#### **SIXTH PRINTING (Updated October 3, 2012)**

**CHAPTER 3 USE AND OCCUPANCY CLASSIFICATION** 

[F] TABLE 307.1(1)

MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIAL POSING A HEALTH HAZARD a,j,m,n,p

In the row for Pyrophoric material, in the column for Gas (cubic feet at NTP), add note "e". It should read as 10 e, g

#### **FOURTH PRINTING (Updated February 18, 2011)**

**CHAPTER 3 USE AND OCCUPANCY CLASSIFICATIONS** 

[F] TABLE 307.1(1) MAXIMUM ALLOWANCE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIALS POSING A PHYSICAL HAZARD.

In the row for EXPLOSIVES, on the line for DIVISION 1.6, in the column for SOLID POUNDS (cubic feet), delete note "d". It should read as 1  $^{\rm e,\,g}$ 

(Portions of text and tables not shown are unaffected by the errata)

#### **SECOND PRINTING (Updated March 22, 2010)**

## CHAPTER 3 USE AND OCCUPANCY CLASSIFICATION

**[F] 307.2 Definitions.** The following words and terms shall, for the purposes of this section and as used elsewhere in this code, have the meanings shown herein.

**CRYOGENIC FLUID.** A liquid having a boiling point lower than -150 -130°F (-101 -89.9°C) at 14.7 pounds per square inch atmosphere (psia) (an absolute pressure of 101 kPa).

(Portions of text and tables not shown are unaffected by the errata)

#### FIRST PRINTING (Updated March 22, 2010)

## CHAPTER 3 USE AND OCCUPANCY CLASSIFICATION

**310.1 Residential Group R**. (no change to portions not shown)

**R-4** Residential occupancies shall include buildings arranged for occupancy as residential care/assisted living facilities including more than five but not more than 16 occupants, excluding staff.

Group R-4 occupancies shall meet the requirements for construction as defined for Group R-3, except as otherwise provided for in this code or shall comply with the *International Residential Code* provided the building is protected by an *automatic sprinkler system* installed in accordance with Section 903.2.7 903.2.8.

(Portions of text and tables not shown are unaffected by the errata)

#### **SECOND PRINTING (Updated March 22, 2010)**

## CHAPTER 4 SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

**[F] 406.6.6 Gas detection system.** Repair garages used for repair of vehicles fueled by nonodorized gases, such as hydrogen and nonodorized LNG, shall be provided with a <del>an approved</del> flammable gas detection system.

**[F] 406.6.6.1 System design.** The flammable gas detection system shall be <u>listed or approved and shall be</u> calibrated to the types of fuels or gases used by vehicles to be repaired. <u>Gas detectors or sensors shall be listed in accordance with UL 2075 and shall indicate the gases they are intended to detect. The gas detection system shall be designed to activate when the level of flammable gas exceeds 25 percent of the lower flammable limit (LFL). Gas detection shall also be provided in lubrication or chassis repair pits of repair garages used for repairing nonodorized LNG-fueled vehicles.</u>

**412.5 Residential aircraft hangars.** Residential aircraft hangars as defined in Section 412.2 shall comply with Sections 412.5.1 through 412.5.2 412.5.5.

**419.3.4 Locks.** Egress doors shall be permitted to be locked in accordance with Exception 1008.1.9.3.

(Portions of text and tables not shown are unaffected by the errata)

#### FIRST PRINTING (Updated April 20, 2009)

## CHAPTER 4 SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

**[F] 412.6 Aircraft paint hangars.** Aircraft painting operations where flammable liquids are used in excess of the maximum allowable quantities per *control area* listed in <del>Table 307.7(1)</del> 307.1(1) shall be conducted in an aircraft paint hangar that complies with the provisions of Sections 412.6.1 through 412.6.6.

## Table 415.3.2 DETACHED BUILDING REQUIRED

(No change to table) (No change to note a)

b. "Maximum Allowable Quantity" means the maximum allowable quantity per control area set forth in Table 307.7(1) 307.1(1).

(No change to note c)

#### **SEVENTH PRINTING (Updated October 3, 2012)**

#### **CHAPTER 6 TYPES OF CONSTRUCTION**

603.1 Allowable materials. Combustible materials shall be permitted in buildings of Type I or II construction in the following applications and in accordance with Sections 603.1.1 through 603.1.3:

- 1-7 (no changes)
- 18. Nailing or furring strips as permitted by Section 803.4 803.11.
- 19-25 (no changes)

(Portions of text and tables not shown are unaffected by the errata)

#### **SECOND PRINTING (Updated March 22, 2010)**

## CHAPTER 6 TYPES OF CONSTRUCTION

**603.1 Allowable materials.** Combustible materials shall be permitted in buildings of Type I or II construction in the following

applications and in accordance with Sections 603.1.1 through 603.1.3:

- 1. 25. Fire-retardant-treated wood shall be permitted in:
  - 1.1 25.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less.
  - 1.2 <del>25.2</del>. Nonbearing *exterior walls* where no fire rating is required.
  - 1.3 25.3. Roof construction, including girders, trusses, framing and decking.

**Exception:** In buildings of Type IA construction exceeding two *stories above grade plane*, *fire-retardant-treated wood* is not permitted in roof construction when the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).

<u>2.</u> 1. Thermal and acoustical insulation, other than foam plastics, having a *flame spread index* of not more than 25.

#### **Exceptions:**

- 1. Insulation placed between two layers of noncombustible materials without an intervening airspace shall be allowed to have a *flamespread index* of not more than 100.
- 2. Insulation installed between a finished floor and solid decking without intervening airspace shall be allowed to have a *flame spread index* of not more than 200.
- 3. 2. Foam plastics in accordance with Chapter 26.
- 4. 3. Roof coverings that have an A, B or C classification.
- 5. 4. Interior floor finish and floor covering materials installed in accordance with Section 804.
- 6. 5. Millwork such as doors, door frames, window sashes and frames.
- 7. 6. Interior wall and ceiling finishes installed in accordance with Sections 801 and 803.
- 8. 7. Trim installed in accordance with Section 806.
- 9. 8. Where not installed over 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases.
- 10. 9. Finish flooring installed in accordance with Section 805.
- 11. 40. Partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a *corridor* serving an *occupant load* of 30 or more shall be permitted to be constructed of *fire-retardant-treated wood*, 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.
- 12. 41. Stages and platforms constructed in accordance with Sections 410.3 and 410.4, respectively.
- 13. 12. Combustible *exterior wall coverings*, balconies and similar projections and bay or oriel windows in accordance with Chapter 14.
- 14. 43. Blocking such as for handrails, millwork, cabinets and window and door frames.
- 15. 14. Light-transmitting plastics as permitted by Chapter 26.
- <u>16.</u> <u>15.</u> Mastics and caulking materials applied to provide flexible seals between components of *exterior wall* construction.
- 17. 16. Exterior plastic veneer installed in accordance with Section 2605.2.
- 18. 17. Nailing or furring strips as permitted by Section 803.4.
- 19. 18. Heavy timber as permitted by Note c to Table 601 and Sections 602.4.7 and 1406.3.
- 20. 49. Aggregates, component materials and admixtures as permitted by Section 703.2.2.
- 21. 20. Sprayed fire-resistant materials and intumescent and mastic fire-resistant coatings, determined on the basis of *fire-resistance* tests in accordance with Section 703.2 and installed in accordance with Sections 1704.12 and 1704.13, respectively.
- 22. 21. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 713.
- 23. 22. Materials used to protect joints in fire-resistance-rated assemblies in accordance with Section 714.

- 24. 23. Materials allowed in the concealed spaces of buildings of Types I and II construction in accordance with Section 717.5.
- 25. 24. Materials exposed within plenums complying with Section 602 of the International Mechanical Code.

(Portions of text and tables not shown are unaffected by the errata)

#### **TWELFTH PRINTING (Updated December 6, 2016)**

## CHAPTER 7 FIRE AND SMOKE PROTECTION FEATURES

Note for 706.5.1: This is an erratum in the 8<sup>th</sup>, 9<sup>th</sup>, 10<sup>th</sup> and 11<sup>th</sup> printing only. The reference is correct in other editions.

