken down, removed, or obliterated within 10 days after receipt of written notification of violation from the Department. The *code official* is authorized to bring enforcement actions on behalf of the Department, which may include the authorization to use the police or other governmental authority to order removal of, or to remove, the unauthorized Special Sign and the imposition of civil fines of no more than three dollars ($3) per square foot of sign, per day that the unauthorized Special Sign fails to be taken down, removed or obliterated. Both the owner of the premises upon which the Special Sign is displayed and the permit holder are responsible for taking down, removing or obliterating the sign upon notification by the Department to do so, and both may be held responsible for any penalties or fines imposed for the violation. Additional enforcement mea-

sures may be taken pursuant to, and consistent with, the provisions of Section 113, "Violations and Infractions."

N101.17.12 Moratorium on issuance of Special Signs. Other than for changes in artwork pursuant to Section N101.17.5, or for transfers of location pursuant to Section N101.17.7, new Special Sign Permits shall not be issued after November 9, 2000.

N101.18 Rules for Gallery Place Project Graphics. The *code official* is authorized to issue a permit for Gallery Place Project Graphics, as defined in Section N101.18.1. Gallery Place Project Graphics shall be subject to the rules of this section and not to the rules in this chapter pertaining to billboards, poster panels, wall signs, Special Signs, and other specific types of signs, except those specific types of signs indicated below. Gallery Place Project Graphics shall not be subject to Section N101.10 or other similar provisions of this chapter that limit the maximum size or height of signs, other than the limitations stated or incorporated into this section. All other provisions of this chapter shall apply, including, but not limited to, Sections N101.3.4 (Permits for electrical signs), N101.7.1 (Projecting signs), N101.7.2 (Roof signs), N101.7.3 (Signs supported by projecting construction), N101.7.4 (Signs on awnings or similar projections), N101.7.8 (Signs on public space), N101.11 (Structural and materials requirements), N101.13 (Dangerous signs), and N101.14 (Obstructive signs).

N101.18.1 Definitions. As used in this section, the following definitions apply:

GALLERY PLACE PROJECT.

1. The project described in DC Official Code § 47-2005(30)(B) except that the lots comprising the project have been combined and are now known as Lot 50 in Square 454.
2. The private alley located between the project and the property known as the Verizon Center, Square 455, Lot 47.
3. The northern façade of the Verizon Center.

GALLERY PLACE PROJECT GRAPHICS. The outdoor graphics and visuals for the Gallery Place Project and the private alley located between the Gallery Place Project and the property known as the Verizon Center, including, but not limited to, banners, digital screens, digital video monitors, theater marquees, fixed and animated signs for commercial establishments located within the project, projectors for projecting static and moving images onto the Gallery Place Project, interactive kiosks, and images projected onto the façade of the Gallery Place Project.

N101.18.2 Additional requirements and restrictions. In addition to all other applicable provisions of this chapter not exempted by Section N101.18, Gallery Place Project Graphics and those graphics and visuals located in the public space immediately adjacent to the Gallery Place Project shall be designed, located, erected, hung, placed, posted, painted, displayed, and maintained in compliance with the specifications, drawings, limitations, and requirements set forth in Illustrations 1 through 6 ("Illustrations"), which are incorporated by reference into this section and are available in the office of the *code official*.

N101.18.2.1 Flexibility on Character of Advertisement. Notwithstanding Section N101.6, Gallery Place Project Graphics located in those areas identified in the Illustrations as the "Corner Heroic Sign Area" or the "Additional Signage Area" may advertise businesses not located on the premises, including the goods and services sold at such business, provided that the businesses so advertised are located within the Gallery Place Project.

N101.18.2.2 Displays of video, flashing, or animation. Only that portion of a graphic or visual which is permitted by Section N101.6.1 to advertise products or commodities may display video, flashing, or animation.

N101.18.2.3 Intensity or brilliance of signs. No Gallery Place Project Graphic shall have such intensity or brilliance as to cause glare or impair the vision of any driver, otherwise interfere with the driver's operation of a motor vehicle, or adversely impact an owner's enjoyment of residential property located within the Gallery Place Project.

N101.18.2.4 Projection at certain locations. Notwithstanding Section N101.7.1.1, the following specific rules apply to projecting Gallery Place Project Graphics.

N101.18.2.4.1 No Gallery Place Project Graphic located in any area shown as crosshatched in the Illustrations shall project more than 8 inches (203.2 mm) beyond the façade of the structure.

N101.18.2.4.2 Gallery Place Project Graphics located in the "Storefront Signage Areas" depicted on the Illustrations may project no more than 48 inches (1219.20 mm) beyond the building line or building restriction line, on the street frontage of a building.

N101.18.2.5 Revolving Signs. Notwithstanding Section N101.7.11, revolving signs shall be permitted in the private alley located between the project and the property known as the Verizon Center, Square 455, Lot 47, subject to the conditions of Sections N101.7.11.1 through N101.7.11.7.

N101.18.2a Gallery Place Project Graphics displays in private alley. A single, stationary Gallery Place Project Graphic may be erected and maintained in the private alley located between the Gallery Place Project and the property known as the Verizon Center; provided that it complies with the following specific requirements, in addition to the provisions in Sections N101.18.2 (Additional Requirements and Restrictions) and N101.18.2.3 (Intensity or Brilliance of Signs):

N101.18.2a.1 The Gallery Place Project Graphic in the private alley shall consist of one stationary stanchion to support two digital displays, each measuring not greater than 285 square feet (26.48 m^2) and neither of which shall have any audio or sound, other than *de minimis* sounds caused by general operation. The lowest portion

of the digital displays shall have not less than 9 feet 7 inches (2921 mm) of clearance from the sidewalk, and the highest point of the digital displays shall not be greater than 29 feet 10 inches (9093 mm) in height as measured from the sidewalk. The width of the digital displays shall not be greater than 14 feet (4267 mm). No portion of the Gallery Place Project Graphic may project more than 42 inches (1067 mm) beyond the building restriction line. The distance between the faces of the portions of the two digital displays that are located in public space shall not exceed 42 inches (1067 mm). There shall be 10 feet (3048 mm) of clearance in every direction around the stanchion in order to allow for unobstructed pedestrian movement. The sign and stanchion of the Gallery Place Project Graphic shall be innovative and sculptural with regard to its overall shape and structural design.

N101.18.2a.2 In addition to other reviews authorized by this section, after installation of the displays, the brilliance, illumination, and use of full-motion video, if any, shall be subject to review by the District Department of Transportation to determine whether the Gallery Place Project Graphic in the private alley creates a risk for vehicular traffic safety.

