

# REVISION RECORD FOR THE STATE OF CALIFORNIA

## EMERGENCY AND CHANGE WITHOUT REGULATORY EFFECT SUPPLEMENT

### SEE THE HISTORY NOTE FOR EFFECTIVE DATES

#### 2016 Title 24, Part 2, Vol. 2 California Building Code

##### General Information:

1. This supplement provides building standards for two rulemakings that were approved and adopted by the California Building Standards Commission on December 12, 2017 and filed with Secretary of State on December 13, 2017.
  - a. This supplement provides emergency building standards that were made permanent pursuant to *Government Code*, Sections 11346.2 to 11347.3, adopted by the California Building Standards Commission on December 12, 2017, filed with Secretary of State and became effective December 13, 2017. The California Building Standards Commission issued Information Bulletin 17-07 announcing the certified and permanent adoption of emergency regulations.

**Clarification:** Emergency building standards become effective upon filing with Secretary of State after commission adoption. They remain in place and enforceable for only 180 days, pursuant to *Government Code*, Sections 11346.2 to 11347.3, with conditional extensions permitted. For the emergency building standards to become a permanent adoption, the state agency initiating the emergency adoption must complete the required rulemaking process before the 180-day expiration date. The required process includes an opportunity for the public to review and comment on the initially adopted regulatory language of the building standard.
  - b. This supplement also provides building standards adopted as a change without regulatory effect, by the California Building Standards Commission on December 12, 2017, filed with Secretary of State December 13, 2017, and became effective December 13, 2017. The California Building Standards Commission issued Information Bulletin 17-08 announcing the adopted regulations.
2. This supplement provides new or replacement blue supplement pages with building standards approved by the California Building Standards Commission on an emergency basis, now made permanent, for insertion in the *California Code of Regulations*, Title 24, Part 2, Vol. 1 of the 2016 *California Building Code*. Existing Part 2 pages should be replaced by pages provided with this supplement. Instructions are provided below.
3. *Health and Safety Code*, Section 18938.5, establishes that only building standards in effect at the time of the application for a building permit may be applied to the project plans and construction. This rule applies to both adoptions of building standards for Title 24 by the California Building Standards Commission and local adoptions and ordinances imposing building standards.
4. Not all code text on the enclosed blue supplement pages is a new or amended building standard. New, amended, or repealed building standards are identified by margin symbols. An explanation of margin symbols is provided in the preface of the code.
5. You may wish to retain the superseded material with this revision record so that the prior wording of any section can be easily ascertained.

#### Part 2, Vol. 2

##### Remove Existing Pages

9 and 10  
47 through 50  
63 and 64  
285 and 286  
391 through 396  
655 and 656

##### Insert Blue-Colored Pages

9 and 10  
47 through 50  
63 and 64  
285 and 286  
391 through 396  
655 and 656



$$0.6D + 0.6W + H \quad (\text{Equation 16-15})$$

$$0.6(D + F) + 0.7E + H \quad (\text{Equation 16-16})$$

**Exceptions:**

1. Crane hook loads need not be combined with roof live load or with more than three-fourths of the snow load or one-half of the wind load.
2. Flat roof snow loads of 30 psf (1.44 kN/m<sup>2</sup>) or less and roof live loads of 30 psf (1.44 kN/m<sup>2</sup>) or less need not be combined with seismic loads. Where flat roof snow loads exceed 30 psf (1.44 kN/m<sup>2</sup>), 20 percent shall be combined with seismic loads.
3. Where the effect of  $H$  resists the primary variable load effect, a load factor of 0.6 shall be included with  $H$  where  $H$  is permanent and  $H$  shall be set to zero for all other conditions.
4. In Equation 16-15, the wind load,  $W$ , is permitted to be reduced in accordance with Exception 2 of Section 2.4.1 of ASCE 7.
5. In Equation 16-16, 0.6  $D$  is permitted to be increased to 0.9  $D$  for the design of special reinforced masonry shear walls complying with Chapter 21.

**1605.3.1.1 Stress increases.** Increases in allowable stresses specified in the appropriate material chapter or the referenced standards shall not be used with the load combinations of Section 1605.3.1, except that increases shall be permitted in accordance with Chapter 23.

**1605.3.1.2 Other loads.** Where flood loads,  $F_a$ , are to be considered in design, the load combinations of Section 2.4.2 of ASCE 7 shall be used. Where self-straining loads,  $T$ , are considered in design, their structural effects in combination with other loads shall be determined in accordance with Section 2.4.4 of ASCE 7. Where an ice-sensitive structure is subjected to loads due to atmospheric icing, the load combinations of Section 2.4.3 of ASCE 7 shall be considered.

**1605.3.2 Alternative basic load combinations.** In lieu of the basic load combinations specified in Section 1605.3.1, structures and portions thereof shall be permitted to be designed for the most critical effects resulting from the following combinations. When using these alternative basic load combinations that include wind or seismic loads, allowable stresses are permitted to be increased or load combinations reduced where permitted by the material chapter of this code or the referenced standards. For load combinations that include the counteracting effects of dead and wind loads, only two-thirds of the minimum dead load likely to be in place during a design wind event shall be used. When using allowable stresses that have been increased or load combinations that have been reduced as permitted by the material chapter of this code or the referenced standards, where wind loads are calculated in accordance with Chapters 26 through 31 of ASCE 7, the coefficient ( $\omega$ ) in the following equations shall be taken as 1.3. For other wind loads, ( $\omega$ ) shall be taken as 1. When allowable stresses have not been increased or load

combinations have not been reduced as permitted by the material chapter of this code or the referenced standards, ( $\omega$ ) shall be taken as 1. When using these alternative load combinations to evaluate sliding, overturning and soil bearing at the soil-structure interface, the reduction of foundation overturning from Section 12.13.4 in ASCE 7 shall not be used. When using these alternative basic load combinations for proportioning foundations for loadings, which include seismic loads, the vertical seismic load effect,  $E_v$ , in Equation 12.4-4 of ASCE 7 is permitted to be taken equal to zero.

$$D + L + (L_r \text{ or } S \text{ or } R) \quad (\text{Equation 16-17})$$

$$D + L + 0.6 \omega W \quad (\text{Equation 16-18})$$

$$D + L + 0.6 \omega W + S/2 \quad (\text{Equation 16-19})$$

$$D + L + S + 0.6 \omega W/2 \quad (\text{Equation 16-20})$$

$$D + L + S + E/1.4 \quad (\text{Equation 16-21})$$

$$0.9D + E/1.4 \quad (\text{Equation 16-22})$$

**Exceptions:**

1. Crane hook loads need not be combined with roof live loads or with more than three-fourths of the snow load or one-half of the wind load.
2. Flat roof snow loads of 30 psf (1.44 kN/m<sup>2</sup>) or less and roof live loads of 30 psf (1.44 kN/m<sup>2</sup>) or less need not be combined with seismic loads. Where flat roof snow loads exceed 30 psf (1.44 kN/m<sup>2</sup>), 20 percent shall be combined with seismic loads.

**1605.3.2.1 Other loads.** Where  $F$ ,  $H$  or  $T$  are to be considered in the design, each applicable load shall be added to the combinations specified in Section 1605.3.2. Where self-straining loads,  $T$ , are considered in design, their structural effects in combination with other loads shall be determined in accordance with Section 2.4.4 of ASCE 7.

## SECTION 1606 DEAD LOADS

**1606.1 General.** Dead loads are those loads defined in Section 1602.1. Dead loads shall be considered permanent loads.

**1606.2 Design dead load.** For purposes of design, the actual weights of materials of construction and fixed service equipment shall be used. In the absence of definite information, values used shall be subject to the approval of the building official.

## SECTION 1607 LIVE LOADS

**1607.1 General.** Live loads are those loads defined in Section 1602.1.

**1607.2 Loads not specified.** For occupancies or uses not designated in Table 1607.1, the live load shall be determined in accordance with a method approved by the building official.

**STRUCTURAL DESIGN**

**TABLE 1607.1  
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS,  $L_o$ ,  
AND MINIMUM CONCENTRATED LIVE LOADS<sup>g</sup>**

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (lbs.)
1. Apartments (see residential)	—	—
2. Access floor systems		
Office use	50	2,000
Computer use	100	2,000
3. Armories and drill rooms	150 <sup>m</sup>	—
4. Assembly areas		
Fixed seats (fastened to floor)	60 <sup>m</sup>	
Follow spot, projections and control rooms	50	
Lobbies	100 <sup>m</sup>	—
Movable seats	100 <sup>m</sup>	
Stage floors	150 <sup>m</sup>	
Platforms (assembly)	100 <sup>m</sup>	
Other assembly areas	100 <sup>m</sup>	
5. Balconies and decks <sup>h</sup>	<i>[BSC, HCD 1, HCD 2] 1.5 times the live load for the area served, not required to exceed 100</i>	—
6. Catwalks	40	300
7. Cornices	60	—
8. Corridors		
First floor	100	
Other floors	Same as occupancy served except as indicated	—
9. Dining rooms and restaurants	100 <sup>m</sup>	—
10. Dwellings (see residential)	—	—
11. Elevator machine room and control room grating (on area of 2 inches by 2 inches)	—	300
12. Finish light floor plate construction (on area of 1 inch by 1 inch)	—	200
13. Fire escapes	100	
On single-family dwellings only	40	—
14. Garages (passenger vehicles only)	40 <sup>m</sup>	Note a
Trucks and buses	See Section 1607.7	
15. Handrails, guards and grab bars	See Section 1607.8	
16. Helipads	See Section 1607.6	
17. Hospitals		
Corridors above first floor	80	1,000
Operating rooms, laboratories	60	1,000
Patient rooms	40	1,000
18. Hotels (see residential)	—	—
19. Libraries		
Corridors above first floor	80	1,000
Reading rooms	60	1,000
Stack rooms	150 <sup>b, m</sup>	1,000
20. Manufacturing		
Heavy	250 <sup>m</sup>	3,000
Light	125 <sup>m</sup>	2,000
21. Marquees, except one- and two-family dwellings	75	—

(continued)

**TABLE 1607.1—continued  
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS,  $L_o$ ,  
AND MINIMUM CONCENTRATED LIVE LOADS<sup>g</sup>**

