

## CHAPTER 30

# ELEVATORS AND CONVEYING SYSTEMS

### SECTION 3001 GENERAL

**3001.1 [Comm 62.3001 (1)] Scope.** This chapter governs the design, construction, installation, alteration and repair of elevators, dumbwaiters, escalators, moving walks and their components.

**3001.2 [Comm 62.3001 (2)] Referenced standards.** Except as otherwise provided for in this code, the design, construction, installation, alteration, repair and maintenance of elevators, dumbwaiters, escalators, moving walks and their components shall comply with ch. Comm 18.

**3001.3 Accessibility.** Passenger elevators required to be accessible by Chapter 11 shall conform to ICC A117.1.

**3001.4 [Comm 62.3001 (3)] Change in use.** A change in use of an elevator from freight to passenger, passenger to freight, or from one freight class to another freight class shall comply with ch. Comm 18.

### SECTION 3002 HOISTWAY ENCLOSURES

**3002.1 Hoistway enclosure protection.** Elevator, dumbwaiter and other hoistway enclosures shall have a fire-resistance rating not less than that specified in Chapter 6 and shall be constructed in accordance with Chapter 7.

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

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

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

**3002.3 Emergency signs.** An approved pictorial sign of a standardized design shall be posted adjacent to each elevator call station on all floors instructing occupants to use the exit stairways and not to use the elevators in case of fire. The sign shall read: IN FIRE EMERGENCY, DO NOT USE ELEVATOR. USE EXIT STAIRS. The emergency sign shall not be required for elevators that are part of an accessible means of egress complying with Section 1003.2.13.3.

**3002.4 [Comm 62.3002] Elevator car to accommodate ambulance stretcher.** At least one elevator shall be provided for fire department emergency access to all floors in all buildings four stories in height or more, and, regardless of the number of stories, in all outpatient clinics specified in IBC Section 304.1 and in all nursing homes and hospitals as specified in IBC Sec-

tion 308.3. Such elevator car shall be of such a size and arrangement to accommodate a 24-inch by 76-inch (610 mm by 1930 mm) ambulance stretcher in the horizontal, open position and shall be identified by the international symbol for emergency medical services, which is the star of life. The symbol shall not be less than 3 inches (76 mm) high and shall be placed inside on both sides of the hoistway door frame.

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

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

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

### [F] SECTION 3003 EMERGENCY OPERATIONS

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

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

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

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

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

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

## SECTION 3004 HOISTWAY VENTING

**3004.1 Vents required.** Hoistways of elevators and dumbwaiters penetrating more than three stories shall be provided with a means for venting smoke and hot gases to the outer air in case of fire.

### Exceptions:

1. In occupancies of other than Groups R-1, R-2, I-1, I-2 and similar occupancies with overnight sleeping quarters, venting of hoistways is not required where the building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
2. Sidewalk elevator hoistways are not required to be vented.

**3004.2 Location of vents.** Vents shall be located below the floor or floors at the top of the hoistway, and shall open either directly to the outer air or through noncombustible ducts to the outer air. Noncombustible ducts shall be permitted to pass through the elevator machine room provided that portions of the ducts located outside the hoistway or machine room are enclosed by construction having not less than the fire protection rating required for the hoistway. Holes in the machine room floors for the passage of ropes, cables or other moving elevator equipment shall be limited so as not to provide greater than 2 inches (51 mm) of clearance on all sides.

**3004.3 Area of vents.** Except as provided for in Section 3004.3.1, the area of the vents shall not be less than  $3\frac{1}{2}$  percent of the area of the hoistway nor less than 3 square feet (0.28 m<sup>2</sup>) for each elevator car, and not less than  $3\frac{1}{2}$  percent nor less than 0.5 square foot (0.047 m<sup>2</sup>) for each dumbwaiter car in the hoistway, whichever is greater. Of the total required vent area, not less than one-third shall be of the permanently open type unless all vents activate upon detection of smoke from any of the elevator lobby smoke detectors.

**Comm 62.3004 (1) Vent guards.** A ventilation opening in a hoistway wall, where provided, shall have guards securely anchored to the supporting structure inside the hoistway. The guards shall consist of a wire-mesh screen of at least 0.0915-inch-diameter steel wire with openings that will reject a ball 1-inch (25.4 mm) in diameter, or expanded metal screen of equivalent strength and open area.

**3004.3.1 Reduced vent area.** Where mechanical ventilation conforming to the *International Mechanical Code* is provided, a reduction in the required vent area is allowed provided that all of the following conditions are met:

1. The occupancy is not in Group R-1, R-2, I-1 or I-2 or of a similar occupancy with overnight sleeping quarters.
2. The vents required by Section 3004.2 do not have outside exposure.
3. The hoistway does not extend to the top of the building.
4. The hoistway and machine room exhaust fan is automatically reactivated by thermostatic means.
5. Equivalent venting of the hoistway is accomplished.

**3004.4 Closed vents.** Closed portions of the required vent area shall consist of windows or duct openings glazed with annealed glass not more than 0.125 inch (3.2 mm) thick.

**3004.5 [Comm 62.3004 (2)] Plumbing and mechanical systems.**

- (a) **General.** Except as specified in par. (b), plumbing and mechanical systems shall not be located in an elevator shaft.
- (b) **Elevator pits.** Drains or sumps complying with ss. Comm 82.33 and 82.36 shall be provided in elevator pits. Connection of these drains and sumps to a sanitary system is prohibited.