N101.18.2a.3 Any commercial advertising messages on the Gallery Place Project Graphic digital displays in the private alley shall be for businesses, goods, or services located within the Gallery Place Project.

N101.18.2a.4 Each Gallery Place Project Graphic digital display in the private alley shall operate only between the hours of 6:00 a.m. and midnight or no more than 30 minutes after the end of an event at the Verizon Center, whichever is later, and shall show a minimum of 6 minutes per hour of public service content.

N101.18.2a.5 The permitee shall act promptly to make any necessary changes to the displays to ensure compliance with federal law or the Federal-District Agreement to control outdoor advertising on federal-aid routes, in the event there is a representation by the federal government that the Gallery Place Project Graphics digital displays are not in compliance with such law or agreement.

N101.18.2a.6 The Gallery Place Project Graphic in the private alley shall be subject to the permit requirements of Sections N101.18.4 through N101.18.8, provided that the permit fee for the Gallery Place Project Graphic digital displays shall be three dollars ($3) per square foot of each of the digital displays; provided further that the reviews for the initial permit by the District Department of Transportation and the Office of Planning under Section N101.18.5 (Permit Application Referrals) shall be conducted within 14 days of the referral date; and provided further that the initial permit shall be valid for 3 years from date of issuance and shall be renewable annually thereafter. Each application for renewal shall be submitted on or before the anniversary of the permit's original issuance and shall be subject to review for compliance with Sections N101.18.4 (Gallery Place Project Graphics Permit Application), N101.18.5 (Permit Applications Referrals), N101.18.6 (Effect of Adverse Report), N101.18.7 (Review, Approval, and Denial of Permit Applications), and other applicable laws or regulations.

N101.18.3 Gallery Place Project Graphics Permit. Gallery Place Project Graphics may not be erected, hung, placed, posted, painted, displayed, or maintained without the owner of such Gallery Place Project Graphic first obtaining a Gallery Place Project Graphics Permit from the Department in accordance with Section N101.18.4. A Gallery Place Project Graphics Permit authorizes the location, size, and design of the graphic or visual.

N101.18.4 Gallery Place Project Graphics Permit Application. An application for a Gallery Place Project Graphics Permit shall be submitted by the owner to the Director of the Department, or his or her designee, on a form provided by the Department, and shall include the following:

1. Identification of:
   a. The applicant;
   b. The proposed location of the Gallery Place Project Graphics by the street address of the building or premises and the face direction of the wall or surface (for example, northern-facing);
   c. The proposed linear dimensions of the Gallery Place Project Graphics; and
   d. Such other information as the Director may require.
2. An affidavit signed by the applicant or his or her duly authorized representative, certifying that the applicant is in compliance with Subchapter II of Chapter 28 of Title 47 of the District of Columbia Official Code.
3. A permit fee in the amount of one dollar ($1) per square foot of the Gallery Place Project Graphics. The permit fee may be paid by check made payable to the order of the "DC Treasurer." The permit fee may be refunded to the applicant if the permit is not issued, in accordance with the provisions of Chapter 1 for the refund of unused permit fees.

N101.18.5 Permit Applications Referrals. The Director of the Department, or his or her designee, shall refer all permit applications to the District Department of Transportation and the Office of Planning. The agencies shall have 60 days from the referral date to submit a written report to the Director of the Department, except that the Director may allow for an extension of this period of up to 30 days for good cause.

N101.18.6 Effect of adverse report. A permit shall not be granted if, within the time period provided in Section N101.18.5:

1. The Director of the Department of Transportation reports in writing that the location, size, or height above grade of the visual or graphic is objectionable with regard to vehicular traffic safety; or

2. The Director of the Office of Planning reports in writing that the proposed graphic or visual:
   a. Does not comply with the specifications, drawings, limitations and requirements of the Illustrations; or
   b. Would adversely impact the character and integrity of the Gallery Place Project.

N101.18.7 Review, approval, and denial of Permit Applications. The Director of the Department, or his or her designee, shall review and approve or deny a Gallery Place Project Graphics Permit application within 20 days after the expiration of the time period provided in Section N101.18.5. Gallery Place Project Graphics Permits shall be issued in the name of the applicant and shall pertain solely to the Gallery Place Project Graphics location identified on the permit.

N101.18.7.1 Denial of Application. If the Director denies a Gallery Place Project Graphics Permit, the denial shall be in writing to the applicant and shall state the statutory or regulatory basis for the denial. The applicant shall have 10 business days from receipt of the denial to correct any defect in the application.

N101.18.8 Applicability of other laws and regulations unaffected. Other than the exempted provisions of this chapter, the Gallery Place Project shall continue to be subject to all applicable rules and regulations, including, but not limited to, Chapter 24 of Title 10-B (Chinatown Design Review Procedures).

N101.18.9 Enforcement of regulations and removal of Gallery Place Project Graphics. Any unauthorized Gallery Place Project Graphic (including Gallery Place Project Graphics without a permit) shall be taken down or removed within 10 days after receipt of written notification of violation from the Department. Following the expiration of this time period, the *code official* is authorized, through personnel of the Department or the Metropolitan Police Department, to remove or take down the unauthorized Gallery Place Project Graphic and to impose civil fines of not more than three dollars ($3) per square foot of sign, per day that the unauthorized Gallery Place Project Graphic fails to be taken down or removed. Both the owner of the premises upon which the Gallery Place Project Graphic is displayed and the permit holder are responsible for taking down or removing the graphic or visual upon notification by the Department to do so, and both may be held responsible for any penalties or fines imposed for the violation. Additional enforcement measures may be taken pursuant to, and consistent with, the provisions of Section 113, "Violations and Infractions."

N101.18.10 Maintenance and repair. Whenever the *code official* finds that any Gallery Place Project Graphic is not maintained in good repair and has not deteriorated more than 50 percent of its replacement value, the *code official* shall notify the owner thereof and order him to repair the Gallery Place Project Graphic within a specified time, but not less than 10 calendar days. If the *code official* finds that the Gallery Place Project Graphic has deteriorated more than 50 percent of its replacement value, or is not repaired within the time specified in the repair notice, the *code official* shall notify the owner of the Gallery Place Project Graphic and the owner of the real property on which said Gallery Place Project Graphic is located to remove the Gallery Place Project Graphic from the property within a specified time. Failure to comply shall subject said owners, upon conviction or adjudication, to the fines provided for in Section 4 of An Act To regulate the erection, hanging, placing, painting, display, and maintenance of outdoor signs and other forms of exterior advertising within the District of Columbia, approved March 31, 1931 [46 Stat. 1486; DC Official Code § 1-303.23 (2016 Repl. & 2018 Supp.)], or to civil fines, penalties, and fees pursuant to Titles I through III of the Department of Consumer and Regulatory Affairs Civil Infractions Act of 1985, effective October 5, 1985 [DC Law 6-42; DC Official Code §§ 2-1801.01 *et seq*. (2016 Repl. & 2018 Supp.)]. The *code official* may extend the time periods stated in this section upon the owner's written showing of good cause.