**706.5.1 Exterior walls.** Where the *fire wall* intersects *exterior walls*, the *fire-resistance rating* and opening protection of the *exterior walls* shall comply with one of the following:

- 1. The exterior walls on both sides of the fire wall shall have a 1-hour fire-resistance rating with 3/4-hour protection where opening protection is required by Section 705.8 706.8. The fire-resistance rating of the exterior wall shall extend a minimum of 4 feet (1220 mm) on each side of the intersection of the fire wall to exterior wall. Exterior wall intersections at fire walls that form an angle equal to or greater than 180 degrees (3.14 rad) do not need exterior wall protection.
- 2. Buildings or spaces on both sides of the intersecting *fire wall* shall assume to have an imaginary *lot line* at the *fire wall* and extending beyond the exterior of the *fire wall*. The location of the assumed line in relation to the *exterior walls* and the *fire wall* shall be such that the *exterior wall* and opening protection meet the requirements set forth in Sections 705.5 and 705.8. Such protection is not required for *exterior walls* terminating at *fire walls* that form an angle equal to or greater than 180 degrees (3.14 rad).

(Portions of text and tables not shown are unaffected by the errata)

#### THIRD PRINTING (Updated March 22, 2010)

## CHAPTER 7 FIRE AND SMOKE PROTECTION FEATURES

**716.3.1 Damper testing.** Dampers shall be listed and bear the label of an approved testing agency indicating compliance with the standards in this section. Fire dampers shall comply with the requirements of UL 555. Only fire dampers labeled for use in dynamic systems shall be installed in heating, ventilation and air-conditioning systems designed to operate with fans on during a fire. Smoke dampers shall comply with the requirements of UL 555S. Combination fire/smoke dampers shall comply with the requirements of both UL 555 and UL 555S. Ceiling radiation dampers shall comply with the requirements of UL 555C or shall be tested as part of a fire-resistance rated floor/ceiling or roof/ceiling assembly in accordance with ATSTM E119 or UL 263.

**716.6.2.1 Ceiling radiation dampers.** Ceiling radiation dampers shall be tested as part of a fire-resistance-rated floor/ceiling or roof/ceiling assembly in accordance with ASTM E 119 or UL 263 in accordance with Section 716.3.1. Ceiling radiation dampers shall be installed in accordance with the details listed in the fire-resistance-rated assembly and the manufacturer's installation instructions and the listing. Ceiling radiation dampers are not required where either of the following applies:

- 1. Tests in accordance with ASTM E 119 or UL 263 have shown that ceiling radiation dampers are not necessary in order to maintain the fire-resistance rating of the assembly.
- 2. Where exhaust duct penetrations are protected in accordance with Section 713.4.1.2, are located within the cavity of a wall and do not pass through another dwelling unit or tenant space.

(Portions of text and tables not shown are unaffected by the errata)

#### SECOND PRINTING (Updated March 22, 2010)

## CHAPTER 7 FIRE AND SMOKE PROTECTION FEATURES

**708.11 Enclosure at the bottom.** Shafts that do not extend to the bottom of the building or structure shall comply with one of the following:

- 1. They shall be enclosed at the lowest level with construction of the same *fire-resistance rating* as the lowest floor through which the shaft passes, but not less than the rating required for the shaft enclosure
- 2. They shall terminate in a room having a use related to the purpose of the shaft. The room shall be separated from the remainder of the building by *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 712, or both. The *fire-resistance rating* and opening protectives shall be at least equal to the protection required for the shaft enclosure.
- 3. They shall be protected by *approved fire dampers* installed in accordance with their listing at the lowest floor level within the shaft enclosure.

#### **Exceptions:**

- The fire-resistance-rated room separation is not required, provided there are no openings in or penetrations of the shaft enclosure to the interior of the building except at the bottom. The bottom of the shaft shall be closed off around the penetrating items with materials permitted by Section 717.3.1 for draftstopping, or the room shall be provided with an approved automatic fire suppression system.
- 2. A shaft enclosure containing a refuse chute or laundry chute shall not be used for any other purpose and shall terminate in a room protected in accordance with Section 708.13.4.
- 3. The fire-resistance-rated room separation and the protection at the bottom of the shaft are not required provided there are no combustibles in the shaft and there are no openings or other penetrations through the shaft enclosure to the interior of the building.

(Note: There is no change to the text. The exceptions in Section 708.11 should not be indented under Item 3. The exceptions are to the entire section.)

**712.4 Continuity.** Assemblies shall be continuous without openings, penetrations or joints except as permitted by this section and Sections 708.2, 713.4, 714 and 1022.1. Skylights and other penetrations through a fire-resistance-rated roof deck or slab are permitted to be unprotected, provided that the structural integrity of the fire-resistance-rated roof assembly is maintained. Unprotected skylights shall not be permitted in roof assemblies required to be fire-resistance

rated in accordance with Section 704.10 705.8.6. The supporting construction shall be protected to afford the required *fire-resistance rating* of the *horizontal assembly* supported.

**Exception:** In buildings of Type IIB, IIIB or VB construction, the construction supporting the *horizontal* assembly is not required to be fire-resistance-rated at the following:

- 1. Horizontal assemblies at the separations of incidental uses as specified by Table 508.2.5, provided the required *fire-resistance rating* does not exceed 1 hour.
- Horizontal assemblies at the separations of dwelling units and sleeping units as required by Section 420.3.
- 3. Horizontal assemblies at smoke barriers constructed in accordance with Section 710.

**716.5.3 Shaft enclosures.** Shaft enclosures that are permitted to be penetrated by ducts and air transfer openings shall be protected with *approved* fire and smoke *dampers* installed in accordance with their listing.

#### **Exceptions:**

1. (no change)

(Portions of text and tables not shown are unaffected by the errata)

- 1.1 through 1.4 (no change)
- 2. In Group B and R occupancies, equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, *smoke dampers* are not required at penetrations of shafts where:
  - 2.1. Kitchen, clothes dryer, bathroom and toilet room exhaust openings are installed with steel exhaust subducts, having a minimum wall thickness of <u>0.0187</u> <u>0.187</u>-inch (0.4712 mm) (No. 26 gage).

2.2 & 2.3 (no change)

3 through 5 (no change)

**716.6.1 Through penetrations.** In occupancies other thanGroups I-2 and I-3, a duct constructed of *approved* materials in accordance with the *International Mechanical Code* that penetrates a fire-resistance-rated floor/ceiling assembly that connects not more than two *stories* is permitted withoutshaft enclosure protection, provided a *listed fire damper* is installed at the floor line or the duct is protected in accordance with Section 713.4. For air transfer openings, see Exception 7 to Section 708.2.

**Exception:** A duct is permitted to penetrate three floors or less without a *fire damper* at each floor, provided it meets all of the following requirements:

- 1. The duct shall be contained and located within the cavity of a wall and shall be constructed of steel having a minimum wall thickness of 0.0187 0.187-inches (0.4712 mm) (No. 26 gage).
- 2. through 5. (No change)

#### Table 720.1(3)

**Minimum Protection for Floor and Roof Systems** 

#### **FLOOR OF ROOF CONSTRUCTION**

23. Wood I-joist (minimum joist depth 9-1/4" with a minimum flange depth of 45/16" 1-5/16" and a minimum flange cross sectional area of 2.3 square inches) at 24"o.c. spacing with 1 inch by 4 inch (nominal) wood furring strip spacer applied parallel to and covering the bottom of the bottom flange of each member, tacked in place. 2" mineral wool insulation, 3.5 pcf (nominal) installed adjacent to the bottom flange of the I-joist and supported by the 1" x 4" furring strip spacer.

27. Wood I-joist (minimum joist depth 9-1/2" with a minimum flange depth of 1-15/16" 1-5/16" and a minimum flange cross sectional area of 1.95 square inches; minimum web thickness of 3/8") @ 24" o.c.

(Portions of table not shown remain unchanged)

(Portions of text and tables not shown are unaffected by the errata)

#### FIRST PRINTING (Updated April 20, 2009)

## CHAPTER 7 FIRE AND SMOKE PROTECTION FEATURES

#### FIGURE 721.5.1(4)

## FIRE RESISTANCE OF STRUCTURAL STEEL COLUMNS PROTECTED WITH VARIOUS THICKNESSES OF TYPE X GYPSUM WALLBOARD

a. The *W/D* ratios for typical wide flange columns are listed in Table 721.5.1(1). For other column shapes, the *W/D* ratios shall be determined in accordance with Section 720.5.1.1 721.5.1.1. (No change to figure)

#### FIGURE 721.5.1(6)

#### CONCRETE PROTECTED STRUCTURAL STEEL COLUMNS<sup>a,b</sup>

- a. When the inside perimeter of the concrete protection is not square, L shall be taken as the average of  $L_1$  and  $L_2$ . When the thickness of concrete cover is not constant, h shall be taken as the average of  $h_1$  and  $h_2$ .
- b. Joints shall be protected with a minimum 1 inch thickness of ceramic fiber blanket but in no case less than one-half the thickness of the column cover (see Section 720.2.1.3-721.2.1.3). (No change to figure)

(Portions of text and tables not shown are unaffected by the errata)

#### **SECOND PRINTING (Updated March 22, 2010)**

## CHAPTER 8 INTERIOR FINISHES

**[F]806.1 General requirements.** In occupancies in Groups A, E, I and R-1 and dormitories in Group R-2, curtains, draperies, hangings and other decorative materials suspended from walls or ceilings shall meet the flame propagation performance criteria of NFPA 701 in accordance with Section 806.2 or be noncombustible.