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (lbs.)
22. Office buildings		
Corridors above first floor	80	2,000
File and computer rooms shall be designed for heavier loads based on anticipated occupancy	—	—
Lobbies and first-floor corridors	100	2,000
Offices	50	2,000
23. Penal institutions		
Cell blocks	40	—
Corridors	100	—
24. Recreational uses:		
Bowling alleys, poolrooms and similar uses	75 <sup>m</sup>	
Dance halls and ballrooms	100 <sup>m</sup>	
Gymnasiums	100 <sup>m</sup>	
Ice skating rink	250 <sup>m</sup>	—
Reviewing stands, grandstands and bleachers	100 <sup>c, m</sup>	
Roller skating rink	100 <sup>m</sup>	
Stadiums and arenas with fixed seats (fastened to floor)	60 <sup>c, m</sup>	
25. Residential		
One- and two-family dwellings		
Uninhabitable attics without storage <sup>i</sup>	10	
Uninhabitable attics with storage <sup>i, j, k</sup>	20	
Habitable attics and sleeping areas <sup>k</sup>	30	
Canopies, including marquees	20	—
All other areas	40	
Hotels and multifamily dwellings		
Private rooms and corridors serving them	40	
Public rooms <sup>m</sup> and corridors serving them	100	
26. Roofs		
All roof surfaces subject to maintenance workers		300
Awnings and canopies:		
Fabric construction supported by a skeleton structure	5	
All other construction, except one- and two-family dwellings	Nonreducible	
Ordinary flat, pitched, and curved roofs (that are not occupiable)	20	
Primary roof members exposed to a work floor:		
Single panel point of lower chord of roof trusses or any point along primary structural members supporting roofs over manufacturing, storage warehouses, and repair garages		2,000
All other primary roof members		300
Occupiable roofs:		
Roof gardens	100	
Assembly areas	100 <sup>m</sup>	
All other similar areas	Note 1	Note 1
27. Schools		
Classrooms	40	1,000
Corridors above first floor	80	1,000
First-floor corridors	100	1,000
28. Scuttles, skylight ribs and accessible ceilings	—	200
29. Sidewalks, vehicular driveways and yards, subject to trucking	250 <sup>d, m</sup>	8,000 <sup>e</sup>

(continued)

**1615.4.2.1 Longitudinal ties.** Longitudinal ties shall consist of continuous reinforcement in slabs; continuous or spliced decks or sheathing; continuous or spliced members framing to, within or across walls; or connections of continuous framing members to walls. Longitudinal ties shall extend across interior load-bearing walls and shall connect to exterior load-bearing walls and shall be spaced at not greater than 10 feet (3038 mm) on center. Ties shall have a minimum nominal tensile strength,  $T_T$ , given by Equation 16-41. For ASD the minimum nominal tensile strength shall be permitted to be taken as 1.5 times the allowable tensile stress times the area of the tie.

$$T_T = wLS \leq \alpha_T S \quad \text{(Equation 16-41)}$$

where:

$L$  = The span of the horizontal element in the direction of the tie, between bearing walls, feet (m).

$w$  = The weight per unit area of the floor or roof in the span being tied to or across the wall, psf (N/m<sup>2</sup>).

$S$  = The spacing between ties, feet (m).

$\alpha_T$  = A coefficient with a value of 1,500 pounds per foot (2.25 kN/m) for masonry bearing wall structures and a value of 375 pounds per foot (0.6 kN/m) for structures with bearing walls of cold-formed steel light-frame construction.

**1615.4.2.2 Transverse ties.** Transverse ties shall consist of continuous reinforcement in slabs; continuous or spliced decks or sheathing; continuous or spliced members framing to, within or across walls; or connections of continuous framing members to walls. Transverse ties shall be placed no farther apart than the spacing of load-bearing walls. Transverse ties shall have minimum nominal tensile strength  $T_T$ , given by Equation 16-41. For ASD the minimum nominal tensile strength shall

be permitted to be taken as 1.5 times the allowable tensile stress times the area of the tie.

**1615.4.2.3 Perimeter ties.** Perimeter ties shall consist of continuous reinforcement in slabs; continuous or spliced decks or sheathing; continuous or spliced members framing to, within or across walls; or connections of continuous framing members to walls. Ties around the perimeter of each floor and roof shall be located within 4 feet (1219 mm) of the edge and shall provide a nominal strength in tension not less than  $T_p$ , given by Equation 16-42. For ASD the minimum nominal tensile strength shall be permitted to be taken as 1.5 times the allowable tensile stress times the area of the tie.

$$T_p = 200w \leq \beta_T \quad \text{(Equation 16-42)}$$

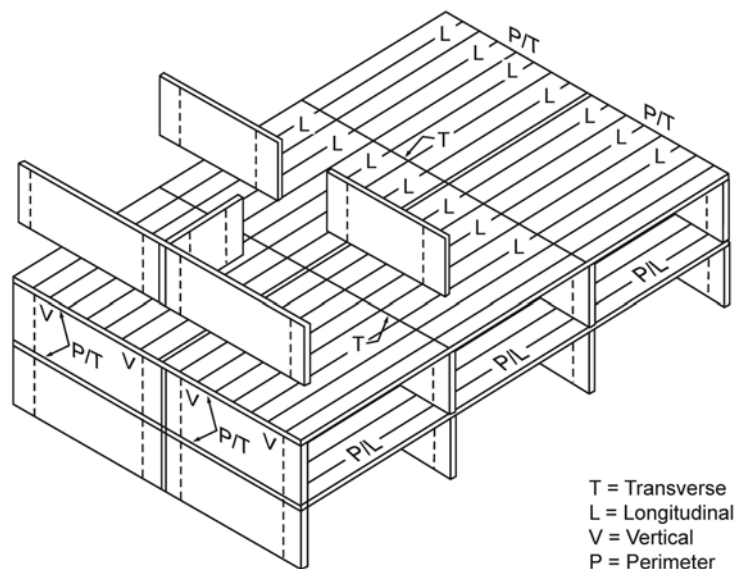
For SI:  $T_p = 90.7w \leq \beta_T$

where:

$w$  = As defined in Section 1615.4.2.1.

$\beta_T$  = A coefficient with a value of 16,000 pounds (7200 kN) for structures with masonry bearing walls and a value of 4,000 pounds (1300 kN) for structures with bearing walls of cold-formed steel light-frame construction.

**1615.4.2.4 Vertical ties.** Vertical ties shall consist of continuous or spliced reinforcing, continuous or spliced members, wall sheathing or other engineered systems. Vertical tension ties shall be provided in bearing walls and shall be continuous over the height of the building. The minimum nominal tensile strength for vertical ties within a bearing wall shall be equal to the weight of the wall within that story plus the weight of the diaphragm tributary to the wall in the story below. No fewer than two ties shall be provided for each wall. The strength of each tie need not exceed 3,000 pounds per foot (450 kN/m) of



**FIGURE 1615.4**  
**LONGITUDINAL, PERIMETER, TRANSVERSE AND VERTICAL TIES**

wall tributary to the tie for walls of masonry construction or 750 pounds per foot (140 kN/m) of wall tributary to the tie for walls of cold-formed steel light-frame construction.

**SECTION 1616  
ADDITIONAL REQUIREMENTS FOR  
COMMUNITY COLLEGES [DSA-SS/CC]**

**1616.1 Construction documents.**

**1616.1.1 Additional requirements for construction documents** are included in Sections 4-210 and 4-317 of the California Administrative Code (Part 1, Title 24, C.C.R).

**1616.1.2 Connections.** Connections that resist design seismic forces shall be designed and detailed on the design drawings.

**1616.1.3 Construction procedures.** Where unusual erection or construction procedures are considered essential by the project structural engineer or architect in order to accomplish the intent of the design or influence the construction, such procedure shall be indicated on the plans or in the specifications.

**1616.2 General design requirements.**

**1616.2.1 Lateral load deflections.**

**1616.2.1.1 Horizontal diaphragms.** The maximum span-depth ratio for any roof or floor diaphragm consisting of steel and composite steel slab decking or concrete shall be based on test data and design calculations acceptable to the enforcement agency.

**1616.2.1.2 Veneers.** The deflection shall not exceed  $l/600$  for veneered walls, anchored veneers and adhered veneers over 1 inch (25 mm) thick, including the mortar backing.

**1616.2.1.3 Risk Category of buildings and other structures.** Risk Category IV includes structures as defined in the California Administrative Code, Section 4-207 and all structures required for their continuous operation or access/egress.

**1616.2.1.4 Analysis.** Structural analysis shall explicitly include consideration of stiffness of diaphragm in accordance with ASCE 7 Section 12.3.1. A diaphragm is rigid for the purpose of distribution of story shear and torsional moment where so indicated in Section 12.3.1 of ASCE 7.

**1616.2.2 Structural walls.** For anchorage of concrete or masonry walls to roof and floor diaphragms, the out-of-plane strength design force shall not be less than 280 lb/linear ft (4.09 kN/m) of wall.

**1616.3 Load combinations.**

**1616.3.1 Stability.** When checking stability under the provisions of Section 1605.1.1 using allowable stress design, the factor of safety for soil bearing values shall not be less than the overstrength factor of the structures supported.

**1616.3.2 Modifications to load combinations in ICC 300.** The text of ICC 300 shall be modified as indicated in Section 1616.3.2.1 through 1616.3.2.3.

**1616.3.2.1 ICC 300, Section 303.5.1.** Modify Section 303.5.1 by adding Equation 3-1a and replacing Equation 3-2 as follows:

$$0.9D + 0.4L + 1.6Z \quad \text{(Equation 3-1a)}$$

$$1.2D + 1.6L + 1.6R, \quad \text{(Equation 3-2)}$$

**1616.3.2.2 ICC 300, Section 303.5.2.** Modify Section 303.5.2 by adding Equation 3-3a, adding Equation 3-3b, and replacing Equation 3-4 as follows:

$$D + 0.4L + Z \quad \text{(Equation 3-3a)}$$

$$0.6D + 0.3L + Z \quad \text{(Equation 3-3b)}$$

$$D + L + R, \quad \text{(Equation 3-4)}$$

**1616.3.2.3 ICC 300, Section 303.5.3.** Modify Section 303.5.3 as follows:

The uniform live load,  $L$ , used in Equation 3-2 and 3-4 may be taken as zero when evaluating elements supporting the handrail/guardrail provided those elements do not also support  $L$ .

**1616.4 Roof dead loads.** The design dead load shall provide for the weight of at least one additional roof covering in addition to other applicable loadings if the new roof covering is permitted to be applied over the original roofing without its removal, in accordance with Section 1511.