N101.18.11 Rulemaking Authority. Notwithstanding Section 10 of the Construction Codes Approval and Amendments Act of 1986, effective March 21, 1987 [DC Law 6 216; DC Official Code § 6-1409 (2018 Repl.)], the Director may amend the provisions of this section and the specifications, drawings, limitations, and requirements of the Illustrations by rulemaking pursuant to Section 6 of the District of Columbia Administrative Procedure Act, approved October 21, 1968 [82 Stat. 1206; DC Official Code § 2-505 (2016 Repl. & 2018 Supp.)], without submission of the proposed rules to the Council for its prior review and approval.

N101.19 Rules for Verizon Center Graphics. The *code official* is authorized to issue a permit for each of up to nine "Verizon Center Graphics" as defined in Section N101.19.1. The Verizon Center Graphics shall be subject to the provisions of Sections N101.19 through N101.19.16 and the following provisions, as applicable: Sections N101.3.4 (Permits for electrical signs), N101.7.1 (Projecting signs), N101.7.2 (Roof signs), N101.7.3 (Signs supported by projecting construction), N101.7.4 (Signs on awnings or similar projections), N101.7.8.1 (Signs on public space), N101.11 (Structural and materials requirements), N101.13 (Dangerous signs), and N101.14 (Obstructive signs) except as applied to windows. The Verizon Center Graphics shall not be subject to any other provision of this chapter or any provision of Titles 10 or 12 pertaining to the permitting, approval, erection, placing, painting, display, or maintenance of billboards, poster panels, wall signs, special signs, and any other types of outdoor signs, including, without limitation, Section N101.10 (Maximum size of street signs) or any other provision of this chapter that limits the maximum size or height of signs, other than the limitations stated or incorporated into this section. Nothing in this section shall prevent the operation of Sections N101.3.5 (Exemptions from permit) or N101.6.6.1 (Temporary decorations for buildings) with respect to the Verizon Center.

N101.19.1 Definitions. As used in Sections N101.19 through N101.19.16, the following definitions apply:

"Department" means the Department of Consumer and Regulatory Affairs.

"Director" means the Director of the Department or his or her designee.

"Verizon Center" means the property and structure currently known as the Verizon Center, located at Square 455, Lot 47, including, without limitation, the Gallery Place Metro entrance on the corner of 7th and F Streets, NW.

"Verizon Center Graphics" means outdoor signs, visuals, digital displays, and static canvas displays placed on the Verizon Center, which were not existing on the Verizon Center as of June 11, 2012, consisting of:

1. Two separate digital displays on the western side of Verizon Center, each measuring not greater than 1,200 square feet (111.48 m^2), which would replace two static canvas displays on the western side of Verizon Center as they existed on June 11, 2012;
2. One digital display that forms a right angle around the southwest corner of the Verizon Center with each display panel of the digital display forming a right angle measuring not greater than 24 feet (7315 mm) in height and not greater than 43 feet (13 106 mm) in width with the top of each panel of the digital display starting at the top of the glass windows on the Verizon Center as they existed on June 11, 2012;
3. Two separate digital displays, each measuring not greater than 3 feet (914 mm) in height and not greater than 18 feet (5486 mm) in width, mounted on the exterior of the top of the western and southern entrances to the Gallery Place Metro stat on at the corner of 7 and F Streets NW;
    a. Up to two digital displays or static canvas displays in the interior space above and around the escalators in the Metro station identified in Item 3 of this section.
    b. One static canvas display that forms a right angle around the southeast corner of the Verizon Center with each panel forming a right angle measuring not greater than 24 feet (7315 mm) in height and not greater than 43 feet (13 106 mm) in width, with the top of each such panel starting at the top of the glass windows on the Verizon Center as they existed on June 11, 2012; and
    c. Up to two separate static canvas displays on the eastern side of the Verizon Center, each measuring not greater than 1200 square feet (111.48 m^2).

N101.19.2 Intensity or brilliance of Graphics. None of the Verizon Center Graphics shall have such intensity or brilliance as to create an unreasonable risk for vehicular traffic safety as determined by the Director of the District Department of Transportation pursuant to Section N101.19.8.

N101.19.3 No sound. The Verizon Center Graphics shall not have an audio or sound other than any *de minimis* sounds caused by general operation.

N101.19.4 Digital Displays. No digital display shall be placed on the exterior of the Verizon Center that is parallel to any residential building existing as of June 11, 2012.

N101.19.5 Verizon Center Graphics Permit. Verizon Center Graphics may not be erected, installed, hung, placed, posted, painted, displayed, or maintained without the owner of Verizon Center or the owner's designee first obtaining a Verizon Center Graphics permit from the Department in accordance with this chapter. A Verizon Center Graphics Permit authorizes the location, size, and structural design of the Verizon Center Graphics and shall be valid for 3 years with no limitation on the number of renewals of the permit. Each renewal of the Verizon Center Graphics permit shall require a review under Section N101.19.10 if substantive changes to the permit application merit such review and payment under Section N101.19.6.

N101.19.6 Verizon Center Graphics Permit Application. An application for a Verizon Center Graphics Permit shall be submitted by the owner, or the owner's designee, of the Verizon Center to the Director and shall include the following:

1. Identification of:
    a. The applicant with contact information including the applicant's telephone number, e-mail address, and mailing address;
    b. The proposed type and location of the Verizon Center Graphics and the face direction of the wall or surface;
    c. The proposed linear dimensions of the Verizon Center Graphics and its projection from the Verizon Center façade;
    d. The proposed structural design of the Verizon Center Graphics;
    e. The proposed intensity or brilliance of the Verizon Center Graphics;
    f. The potentially affected Advisory Neighborhood Commissions; and
    g. Any use on the digital displays constituting Verizon Center Graphics that the applicant may provide for public service announcements and advertisements regarding community, art, cultural, educational and similar events, including public services notices that the District of Columbia government may want to post.
2. An affidavit signed by the applicant, or his or her duly authorized representative, certifying that the applicant is in compliance with Subchapter II of Chapter 28 of Title 47 of the District of Columbia

Official Code, and has consulted with or attempted in good faith to consult with the potentially affected Advisory Neighborhood Commissions about the permit application.