#### **Exceptions:**

- 1. Curtains, draperies, hangings and other decorative materials suspended from walls of sleeping units and dwelling units in dormitories in Group R-2 protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1 and such materials are limited to not more than 50 percent of the aggregate area of walls.
- 2. Decorative materials, including, but not limited to, photographs and paintings in dormitories in Group R-2 where such materials are of limited quantities such that a hazard of fire development or spread is not present.

In Groups I-1 and I-2, combustible *decorative materials* shall meet the flame propagation criteria of NFPA 701 unless the *decorative materials*, including, but not limited to, photographs and paintings, are of such limited quantities that a hazard of fire development or spread is not present. In Group I-3, combustible decorative materials are prohibited.

Fixed or movable walls and partitions, paneling, wall pads and crash pads applied structurally or for decoration, acoustical correction, surface insulation or other purposes shall be considered *interior finish* if they cover 10 percent or more of the wall or of the ceiling area, and shall not be considered *decorative materials* or furnishings.

In Group B and M occupancies, fabric partitions suspended from the ceiling and not supported by the floor shall meet the flame propagation performance criteria in accordance with Section 806.2 and NFPA 701 or shall be noncombustible.

(Portions of text and tables not shown are unaffected by the errata)

#### **THIRTEENTH PRINTING (Updated May 1, 2017)**

#### CHAPTER 16 STRUCTURAL DESIGN

#### SECTION 1602 DEFINITIONS

**START OF CONSTRUCTION.** The date of <u>permit</u> issuance for new construction and *substantial improvements* to *existing structures*, provided the actual start of construction, *repair*, reconstruction, rehabilitation, *addition*, placement or other improvement is within 180 days after the date of issuance. The actual start of construction means the first placement of permanent construction of a building (including a manufactured home) on a site, such as the pouring of a slab or footings, installation of pilings or construction of columns.

Permanent construction does not include land preparation (such as clearing, excavation, grading or filling), the installation of streets or walkways, excavation for a *basement*, footings, piers or foundations, the erection of temporary forms or the installation of accessory buildings such as garages or sheds not occupied as *dwelling units* or not part of the main building. For a *substantial improvement*, the actual "start of construction" means the first *alteration* of any wall, ceiling, floor or other structural part of a building, whether or not that *alteration* affects the external dimensions of the building.

(Portions of text and tables not shown are unaffected by the errata)

#### **SECOND PRINTING (Updated October 3, 2012)**

CHAPTER 16 STRUCTURAL DESIGN

TABLE 1609.6.2(2)
NET PRESSURE COEFFICIENTS

#### Revise table as follows:

For "3. Components and cladding in areas of discontinuities-roofs and overhangs", under "Gable or hipped configurations at ridges, eaves and rakes", Flat<Slope<6:12, Positive, 100 square feet or more, under "Partially enclosed" revise table entry from 10.72 to 0.72.

(Portions of text and tables not shown are unaffected by the errata)

1<sup>st</sup> through 5<sup>th</sup> PRINTING (Updated August 2, 2011)

#### CHAPTER 16 STRUCTURAL DESIGN

#### Table 1609.6.2(2)

#### Revise table as follows:

For "3. Components and cladding in areas of discontinuities-roofs and overhangs", under "Gable or hipped configurations at ridges, eaves and rakes", Flat<Slope<6:12, Positive, 100 square feet or more, under "Partially enclosed" revise table entry from 10.72 to 0.72.

## TABLE 1609.6.2(2) NET PRESSURE COEFFICIENTS, $C_{\text{net}}^{a,b}$

STRUCTURE OR PART THEREOF	DESCRIPTION		C <sub>net</sub> FACTOR	
3.	Roof Elements and slopes		Enclosed	Partially Enclosed.
Components and cladding	Gable or Hipped Configurations at Ridges, Eaves and Rakes (Zone 2)			
in areas of discontinuities	Flat < Slope < 6:12 (27°) See ASCE 7 Figure 6-11C Zone 2			
<ul><li>roofs and overhangs</li></ul>	Positive	10 SF or less	0.58	0.89
overnangs		100 SF or	0.41	<del>10.72</del> 0.72

#### **SECOND PRINTING (Updated March 22, 2010)**

#### **CHAPTER 16** STRUCTURAL DESIGN

Table 1609.6.2(1) WIND VELOCITY STAGNATION PRESSURE (q<sub>s</sub>) AT STANDARD HEIGHT OF 33 FEET<sup>a</sup> (No change to table or notes)

#### Table 1609.6.2(2) NET PRESSURE COEFFICIÉNTS. Cna. a,b

ROOFS:	,
Wind perpendicular to ridge	
Leeward roof or flat roof	
Windward roof slopes:	
Slope = 2:12 ( 10°)	Condition 1
Slope = 2.12 ( 10 )	Condition 2
Slope = 4:12 ( 18°)	Condition 1
Slope = 4.12 ( 18 )	Condition 2
Slope = 5:12 ( 23°)	Condition 1
Slope = 5.12 ( 25 )	Condition 2
Slope = 6:12 ( 27°)	Condition 1
Slope = 6.12 ( 27 )	Condition 2
Slope = 7:12 (30°)	Condition 1
Slope = 7.12 (30 )	Condition 2
Slope = 9:12 (37°)	Condition 1
Slope = 9.12 (31 )	Condition 2
Slope = 12:12 (45°)	
Wind parallel to ridge and flat roofs	

Item 1. Main wind-force-resisting frames and systems systems (No change to portions of table or notes not shown)

(Portions of text and tables not shown are unaffected by the errata)

#### FIRST PRINTING (Updated April 20, 2009)

#### CHAPTER 16 STRUCTURAL DESIGN

#### **TABLE 1604.5**

OCCUPANCY CATEGORY OF BUILDINGS AND OTHER STRUCTURES

OCCUPANCY CATEGORY	NATURE OF OCCUPANCY
III	<ul> <li>Buildings and other structures containing adult education facilities, such as college and university, with an occupant load greater than 500.</li> </ul>

(Portions on table not shown remain unchanged. Added comma in the bulleted item above.)

General. Buildings and other structures and portions thereof shall be designed to resist:

- 1. The load combinations specified in Section 1605.2, 1605.3.1 or 1605.3.2,
- 2. The load combinations specified in Chapters 18 through 23, and
- The load combinations with overstrength factor specified in Section 12.4.3.2 of ASCE 7 where required by Section 12.2.5.2, 12.3.3.3 or 12.10.2.1 of ASCE 7. With the simplified procedure of ASCE 7 Section 12.14, the load combinations with overstrength factor of Section 12.14.3.2 or of ASCE 7 shall be used.

Applicable loads shall be considered, including both earthquake and wind, in accordance with the specified load combinations.

Each load combination shall also be investigated with one or more of the variable loads set to zero.

Where the load combinations with overstrength factor in Section 12.4.3.2 of ASCE 7 apply, they shall be used as follows:

- 1. The basic combinations for strength design with overstrength factor in lieu of Equations 16-5 and 16-7 in Section 1605.2.1.
- 2. The basic combinations for allowable stress design with overstrength factor in lieu of Equations 16-12, 16-13 and 16-15 in Section 1605.3.1.
- 3. The basic combinations for allowable stress design with overstrength factor in lieu of Equations 16-20 and 16-21 in Section 1605.3.2.

**1610.1 General.** Foundation walls and retaining walls shall be designed to resist lateral soil loads. Soil loads specified in Table 1610.1 shall be used as the minimum design lateral soil loads unless determined otherwise by a geotechnical investigation in accordance with Section 1803. Foundation walls and other walls in which horizontalmovement is restricted at the top shall be designed for at-rest pressure. Retaining walls free to move and rotate at the top shall be permitted to be designed for active pressure. Design lateral pressure from surcharge loads shall be added to the lateral earth pressure load. Design lateral pressure shall be increased if soils at the site are expansive. Foundation walls shall be designed to support the weight of the full hydrostatic pressure of undrained backfill unless a drainage system is installed in accordance with Sections 1805.4.2 and 1805.4.3.