**1616.5 Live loads.**

**1616.5.1 Modifications to Table 1607.1.**

**1616.5.1.1 Item 4. Assembly areas.** The following minimum loads for stage accessories apply:

1. Gridirons and fly galleries: 75 pounds per square foot uniform live load.
2. Loft block wells: 250 pounds per lineal foot vertical load and lateral load.
3. Head block wells and sheave beams: 250 pounds per lineal foot vertical load and lateral load. Head block wells and sheave beams shall be designed for all tributary loft block well loads. Sheave blocks shall be designed with a safety factor of five.
4. Scenery beams where there is no gridiron: 300 pounds per lineal foot vertical load and lateral load.
5. Ceiling framing over stages shall be designed for a uniform live load of 20 pounds per square foot. For members supporting a tributary area of 200 square feet or more, this additional load may be reduced to 15 pounds per square foot (0.72 kN/m<sup>2</sup>).

**1616.5.1.2 Item 5. Balconies and decks.** The minimum uniform live load for balconies and decks is 1.5 times the live load for the area served, not required to exceed 100 psf.

**1616.5.1.3 Item 24. Reviewing stands, grandstands and bleachers.** The minimum uniform live load for a press box floor or accessible roof with railing is 100 psf.

**1616.5.1.4 Item 35. Yards and terraces, pedestrians.** Item 35 applies to pedestrian bridges and walkways that are not subjected to uncontrolled vehicle access.

**1616.5.1.5 Item 36. Storage racks and wall-hung cabinets.** The minimum vertical design live load shall be as follows:

*Paper media:*

12-inch-deep (305 mm) shelf - 33 pounds per lineal foot (482 N/m)

15-inch-deep (381 mm) shelf - 41 pounds per lineal foot (598 N/m), or 33 pounds per cubic foot (5183 N/m<sup>3</sup>) per total volume of the rack or cabinet, whichever is less.

*Film media:*

18-inch-deep (457 mm) shelf - 100 pounds per lineal foot (1459 N/m), or

50 pounds per cubic foot (7853 N/m<sup>3</sup>) per total volume of the rack or cabinet, whichever is less.

*Other media:*

20 pounds per cubic foot (311 N/m<sup>3</sup>) or 20 pounds per square foot (958 Pa), whichever is less, but not less than actual loads.

**1616.5.1.6. Footnote c:** Modify Footnote c as follows:

c. Design in accordance with ICC 300 as amended by Section 1616.3.2 Modifications to Load Combinations in ICC 300.

**1616.5.2 Uncovered open-frame roof structures.** Uncovered open-frame roof structures shall be designed for a vertical live load of not less than 10 pounds per square foot (0.48 kN/m<sup>2</sup>) of the total area encompassed by the framework.

**1616.6 Determination of snow loads.** The ground snow load or the design snow load for roofs shall conform with the adopted ordinance of the city, county, or city and county in which the project site is located, and shall be approved by DSA.

**1616.7 Wind loads.**

**1616.7.1 Story drift for wind loads.** The calculated story drift due to wind pressures with ultimate design wind speed,  $V_{ult}$ , shall not exceed 0.008 times the story height for buildings less than 65 feet (19,812 mm) in height or 0.007 times the story height for buildings 65 feet (19,812 mm) or greater in height.

**Exception:** This story drift limit need not be applied for single-story open buildings in Risk Category I and II.

**1616.8 Establishment of flood hazard areas.** Flood hazard maps shall include, at a minimum, areas of special flood hazard as identified by the Federal Emergency Management Agency's Flood Insurance Study (FIS) adopted by the local authority having jurisdiction where the project is located, as amended or revised with the accompanying Flood Insurance Rate Map (FIRM) and Flood Boundary and Floodway Map (FBFM) and related supporting data along with any revisions thereto.

**1616.9 Earthquake loads.**

**1616.9.1 Seismic design category.** The seismic design category for a structure shall be determined in accordance with Section 1613.

**1616.9.2 Definitions.** In addition to the definitions in Section 1613.2, the following words and terms shall, for the purposes of this section, have the meanings shown herein.

**ACTIVE EARTHQUAKE FAULT.** A fault that has been the source of earthquakes or is recognized as a potential source of earthquakes, including those that have exhibited surface displacement within Holocene time (about 11,000 years) as determined by California Geological Survey (CGS) under the Alquist-Priolo Earthquake Fault Zoning Act, those included as type A or type B faults for the U.S. Geological Survey (USGS) National Seismic Hazard Maps, and faults considered to have been active in Holocene time by an authoritative source, federal, state or local governmental agency.

**DISTANCE FROM AN ACTIVE EARTHQUAKE FAULT.** Distance measured from the nearest point of the building to the closest edge of an Alquist-Priolo Earthquake fault zone for an active fault, if such a map exists, or to the closest mapped splay of the fault.

**IRREGULAR STRUCTURE.** A structure designed as having one or more plan or vertical irregularities per ASCE 7 Section 12.3.

**1616.9.3 Mapped acceleration parameters.** Seismic Design Category shall be determined in accordance with Section 1613.3.5.

**1616.9.4 Determination of seismic design category.** Structures not assigned to Seismic Design Category E or F, in accordance with Section 1613.3, shall be assigned to Seismic Design Category D.

**1616.9.4.1 Alternative seismic design category determination.** The alternative Seismic Design Category determination procedure of Section 1613.3.5.1 is not permitted by DSA-SS/CC.

**1616.9.4.2 Simplified design procedure.** The simplified design procedure of Section 1613.3.5.2 is not permitted by DSA-SS/CC.

**1616.10 Modifications to ASCE 7.** The text of ASCE 7 shall be modified as indicated in Sections 1616.10.1 through 1616.10.24.

**1616.10.1 ASCE 7, Section 1.3.** Modify ASCE 7 Section 1.3 by adding Section 1.3.6 as follows:

**1.3.6 Structural design criteria.** Where design is based on ASCE 7 Chapters 16, 17, 18, or 31, the ground motion, wind tunnel design recommendations, analysis, and design methods, material assumptions, testing requirements, and acceptance criteria proposed by the engineer shall be submitted to the enforcement agency in the form of structural design criteria for approval.

Peer review requirements in Section 322 of the California Existing Buildings Code shall apply to design reviews required by ASCE 7 Chapters 17 and 18.

**1616.10.2 ASCE 7, Section 11.4.7.** Modify ASCE 7 Section 11.4.7 by adding the following:

For buildings assigned to Seismic Design Category E and F, or when required by the building official, a ground motion hazard analysis shall be performed in

accordance with ASCE 7 Chapter 21, as modified by Section 1803A.6 of this code.

**1616.10.3 ASCE 7, Table 12.2-1.** Modify ASCE 7 Table 12.2-1 as follows:

**A. BEARING WALL SYSTEMS**

17. Light-framed walls with shear panels of all other materials - Not permitted by DSA-SS/CC.

**B. BUILDING FRAME SYSTEMS**

24. Light-framed walls with shear panels of all other materials - Not permitted by DSA-SS/CC.

**C. MOMENT RESISTING FRAME SYSTEMS**

12. Cold-formed steel — special bolted moment frame - Not permitted by DSA-SS/CC.

**Exception:**

- 1) Systems listed in this section can be used as an alternative system when pre-approved by the enforcement agency.
- 2) Rooftop or other supported structures not exceeding two stories in height and 10 percent of the total structure weight can use the systems in this section when designed as components per ASCE 7 Chapter 13.
- 3) Systems listed in this section can be used for seismically isolated buildings when permitted by Section 1613.4.1.

**1616.10.4 ASCE 7, Section 12.2.3.1.** Replace ASCE 7 Section 12.2.3.1, Items 1 and 2 by the following:

The value of the response modification coefficient,  $R$ , used for design at any story shall not exceed the lowest value of  $R$  that is used in the same direction at any story above that story. Likewise, the deflection amplification factor,  $C_d$ , and the system over strength factor,  $\Omega_p$ , used for the design at any story shall not be less than the largest value of these factors that are used in the same direction at any story above that story.

**1616.10.5 ASCE 7, Section 12.2.3.2.** Modify ASCE 7 Section 12.2.3.2 by adding the following additional requirements for a two stage equivalent lateral force procedure or modal response spectrum procedure:

- f. Where design of elements of the upper portion is governed by special seismic load combinations, the special loads shall be considered in the design of the lower portions.

**1616.10.6 ASCE 7, Section 12.2.5.6.1.** The exception in Item a is not permitted by DSA-SS/CC.

**1616.10.7 ASCE 7, Section 12.2.5.7.1.** The exception in Item a is not permitted by DSA-SS/CC.

**1616.10.8 ASCE 7, Section 12.2.5.7.2.** The exception in Item a is not permitted by DSA-SS/CC.

**1616.10.9 ASCE 7, Section 12.3.3.1.** Modify ASCE 7 Section 12.3.3.1 as follows:

**12.3.3.1 Prohibited horizontal and vertical irregularities for Seismic Design Categories D through F.** Structures

assigned to Seismic Design Category E or F having horizontal structural irregularity Type 1b of Table 12.3-1 or vertical structural irregularities Type 1b, 5a or 5b of Table 12.3-2 shall not be permitted. Structures assigned to Seismic Design Category D having vertical irregularity Type 1b or 5b of Table 12.3-2 shall not be permitted.

**1616.10.10 ASCE 7, Section 12.7.2.** Modify ASCE 7 Section 12.7.2 by adding Item 6 to read as follows:

6. Where buildings provide lateral support for walls retaining earth, and the exterior grades on opposite sides of the building differ by more than 6 feet (1829 mm), the load combination of the seismic increment of earth pressure due to earthquake acting on the higher side, as determined by a Geotechnical engineer qualified in soils engineering, plus the difference in earth pressures shall be added to the lateral forces provided in this section.

**1616.10.11 ASCE 7, Section 12.8.1.3.** Replace ASCE 7 Section 12.8.1.3 by the following:

**12.8.1.3 Maximum  $S_{DS}$  Value in Determination of  $C_s$  and  $E_v$ .** The value of  $C_s$  and  $E_v$  are permitted to be calculated using a value of  $S_{DS}$  equal to 1.0, but not less than 70% of  $S_{DS}$  as defined in Section 11.4.4, provided that all of the following criteria are met:

1. The structure does not have irregularities, as defined in Section 12.3.2;
2. The structure does not exceed five stories above the base as defined in Section 11.2;
3. The structure has a fundamental period,  $T$ , that does not exceed 0.5 seconds, as determined using Section 12.8.2;
4. The structure meets the requirements necessary for the redundancy factor,  $\rho$ , to be permitted to be taken as 1.0, in accordance with Section 12.3.4.2;
5. The site soil properties are not classified as Site Class E or F, as defined in Section 11.4.2; and
6. The structure is classified as Risk Category I or II, as defined in Section 1.5.1.