3. A permit fee in the amount of three dollars ($3) per square foot of the Verizon Center Graphics; provided that this permit fee may be amended by rulemaking or act consistent with permit fees for similar signs. The permit fee may be paid by check made payable to the order of the "DC Treasurer."
4. Five copies of the application and all illustrations; and
5. Any other information required by the Director to assist in reviewing the permit application.

N101.19.7 Permit Application referrals. The Director shall refer all Verizon Center Graphics permit applications to the District Department of Transportation and the Office of Planning within 10 days of receipt of the permit application by the Department. The District Department of Transportation and the Office of Planning shall have 70 days from the date the Department receives the permit application to submit a written report to the Director, except that the Director may allow for an extension of this period of up to 30 days for good cause.

N101.19.8 Effect of Adverse Report. No Verizon Center Graphics permit shall be approved by the Department if:

1. The Director of the Department of Transportation reports in writing with a detailed statement of reasons that the location, size, height above grade, brilliance, or illumination of the Verizon Center Graphics would create an unreasonable risk for vehicular traffic safety;
2. The proposed Verizon Center Graphics would violate applicable federal or District of Columbia laws or regulations; or
3. The Director of the Office of Planning reports in writing with a detailed statement of reasons that the proposed Verizon Center Graphics would adversely impact the character and integrity of the Verizon Center as a sports and entertainment arena or the character and integrity of the surrounding neighborhood as a whole for residential, business, and recreation uses.

N101.19.9 Advisory Neighborhood Commission notification. The Director shall notify in writing potentially affected Advisory Neighborhood Commissions of the submission of an application for Verizon Center Graphics within 10 days of receipt of such application and invite the submission of any written comments within 45 days of the date of such notice.

N101.19.10 Review, approval, or denial of Verizon Center Graphics Permit Applications. The Director shall review and either approve or deny a Verizon Center Graphics permit application within 21 days after the expiration of the time period provided in Section N101.19.7. The approval or denial of the permit application shall be based on both of the following:

1. Whether the permit application meets the requirements set forth in this chapter.
2. Whether an adverse report has been issued by either the District Department of Transportation or the Office of Planning pursuant to Section N101.19.8.

A Verizon Center Graphics permit shall be issued in the name of the applicant and shall pertain solely to the specific Verizon Center Graphic and specific location identified in the permit.

N101.19.11 Denial of Application. If the Director denies a Verizon Center Graphics permit application, the denial shall be issued in writing to the applicant and shall explain in detail the basis for the denial. The applicant shall have 30 days from receipt of the denial to complete either of the following:

1. Correct any defect in the application identified by the Director and submit a corrected Verizon Center Graphics application to the Department.
2. Seek review of the permit denial at the Office of Administrative Hearings.

If the applicant timely submits a corrected Verizon Center Graphics application to the Department, the Director, within 5 days of receipt of the permit application, shall refer the permit application to the District Department of Transportation and the Office of Planning and each agency shall provide a report required under Section N101.19.7 within 14 days. The Director shall review and either approve or deny the corrected permit application within 30 days of receipt of the corrected permit application. If the Director denies the corrected permit application, the applicant shall have 30 days from receipt of the denial to file a notice with the Office of Administrative Hearings for adjudication.

N101.19.12 Static Canvas Display changes. As part of a Verizon Center Graphics permit application, the owner of the Verizon Center or the owner's designee may apply to the Director for a change in the number, location, and size of the static canvas displays as defined in the definition of Verizon Center Graphics in Section 3107.19.1, but shall not do so for digital displays. The Director shall grant such application if:

1. The total number of permits for Verizon Center Graphics does not exceed nine;
2. The display size of any one static canvas display is not greater than 1,200 square feet (111.48 m^2);
3. The Verizon Center Graphics are deemed to be in compliance with applicable federal or District of Columbia laws or regulations; and
4. All other requirements applicable to the Verizon Center Graphics as set forth in Appendix N are met.

N101.19.13 Enforcement of regulations and removal of Verizon Center Graphics. Any unauthorized Verizon Center Graphics, including Verizon Center Graphics with-

out a permit or Verizon Center Graphics that are not in full compliance with provisions of the District of Columbia Official Code, District of Columbia Municipal Regulations, or federal law, including DC Official Code §§ 1-303.21 *et seq*. and this chapter, that become effective within 1 year of the issuance of the permit authorizing the Verizon Center Graphics permitted in accordance with this chapter, shall be taken down or removed within 14 days after receipt of written notification of violation from the Mayor directing that the Verizon Center Graphics be removed or taken down. Further, the Mayor shall impose civil fines of not more than $5 per square foot of sign, per day, if the unauthorized Verizon Center Graphics are not taken down or removed after the specified 14-day period. The permit holder, at its sole cost and expense, shall be responsible for taking down or removing unauthorized Verizon Center Graphics upon notification by the Mayor to do so and shall be solely and exclusively responsible for any expense incurred by the District of Columbia if the Mayor removes the unauthorized Verizon Center Graphics as described herein. The permit holder shall also be held solely and exclusively responsible for any penalties or fines imposed by this violation. Any changes made to sign and advertising requirements under District of Columbia law after the issuance of a Verizon Center Graphics permit shall not apply to the Verizon Center Graphics for the life of the permit or 3 years from the issuance of the permit, whichever is shorter.

N101.19.14 Maintenance and repair. Whenever the *code official* finds that any of the Verizon Center Graphics are not maintained in good repair and have not deteriorated more than 50 percent of their replacement value, the *code official* shall notify the Verizon Center owner and permit holder and order the repair of the Verizon Center Graphics within a specified time, but not less than 10 days. If the *code official* finds that any of the Verizon Center Graphics are not maintained in good repair and have deteriorated more than 50 percent of their replacement value, or are not repaired within the time specified in the repair notice, the *code official* shall order the Verizon Center owner and permit holder to remove such Verizon Center Graphics within a specified period of time, but not less than 5 days. Failure to comply with such order shall subject the Verizon Center owner and the permit holder, upon adjudication, to civil fines, penalties, and fees pursuant to Titles I through III of the Department of Consumer and Regulatory Affairs Civil Infractions Act of 1985, effective October 5, 1985 [DC Law 6-42; DC Official Code §§ 2-1801.01 *et seq*. (2016 Repl. & 2018 Supp.)]. The *code official* may extend the time periods stated in this section upon written showing of good cause by the Verizon Center owner and permit holder.

N101.19.15 Existing Verizon Center Signs. Any outdoor graphics, signs, visuals, digital displays, and static canvas displays existing on the Verizon Center as of June 11, 2012 shall be deemed to be approved under District of Columbia law and a permit shall be issued by the Department for each sign after the applicable permit fee is paid by the owner of the Verizon Center.