**Exception:** Foundation walls extending not more than 8 feet (2438 mm) below grade and laterally supported by at the top by flexible diaphragms shall be permitted to be designed for active pressure.

1614.4.2.4 1614.4.3.4 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 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.

(Portions of text and tables not shown are unaffected by the errata)

#### FIRST PRINTING (Updated April 20, 2009)

#### CHAPTER 10 MEANS OF EGRESS

**1008.1.1 Size of doors.** (no change to main text) **Exceptions**:

(no change to exceptions 1 through 7).

- 8. Door openings required to be accessible within Type B units shall have a minimum clear width of 31.75 inches (806 mm).
- **1014.2.6 Travel distance.** The travel distance between any point in a Group I-2 occupancy patient sleeping room and an exit access door in that room shall not e exceed 50 feet (15 240 mm).
- **1027.3 Exit discharge location.** Exterior balconies, *stairways* and *ramps* shall be located at least 10 feet (3048 mm) from adjacent *lot lines* and from other buildings on the same lot unless the adjacent building *exterior walls* and openings are protected in accordance with Section <del>704</del> 705 based on *fire separation distance*.

(Portions of text and tables not shown are unaffected by the errata)

#### FIRST PRINTING (Updated April 20, 2009)

## CHAPTER 11 ACCESSIBILITY

**1109.12.1 Operable window.** Where operable windows are provided in rooms that are required to be *accessible* in accordance with Sections 1107.5.1.1, 1107.5.2.1, 1107.5.3.1, 1107.5.4, 1107.6.1.1, 1107.6.2.1.1, 1107.6.2.2.1 and 1107.6.4.1 1107.6.4.1, at least one window in each room shall be *accessible* and each required operable window shall be *accessible*.

**Exception:** Accessible windows are not required in bathrooms and kitchens.

#### **SECOND PRINTING (Updated March 22, 2010)**

#### **CHAPTER 12 INTERIOR ENVIRONMENT**

**1207.2.1 Masonry.** The sound transmission class of concrete masonry and clay masonry assemblies shall be calculated in accordance with TMS 0302 or determined through testing in accordance with ASTM <u>E</u> 90.

#### **SECOND PRINTING (Updated March 22, 2010)**

#### **CHAPTER 14 EXTERIOR WALL**

- 1405.6.1 Tolerances. Anchored masonry veneers in accordance with Chapter 14 are not required to meet the tolerances in Article 3.3 F1 G1 of TMS 602/ACI 530.1/ASCE 6.
- 1408.4.1 EIFS with drainage. EIFS with drainage shall have an average minimum drainage efficiency of 90 percent when tested in accordance the requirements of ASTM E 2273 and is required on framed walls of Type V construction, and Group R1, R2, R3 and R4 occupancies.

(Portions of text and tables not shown are unaffected by the errata)

#### **SECOND PRINTING (Updated March 22, 2010)**

## CHAPTER 15 ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

**1503.4.2 Scuppers.** When scuppers are used for secondary (emergency overflow) roof drainage, the quantity, size, location and inlet elevation of the scuppers shall be sized to prevent the depth of ponding water from exceeding that for which the roof was designed as determined by Section <del>1503.4.1</del> 1611.1. Scuppers shall not have an opening dimension of less than 4 inches (102 mm). The flow through the primary system shall not be considered when locating and sizing scuppers.

(Portions of text and tables not shown are unaffected by the errata)

#### **SECOND PRINTING (Updated October 3, 2012)**

CHAPTER 16 STRUCTURAL DESIGN

TABLE 1609.6.2(2)
NET PRESSURE COEFFICIENTS

#### Revise table as follows:

For "3. Components and cladding in areas of discontinuities-roofs and overhangs", under "Gable or hipped configurations at ridges, eaves and rakes", Flat<Slope<6:12, Positive, 100 square feet or more, under "Partially enclosed" revise table entry from 10.72 to 0.72.

(Portions of text and tables not shown are unaffected by the errata)

1<sup>st</sup> through 5<sup>th</sup> PRINTING (Updated August 2, 2011)

#### CHAPTER 16 STRUCTURAL DESIGN

#### Table 1609.6.2(2)

#### Revise table as follows:

For "3. Components and cladding in areas of discontinuities-roofs and overhangs", under "Gable or hipped configurations at ridges, eaves and rakes", Flat<Slope<6:12, Positive, 100 square feet or more, under "Partially enclosed" revise table entry from 10.72 to 0.72.

## TABLE 1609.6.2(2) NET PRESSURE COEFFICIENTS, $C_{\text{net}}^{a,b}$

STRUCTURE OR PART THEREOF	DESCRIPTION		C <sub>net</sub> FACTOR	
3.	Roof Elements and slopes		Enclosed	Partially Enclosed.
Components and cladding	Gable or Hipped Configurations at Ridges, Eaves and Rakes (Zone 2)			
in areas of discontinuities	Flat < Slope < 6:12 (27°) See ASCE 7 Figure 6-11C Zone 2			
<ul><li>roofs and overhangs</li></ul>	Positive	10 SF or less	0.58	0.89
overnangs		100 SF or	0.41	<del>10.72</del> 0.72

#### **SECOND PRINTING (Updated March 22, 2010)**

#### **CHAPTER 16** STRUCTURAL DESIGN

Table 1609.6.2(1) WIND VELOCITY STAGNATION PRESSURE (qs) AT STANDARD HEIGHT OF 33 FEET<sup>a</sup> (No change to table or notes)

#### Table 1609.6.2(2) NET PRESSURE COFFFICIENTS C.

ROOFS:	January Shet
Wind perpendicular to ridge	
Leeward roof or flat roof	
Windward roof slopes:	
Slope = 2:12 ( 10°)	Condition 1
Slope = 2.12 ( 10 )	Condition 2
Clara 4:40 / 40%	Condition 1
Slope = 4:12 ( 18°)	Condition 2
Slope = 5:12 ( 23°)	Condition 1
Slope = 5.12 ( 25 )	Condition 2
Slope = 6:12 ( 27°)	Condition 1
Slope = 0.12 (21)	Condition 2
Slope = 7:12 (30°)	Condition 1
Slope = 7.12 (30 )	Condition 2
Slope = 9:12 (37°)	Condition 1
Siope = 9.12 (31 )	Condition 2
Slope = 12:12 (45°)	
Wind parallel to ridge and flat roofs	

Item 1. Main wind-force-resisting frames and systems systems (No change to portions of table or notes not shown)

(Portions of text and tables not shown are unaffected by the errata)

#### FIRST PRINTING (Updated April 20, 2009)

#### CHAPTER 16 STRUCTURAL DESIGN

#### **TABLE 1604.5**

OCCUPANCY CATEGORY OF BUILDINGS AND OTHER STRUCTURES

	NATURE OF OCCUPANCY
III	Buildings and other structures containing adult education facilities, such as college and university, with an occupant load greater than 500.

(Portions on table not shown remain unchanged. Added comma in the bulleted item above.)

**General.** Buildings and other structures and portions thereof shall be designed to resist:

- 1. The load combinations specified in Section 1605.2, 1605.3.1 or 1605.3.2,
- 2. The load combinations specified in Chapters 18 through 23, and
- The load combinations with overstrength factor specified in Section 12.4.3.2 of ASCE 7 where required by Section 12.2.5.2, 12.3.3.3 or 12.10.2.1 of ASCE 7. With the simplified procedure of ASCE 7 Section 12.14, the load combinations with overstrength factor of Section 12.14.3.2 or of ASCE 7 shall be used.

Applicable loads shall be considered, including both earthquake and wind, in accordance with the specified load combinations.

Each load combination shall also be investigated with one or more of the variable loads set to zero.

Where the load combinations with overstrength factor in Section 12.4.3.2 of ASCE 7 apply, they shall be used as follows:

- 1. The basic combinations for strength design with overstrength factor in lieu of Equations 16-5 and 16-7 in Section 1605.2.1.
- 2. The basic combinations for allowable stress design with overstrength factor in lieu of Equations 16-12, 16-13 and 16-15 in Section 1605.3.1.
- 3. The basic combinations for allowable stress design with overstrength factor in lieu of Equations 16-20 and 16-21 in Section 1605.3.2.