**1616.10.12 ASCE 7, Section 12.9.4.** Replace ASCE 7 Section 12.9.4 as follows:

**12.9.4 Scaling design values of combined response.** Modal base shears used to determine forces and drifts shall not be less than the base shear calculated using the equivalent lateral force procedure of Section 12.8.

**1616.10.13 ASCE 7, Section 12.10.2.1.** Replace ASCE 7 Exception 1 of Section 12.10.2.1 by the following:

**Exception:** The forces calculated above need not exceed those calculated using the load combinations of Section 12.4.3.2 with seismic forces determined by Equation 12.10-3 and transfer forces, where applicable.

**1616.10.14 ASCE 7, Section 12.13.1.** Modify ASCE 7 Section 12.13.1 by adding Section 12.13.1.1 as follows:

**12.13.1.1 Foundations and superstructure-to-foundation connections.** The foundation shall be capable of transmitting the design base shear and the overturning



structures and portions thereof shall be permitted to be designed for the most critical effects resulting from the following combinations. When using these alternative basic load combinations that include wind or seismic loads, allowable stresses are permitted to be increased or load combinations reduced where permitted by the material chapter of this code or the referenced standards. For load combinations that include the counteracting effects of dead and wind loads, only two-thirds of the minimum dead load likely to be in place during a design wind event shall be used. When using allowable stresses that have been increased or load combinations that have been reduced as permitted by the material chapter of this code or the referenced standards, where wind loads are calculated in accordance with Chapters 26 through 31 of ASCE 7, the coefficient ( $\omega$ ) in the following equations shall be taken as 1.3. For other wind loads, ( $\omega$ ) shall be taken as 1. When allowable stresses have not been increased or load combinations have not been reduced as permitted by the material chapter of this code or the referenced standards, ( $\omega$ ) shall be taken as 1. When using these alternative load combinations to evaluate sliding, overturning and soil bearing at the soil-structure interface, the reduction of foundation overturning from Section 12.13.4 in ASCE 7 shall not be used. When using these alternative basic load combinations for proportioning foundations for loadings, which include seismic loads, the vertical seismic load effect,  $E_v$ , in Equation 12.4-4 of ASCE 7 is permitted to be taken equal to zero.

$$D + L + (L_r \text{ or } S \text{ or } R) \quad \text{(Equation 16A-17)}$$

$$D + L + 0.6 \omega W \quad \text{(Equation 16A-18)}$$

$$D + L + 0.6 \omega W + S/2 \quad \text{(Equation 16A-19)}$$

$$D + L + S + 0.6 \omega W/2 \quad \text{(Equation 16A-20)}$$

$$D + L + S + E/1.4 \quad \text{(Equation 16A-21)}$$

$$0.9D + E/1.4 \quad \text{(Equation 16A-22)}$$

#### Exceptions:

1. Crane hook loads need not be combined with roof live loads or with more than three-fourths of the snow load or one-half of the wind load.
2. Flat roof snow loads of 30 psf (1.44 kN/m<sup>2</sup>) or less and roof live loads of 30 psf (1.44 kN/m<sup>2</sup>) or less need not be combined with seismic loads. Where flat roof snow loads exceed 30 psf (1.44 kN/m<sup>2</sup>), 20 percent shall be combined with seismic loads.

**1605A.3.2.1 Other loads.** Where  $F$ ,  $H$  or  $T$  are to be considered in the design, each applicable load shall be added to the combinations specified in Section 1605A.3.2. Where self-straining loads,  $T$ , are considered in design, their structural effects in combination with other loads shall be determined in accordance with Section 2.4.4 of ASCE 7.

**1605A.4 Modifications to load combinations in ICC 300.** The text of ICC 300 shall be modified as indicated in Section 1605A.4.1 through 1605A.4.3.

**1605A.4.1 ICC 300, Section 303.5.1.** Modify Section 303.5.1 by adding Equation 3-1a and replacing Equation 3-2 as follows:

$$0.9D + 0.4L + 1.6Z \quad \text{(Equation 3-1a)}$$

$$1.2D + 1.6L + 1.6R, \quad \text{(Equation 3-2)}$$

**1605A.4.2 ICC 300, Section 303.5.2.** Modify Section 303.5.2 by adding Equation 3-3a, adding Equation 3-3b, and replacing Equation 3-4 as follows:

$$D + 0.4L + Z \quad \text{(Equation 3-3a)}$$

$$0.6D + 0.3L + Z \quad \text{(Equation 3-3b)}$$

$$D + L + R, \quad \text{(Equation 3-4)}$$

**1605A.4.3 ICC 300, Section 303.5.3.** Modify Section 303.5.3 as follows:

The uniform live load  $L$  used in Equation 3-2 and 3-4 may be taken as zero when evaluating elements supporting the hand-rail/guard provided those elements do not also support  $L$ .

## SECTION 1606A DEAD LOADS

**1606A.1 General.** Dead loads are those loads defined in Chapter 2 of this code. Dead loads shall be considered permanent loads.

**1606A.2 Design dead load.** For purposes of design, the actual weights of materials of construction and fixed service equipment shall be used. In the absence of definite information, values used shall be subject to the approval of the building official.

**1606A.3 Roof dead loads.** The design dead load shall provide for the weight of at least one additional roof covering in addition to other applicable loadings if the new roof covering is permitted to be applied over the original roofing without its removal, in accordance with Section 1511.

## SECTION 1607A LIVE LOADS

**1607A.1 General.** Live loads are those loads defined in Chapter 2 and Section 1602A.1 of this code.

**1607A.2 Loads not specified.** For occupancies or uses not designated in Table 1607A.1, the live load shall be determined in accordance with a method approved by the building official.

**1607A.3 Uniform live loads.** The live loads used in the design of buildings and other structures shall be the maximum loads expected by the intended use or occupancy but shall in no case be less than the minimum uniformly distributed live loads given in Table 1607A.1.

**1607A.4 Concentrated live loads.** Floors and other similar surfaces shall be designed to support the uniformly distributed live loads prescribed in Section 1607A.3 or the concentrated live loads, given in Table 1607A.1, whichever produces the greater load effects. Unless otherwise specified, the indicated concentration shall be assumed to be uniformly distributed over an area of 2½ feet by 2½ feet (762 mm by 762 mm) and shall be located so as to produce the maximum load effects in the structural members.

**1607A.5 Partition loads.** In office buildings and in other buildings where partition locations are subject to change, provisions for partition weight shall be made, whether or not partitions are shown on the construction documents, unless the specified live load is 80 psf (3.83 kN/m<sup>2</sup>) or greater. The partition load shall be not less than a uniformly distributed live load of 15 psf (0.72 kN/m<sup>2</sup>).

**TABLE 1607A.1  
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS,  $L_o$ ,  
AND MINIMUM CONCENTRATED LIVE LOADS<sup>g</sup>**

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (lbs.)
1. Apartments (see residential)	—	—
2. Access floor systems		
Office use	50	2,000
Computer use	100	2,000
3. Armories and drill rooms	150 <sup>m</sup>	—
4. Assembly areas <sup>a, q</sup>		
Fixed seats (fastened to floor)	60 <sup>m</sup>	
Follow spot, projections and control rooms	50	
Lobbies	100 <sup>m</sup>	—
Movable seats	100 <sup>m</sup>	
Stage floors	150 <sup>m</sup>	
Platforms (assembly)	100 <sup>m</sup>	
Other assembly areas	100 <sup>m</sup>	
5. Balconies and decks <sup>b</sup>	<i>[DSA-SS] 1.5 times the live load for the area served, not required to exceed 100</i>	—
6. Catwalks	40	300
7. Cornices	60	—
8. Corridors		
First floor	100	
Other floors	Same as occupancy served except as indicated	—
9. Dining rooms and restaurants	100 <sup>m</sup>	—
10. Dwellings (see residential)	—	—
11. Elevator machine room and control room grating (on area of 2 inches by 2 inches)	—	300
12. Finish light floor plate construction (on area of 1 inch by 1 inch)	—	200
13. Fire escapes	100	
On single-family dwellings only	40	—
14. Garages (passenger vehicles only)	40 <sup>m</sup>	Note a
Trucks and buses	See Section 1607.7	
15. Handrails, guards and grab bars	See Section 1607.8	
16. Helipads	See Section 1607.6	
17. Hospitals [OSHPD 1 & 4]		
Corridors above first floor	80	1,000
Operating rooms, laboratories	60	1,000
Patient rooms	40	1,000
Mechanical and electrical equipment areas including open areas around equipment	50	
Storage		
Light	125	
Heavy	250	
Dining Area (not used for assembly)	100	1,000
Kitchen and serving areas	50	1,000
18. Hotels (see residential)	—	—
19. Libraries <sup>r</sup>		
Corridors above first floor	80	1,000
Reading rooms	60 <sup>m</sup>	1,000
Stack rooms	150 <sup>b, m</sup>	1,000
20. Manufacturing		
Heavy	250 <sup>m</sup>	3,000
Light	125 <sup>m</sup>	2,000
21. Marquees, except one- and two-family dwellings	75	—

(continued)

**TABLE 1607A.1—continued  
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS,  $L_o$ ,  
AND MINIMUM CONCENTRATED LIVE LOADS<sup>g</sup>**

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (lbs.)
22. Office buildings <sup>r</sup>		
Corridors above first floor	80	2,000
File and computer rooms shall be designed for heavier loads based on anticipated occupancy	—	—
Lobbies and first-floor corridors	100	2,000
Offices	50	2,000
23. Penal institutions		
Cell blocks	40	—
Corridors	100	—
24. Recreational uses:		
Bowling alleys, poolrooms and similar uses	75 <sup>m</sup>	
Dance halls and ballrooms	100 <sup>m</sup>	
Gymnasiums	100 <sup>m</sup>	
Ice skating rink	250 <sup>m</sup>	—
Reviewing stands, grandstands and bleachers <sup>q</sup>	100 <sup>c, m</sup>	
Roller skating rink	100 <sup>m</sup>	
Stadiums and arenas with fixed seats (fastened to floor)	60 <sup>c, m</sup>	
25. Residential		
One- and two-family dwellings		
Uninhabitable attics without storage <sup>i</sup>	10	
Uninhabitable attics with storage <sup>i, j, k</sup>	20	
Habitable attics and sleeping areas <sup>k</sup>	30	
Canopies, including marquees	20	—
All other areas	40	
Hotels and multifamily dwellings		
Private rooms and corridors serving them	40	
Public rooms <sup>m</sup> and corridors serving them	100	
26. Roofs		
All roof surfaces subject to maintenance workers		300
Awnings and canopies:		
Fabric construction supported by a skeleton structure	5	Nonreducible
All other construction, except one- and two-family dwellings	20	
Ordinary flat, pitched, and curved roofs (that are not occupiable)	20	
Primary roof members exposed to a work floor		
Single panel point of lower chord of roof trusses or any point along primary structural members supporting roofs over manufacturing, storage warehouses, and repair garages		2,000
All other primary roof members		300
Occupiable roofs:		
Roof gardens	100	
Assembly areas	100 <sup>m</sup>	
All other similar areas	Note 1	Note 1
27. Schools <sup>n</sup>		
Classrooms	40 <sup>p</sup>	1,000
Corridors above first floor	80	1,000
First-floor corridors	100	1,000
28. Scuttles, skylight ribs and accessible ceilings	—	200
29. Sidewalks, vehicular drive ways and yards, subject to trucking	250 <sup>d, m</sup>	8,000 <sup>e</sup>

(continued)

**2304.12.2.4 Laminated timbers.** The portions of glued-laminated timbers that form the structural supports of a building or other structure and are exposed to weather and not fully protected from moisture by a roof, eave or similar covering shall be pressure treated with preservative or be manufactured from naturally durable or preservative-treated wood.