N101.19.16 Rulemaking Authority. Notwithstanding Section 10 of the Construction Codes Approval and Amendments Act of 1986, effective March 21, 1987 [DC Law 6-216; DC Official Code § 6-1409 (2018 Repl.)], the Director of the Department may amend the provisions of Sections N101.19 through N101.19.16 by rulemaking pursuant to Section 6 of the District of Columbia Administrative Procedure Act, approved October 21, 1968 [82 Stat. 1206; DC Official Code § 2-505 (2016 Repl. & 2018 Supp.)], upon review and active approval by the Council.

N101.20 Designated Entertainment Areas. The following areas are Designated Entertainment Areas for Designated Entertainment Area Sign Permits under Section N101.20.1:

1. **Nationals Park Entertainment Area.** The Nationals Park Entertainment Area is the property and structure known as Nationals Park, located at squares 702 through 706 and Reservation 247, bounded by N Street SE, Potomac Avenue SE, South Capitol Street SE and First Street SE. No more than five Designated Entertainment Area Sign Permits shall be allowed in the Nationals Park Designated Entertainment Area subject to the requirements of this section as follows:

   1.1. One Designated Entertainment Area Sign, measuring not greater than 38 feet (11 582 mm) in height and not greater than 25 feet (7620 mm) feet in width, mounted on the exterior panel of Nationals Park at the southwestern corner of Nationals Park grounds near the intersection of Potomac Avenue SE and South Capitol Street SE; provided that the Designated Entertainment Area Sign shall not face within 15 degrees of parallel or perpendicular to South Capitol Street.

   1.2. One digital display, measuring not greater than 25 feet (7620 mm) feet in height and not greater than 20 feet (6096 mm) in width, angled interior to Nationals Park and mounted on the exterior recessed southwest panel, of Nationals Park on South Capitol Street SE; provided that the Designated Entertainment Area Sign shall not be placed within 15 degrees of facing South Capitol Street.

   1.3. One Designated Entertainment Area Sign, measuring not greater than 25 feet (7620 mm) in height and not greater than 17 feet (5182 mm) in width, angled interior to Nationals Park and mounted on the exterior panel of Nationals Park on South Capitol Street SE; provided that the Designated Entertainment Area Sign shall not face South Capitol Street or be visible travelling northbound on South Capitol Street.

   1.4. One Designated Entertainment Area Sign, measuring not greater than 15 feet (4572 mm) in height and not greater than 25 feet (7620 mm) in width, mounted on the exterior panel of the east parking structure adjacent to Nationals Park at the northeastern corner of Nationals Park grounds near the intersection of N Street SE and First Street SE facing N Street SE.

1.5. One Designated Entertainment Area Sign, measuring not greater than 28 feet (8534 mm) in height and not greater than 25 feet (7620 mm) in width, mounted on the exterior panel of the east parking structure adjacent to Nationals Park at the northeastern corner of Nationals Park grounds near the intersection of N Street SE and First Street SE facing First Street SE.

2. The signs identified in 12-A DCMR §§ N101.20(a)(1)–(5) shall not be subject to 12-A DCMR § N101.20.4(b).

3. **Ballpark District Entertainment Area.** The Ballpark District Entertainment Area, located in Squares 700 and 70L, is the area bounded by South Capitol Street SE; First Street SE; M Street SE; and N Street SE. Designated Entertainment Area Sign Permits shall be allowed in the Ballpark District Designated Entertainment Area subject to the requirements of this section; provided that no Designated Entertainment Area Signs shall be allowed on any façade located at any of the following locations:

   3.1. On South Capitol Street SE.

   3.2. On M Street SE, provided that one sign may be allowed at the southwest corner of M Street SE and Half Street SE, with the sign facing within15 degrees of parallel or perpendicular to M Street SE.

   3.3. On First street SE; between M Street SE, and N Street SE; provided that one sign may be allowed at the northwest corner of First Street SE and N Street SE; provided that the sign shall not face within 15 degrees of parallel or perpendicular to First Street.

   3.4. Within 150 feet (45 720 mm) of the southeast corner of South Capitol Street SE and N Street SE.

4. To designate, modify, or remove a Designated Entertainment Area, the Mayor shall submit a proposed change pursuant to these rules for approval by the Council by act.

5. The Mayor shall issue and transmit to the Council a report no less than once every 10 years on the advisability of maintaining each Designated Entertainment Area established pursuant to this section. The report should be issued in consultation with the Office of Planning, the District Department of Transportation, the Department of Consumer and Regulatory Affairs, and the appropriate Advisory Neighborhood Commissions.

6. If an existing Designated Entertainment Area Sign is no longer in a Designated Entertainment Area due to a modification or removal pursuant to Item 4 of this section, the Designated Entertainment Area Sign Permit for that Designated Entertainment Area Sign shall remain valid until it expires; provided that the Designated Entertainment Area Sign Permit shall not be renewed.

N101.20.1 Designated Entertainment Area Sign Permits. The *code official* is authorized to issue a Designated Entertainment Area Sign Permit in one or more of the areas designated in Section N101.20, subject to the limitations of this section and the following:

1. No signage shall be erected, installed, hung, placed, posted, painted, displayed, or maintained before the site property owner or the owner's designee has first obtained a Designated Entertainment Area Sign Permit from the Department in accordance with this section.

2. A Designated Entertainment Area Sign Permit shall authorize the location, size, and structural design of the Designated Entertainment Area Sign and shall be valid for 3 years, with the option to renew pursuant to the process set forth in Item 3.

3. Each renewal of a Designated Entertainment Area Sign Permit shall require a review in accordance with Sections N101.20.12, N101.20.13, and N101.20.14 and upon approval shall be valid for 3 years. In reviewing the renewal of a Designated Entertainment Area Sign Permit, the Department shall balance any impacts on residential units or properties with the fact that it is the renewal of an existing Designated Entertainment Area Sign.

N101.20.2 Applicability. Designated Entertainment Area Signs shall not be subject to any provision of this appendix or any provision of Titles 10 or 12 with regard to the permitting, approval, erection, placing, painting, display, or maintenance of billboards, poster panels, wall signs, special signs, or any other types of outdoor signs, including, without limitation, Section N101.10 (Maximum size of street signs) or any other provision of this appendix that limits the maximum size or height of signs, other than the limitations stated or incorporated into this section.