**1610.1 General.** Foundation walls and retaining walls shall be designed to resist lateral soil loads. Soil loads specified in Table 1610.1 shall be used as the minimum design lateral soil loads unless determined otherwise by a geotechnical investigation in accordance with Section 1803. Foundation walls and other walls in which horizontalmovement is restricted at the top shall be designed for at-rest pressure. Retaining walls free to move and rotate at the top shall be permitted to be designed for active pressure. Design lateral pressure from surcharge loads shall be added to the lateral earth pressure load. Design lateral pressure shall be increased if soils at the site are expansive. Foundation walls shall be designed to support the weight of the full hydrostatic pressure of undrained backfill unless a drainage system is installed in accordance with Sections 1805.4.2 and 1805.4.3.

**Exception:** Foundation walls extending not more than 8 feet (2438 mm) below grade and laterally supported by at the top by flexible diaphragms shall be permitted to be designed for active pressure.

1614.4.2.4 1614.4.3.4 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 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.

#### **SIXTH PRINTING (Updated October 3, 2012)**

#### **CHAPTER 17** STRUCTURAL TESTS AND SPECIAL INSPECTIONS

#### **TABLE 1704.4** REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION

For Items 3 and 4, revise ACI 318 section reference: 21.2.8 21.1.8

#### **THIRD PRINTING (Updated December 14, 2010)**

#### **CHAPTER 17** STRUCTURAL TESTS AND SPECIAL INSPECTIONS

#### Revise TABLE 1704.4, item 5 as follows:

VERIFICATION AND	CONTINOUS	PERIODIC	REFERENCE STANDARD <sup>a</sup>	IBC REFERENCE
5. Verifying use of required design mix.	-	Х	ACI 318: Ch. 4, 5.2- 5.4	<del>1904.2.2</del> <u>1904.3</u> , 1913.2,

(Portions of text and tables not shown are unaffected by the errata)

#### **SECOND PRINTING (Updated March 22, 2010)**

## CHAPTER 17 STRUCTURAL TESTS AND SPECIAL INSPECTIONS

**1704.1.1 Statement of special inspections.** The applicant shall submit a statement of *special inspections* prepared by the *registered design professional in responsible charge* in accordance with Section 107.1 as a condition for <u>permit</u> issuance. This statement shall be in accordance with Section 1705.

#### **Exceptions:**

- 1. A statement of *special inspections* is not required for structures designed and constructed in accordance with the conventional construction provisions of Section 2308.
- 2. The statement of *special inspections* is permitted to be prepared by a qualified person *approved* by the *building official* for construction not designed by a *registered design professional*.

#### THIRD PRINTING (Updated December 14, 2010)

#### **CHAPTER 18 SOILS AND FOUNDATIONS**

Revise TABLE 1807.1.6.3(3) as follows:

MAXIMUM WALL	MACIMUM UNBALANCE	MINIMUM VERTICAL REINFORCEMENT-BAR SIZE AND SPACING (inches)			
HEIGHT	S BACKFILL HEIGHT <sup>d</sup>	Des	sign lateral soil load	lateral soil load <sup>a</sup> (psf per foot of depth)	
(feet-inches)	(feet-inches)	30 <sup>e</sup>	45 <sup>e</sup>	60	
8-0	4-0 (or less) 5-0 6-0 7-0 8-0	#4 at 56 #4 at 56 #4 at 56 #4 at 56 #5 at 56	#4 at 56 #4 at 5 <u>6</u> #4 at 56 #5 at 56 #6 at 56	#4 at 56 #4 at 56 #5 at 56 #6 at 56 #7 at 56	

(Portions of text and tables not shown are unaffected by the errata)

#### **SECOND PRINTING (Updated March 22, 2010)**

#### CHAPTER 18 SOILS AND FOUNDATIONS

**1807.1.6.3 Masonry foundation walls**. Masonry foundation walls shall comply with the following:

- 1. & 2. (No change)
- 3. The specified location of the reinforcement shall equal or exceed the effective depth distance, *d*, noted in Tables 1807.1.6.3(2), 1807.1.6.3(3) and 1807.1.6.3(4) and shall be measured from the face of the exterior (soil) side of the wall to the center of the vertical reinforcement. The reinforcement shall be placed within the tolerances specified in TMS 602/ACI 530.1/ASCE 6, Article 3.3.B.8 3.4.B.8 of the specified location.
- 4. through 10. (No change)

**1810.3.3.1.6 Uplift capacity of grouped deep foundation elements.** For grouped deep foundation elements subjected to uplift, the allowableworking uplift load for the group shall be calculated by an approved method of analysis. Wwhere the deep foundation elements in the group are placed at a center-to-center spacing of at least 2.5 times the least horizontal dimension of the largest single element, the allowable working uplift load for the group is permitted to be calculated as the lesser of:

- 1. The proposed individual uplift working load times the number of elements in the group.
- 2. Two-thirds of the effective weight of the group and the soil contained within a block defined by the perimeter of the group and the length of the element.

**1810.3.9.1 Design cracking moment.** (No change to text)

 $\Phi M_n = 3\sqrt{f'_c} \times S_m$  (Equaion 18-11) (Note:  $S_m$  should not be included under the square root symbol, just  $f'_c$ )

 $\frac{For SI:}{\Phi M_n = 0.25 \sqrt{f'_c} \times S_m}$ 

(Portions of text and tables not shown are unaffected by the errata)

#### FIRST PRINTING (Updated April 20, 2009)

#### **CHAPTER 19 CONCRETE**

## TABLE 1904.3 MINIMUM SPECIFIED COMPRESSIVE STRENGTH (f'c)

(No change in table)

a. Concrete in these locations that can be subjected to freezing and thawing during construction shall be of air-entrained concrete in accordance with Section 1904.2.1 1904.4.1.

(No change to notes b through d)

(Portions of text and tables not shown are unaffected by the errata)

#### SECOND PRINTING (Updated March 22, 2010)

#### CHAPTER 21 MASONRY

**2107.3 TMS 402/ACI 530/ASCE 5, Section 2.1.9.7.1.1, lap splices.** Modify Section 2.1.9.7.1.1 as follows:

2.1.7.1.1 2.1.9.7.1.1 The minimum length of lap splices for reinforcing bars in tension or compression,  $l_a$ , shall be

 $l_d = 0.002 d_b f_s$  (Equation 21-1)

For SI:  $I_d = 0.29 d_b f_s$ 

but not less than 12 inches (305 mm). In no case shall the length of the lapped splice be less than 40 bar diameters.

where:

db = Diameter of reinforcement, inches (mm).

 $f_s$  = Computed stress in reinforcement due to design loads, psi (MPa).

In regions of moment where the design tensile stresses in the reinforcement are greater than 80 percent of the allowable steel tension stress,  $F_s$ , the lap length of splices shall be increased not less than 50 percent of the minimum required length. Other equivalent means of stress transfer to accomplish the same 50 percent increase shall be permitted. Where epoxy coated bars are used, lap length shall be increased by 50 percent.

### SECOND PRINTING (Updated March 22, 2010)

### **CHAPTER 22 STEEL**

2210.3.3 Deferred submittals. AISI S214 Section B4.2 shall be deleted.

### FIRST PRINTING (Updated April 20, 2009)

### **CHAPTER 22 STEEL**

2209.2.3 Steel roof deck. Steel roof decks shall be permitted to be designed and constructed in accordance with ANSI/SBI-RD 1.0 ANSI/SDI-RD 1.0.