**2304.12.2.5 Supporting members for permeable floors and roofs.** Wood structural members that support moisture-permeable floors or roofs that are exposed to the weather, such as concrete or masonry slabs, shall be of naturally durable or preservative-treated wood unless separated from such floors or roofs by an impervious moisture barrier. **[BSC, DSA-SS, DSA-SS/CC, HCD 1, HCD 2]** *The impervious moisture barrier system protecting the structure supporting floors shall provide positive drainage of water that infiltrates the moisture-permeable floor topping.*

**2304.12.2.6 Ventilation beneath balcony or elevated walking surfaces.** **[BSC, DSA-SS, DSA-SS/CC, HCD 1, HCD 2]** *Enclosed framing in exterior balconies and elevated walking surfaces that are exposed to rain, snow or drainage from irrigation shall be provided with openings that provide a net free cross-ventilation area not less than  $1/150$  of the area of each separate space.*

**2304.12.3 Wood in contact with the ground or fresh water.** Wood used in contact with exposed earth shall be naturally durable for both decay and termite resistance or preservative treated in accordance with AWP A U1 for soil or fresh water use.

**Exception:** Untreated wood is permitted where such wood is continuously and entirely below the ground-water level or submerged in fresh water.

**2304.12.3.1 Posts or columns.** Posts and columns that are supporting permanent structures and embedded in concrete that is exposed to the weather or in direct contact with the earth shall be of preservative-treated wood.

**2304.12.4 Termite protection.** In geographical areas where hazard of termite damage is known to be very heavy, wood floor framing in the locations specified in Section 2304.12.2.1 and exposed framing of exterior decks or balconies shall be of naturally durable species (termite resistant) or preservative treated in accordance with AWP A U1 for the species, product preservative and end use or provided with approved methods of termite protection.

**2304.12.5 Wood used in retaining walls and cribs.** Wood installed in retaining or crib walls shall be preservative treated in accordance with AWP A U1 for soil and fresh water use.

**2304.12.6 Attic ventilation.** For attic ventilation, see Section 1203.2.

**2304.12.7 Under-floor ventilation (crawl space).** For under-floor ventilation (crawl space), see Section 1203.4.

**2304.12.8 Separate wood framing.** **[SPCB]** *Correct the conditions in frame and stucco walls and similar appurtenant construction so that the wood framing is separate from the main structure by a complete concrete or masonry plug with no voids that will allow infestations to enter the structure from the wall. If there is no plug, the foundation shall be 2 inches (51 mm) or more above the grade levels and at least as high as the adjoining slabs or 4-inch (102 mm) concrete barrier seat off installed.*

**2304.12.9 Earth fills.** **[SPCB]** *Separate the earth fills such as under porches or paving from all woodwork by concrete, masonry, good quality cement plaster or other material approved by local building codes. Chemical treatment of earth fills is considered adequate if the foundation adjoining the fill meets standards of the current building codes.*

**2304.13 Long-term loading.** Wood members supporting concrete, masonry or similar materials shall be checked for the effects of long-term loading using the provisions of the AWC NDS. The total deflection, including the effects of long-term loading, shall be limited in accordance with Section 1604.3.1 for these supported materials.

**Exception:** Horizontal wood members supporting masonry or concrete nonstructural floor or roof surfacing not more than 4 inches (102 mm) thick need not be checked for long-term loading.

## SECTION 2305 GENERAL DESIGN REQUIREMENTS FOR LATERAL FORCE-RESISTING SYSTEMS

**2305.1 General.** Structures using wood-frame shear walls or wood-frame diaphragms to resist wind, seismic or other lateral loads shall be designed and constructed in accordance with AWC SDPWS and the applicable provisions of Sections 2305, 2306 and 2307.

**2305.1.1 Openings in shear panels.** Openings in shear panels that materially affect their strength shall be detailed on the plans and shall have their edges adequately reinforced to transfer all shearing stresses.

**2305.1.2 Additional requirements.** **[DSA-SS, DSA-SS/CC and OSHPD 1, 2 & 4]** *See Section 2301.1.4 for modifications to AWC SDPWS.*

**2305.2 Diaphragm deflection.** The deflection of wood-frame diaphragms shall be determined in accordance with AWC SDPWS. The deflection ( $\Delta$ ) of a blocked wood structural panel diaphragm uniformly fastened throughout with staples is permitted to be calculated in accordance with Equation 23-1. If not uniformly fastened, the constant 0.188 (For SI: 1/1627) in the third term shall be modified by an approved method.

$$\Delta = \frac{5vL^3}{8EAb} + \frac{vL}{4Gt} + 0.188Le_n + \frac{\Sigma(\Delta_c X)}{2b} \quad \text{(Equation 23-1)}$$

$$\text{For SI: } \Delta = \frac{0.052vL^3}{EAb} + \frac{vL}{4Gt} + \frac{Le_n}{1627} + \frac{\Sigma(\Delta_c X)}{2b}$$

where:

A = Area of chord cross section, in square inches (mm<sup>2</sup>).

**WOOD**

- $b$  = Diaphragm width, in feet (mm).
- $E$  = Elastic modulus of chords, in pounds per square inch (N/mm<sup>2</sup>).
- $e_n$  = Staple deformation, in inches (mm) [see Table 2305.2(1)].
- $Gt$  = Panel rigidity through the thickness, in pounds per inch (N/mm) of panel width or depth [see Table 2305.2(2)].
- $L$  = Diaphragm length, in feet (mm).
- $v$  = Maximum shear due to design loads in the direction under consideration, in pounds per linear foot (plf) (N/mm).
- $\Delta$  = The calculated deflection, in inches (mm).
- $\Sigma(\Delta_c X)$  = Sum of individual chord-splice slip values on both sides of the diaphragm, each multiplied by its distance to the nearest support.

**TABLE 2305.2(1)  
e<sub>n</sub> VALUES (inches) FOR USE IN CALCULATING DIAPHRAGM  
AND SHEAR WALL DEFLECTION DUE TO FASTENER SLIP  
(Structural I)<sup>a, c</sup>**

LOAD PER FASTENER <sup>b</sup> (pounds)	FASTENER DESIGNATIONS
	14-Ga staple x 2 inches long
60	0.011
80	0.018
100	0.028
120	0.04
140	0.053
160	0.068

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

- a. Increase  $e_n$  values 20 percent for plywood grades other than Structural I.
- b. Load per fastener = maximum shear per foot divided by the number of fasteners per foot at interior panel edges.
- c. Decrease  $e_n$  values 50 percent for seasoned lumber (moisture content < 19 percent).

**TABLE 2305.2(2)  
VALUES OF Gt FOR USE IN CALCULATING DEFLECTION OF WOOD STRUCTURAL PANEL SHEAR WALLS AND DIAPHRAGMS**

PANEL TYPE	SPAN RATING	VALUES OF Gt (lb/in. panel depth or width)							
		Other				Structural I			
		3-ply plywood	4-ply plywood	5-ply plywood <sup>a</sup>	OSB	3-ply plywood	4-ply plywood	5-ply plywood <sup>a</sup>	OSB
Sheathing	24/0	25,000	32,500	37,500	77,500	32,500	42,500	41,500	77,500
	24/16	27,000	35,000	40,500	83,500	35,000	45,500	44,500	83,500
	32/16	27,000	35,000	40,500	83,500	35,000	45,500	44,500	83,500
	40/20	28,500	37,000	43,000	88,500	37,000	48,000	47,500	88,500
	48/24	31,000	40,500	46,500	96,000	40,500	52,500	51,000	96,000
Single Floor	16 o.c.	27,000	35,000	40,500	83,500	35,000	45,500	44,500	83,500
	20 o.c.	28,000	36,500	42,000	87,000	36,500	47,500	46,000	87,000
	24 o.c.	30,000	39,000	45,000	93,000	39,000	50,500	49,500	93,000
	32 o.c.	36,000	47,000	54,000	110,000	47,000	61,000	59,500	110,000
	48 o.c.	50,500	65,500	76,000	155,000	65,500	85,000	83,500	155,000

	Thickness (in.)	Other			Structural I		
		A-A, A-C	Marine	All Other Grades	A-A, A-C	Marine	All Other Grades
Sanded Plywood	1/4	24,000	31,000	24,000	31,000	31,000	31,000
	11/32	25,500	33,000	25,500	33,000	33,000	33,000
	3/8	26,000	34,000	26,000	34,000	34,000	34,000
	15/32	38,000	49,500	38,000	49,500	49,500	49,500
	1/2	38,500	50,000	38,500	50,000	50,000	50,000
	19/32	49,000	63,500	49,000	63,500	63,500	63,500
	5/8	49,500	64,500	49,500	64,500	64,500	64,500
	23/32	50,500	65,500	50,500	65,500	65,500	65,500
	3/4	51,000	66,500	51,000	66,500	66,500	66,500
	7/8	52,500	68,500	52,500	68,500	68,500	68,500
	1	73,500	95,500	73,500	95,500	95,500	95,500
1 1/8	75,000	97,500	75,000	97,500	97,500	97,500	

For SI: 1 inch = 25.4 mm, 1 pound/inch = 0.1751 N/mm.