N101.20.3 Compliance requirements. Designated Entertainment Area Sign permits shall comply with Sections N101.3.4 (Permits for electrical signs), N101.7.1 (Projecting signs), N101.7.2 (Roof signs), N101.7.3 (Signs supported by projecting construction), N101.7.4 (Signs on awnings or similar projections), N101.7.8.1 (Signs on public space), N101.11 (Structural and materials requirements), N101.13 (Dangerous signs), and N101.14 (Obstructive signs) except as applied to windows.

N10l.20.4 Maximum size of Designated Entertainment Area Signs.

1. A Designated Entertainment Area Sign shall not exceed a maximum area greater than 1,200 square feet (111.48 m^2).

2. The aggregate maximum allowable Designated Entertainment Area Sign area shall not exceed 20 percent of a building wall or surface.

3. A sign shall not have a width or height greater than 52 feet (15 850 mm).

N101.20.5 Spacing and location of Designated Entertainment Area Signs. A Designated Entertainment Area Sign shall not:

1. Have less than 2 feet (610 mm) of spacing between it and another Designated Entertainment Area Sign on the same wall face or surface; or
2. Cover any operable window.

N101.20.6 Digital displays; restriction on full motion video. A Designated Entertainment Area Sign Permit may authorize a digital display, subject to the following restrictions:

1. A digital display shall not be placed on the exterior or the exterior grounds of a property in a Designated Entertainment Area parallel to any residential building across the street from the property, or otherwise in the direct line-of-sight of the sign, that exists as of the effective date of the Nationals Park and Ballpark District Designated Entertainment Area. Signage Regulations Amendment Act of 2016, passed on 2nd reading on December 20, 2016 (Enrolled version of Bill 21-919).
2. A Designated Entertainment Area Sign with digital display shall ensure that the duration of each display shall be not less than 8 seconds and the transition time between messages shall be not greater than 2 seconds.
3. Except as provided in Item 4, digital display Designated Entertainment Area Signs shall operate only between the hours of 7:00 a.m. and 11:00 p.m. or no longer than 30 minutes after the end of an event held at Nationals Park as applicable to the Designated Entertainment Areas listed in Section N101.20, whichever is later, or until such time as may be established by a special event permit for a specific event.
4. Full motion video Designated Entertainment Area Signs shall operate only between 1 hour preceding and 30 minutes after the end of an event held in Nationals park, as applicable to the Designated Entertainment Areas listed in Section N101.20, or until such time as may be established by a special event permit for a specific event.

N101.20.7 Luminance.

1. A Designated Entertainment Area Sign shall not exceed a maximum allowable luminance of:
   1.1. Three hundred fifty (350) nits between sunset and sunrise; or
   1.2. Three thousand (3000) nits between sunrise and sunset.
2. Lighting for an illuminated Designated Entertainment Area Sign installed or modified on or after the effective date of the Nationals Park and Ballpark District Designated Entertainment Area Signage Regulations Amendment Act of 2016, passed on 2nd reading on December 20, 2016 (Enrolled version of Bill 21-919), shall have a lighting control system that:
   2.1. Includes an ambient light monitor;
   2.2. Allows for automatic adjustment of the brightness of the sign based on ambient light conditions and adjustments and that reduces light levels at night and under cloudy or darkened conditions; and
   2.3. Provides an accessible dimming controller to allow immediate corrections where maximum luminance levels are exceeded.
3. All Designated Entertainment Area Sign lighting shall be controlled with a photocontrol switch and an automatic time-switch control or an astronomical time-switch control.
   3.1. The photocontrol switch shall:
      a. Be capable of reducing the power consumption in response to measured daylight either directly or by sending and receiving signals;
      b. Automatically return to its most recent time delay settings within 60 minutes when put in calibration mode;
      c. Have a set point control that easily distinguishes settings to within 10 percent of full-scale adjustment;
      d. Have a light sensor that has a linear response within 5-percent accuracy over the range of illuminance measured by the light sensor; and
      e. Have a light sensor that is physically separated from where the calibration adjustments are made, or is capable of being calibrated in a manner that the person initiating the calibration is remote from the sensor during calibration to avoid influencing calibration accuracy.
   3.2. A lighting control system with automatic time-switch controls shall:
      a. Have program backup capabilities that prevent the ross of the sign's schedule for not fewer than 7 days, and the sign's date and time for not fewer than 72 hours if power is interrupted; and
      b. Be capable of providing manual override to each connected sign and shall resume normally scheduled operation after manual override is initiated within 2 hours for each connected sign.
   3.3. A lighting system with astronomical time-switch controls shall:
      a. Meet the requirements of an automatic time-switch control;
      b. Have sunrise and sunset prediction accuracy within plus-or-minus 15 minutes and

timekeeping accuracy within 5 minutes per year;

c. Be capable of displaying date, current time, sunrise time, sunset time, and switching times for each step during programming;

d. Have an automatic daylight savings time adjustment; and

e. Have the ability to independently offset the on and off for each channel by at least 99 minutes before and after sunrise or sunset.

3.4. Sign lighting that is on both day and night shall also include a dimmer control that shall:

a. Be capable of reducing power consumption and luminance by a minimum of 65 percent when the dimmer is at its lowest level;

b. Include an off position that produces a zero lumen output; and

c. Not consume more than 1 watt per lighting dimmer switch leg when in the off position.

4. The sign's operation shall be controlled by a central management system that is:

4.1. Capable of storing data associated with the sign's operation for not less than 30 days.

4.2. Accessible via an Internet browser.

4.3. Capable of generating reports that include, at a minimum, the data elements listed in Item 5 of this section. The permittee is responsible for maintaining these records for 3 years and shall provide records of signs operational data to the *code official* upon request.

5. The operational data recorded and maintained for each sign shall include:

5.1. Location.

5.2. Status (on/off).

5.3. Energy consumption.

5.4. Luminance levels during operation measured in nits.

5.5. Schedule of dimming luminance levels and luminance levels established for hours with reduced luminance requirements.

5.6. Instances when luminance levels exceed limitations imposed by this section.

6. Externally-illuminated Designated Entertainment Area Signs shall be illuminated only with steady, stationary, fully-shielded light sources directed solely onto the sign without causing glare.

N101.20.8 Intensity or brilliance of Graphics. No Designated Entertainment Area Sign shall have such intensity or brilliance as to create an unreasonable risk for vehicular traffic safety as determined by the Director of the District Department of Transportation pursuant to Section N101.20.14.

N101.20.9 Sound. No Designated Entertainment Area Sign Permit shall have audio or sound other than *de minimis* sounds caused by general operation.

N101.20.10 Permit Application Process. An application for a Designated Entertainment Area Sign Permit shall be submitted by the owner, or the owner's designee, and shall include:

1. Identification of:

1.1. The applicant with contact information including the applicant's telephone number, e-mail address, and mailing address.