### TWELFTH PRINTING (Updated December 6, 2016)

### **CHAPTER 23 WOOD**

**TABLE 2306.6** 

ALLOWABLE SHEAR VALUES (plf) FOR WIND OR SEISMIC LOADING ON SHEAR WALLS OF FIBERBOARD SHEATHING BOARD CONSTRUCTION FOR TYPE V CONSTRUCTION ONLY a, b, c,

THICKNESS AND GRADE	FASTENER SIZE	(poun NAIL SI	ABLE SHEAR ds per linear PACING AT l DGES (inches	foot) PANEL
		4	3	2
1/" 25/22"	No. 11 gage galvanized roofing nail 1-1/2" long for 1/2", 1-3/4" long for 25/32" with 3/8" head	170	230	260
½" or 25/32" Structural	No. 44 16 gage galvanized stable, 7/16" crown	150	200	225
	No. 44 16 gage galvanized stable, 1" crown	220	290	325

### SIXTH PRINTING (Updated October 3, 2012)

**CHAPTER 23** WOOD

TABLE 2308.10.3(2) (Correct title as follows:)

RAFTER SPANS FOR COMMON LUMBER SPECIES (Roof Live Load = 20 pounds per square foot, Ceiling Not Attached to Rafters, L/\(\triangle\) = 240) (No change to table)

### THIRD PRINTING (Updated February 18, 2011)

### **CHAPTER 23 WOOD**

### **TABLE 2306.7**

### ALLOWABLE SHEAR FOR WIND OR SEISMIC FORCES FOR SHEAR WALLS OF LATH AND PLASTER OR GYPSUM BOARD WOOD FRAMED WALL ASSEMBLIES

TYPE OF MATERIAL	THICKNESS OF MATERIAL	WALL CONSTRUCTION	FASTENER SPACING <sup>b</sup> MAXIMUM (inches)	SHEAR VALUE <sup>a,e</sup> (plf)	MINIMUM FASTENER SIZE <sup>c,d,j,k</sup>
3.Gypsum sheathing	½" x 2' <u>x 8'</u>	<u>Unblocked</u>	<u>4</u>	<u>75</u>	No. 11 gage, 1 ¾" long, 7/16" head,
Sheaming	<u>½" x 4'</u>	<u>Blocked</u> <sup>d</sup> <u>Unblocked</u>	<u>4</u> <u>7</u>	<u>175</u> 100	diamond-point, galvanized  16 Ga. Galv. Stable, 1  3/4" long
	<u>5/8" x 4'</u>	<u>Blocked</u>	4" edge/ 7" field	<u>200</u>	6d galvanized 0.120" Nail, min. 3/8" head, 1 ¾" long

Remainder of Table unchanged.

(Portions of text and tables not shown are unaffected by the errata)

### THIRD PRINTING (Updated December 14, 2010)

### **CHAPTER 23 WOOD**

Errata Note: An erratum was issued for the 2nd printing that was corrections for large portions of this table. Portions of the table not shown were to remain unchanged. Unfortunately, in the 3rd printing this erratum was used to replace the table rather than just modify it. Rows for 3/8" and 7/16" Structural I Sheathing were left out of the 3rd printing only. These rows are correct in the 1st ad 2nd printings. Therefore, the following is an errata to the 3rd printing only.

TABLE 2306.3
ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL SHEAR WALLS WITH FRAMING OF DOUGLAS-FIR-LARCH, OR SOUTHERN PINE a FOR WIND OR SEISMIC LOADING b, h, i, j, I

PANEL GRADE	MINIMUM NOMINAL	MINIMUM FASTENER				PANELS A or 5/8" GY						
	PANEL THICKNESS (inch)	PENETRA- TION IN FRAMING (inches)	NAIL (common or		panel	spaci edge :hes)	s	(common or	at	pane	r spac el edg :hes)	
		(inches)	galvanized box) or staple size <sup>k</sup>	6	4	3	2e	galvanized box) or staple size <sup>k</sup>	6	4	3	2e
Structural Sheathing	<u>3/8</u>	<u>1 3/8</u>	8d (2-1/2" x 0.131" common, 2-1/2" x 0.113" galvanized box)	23 0 <sup>d</sup>	360 d	460 d	610 a	10d (3" x 0.148" common, 3" x 0.128" galvanized box)	<u>28</u> <u>0</u>	<u>43</u> <u>0</u>	<u>550</u>	<u>73</u> <u>0</u>
		<u>1</u>	1 ½ 16 Gage	<u>15</u> <u>5</u>	<u>235</u>	<u>315</u>	<u>400</u>	2 16 Gage	<u>15</u> 5	<u>23</u> <u>5</u>	310	<u>40</u> <u>0</u>
	<u>7/16</u>	<u>1 3/8</u>	8d (2-1/2" x 0.131" common, 2-1/2" x 0.113" galvanized box)	25 5 <sup>d</sup>	395 d	505 d	670 d	10d (3" x 0.148" common, 3" x 0.128" galvanized box)	<u>28</u> <u>0</u>	<u>43</u> <u>0</u>	550 f	73 0
		1	1 ½ 16 Gage	<u>17</u> <u>0</u>	<u>260</u>	<u>345</u>	440	2 16 Gage	<u>15</u> <u>5</u>	<u>23</u> <u>5</u>	310	<u>40</u> <u>0</u>
	15/32	1 3/8	8d (2-1/2" x 0.131" common, 2-1/2" x 0.113" galvanized box)	28 0	430	550	730	10d (3" x 0.148" common, 3" x 0.128" galvanized box)	0	43 0	550	73
		1	1 ½ 16 Gage	18 5	280	375	475	2 16 Gage	15 5	23 5	300	40 0
		1 1/2	10d (3" x	34	510	665f	870	_	_		_	_

0.14	8" 0				
comm	non,				
3" x 0.					
galvar	ized				
box	()				

(Portions of table not shown remain as indicated in the errata to the 2nd edition)

(Portions of text and tables not shown are unaffected by the errata)

### **SECOND PRINTING (Updated March 22, 2010)**

### CHAPTER 23 WOOD

**2303.2.4 Labeling.** Fire-retardant-treated lumber and wood structural panels shall be labeled. The *label* shall contain the following items:

- 1. The identification *mark* of an *approved agency* in accordance with Section 1703.5.
- 2. Identification of the treating manufacturer.
- 3. The name of the fire-retardant treatment.
- 4. The species of wood treated.
- 5. Flame spread and smoke-developed index.
- 6. Method of drying after treatment.
- 7. Conformance with appropriate standards in accordance with Sections <u>2303.2.2</u> <u>2303.2.5</u> through <u>2303.2.5</u> 2303.2.8.
- 8. For *fire-retardant-treated wood* exposed to weather, damp or wet locations, include the words "No increase in the *listed* classification when subjected to the Standard Rain Test" (ASTM D 2898).

TABLE 2306.3 ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL SHEAR WALLS WITH FRAMING OF DOUGLAS FIR-LARCH OR SOUTHERN PINE FOR WIND SEISMIC LOADING b, h, l, j, l

MINIMUM MINIMUM NOMINAL FASTENER			PANELS APPLIED D	DIRECT TO FRAMING PANELS APPLIED OVER GYPSUM SHEATH						R 5/8	8"	
PANEL GRADE	PANEL   DANIEL L		galvanized box) or	Fastener spacing at panel edges (inches)				NAIL (common or galvanized box) or staple		Fastener spacing at pane e edges (inches)		
(inch)		(inches)	staple size <sup>k*</sup>	6 6	4	3	2 <sup>e</sup>	size <sup>k</sup>	6	4	3	2 <sup>e</sup>
Structural I sheathing	15/32	1 ½	10d (3" x 0.148" common. 3" x 0.128" galvanized box)	340	510	665 <sup>f</sup>	870	10d (3" x 0.148" common. 3" x 0.128" galvanized box)	-1		-1	
	5/16° or 1/4°		6d (2"x0.113" common, 2"x0.099" galvanized box)	180	270	350	450	8d (2 ½" x 0.131" common, 2 ½" x 0.113" galvanized box)	180	270	350	450
		1	1 ½ 16 Gage	145	220	295	375	2 16 Gage	110	165	220	285
	<u>3/8</u>	<u>1 ¼</u>	6d (2"x0.113" common, 2"x0.099" galvanized box)	<u>200</u>	<u>300</u>	<u>390</u>	<u>510</u>		<u>200</u>	<u>300</u>	<u>390</u>	<u>510</u>
Sheathing, plywood siding <sup>g e</sup>		<u>1 3/8</u>	8d (2 ½" x 0.131" common, 2 ½" x 0.113" galvanized box)	220 <sup>d</sup>	320 <sup>d</sup>	410 <sup>d</sup>	530 <sup>d</sup>	10d (3" x 0.148" common, 3" x 0.128" galvanized box)	<u>260</u>	<u>380</u>	490 <sup>f</sup>	640
except		<u>1</u>	1 ½ 16 Gage	140	<u>210</u>	<u>280</u>	<u>360</u>	<u>2 16 Gage</u>	140	210	280	360
Group 5 species	<u>7/16</u>	<u>1 3/8</u>	8d (2 ½" x 0.131" common, 2 ½" x 0.113" galvanized box)	240 <sup>d</sup>	350 <sup>d</sup>	450 <sup>d</sup>	<u>585</u> <sup>d</sup>	10d (3" x 0.148" common, 3" x 0.128" galvanized box)				640
		<u>1</u>	<u>1 ½ 16 Gage</u>	<u>155</u>	<u>230</u>	<u>310</u>	<u>395</u>	<u> 2 16 Gage</u>	140	210	280	360
		<u>1 3/8</u>	8d (2 ½" x 0.131" common, 2 ½" x 0.113" galvanized box)	<u>260</u>	<u>380</u>	<u>490</u>	<u>640</u>	10d (3" x 0.148" common, 3" x 0.128" galvanized box)	260	380	490 <sup>f</sup>	640
	<u>15/32</u>	1 ½	10d (3" x 0.148" common, 3" x 0.128" galvanized box)	310	<u>460</u>	600 <sup>f</sup>	<u>770</u>	=	- 1	-1	- 1	<u> </u>