- a. Applies to plywood with five or more layers; for five-ply/three-layer plywood, use values for four ply.

with ASTM E84 or UL 723. *All fabrics and all interior decorative fabrics or materials shall be flame resistant in accordance with the provisions set forth in CCR, Title 19, Division 1, Chapter 8. Tops and sidewalls shall be made either from fabric that has been flame resistant treated with an approved exterior chemical process by an approved application concern, or from inherently flame resistant fabric approved and listed by the State Fire Marshal (see CCR, Title 19, Division 1, Chapter 8).*

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

### SECTION 3106 MARQUEES

**3106.1 General.** Marquees shall comply with Sections 3106.2 through 3106.5 and other applicable sections of this code.

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

**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 this code.

### SECTION 3108 TELECOMMUNICATION AND BROADCAST TOWERS

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

Topographic Category 2, escarpments, shall be 16 times the height of the escarpment.

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

**[BS] 3108.2 Location and access.** Towers shall be located such that guy wires and other accessories shall not cross or encroach 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 POOL ENCLOSURES AND SAFETY DEVICES

**3109.1 General.** Swimming pools shall comply with the requirements of Sections 3109.2 through 3109.5 and other applicable sections of this code.

**3109.2 Definition.** The following term is defined in Chapter 2:

**ANSI/APSP PERFORMANCE STANDARD.**

**APPROVED SAFETY POOL COVER.**

**ENCLOSURE.**

**EXIT ALARMS.**

**PUBLIC SWIMMING POOL.**

**SUCTION OUTLET.**

**SWIMMING POOL or POOL.**

**SWIMMING POOLS.**

**3109.3 Public swimming pools.** Public swimming pools shall be completely enclosed by a fence not less than 4 feet (1290 mm) in height or a screen enclosure. Openings in the fence shall not permit the passage of a 4-inch-diameter (102 mm) sphere. The fence or screen enclosure shall be equipped with self-closing and self-latching gates.

**3109.4 Residential swimming pools.** Residential swimming pools shall be completely enclosed by a barrier complying with Sections 3109.4.1 through 3109.4.3.

**Exception:** A swimming pool with a power safety cover or a spa with a safety cover complying with ASTM F1346 need not comply with this section.

**3109.4.1 Barrier height and clearances.** The top of the barrier shall be not less than 48 inches (1219 mm) above grade measured on the side of the barrier that faces away from the swimming pool. The vertical clearance between grade and the bottom of the barrier shall be not greater than 2 inches (51 mm) measured on the side of the barrier that faces away from the swimming pool. Where the top of the pool structure is above grade, the barrier is authorized to be at ground level or mounted on top of the pool structure, and the vertical clearance between the top of the pool

structure and the bottom of the barrier shall be not greater than 4 inches (102 mm).

**3109.4.1.1 Openings.** Openings in the barrier shall not allow passage of a 4-inch-diameter (102 mm) sphere.

**3109.4.1.2 Solid barrier surfaces.** Solid barriers which do not have openings shall not contain indentations or protrusions except for normal construction tolerances and tooled masonry joints.

**3109.4.1.3 Closely spaced horizontal members.** Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is less than 45 inches (1143 mm), the horizontal members shall be located on the swimming pool side of the fence. Spacing between vertical members shall be not greater than  $1\frac{3}{4}$  inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall be not greater than  $1\frac{3}{4}$  inches (44 mm) in width.

**3109.4.1.4 Widely spaced horizontal members.** Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is 45 inches (1143 mm) or more, spacing between vertical members shall be not greater than 4 inches (102 mm). Where there are decorative cutouts within vertical members, spacing within the cutouts shall be not greater than  $1\frac{3}{4}$  inches (44 mm) in width.

**3109.4.1.5 Chain link dimensions.** Mesh size for chain link fences shall be not greater than a  $2\frac{1}{4}$ -inch square (57 mm square) unless the fence is provided with slats fastened at the top or the bottom that reduce the openings to not more than  $1\frac{3}{4}$  inches (44 mm).

**3109.4.1.6 Diagonal members.** Where the barrier is composed of diagonal members, the opening formed by the diagonal members shall be not greater than  $1\frac{3}{4}$  inches (44 mm).

**3109.4.1.7 Gates.** Access doors or gates shall comply with the requirements of Sections 3109.4.1.1 through 3109.4.1.6 and shall be equipped to accommodate a locking device. Pedestrian access doors or gates shall open outward away from the pool and shall be self-closing and have a self-latching device. Doors or gates other than pedestrian access doors or gates shall have a self-latching device. Release mechanisms shall be in accordance with Sections 1010.1.9 and 1109.13. Where the release mechanism of the self-latching device is located less than 54 inches (1372 mm) from the bottom of the door or gate, the release mechanism shall be located on the pool side of the door or gate 3 inches (76 mm) or more, below the top of the door or gate, and the door or gate and barrier shall be without openings greater than  $\frac{1}{2}$  inch (12.7 mm) within 18 inches (457 mm) of the release mechanism.

**3109.4.1.8 Dwelling wall as a barrier.** Where a wall of a dwelling serves as part of the barrier, one of the following shall apply:

1. Doors with direct access to the pool through that wall shall be equipped with an alarm that produces an audible warning when the door or its screen, if present, are opened. The alarm shall be listed and labeled in accordance with UL 2017. In dwellings not required to be Accessible units, Type A units or Type B units, the deactivation switch shall be located 54 inches (1372 mm) or more above the threshold of the door. In dwellings required to be Accessible units, Type A units or Type B units, the deactivation switch shall be located not higher than 54 inches (1372 mm) and not less than 48 inches (1219 mm) above the threshold of the door.
2. The pool shall be equipped with a power safety cover that complies with ASTM F1346.
3. Other means of protection, such as self-closing doors with self-latching devices, which are approved, shall be accepted so long as the degree of protection afforded is not less than the protection afforded by Item 1 or 2 above.

**3109.4.1.9 Pool structure as barrier.** Where an above-ground pool structure is used as a barrier or where the barrier is mounted on top of the pool structure, and the means of access is a ladder or steps, then the ladder or steps either shall be capable of being secured, locked or removed to prevent access, or the ladder or steps shall be surrounded by a barrier that meets the requirements of Sections 3109.4.1.1 through 3109.4.1.8. Where the ladder or steps are secured, locked or removed, any opening created shall not allow the passage of a 4-inch-diameter (102 mm) sphere.

**3109.4.2 Indoor swimming pools.** Walls surrounding indoor swimming pools shall not be required to comply with Section 3109.4.1.8.

**3109.4.3 Prohibited locations.** Barriers shall be located so as to prohibit permanent structures, equipment or similar objects from being used to climb the barriers.

**3109.4.4 Private swimming pools (statewide).** Sections 3109.4.4.1 through 3109.6 (excluding Section 3109.5 adopted from the model code) contain the text of Article 2.5 (commencing with Section 115920) of Chapter 5 of Part 10 of Division 104 of the Health and Safety Code, which has been reprinted in alignment with the existing format of this code.

**NOTE:** These regulations are subject to local government modification. You should verify the applicable local government requirements at the time of application for a building permit.

Authority: Health and Safety Code Section 18942(b)  
Reference: Health and Safety Code Section 18942(b); Chapter 925, Statutes of 1996

**3109.4.4.1 Definitions.** As used in this division, the following terms have the following meanings:

**ANSI/APSP PERFORMANCE STANDARD** means a standard that is accredited by the American National

Standards Institute (ANSI) and published by the Association of Pool and Spa Professionals (APSP).

**APPROVED SAFETY POOL COVER** means a manually or power-operated safety pool cover that meets all of the performance standards of the American Society for Testing and Materials (ASTM), in compliance with Standard F1346-91.

**ENCLOSURE** means a fence, wall or other barrier that isolates a swimming pool from access to the home.

**EXIT ALARMS** means devices that make audible, continuous alarm sounds when any door or window that permits access from the residence to the pool area, that is without any intervening enclosure, is opened or is left ajar. Exit alarms may be battery operated or may be connected to the electrical wiring of the building.

**PUBLIC SWIMMING POOL** means a swimming pool operated for the use of the general public with or without charge, or for the use of the members and guests of a private club. Public swimming pool does not include a swimming pool located on the grounds of a private single-family home.

**SUCTION OUTLET** means a fitting or fixture typically located at the bottom or on the sides of a swimming pool that conducts water to a recirculating pump.

**SWIMMING POOL** or **POOL** means any structure intended for swimming or recreational bathing that contains water over 18 inches (457 mm) deep. Swimming pool includes in-ground and above-ground structures and includes, but is not limited to, hot tubs, spas, portable spas and nonportable wading pools.

Authority: Health and Safety Code Section 18942(b)  
Reference: Health and Safety Code Section 115921; Chapter 925, Statutes of 1996; Chapter 679, Statutes of 2012

**3109.4.4.2 Construction permit; safety features required.**

(a) Except as provided in Section 3109.4.4.5, when a building permit is issued for the construction of a new swimming pool or spa or the remodeling of an existing swimming pool or spa at a private single-family home, the respective swimming pool or spa shall be equipped with at least two of the following seven drowning prevention safety features:

1. An enclosure that meets the requirements of Section 3109.4.4.3 and isolates the swimming pool or spa from the private single-family home.
2. Removable mesh fencing that meets American Society for Testing and Materials (ASTM) Specifications F2286 standards in conjunction with a gate that is self-closing and self-latching and can accommodate a key lockable device.
3. An approved safety pool cover, as defined in Section 3109.4.4.1.
4. Exit alarms on the private single-family home's doors that provide direct access to the swimming pool or spa. The exit alarm may cause either an

alarm noise or a verbal warning, such as a repeating notification that "the door to the pool is open."

5. A self-closing, self-latching device with a release mechanism placed no lower than 54 inches (1372 mm) above the floor on the private single-family home's doors providing direct access to the swimming pool or spa.
6. An alarm that, when placed in a swimming pool or spa, will sound upon detection of accidental or unauthorized entrance into the water. The alarm shall meet and be independently certified to the ASTM Standard F2208 "Standard Safety Specification for Residential Pool Alarms," which includes surface motion, pressure, sonar, laser and infrared type alarms. A swimming protection alarm feature designed for individual use, including an alarm attached to a child that sounds when the child exceeds a certain distance or becomes submerged in water, is not a qualifying drowning prevention safety feature.
7. Other means of protection, if the degree of protection afforded is equal to or greater than that afforded by any of the features set forth above and has been independently verified by an approved testing laboratory as meeting standards for those features established by the ASTM or the American Society of Mechanical Engineers (ASME).