1.2. The proposed type and location of the sign and the face direction of the wall or surface.

1.3. The proposed linear dimensions of the sign and its projection from the building's façade.

1.4. The proposed structural design of the sign.

1.5. The luminance and lighting controls of the sign.

1.6. The proposed intensity or brilliance of the sign.

1.7. The potentially affected Advisory Neighborhood Commissions (ANCs).

1.8. The amount of time that the applicant shall provide per year on digital displays for public service announcements and announcements regarding community, art, cultural, educational, and similar events, along with the display of relevant and useful public information such as news, real-time transit schedules, and weather; provided, that the minimum time provided shall be 10 percent of annual display time.

2. A three-dimensional rendering of the design and placement of the sign.

3. An affidavit signed by the applicant, or his or her duly authorized representative, certifying that the applicant is in compliance with Subchapter II of Chapter 28 of Title 47 of the District of Columbia Official Code, and has consulted with or attempted in good faith to consult with the potentially affected ANC(s) about the permit application.

4. A permit fee in the amount of ten dollars ($10) per square foot of sign area, which may be paid by check made payable to the order of the DC Treasurer; provided, that this permit fee may be amended by rulemaking or act consistent with permit fees for similar signs.

5. Five copies of the application and all illustrations.

6. Any other information required by the Director to assist in reviewing the permit application.

N101.20.11 Permit Application Referrals.

1. The Director shall refer all Designated Entertainment Area Sign Permit applications to the District Department of Transportation and the Office of Planning within 10 days of receipt of the permit application by the Department.

2. The District Department of Transportation and the Office of Planning shall have 70 days from the date the Department receives the permit application to submit a written report to the Director; except, that the Director may allow for an extension of this period of up to 30 days for good cause.
3. The Director of the District Department of Transportation and the Director of the Office of Planning shall not submit the written report required by this section until after the affected ANC(s) have submitted comments or the 45 day period required by Section N101.20.12 has expired without submission of comments by the affected ANC(s).

N101.20.12 Advisory Neighborhood Commission Notification.

1. The Director shall notify in writing potentially affected ANC(s) of the submission of an application for a Designated Entertainment Area Sign Permit within 10 days of receipt of such application and invite the submission of any written comments within 45 days of the date of such notice.
2. The ANC(s) shall submit one set of comments to the Director; electronic or paper copies of the written comments should be simultaneously submitted to the Director of the District Department of Transportation and the Director of the Office of Planning.
3. The District Department of Transportation and the Office of Planning shall address any comments or recommendations from an affected ANC submitted within the 45-day period set forth in this section in the written report submitted to the Director pursuant to Section N101.20.11.
4. The Director shall give great weight to any comments or recommendations from an affected ANC submitted within the 45-day period set forth in this section in the written report.
5. When a Designated Entertainment Facility Sign Permit is resubmitted for consideration, the comments submitted by the ANC on the original application shall be considered with the resubmitted application.

N101.20.13 Permit Review Processes; Operation. All permits shall comply with all permit review processes required by District or federal law. The operation of all Designated Entertainment Area Signs shall comply with all applicable District and federal laws and regulations, including the Highway Beautification Act of 1965, approved October 22, 1965 (79 Stat. 1028; 23 U.S.C. § 131), and other laws and regulations not directly referenced in this section.

N101.20.14 Effect of Adverse Report. A Designated Entertainment Area Sign Permit application shall not be approved by the Department if:

1. The Director of the District Department of Transportation reports in a written statement the reasons that the location, size, spacing, height above grade, brilliance, or illumination of the sign would create an unreasonable risk for vehicular traffic safety;
2. The sign would violate applicable federal laws or regulations or the ruling or order of a commission or court of competent jurisdiction; or
3. The Director of the Office of Planning reports in a written statement the reasons that the operation of the proposed sign is determined to adversely impact the character and integrity of the surrounding neighborhood as a whole for residential, business, and recreation uses. In making this determination, the Director shall consider the following criteria and shall ensure that the sign:
   a. Protects and does not detract from views along prominent corridors and the Anacostia riverfront;
   b. Creates vibrant public space through creative and artistic signs and the integration of new technologies into the built environment and prioritizing the pedestrian experience;
   c. Minimizes its impact on the use and enjoyment of a residential unit or residential property, office property, or hotel property. Such impact may include light or glare being cast directly or indirectly into a residential unit or interference with the restful use of a residential unit at night; and
   d. Complements the architecture of the Designated Entertainment Area and surrounding buildings, and complements public spaces through location, size, and design.

N101.20.15 Review, approval or denial of Designated Entertainment Sign Permit Applications.

1. The Director shall review and either approve or deny a Designated Entertainment Area Sign Permit application within 21 days after the expiration of the time period provided in Section N101.20.11. The approval or denial of the permit application shall be based on whether the permit application meets the requirements set forth in this section.
2. A Designated Entertainment Area Sign Permit shall be issued in the name of the applicant and shall pertain solely to the specific Designated Entertainment Area Sign permit and specific location identified in the permit.

N101.20.16 Denial of Application.

1. If the Director denies a Designated Entertainment Area Sign Permit application, the denial shall be issued in writing to the applicant and shall explain in detail the basis for the denial. The applicant shall have 30 days from receipt of the denial to:
   a. Correct any defect in the application identified by the Director and submit a corrected permit application to the Department; or
   b. Seek review of the permit denial at the Office of Administrative Hearings.
2. If the applicant timely submits a corrected permit application to the Department, the Director, within 5 days of receipt of the permit application, shall refer the permit application to the District Department of

Transportation and the Office of Planning and each agency shall provide a report required under Section N101.20.11, within 14 days. The Director shall review and either approve or deny the corrected permit application within 30 days of receipt of the corrected permit application. If the Director denies the corrected permit application, the applicant shall have 30 days from receipt of the denial to file a notice with the office of Administrative Hearings for adjudication.

N101.20.17 Display changes. As part of a Designated Entertainment Area Sign Permit application, the sign owner or owner's designee may apply to the Director for a change in the number, location, and size of any of the Designated Entertainment Area Sign display with the site property owner or the owner's designee's approval. The Director shall review such application as if it were a new application, unless the proposed change reduces the size, number, or brightness of any previously approved sign plan without changing any location of any sign that continues in operation.

N101.20.18 Energy Consumption Regulation Compliance. In the event any regulation to reduce energy consumption requires a permit holder to upgrade sign material or operation systems, the permit holder shall submit a certification from the Department of Energy and Environment that states the regulation requires upgrades and the chosen materials satisfy the regulatory requirements.