(Portions of text and tables not shown are unaffected by the errata)

1												
		<u>1</u>	<u>1 ½ 16 Gage</u>	<u>170</u>	<u>255</u>	<u>335</u>	<u>430</u>	<u>2 16 Gage</u>	<u>140</u>	210	<u> 280</u>	<u> 360</u>
			10d (3" x 0.148"									
		1 ½	common,					_				1
	<u>19/32</u>	1 /2	3" x 0.128" galvanized					_				1
			<u>box)</u>	340	<u>510</u>	665 <sup>f</sup>	<u>870</u>		<u> -</u>	_	_	
		<u>1</u>	1 3/4 16 Gage	185	280	<u>375</u>	<u>475</u>	ы		-	- 1	-
			Nail Size (galvanized					Nail Size (galvanized				
			casing)					<u>casing)</u>				
	5/16 <sup>c</sup>	1 1/4	6d (2" x 0.099")	140	210	275	360	8d (2 ½" x 0.113")	140	210	275	360
	3/8 <sup>c</sup>	1 3/8	8d (2 ½" x 0.113")	160	240	310	410	10d (3" x 0.128")	160	240	310 <sup>f</sup>	410

(Portions of table and notes not shown remain unchanged)

TABLE 2306.6 ALLOWABLE SHEAR VALUES (plf) FOR WIND OR SEISMIC LOADING ON SHEAR WALLS OF FIBERBOARD SHEATHING BOARD CONSTRUCTION FOR TYPE V CONSTRUCTION ONLY a, b, c,

	u, c							
THICKNESS AND GRADE			ALLOWABLE SHEAR VALUE (pounds per linear foot) NAIL SPACING AT PANEL EDGES (inches) <sup>a</sup>					
		4	3	2				
½" or 25/32" Structural	No. 11 gage galvanized roofing nail 1-1/2" long for 1/2", 1-3/4" long for 25/32" with 3/8" head	170	230	260				

(Portions of table and notes not shown remain unchanged)

**2308.11.2 Concrete or masonry.** Concrete or masonry walls and stone or masonry veneer shall not extend above a basement.

### **Exceptions:**

- 1. (no change)
- 2. (no change)
- 3. (no change)
  - 3.1. (no change)
  - 3.2. (no change)
- 3.3. Hold-down connectors shall be provided at the ends of each braced wall panel for the second story to first story connection with an allowable design of 2,000 pounds (8896 N). Hold-down connectors shall be provided at the ends of each braced wall panel for the first story to foundation connection with an allowable capacity of 3,900 pounds (17 347 N). In all cases, the hold-down connector force shall be transferred to the foundation.
  - 3.4. (no change)

### FIRST PRINTING (Updated April 20, 2009)

#### **CHAPTER 23 WOOD**

**TABLE 2306.2.1(1)** 

ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL DIAPHRAGMS WITH FRAMING OF DOUGLAS FIR-LARCH, OR SOUTHERN PINE FOR WIND OR SEISMIC LOADING<sup>h</sup>

PANEL GRADE		PENETRATION IN	MINIMAL NOMINAL PANEL THICKNESS (inch)
Sheathing, single floor and other grades	6d <sup>e</sup> (2" x 0.113")_	1 1/4	
covered in DOC PS 1 and PS 2	8d (2 1/2" x 0.131")	1 3/8	3/8
	1 ½ 16 Gage	1	

(Portions of table not shown are unchanged)

(Portions of text and tables not shown are unaffected by the errata)

#### SECOND PRINTING (Updated March 22, 2010)

# CHAPTER 24 GLASS AND GLAZING

### 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 <u>1201</u> or ANSI Z97.1, listed in Chapter 35, 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 not be greater than 11/2 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:

- 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).

### FIRST PRINTING (Updated April 20, 2009)

### **CHAPTER 25 GYPSUM BOARD AND PLASTER**

2503.1 Inspection. Lath and gypsum board shall be inspected in accordance with Section 109.3.5 <u>110.3.5</u>.

(Portions of text and tables not shown are unaffected by the errata)

#### **SECOND PRINTING (Updated March 22, 2010)**

# CHAPTER 26 PLASTIC

**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 thewall area in any story, or the area permitted by Section 704.8 705.8 for unprotected openings, whichever is smaller. These installations shall be exempt from height limitations.

**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 704 705, shall be permitted to be glazed or equipped with light-transmitting plastic. Light-transmitting plastic glazing shall also 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 <del>704</del> <u>705</u>, shall be permitted to be glazed or equipped with light-transmitting plastic in accordance with Section 2606 and all of the following:

Items 1 to 3 (No change to current text)

### SIXTH PRINTING (Updated October 3, 2012)

### **CHAPTER 27 ELECTRICAL**

[F] 2702.2.13 Pyrophoric materials. Emergency power shall be provided for occupancies with silane gas in accordance with the International Fire Code.

Renumber remaining sections 2702.2.14 through 2702.2.20 to be 2702.2.13. through 2702.2.19.

### **SEVENTH PRINTING (Updated October 3, 2012)**

### **CHAPTER 29 PLUMBING SYSTEMS**

### **TABLE 2902.1** MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES

(See Sections 2902.2 2902.1.1 and 2902.3 2902.2)

(Portions of text and tables not shown are unaffected by the errata)

#### SECOND PRINTING (Updated March 22, 2010)

# CHAPTER 30 ELEVATOR AND CONVEYING SYSTEMS

- **3007.4.3 Lobby doorways.** Each fire service access elevator lobby shall be provided with a doorway that is protected with a 3/4-hour fire door assembly complying with Section 715.4. The fire door assembly shall also comply with the smoke and draft control door assembly requirements of Section 715.4.3.1 with the UL 1784 test conducted without the artificial bottom seat seal.
- **3008.11 Occupant evacuation elevator lobby.** The occupant evacuation elevators shall open into an elevator lobby in accordance with Sections 3008.11.1 through 3008.11.4 3008.11.5.
- **3008.11.2 Lobby enclosure.** The occupant evacuation elevator lobby shall be enclosed with a *smoke barrier* having a minimum 1-hour *fire-resistance rating*, except that lobby doorways shall comply with Section 3008.11.3 3008.11.5.

**Exception:** Enclosed occupant evacuation elevator lobbies are not required at the level(s) of *exit* discharge.

### TWELFTH PRINTING (Updated June 25, 2015)

### **CHAPTER 34 EXISTING STRUCTURES**

TABLE 3412.8 MANDATORY SAFETY SCORES<sup>a</sup>

OCCUPANCY	FIRE SAFETY (MFS)	MEANS OF EGRESS (MME)	GENERAL SAFETY (MGS)
A-1	<del>16</del> 20	<del>27</del> 31	<del>27</del> 31
A-2	<del>19</del> 21	<del>30</del> <u>32</u>	<del>30</del> 32
A-3	<del>18</del> 22	<del>29</del> 33	<del>29</del> 33
A-4, E	<del>23</del> 29	<del>34<u>40</u></del>	<del>34</del> <u>40</u>
В	<del>24</del> <u>30</u>	<del>34</del> 40	<del>34</del> 40
F	<del>20</del> 24	<del>30</del> 34	<del>30</del> 34
M	<del>19</del> 23	<del>36</del> 40	<del>36</del> 40
R	<del>17</del> 21	<del>34</del> <u>38</u>	<del>34</del> 38
S-1	<del>15</del> 19	<del>25</del> 29	<del>25</del> 29
S-2	<del>23</del> 29	<del>33</del> 39	<del>33</del> 39

(Portions of text and tables not shown are unaffected by the errata)

### **SEVENTH PRINTING (Updated October 3, 2012)**

### CHAPTER 34 EXISTING STRUCTURES

**3412.6.9.1 Categories.** The categories for fire alarm systems are:

- 1. Category a—None.
- 2. Category b—Fire alarm system with manual fire alarm boxes in accordance with Section 907.3 907.4 of the *International Building Code* and alarm notification appliances in accordance with Section 907.5.2 of the *International Building Code*.
- 3. Category c—Fire alarm system in accordance with Section 907 of the *International Building Code*.
- 4. Category d—Category c plus a required emergency voice/alarm communications system and a fire command station that conforms to Section 403.4.5 of the *International Building Code* and contains the emergency voice/alarm communications system controls, fire department communication system controls, and any other controls specified in Section 911 of the *International Building Code* where those systems are provided.