(b) Before the issuance of a final approval for the completion of permitted construction or remodeling work, the local building code official shall inspect the drowning safety prevention features required by this section and, if no violations are found, shall give final approval.

Authority: Health and Safety Code Section 18942(b)  
Reference: Health and Safety Code Section 115922; Chapter 925, Statutes of 1996; Chapter 478, Statutes of 2006; Chapter 670, Statutes 2017

**3109.4.4.3 Enclosure; required characteristics.** An enclosure shall have all of the following characteristics:

1. Any access gates through the enclosure open away from the swimming pool and are self-closing with a self-latching device placed no lower than 60 inches (1524 mm) above the ground.
2. A minimum height of 60 inches (1524 mm).
3. A maximum vertical clearance from the ground to the bottom of the enclosure of 2 inches (51 mm).
4. Gaps or voids, if any, do not allow passage of a sphere equal to or greater than 4 inches (102 mm) in diameter.
5. An outside surface free of protrusions, cavities or other physical characteristics that would serve as handholds or footholds that could enable a child below the age of five years to climb over.

Authority: Health and Safety Code Section 18942(b)  
Reference: Health and Safety Code Section 115923; Chapter 925, Statutes of 1996

**3109.4.4.4 Agreements to build; notice of provisions.**

(a) Any person entering into an agreement to build a swimming pool or spa, or to engage in permitted work on a pool or spa covered by this article, shall give the consumer notice of the requirements of this article.

(b) Pursuant to existing law, the Department of Health Services shall have available on the department's web site, commencing January 1, 2007, approved pool safety information available for consumers to download. Pool contractors are encouraged to share this information with consumers regarding the potential dangers a pool or spa poses toddlers. Additionally, pool contractors may provide the consumer with swimming pool safety materials produced from organizations such as the United States Consumer Product Safety Commission, Drowning Prevention Foundation, California Coalition for Children's Safety & Health, Safe Kids Worldwide, Association of Pool and Spa Professionals, or the American Academy of Pediatrics.

Authority: Health and Safety Code Section 18942(b)

Reference: Health and Safety Code Section 115924; Chapter 925, Statutes of 1996; Chapter 478, Statutes of 2006

**3109.4.4.5 Exempt facilities.** The requirements of this article do not apply to any of the following:

1. Public swimming pools.
2. Hot tubs or spas with locking safety covers that comply with the American Society for Testing and Materials (ASTM F1346).
3. An apartment complex or any residential setting other than a single-family home.

Authority: Health and Safety Code Section 18942(b)

Reference: Health and Safety Code Section 115925; Chapter 925, Statutes of 1996; Chapter 670, Statutes of 2017

**3109.4.4.6 Application to facilities regulated by Department of Social Services.** This division does not apply to any facility regulated by the State Department of Social Services even if the facility is also used as a private residence of the operator. Pool safety in those facilities shall be regulated pursuant to regulations adopted therefor by the State Department of Social Services.

Authority: Health and Safety Code Section 18942(b)

Reference: Health and Safety Code Section 115926; Chapter 925, Statutes of 1996

**3109.4.4.7 Modification and interpretation of division.** Notwithstanding any other provision of law, this article shall not be subject to further modification or interpretation by any regulatory agency of the state, this authority being reserved exclusively to local jurisdictions, as provided for in Item 7 of Section 3109.4.4.2 and Item 3 of Section 3109.4.4.5.

Authority: Health and Safety Code Section 18942(b)

Reference: Health and Safety Code Section 115927; Chapter 925, Statutes of 1996

**3109.4.4.8 Construction requirements for building a pool or spa.** Whenever a building permit is issued for the construction a new swimming pool or spa, the pool or spa shall meet all of the following requirements:

1. The suction outlets of the pool or spa for which the permit is issued shall be equipped to provide circulation throughout the pool or spa as prescribed in Paragraphs 2 and 3.
2. The swimming pool or spa shall either have at least two circulation suction outlets per pump that shall be hydraulically balanced and symmetrically plumbed through one or more "T" fittings, and that are separated by a distance of at least three feet in any dimension between the suction outlets, or be designed to use alternatives to suction outlets including, but not limited to, skimmers or perimeter overflow systems to conduct water to the recirculation pump.
3. The circulation system shall have the capacity to provide a complete turnover of pool water, as specified in Section 3124B of Chapter 31B of the California Building Standards Code (Title 24 of the California Code of Regulations).
4. Suction outlets shall be covered with antientrapment grates, as specified in the ANSI/APSP-16 performance standard or successor standard designated by the federal Consumer Product Safety Commission, that cannot be removed except with the use of tools. Slots of openings in the grates or similar protective devices shall be of a shape, area and arrangement that would prevent physical entrapment and would not pose any suction hazard to bathers.
5. Any backup safety system that an owner of a new swimming pool or spa may choose to install in addition to the requirements set forth in subdivisions (1) through (4) above shall meet the standards as published in the document, "Guidelines for Entrapment Hazards: Making Pools and Spas Safer," Publication Number 363, March 2005, United States Consumer Products Safety Commission.

Authority: Health and Safety Code Section 18942(b)

Reference: Health and Safety Code Section 115928; Chapter 679, Statutes of 2002; Chapter 62, Statutes of 2003; Chapter 478, Statutes of 2006; Chapter 596, Statutes of 2007; Chapter 679, Statutes of 2012

**3109.4.4.9 (relocated from 3109.4.4.8(6)) Suction outlet upgrade requirements during remodel or modification.** Whenever a building permit is for the remodel or modification of any existing swimming pool, toddler pool, or spa, the permit shall require that the suction outlet or suction outlets of the existing swimming pool, toddler pool, or spa be upgraded so as to be equipped with antientrapment grates, as specified in the ANSI/APSP-16 performance standard or a successor stan-



ard designated by the federal Consumer Product Safety Commission.

Authority: Health and Safety Code Section 18942(b)  
Reference: Health and Safety Code Section 115928.5; Chapter 596, Statutes of 2007; Chapter 679, Statutes of 2012

**3109.5 Entrapment avoidance.** Suction outlets shall be designed and installed in accordance with ANSI/APSP-7.

**3109.6 Informative documents.**

1. The Legislature encourages a private entity, in consultation with the Epidemiology and Prevention for Injury Control Branch of the department, to produce an informative brochure or booklet, for consumer use, explaining the child drowning hazards of, possible safety measures for, and appropriate drowning hazard prevention measures for, home swimming pools and spas, and to donate the document to the department.
2. The Legislature encourages the private entity to use existing documents from the United States Consumer Product Safety Commission on pool safety.
3. If a private entity produces the document described in Subdivisions 1 and 2 and donates it to the department, the department shall review and approve the brochure or booklet.
4. Upon approval of the document by the department, the document shall become the property of the state and a part of the public domain. The department shall place the document on its Web site in a format that is readily available for downloading and for publication. The department shall review the document in a timely and prudent fashion and shall complete the review within 18 months of receipt of the document from a private entity.

Authority: Health and Safety Code Section 18942(b)  
Reference: Health and Safety Code Section 115929; Chapter 422, Statutes of 2003

**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 California 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 California Fire Code.

**3111.2 Access and pathways.** Roof access, pathways and spacing requirements shall be provided in accordance with California Fire Code Sections 605.11.1 through 605.11.1.3.3. Pathways shall be over areas capable of supporting fire fighters accessing the roof. Pathways shall be located in areas with minimal obstructions such as vent pipes, conduit, or mechanical equipment.

**Exceptions:**

1. Detached, nonhabitable Group U structures including, but not limited to, detached garages serving Group R-3 buildings, parking shade structures, carports, solar trellises and similar structures.
2. Roof access, pathways, and spacing requirements need not be provided where the fire code official has determined rooftop operations will not be employed.

**3111.2.1 Solar photovoltaic systems for Group R-3 buildings.** Solar photovoltaic systems for Group R-3 buildings shall comply with California Fire Code Sections 605.11.1.2.1 through 605.11.1.2.5.

**Exceptions:**

1. These requirements shall not apply to structures designed and constructed in accordance with the California Residential Code.
2. These requirements shall not apply to roofs with slopes of 2 units vertical in 12 units horizontal (2: 12) or less.

**3111.2.3 Other than Group R-3 buildings.** Access to systems for buildings other than those containing Group R-3 occupancies shall be provided in accordance with Sections 3111.2.3.1 through 3111.2.3.3.

**Exception:** Where it is determined by the fire code official that the roof configuration is similar to that of a Group R-3 occupancy, the residential access and ventilation requirements in Sections 3111.2.2.1 through 3111.2.2.5 shall be permitted to be used.

**3111.2.3.1 Access.** There shall be a minimum 6-foot-wide (1829 mm) clear perimeter around the edges of the roof.

**Exception:** Where either axis of the building is 250 feet (76 200 mm) or less, the clear perimeter around the edges of the roof shall be a minimum 4-foot-wide (1290 mm).

**3111.2.3.2 Pathways.** *The solar installation shall be designed to provide designated pathways. The pathways shall meet the following requirements:*

1. *The pathway shall be over areas capable of supporting the live load of fire fighters accessing the roof.*
2. *The centerline axis pathways shall be provided in both axes of the roof. Centerline axis pathways shall run where the roof structure is capable of supporting the live load of fire fighters accessing the roof.*
3. *Shall be a straight line not less than 4 feet (1290 mm) clear to roof standpipes or ventilation hatches.*
4. *Shall provide not less than 4 feet (1290 mm) clear around roof access hatch with at least one not less than 4 feet (1290 mm) clear pathway to parapet or roof edge.*

**3111.2.3.3 Smoke ventilation.** *The solar installation shall be designed to meet the following requirements:*

1. *Arrays shall be no greater than 150 feet (45 720 mm) by 150 feet (45 720 mm) in distance in either axis in order to create opportunities for fire department smoke ventilation operations.*
2. *Smoke ventilation options between array sections shall be one of the following:*
  - 2.1. *A 4-foot (1290 mm) or greater in width pathway and bordering roof skylights or gravity-operated dropout smoke and heat vents on not less than one side.*
  - 2.2. *A 4-foot (1290 mm) or greater in width pathway and bordering all sides of nongravity-operated dropout smoke and heat vents on not less than one side.*
  - 2.4. *A 4-foot (1290 mm) or greater in width pathway and bordering 4-foot by 8-foot (1290 mm by 2438 mm) “venting cutouts” every 20 feet (6096 mm) on alternating sides of the pathway.*