N101.20.19 Enforcement of Regulations and removal of Designated Entertainment Area Signs.

1. Any unauthorized Designated Entertainment Area Signs, including signs without a permit, or permitted Designated Entertainment Area Signs that are not in full compliance with provisions of the District of Columbia Official Code, District of Columbia Municipal Regulations, or federal law, including An Act To regulate the erection, hanging, placing, painting, display, and maintenance of outdoor signs and other forms of exterior advertising within the District of Columbia, approved March 3, 1931 (46 Stat. 1486; DC Official Code §§ 1-303.21 et seq.), and this section, that become effective within 1 year of the issuance of the Designated Entertainment Area Sign Permit shall be taken down or removed within 14 days after receipt of written notification of violation from the Mayor directing that the signs be removed or taken down for persistent, continuous, or egregious violations of District law.
2. The Mayor shall determine whether a violation is persistent, continuous, or egregious, or whether the violation is individual and intermittent in nature. An individual, intermittent violation shall be addressed pursuant to Section N101.20.20.
3. If the signs are not taken down or removed within the specified 14-day period, the Mayor shall impose civil fines of not more than ten dollars ($10) per square foot of sign, per day.
4. The permit holder, at its sole cost and expense, shall be responsible for taking down or removing unauthorized signs upon notification by the Mayor to do so and shall be solely and exclusively responsible for any expense incurred by the District of Columbia if the Mayor removes the unauthorized signs. The Designated Entertainment Area Sign Permit holder shall also be held solely and exclusively responsible for any penalties or fines imposed by this violation.
5. Any changes made to sign and advertising requirements under District of Columbia law after the issuance of a permit pursuant to this section shall not apply to the Designated Entertainment Area Sign Permit for the life of the permit or 3 years from the issuance of the permit, whichever is shorter.

N101.20.20 Enforcement of Individual and Intermittent Permit Violations. Any owner of a Designated Entertainment Area Sign whose signage, on an intermittent and individual basis, violates Designated Entertainment Area Sign Permit conditions, provisions of the District of Columbia Official Code, District of Columbia Municipal Regulations, or federal law, including An Act To regulate the erection, hanging, placing, painting, display, and maintenance of outdoor signs and other forms of exterior advertising within the District of Columbia, approved March 3, l93l (46 Stat. 1486; DC Official Code §§ 1-303.21 et seq.), and this section, that are or become effective within 1 year of the issuance of the Designated Entertainment Facility Sign Permit shall be notified in writing of the suspected violation with request for operational data. The permit holder shall provide requested operational data to the Department within 7 days to verify or rebuke the suspected violation. Failure to provide operational data within 7 days shall be a Class 2 infraction and the Department shall impose civil fines as described in 16 DCMR § 3201.1(b). Further, individual or intermittent violations of the provisions of this section shall be considered a Class 2 violation and the Department shall impose civil fines for intermittent sign permit violations as described in 16 DCMR § 3201.1(b). The owner of an unauthorized sign or the permit holder of an authorized sign not in compliance shall also be held solely and exclusively responsible for any penalties or fines imposed by this violation.

N101.20.21 Maintenance and repair.

1. Whenever the *code official* finds that any Designated Entertainment Area Sign is not maintained in good ordinary repair and has not deteriorated more than 50 percent of its replacement value, the *code official* shall notify the property owner or designee and the permit holder, or designee, and order the repair of the sign within a specified time, but not fewer than 21 days. If the value of a sign cannot be determined, the *code official* may request an appraisal from the sign's owner within a specified time period that shall be not fewer than 5 business days. If the owner fails to provide an appraisal within that time period, the signs shall be deemed to

have deteriorated to less than 50 percent of the value of a replacement sign.

2. If the *code official* finds that any of the Designated Entertainment Area Signs are not maintained in good ordinary repair and have deteriorated more than 50 percent of their replacement value, or are not repaired within the time specified in the repair notice, the *code official* shall order the property owner or his designee and the permit holder, or designee, to remove such signs within a specified period of time, but not fewer than 5 days.
3. Failure to comply with such order shall subject the property owner and the permit holder, upon adjudication, to civil fines, penalties, and fees pursuant to Titles I through III of the Department of Consumer and Regulatory Affairs Civil Infractions Act of 1985, effective October 5, L985 (DC Law 6-42; DC Official Code §§ 2-1801.01 et seq.).The *code official* may extend the time periods stated in this section upon a written showing of good cause by the property owner and the permit holder.

N101.20.22 Other Signs. Designated Entertainment Area Signs shall not affect signs authorized or prohibited elsewhere in this appendix or otherwise authorized or prohibited by law.

N1101.20.23 Rulemaking Authority. Notwithstanding Section 10 of the Construction Codes Approval and Amendments Act of 1986, effective March 21, 1987 (DC Law 6-216; DC Official Code § 6-1409), the Director may amend the provisions of Sections N101.20 et seq. by rulemaking pursuant to section 6 of the District of Columbia Administrative Procedure Act, approved October 21,1968 (82 Stat. 1206; DC Official Code § 2-505). Proposed rules shall be submitted to the Council for a 45-day review period. If the Council does not approve or disapprove the proposed rules, by resolution, within the 45-day period, the rules shall be deemed approved.

N101.20.99 Definitions. For the purposes of this section the term:

"Astronomical time-switch control" means an electric programming clock designed to control sign luminance levels automatically according to actual sunrise and sunset.

"Department" means the Department of Consumer and Regulatory Affairs.

"Designated Entertainment Area" means the property area defined in Section N101.20.

"Designated Entertainment Area Sign" means an outdoor visual, digital, or static canvas display placed in a Designated Entertainment Area and authorized for permit under Section N101.20.1.

"Digital display" means a sign that is internally illuminated and displays static images or variable messages on an alternating basis. Digital displays do not include full motion video, except as provided in Item 4 of Section N101.20.6.

"Director" means the Director of the Department or his or her designee.

"Full motion video" means images presented on an internally illuminated device, including a television or video monitor, which change at a rate that makes objects appear to move smoothly and continuously.

"Nit" means a unit of measurement of luminance, or the intensity of visible light, where one nit is equal to one candela per square meter.

"Ordinary repairs" means those that are customary to keep a sign in good operating order, or refurbishing. Ordinary repairs do not include, for example, enlargement, extension, adding illumination to an unilluminated sign, or those repairs requiring a permit in accordance with DC Building Code Supplement, 12-A DCMR § 105.2.2.

"Photocontrol switch" means a light responsive switch that provides automatic luminance levels that are responsive to the ambient light changes.

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