(Portions of text and tables not shown are unaffected by the errata)

#### SECOND PRINTING (Updated March 22, 2010)

# CHAPTER 34 EXISTING STRUCTURES

**3403.4.1 Seismic.** Seismic requirements for <u>alterations additions</u> shall be in accordance with this section. Where the existing seismic force-resisting system is a type that can be designated ordinary, values of R,  $\Omega_0$  and  $C_d$  for the existing seismic force-resisting system shall be those specified by this code for an ordinary system unless it is demonstrated that the existing system will provide performance equivalent to that of a detailed, intermediate or special system. (*Note: Add comma in last sentence.*)

**3405.1 General.** Buildings and structures, and parts thereof, shall be repaired in conformance with <u>this section and</u> Section 3401.2. Work on nondamaged components that is necessary for the required repair of damaged components shall be considered part of the repair and shall not be subject to the requirements for alterations in this chapter. Routine maintenance required by Section 3401.2, ordinary repairs exempt from *permit* in accordance with Section 105.2, and abatement of wear due to normal service conditions shall not be subject to the requirements for repairs in this section.

**3405.2.1 Evaluation.** The building shall be evaluated by a *registered design professional*, and the evaluation findings shall be submitted to the code official. The evaluation shall establish whether the damaged building, if repaired to its pre-damage state, would comply with the provisions of this code for wind and earthquake loads. Evaluation for earthquake loads shall be required if the substantial structural damage was caused by or related to earthquake effects or if the building is in Seismic Design Category C, D, E or F.

Wind loads for this evaluation shall be those prescribed in Section 1609. Earthquake loads for this evaluation, if required, shall be permitted to be 75 percent of those prescribed in Section 1613. Values of R,  $W_0$   $\Omega_0$  and  $C_d$  for the existing

seismic force-resisting system shall be those specified by this code for an ordinary system unless it is demonstrated that the existing system will provide performance equivalent to that of an intermediate or special system.

**3408.4** Change of occupancy Seismic. When a change of occupancy results in a structure being reclassified to a higher occupancy category, the structure shall conform to the seismic requirements for a new structure of the higher occupancy category. Where the existing seismic force-resisting system is a type that can be designated ordinary, values of R,  $\Omega_0$  and  $C_d$  for the existing seismic force-resisting system shall be those specified by this code for an ordinary system unless it is demonstrated that the existing system will provide performance equivalent to that of a detailed, intermediate or special system.

### **Exceptions:**

- Specific seismic detailing requirements of this code or Section 1613 for a new structure shall
  not be required to be met where it can be shown that the level of performance and seismic
  safety the seismic performance is shown to be is equivalent to that of a new structure. Such
  analysis A demonstration of equivalence shall consider the regularity, over strength,
  redundancy and ductility of the structure within the context of the existing and retrofit (if any)
  detailing provided.
- 2. When a change of use results in a structure being reclassified from Occupancy Category I or II to Occupancy Category III and the structure is located in a seismic map area where the seismic coefficient SDS ← is less than 0.33, compliance with the seismic requirements of this code and Section 1613 is are not required.

3412.6.2.1 Allowable area formula. The following formula shall be used in computing allowable area:

(Portions of text and tables not shown are unaffected by the errata)

 $A_a=(1+\frac{1}{4}\frac{1}{6}+\frac{1}{4}\frac{1}{8})\times A_t$  (Equation 34-2)

where:

 $A_a = Allowable area.$ 

At = Tabular area per story in accordance with Table 503 (square feet)

l<sub>s</sub> <u>l</u><sub>s</sub> = Area increase factor for sprinklers (Section 506.3).

 $\frac{1}{4}$  Ir = Area increase factor for frontage (Section 506.2).

### **3412.6.16.1 Categories.** The categories for mixed occupancies are:

- 1. Category a—Occupancies separated by minimum 1-hour fire barriers or minimum 1-hour horizontal assemblies, or both.
- 2. Category b—Separations between occupancies in accordance with Section 508.4.3. Category c—Separations between occupancies having a *fire-resistance rating* of not less than twice that required by Section 508.3.3 508.4.

(Portions of text and tables not shown are unaffected by the errata)

#### FIRST PRINTING (Updated April 20, 2009)

### CHAPTER 34 EXISTING STRUCTURES

**3405.3.1 Lateral force-resisting elements.** Regardless of the level of damage to vertical elements of the lateral force- resisting system, if substantial structural damage to gravity load-carrying components was caused primarily by wind or earthquake effects, then the building shall be evaluated in accordance with Section 3404.2.1 and, if noncompliant, rehabilitated in accordance with Section 3404.2.3.

### **3412.6.9.1 Categories.** The categories for fire alarm systems are:

- 1. Category a—None.
- 2. Category b—Fire alarm system with manual fire alarm boxes in accordance with Section 907.3 and alarm notification appliances in accordance with Section 907.9-907.5.
- 3. Category c—Fire alarm system in accordance with Section 907.
- 4. Category d—Category c plus a required emergency voice/alarm communications system and a fire command center that conforms to Section 403.8 and contains the emergency voice/alarm communications system controls, fire department communication system controls and any other controls specified in Section 911 where those systems are provided.

## TABLE 3412.6.15 MEANS OF EGRESS EMERGENCY LIGHTING VALUES

NUMBER OF EXITS		CATEGORIES						
REQUIRED BY	а	b	С					
SECTION <del>1010</del> <u>1015</u>								

(Portions of table not shown do not change)

**3412.6.16 Mixed ocupancies.** Where a building has two or more occupancies that are not in the same occupancy classification, the separation between the mixed occupancies shall be evaluated in accordance with this section. Where there is no separation between the mixed occupancies or the separation between mixed occupancies does not qualify for any of the categories indicated in Section 3412.6.16.1, the building shall be evaluated as indicated in Section 3412.6 and the value for mixed occupancies shall be zero. Under the categories and occupancies in Table 3412.6.16 3410.6.16, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.16, Mixed Occupancies, for fire safety and general safety. For buildings without mixed occupancies, the value shall be zero.

(Portions of text and tables not shown are unaffected by the errata)

### SECOND PRINTING (Updated March 22, 2010)

# CHAPTER 35 REFENCED STANDARDS

### **ASTM**

A 755/A 755M— 07\_03 Specification for Steel Sheet, Metallic-coated by the Hot-dip Process and Prepainted by the Coil-coating Process for Exterior Exposed Building Products

C 635— $06 \ \underline{04}$  Specification for the Manufacturer, Performance and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings

C 1395/1395M—06a 04 Specification for Gypsum Ceiling Board

D 2898—04 07 Test Methods for Accelerated Weathering of Fire-retardant-treated Wood for Fire Testing

E 1886—06 05 Test Method for Performance of Exterior Windows, Curtain Walls, Doors and Storm Shutters Impacted by Missiles and exposed to Cyclic Pressure Differentials

### UL

2075-2007 Standard for Gas and Vapor Detectors and Sensors.......406.6.6.1

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(Portions of text and tables not shown are unaffected by the errata)

### SIXTH PRINTING (Updated October 3, 2012)

## APPENDIX G FLOOD-RESISTANT CONSTRUCTION

**G105.1 General.** The *board of appeals* established pursuant to Section <u>112-113</u> shall hear and decide requests for variances. The *board of appeals* shall base its determination on technical justifications, and has the right to attach such conditions to variances as it deems necessary to further the purposes and objectives of this appendix and Section 1612.

**G801.4 Retaining walls, sidewalks and driveways.** Retaining walls, sidewalks and driveways shall meet the requirements of Section <u>1804.4 1803.4</u>.

(Portions of text and tables not shown are unaffected by the errata)

### FIRST PRINTING (Updated April 20, 2009)

## APPENDIX G FLOOD-RESISTANT CONSTRUCTION

**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 shall be designed in accordance with Chapter <u>7.8</u>, ASCE 24, to minimize or eliminate infiltration of floodwaters into the facilities and discharge from the facilities into floodwaters, or impairment of the facilities and systems.

**G401.4 Water facilities.** All new replacement water facilities shall be designed in accordance with the provisions of Chapter <u>7</u>8, ASCE 24, to minimize or eliminate infiltration of floodwaters into the systems.