**3111.3 Ground-mounted photovoltaic arrays.** *Ground-mounted photovoltaic arrays shall comply with this section and the California Electrical Code. Setback requirements shall not apply to ground-mounted, free-standing photovoltaic arrays. A clear, brush-free area of 10 feet (3048 mm) shall be required for ground-mounted photovoltaic arrays.*

# HISTORY NOTE APPENDIX

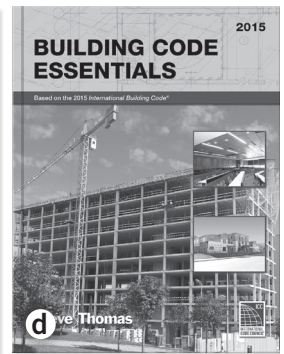
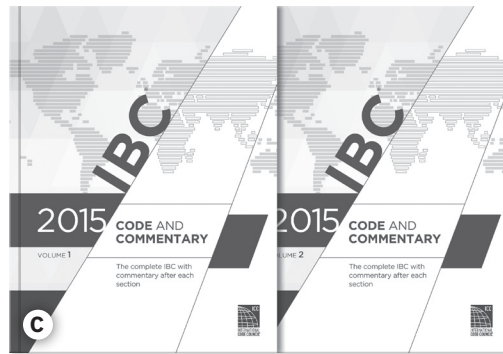
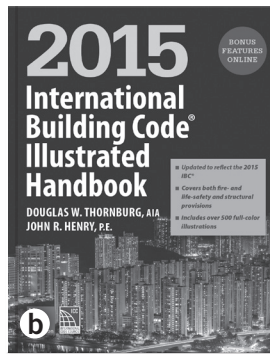
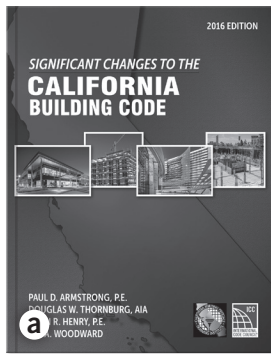
## California Building Code Title 24, Part 2, California Code of Regulations (CCR)

### HISTORY:

For prior code history, see the History Note Appendix to the *California Building Code* 2013 Triennial Edition, effective January 1, 2014.

1. (BSC 05/15, SFM 06/15, DSA-AC 01/15, DSA-SS 02/15, HCD 03/15, OSHPD 02/15 & 04/15, SLC 01/15) - Adopt the 2015 edition of the *International Building Code* published by the International Code Council, for incorporation into the 2016 *California Building Code*, CCR Title 24, Part 2 with amendments for State regulated occupancies, effective on January 1, 2017.
2. Errata to correct editorial errors within the preface as well as throughout various chapters in this code. Effective January 1, 2017.
3. Rulemaking file numbers BSC EF 01-17, HCD EF 01-17: Emergency regulations amend Sections 107.2.7, 110.3.8.1, Table 1607.1, 2304.12.2.5, and 2304.12.2.6. Approved as an emergency on January 27, 2017, effective upon filing with Secretary of State on January 30, 2017.
4. Rulemaking file number DSA-SS/CC EF 01-17: Emergency regulations amend Sections 1.9.2.1.1, 1.9.2.2.1, 107.2.7, 110.3.8.1, 1616.5.1.2 – 1616.5.1.5, Table 1607A.1, 2304.12.2.5, and 2304.12.2.6 approved as an emergency on January 27, 2017, effective upon filing with Secretary of State on January 30, 2017.
5. Errata to correct editorial errors throughout the code. Effective September 1, 2017.
6. 2016 Intervening Cycle update; BSCC 01/16, CDPH 01/16, DSA-SS 02/16, OSHPD 02/16, SFM 01/16— Approved by the California Building Standards Commission on August 14, 2017. Published on January 1, 2018, and effective July 1, 2018.
7. 2016 Intervening Cycle update; DSA-AC 01/16— Approved by the California Building Standards Commission on October 17, 2017. Published on January 1, 2018, and effective July 1, 2018.
8. Rulemaking file numbers BSC EF 01-17, HCD EF 01-17: Emergency regulations amend Sections 107.2.7, 110.3.8.1, Table 1607.1, Section 2304.12.2.5, and Section 2304.12.2.6. The supplement provides emergency building standards that were made permanent pursuant to *Government Code* Sections 11346.2 to 11347.3 adopted by the California Building Standards Commission on December 12, 2017, effective upon filing with Secretary of State on December 13, 2017.
9. Rulemaking file number DSA-SS/CC EF 01-17: Emergency regulations amend Sections 1.9.2.1.1, 1.9.2.2.1, 107.2.7, 110.3.8.1, 1616.5.1.2–1616.5.1.5, Table 1607A.1, Section 2304.12.2.5, and Section 2304.12.2.6. The supplement provides emergency building standards that were made permanent pursuant to *Government Code* Sections 11346.2 to 11347.3 adopted by the California Building Standards Commission on December 12, 2017, effective upon filing with Secretary of State on December 13, 2017.
10. Rulemaking file number BSC 02-17 CWoRE: Change Without Regulatory Effect amend Sections 3109.4.4–3109.4.4.9 herein—adopted by the California Building Standards Commission on December 12, 2017, filed with the Secretary of State on December 13, 2017, and effective January 12, 2018. The changes without regulatory effect herein were made to align with legislative amendments to the Swimming Pool Safety Act (HS Code, §§ 115920–115929.) via SB 442 (Chapter 670, Statutes of 2017), effective January 1, 2018. Because the effective date of the amended statutes is January 1, 2018, anyone undertaking activities under the purview of the statute on or after January 1, 2018, shall comply with the statute regardless if the corresponding regulatory requirements herein are not technically effective until January 12, 2018.





# Count on ICC for Your California Building Code Tools

## a. Significant Changes to the California Building Code, 2016

Key changes are identified then followed by in-depth discussion and helpful visuals. Based on the popular Significant Changes to the I-Codes series from ICC and Cengage Learning, this full-color guide is a valuable resource for learning the newest CBC. The book identifies critical changes from the 2013 to 2016 editions and adds expert discussion with a detailed illustration for each change.

SOFT COVER #5521S16  
PDF DOWNLOAD #8950P733

## Turbo Tabs for 2016 California Building Code

Flip right to the most commonly used sections of the code! Full-page inserts feature key sections of the code printed on the tabs in an easy-to-read format.

#0001TL16CA

## 500+ COLOR ILLUSTRATIONS! b. 2015 International Building Code® Illustrated Handbook

*An easy-to-use visual guide to the 2015 IBC®*

- Bonus features online
- Expanded topics
- 500+ color illustrations
- New 7.5" x 9.5" format

Thoroughly revised to reflect the 2015 IBC, this full-color guide makes it easy to understand and apply complex IBC provisions and achieve compliance. The Handbook provides all the information you need to get construction jobs done right, on time, and up to the requirements of the 2015 IBC.

HARD COVER #4000S15  
PDF DOWNLOAD #8950P685

## c. 2015 IBC Code and Commentary, Volumes 1 and 2 (Chapters 1–35)

This helpful publication contains the full text of the 2015 IBC, including tables and figures, followed by corresponding commentary at the end of each section to help code users understand the intent of the code provisions and learn how to apply them effectively.

SOFT COVER #3010S15  
PDF DOWNLOAD #870P15  
SOFT + PDF COMBO #3010SP15

**2015 IEBC® Code and Commentary is also available.**

## d. Building Code Essentials: Based on the 2015 IBC *Detailed full-color illustrations enhance comprehension of code provisions*

Explores those code provisions essential to understanding the application of the IBC in a straightforward and easy-to-read format. The user-friendly approach of the text simplifies critical concepts so that users can achieve a more complete understanding of the code's intent. Full-color illustrations, examples and simplified tables assist the reader in visualizing the code requirements. This up-to-date, step-by-step guide's topic organization reflects the intent of the IBC and facilitates understanding and application of the code provisions.

SOFT COVER #4031S15  
PDF DOWNLOAD #8950P596

**Order Your California Code Tools Today!**  
**1-800-786-4452 | [www.iccsafe.org/books](http://www.iccsafe.org/books)**



**INTERNATIONAL  
CODE  
COUNCIL®**

People Helping People Build a Safer World®

## 2015 IBC SEAOC STRUCTURAL/SEISMIC DESIGN MANUALS

ICC has again partnered with the Structural Engineers Association of California to publish this popular series of Structural/Seismic Design Manuals (SSDM). Each volume provides a step-by-step approach to applying the structural provisions of the 2015 IBC and referenced standards. The series is an excellent reference and study guide for the NCEES Structural Exam. The manuals are filled with invaluable examples to assist civil and structural engineers, architects, academics, and students.



### 2015 SSDM, VOLUME 1: CODE APPLICATION EXAMPLES

Changes to this volume include clarification of more complex sections and additional commentary in some design examples.

#9011S151

### 2015 SSDM, VOLUME 2: EXAMPLES FOR LIGHT FRAME, TILT-UP AND MASONRY BUILDINGS

Contains updated references including: 2015 NDS and SDPWS; ACI 318-14; TMS 402-13 and TMS 602-13; and AISI standards 100, 200, 201, 211, and 213 updated to 2012 editions. Design examples have additional commentary added for the more complex sections.

#9011S152

### 2015 SSDM, VOLUME 3: EXAMPLES FOR CONCRETE BUILDINGS

All references are updated to ACI 318-14 with complex sections clarified and additional commentary in some design examples.

#9011S153

### BUY ALL 3 OF THE NEW 2015 VOLUMES AND SAVE!

This collection includes 2015 SSDM Volumes 1, 2 and 3.

#9011S15

## ALSO AVAILABLE AND APPLICABLE TO THE 2015 IBC:

### 2012 SSDM, VOLUME 4: EXAMPLES FOR STEEL FRAMED BUILDINGS

#9011S124

### 2012 SSDM, VOLUME 5: EXAMPLES FOR SEISMICALLY ISOLATED BUILDINGS AND BUILDINGS WITH SUPPLEMENTAL DAMPING

#9011S125

### 2015/2012 MATERIALS COLLECTION, SSDM VOLUMES 1-4

This collection includes 2015 SSDM Volumes 1-3, and 2012 SSDM Volume 4.

#9011S156

### 2015/2012 COMPLETE COLLECTION, SSDM VOLUMES 1-5

This collection includes 2015 SSDM Volumes 1-3, and 2012 SSDM Volumes 4 and 5.

#9011S157

Order your **Structural/Seismic Design Manuals** today!  
**1-800-786-4452 | [www.iccsafe.org/books](http://www.iccsafe.org/books)**