## SECTION 3005 CONVEYING SYSTEMS

**3005.1 General.** Escalators, moving walks, conveyors, personnel hoists and material hoists shall comply with the provisions of this section.

**3005.2 Escalators and moving walks.** Escalators and moving walks shall be constructed of approved noncombustible and fire-retardant materials. This requirement shall not apply to electrical equipment, wiring, wheels, handrails and the use of  $\frac{1}{28}$ -inch (0.9 mm) wood veneers on balustrades backed up with noncombustible materials.

**3005.2.1 Enclosure.** Escalator floor openings shall be enclosed except where Exception 2 of Section 707.2 is satisfied.

**3005.3 Conveyors.** Conveyors and conveying systems shall comply with ASME B20.1.

**3005.3.1 Enclosure.** Conveyors and related equipment connecting successive floors or levels shall be enclosed with fire barrier walls and approved opening protectives complying with the requirements of Section 3002 and Chapter 7.

**3005.3.2 Conveyor safeties.** Power-operated conveyors, belts and other material-moving devices shall be equipped with automatic limit switches which will shut off the power in an emergency and automatically stop all operation of the device.

**3005.4 Personnel and material hoists.** Personnel and material hoists shall be designed utilizing an approved method that accounts for the conditions imposed during the intended operation of the hoist device. The design shall include, but is not limited to, anticipated loads, structural stability, impact, vibration, stresses and seismic restraint. The design shall account for the construction, installation, operation and inspection of the hoist tower, car, machinery and control equipment, guide members and hoisting mechanism. Additionally, the design of personnel hoists shall include provisions for field testing and maintenance which will demonstrate that the hoist device functions in accordance with the design. Field tests shall be conducted upon the completion of an installation or following a major alteration of a personnel hoist.

## SECTION 3006 MACHINE ROOMS

**3006.1 Access.** An approved means of access shall be provided to elevator machine rooms and overhead machinery spaces.

**Comm 62.3006 (1) Note:** See ch. Comm 18 for additional machine room access requirements.

**3006.2 Venting.** Elevator machine rooms that contain solid-state equipment for elevator operation shall be provided with an independent ventilation or air-conditioning system to protect against the overheating of the electrical equipment. The system shall be capable of maintaining temperatures within the range established for the elevator equipment.

**3006.3 Pressurization.** The elevator machine room serving a pressurized elevator hoistway shall be pressurized upon activation of a heat or smoke detector located in the elevator machine room.

**Comm 62.3006 (2) Exception:** An elevator machine room which serves a pressurized elevator hoistway and which is not directly connected to the pressurized elevator shaft is not required to be pressurized.

**3006.4 Machine rooms and machinery spaces.** Elevator machine rooms and machinery spaces shall be enclosed with construction having a fire-resistance rating not less than the required rating of the hoistway enclosure served by the machinery. Openings shall be protected with assemblies having a fire-resistance rating not less than that required for the hoistway enclosure doors.

**3006.5 Shunt trip.** Where elevator hoistways or elevator machine rooms containing elevator control equipment are protected with automatic sprinklers, a means installed in accordance with NFPA 72, Section 3-8.15, Elevator Shutdown, shall be provided to disconnect automatically the main line power supply to the affected elevator prior to the application of water. This means shall not be self-resetting. The activation of sprinklers outside the hoistway or machine room shall not disconnect the main line power supply.

**3006.6 [Comm 62.3006 (3)] Plumbing systems.** Plumbing systems not used in connection with the operation of the elevator may not be located in elevator equipment rooms.



## CHAPTER 31

# SPECIAL CONSTRUCTION

### SECTION 3101 GENERAL

**3101.1 Scope.** Provisions of this chapter shall govern special building construction including membrane structures, temporary structures, pedestrian walkways and tunnels, awnings and canopies, marquees, signs, and towers and antennas.

#### Comm 62.3100

- (1) **Assembly seating facilities.** Every bleacher, grandstand, or other assembly seating facility that is intended primarily to support persons for the purpose of spectator seating shall be inspected at least annually. Any loose connections and any defective or broken members shall be repaired before the facility is used. All repairs and maintenance shall conform with this code.
- (2) **Public mausoleums.** Public mausoleum structures shall be designed, constructed and maintained in accordance with this code. Mausoleums shall be classified as a Group S-1 storage occupancy and shall be constructed of reinforced concrete or other materials of similar durability.

**Note:** Section 157.12 (2) (d), Wisconsin Stats., reads as follows: "A mausoleum shall be constructed to last as long as possible, taking into consideration the technology and economics applicable to mausoleum construction at the time of construction."

### SECTION 3102 MEMBRANE STRUCTURES

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

**3102.2 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:

**AIR-INFLATED STRUCTURE.** A building where the shape of the structure is maintained by air pressurization of cells or tubes to form a barrel vault over the usable area. Occupants of such a structure do not occupy the pressurized area used to support the structure.

**AIR-SUPPORTED STRUCTURE.** A building wherein the shape of the structure is attained by air pressure and occupants of the structure are within the elevated pressure area. Air-supported structures are of two basic types:

**Double skin.** Similar to a single skin, but with an attached liner that is separated from the outer skin and provides an air space which serves for insulation, acoustic, aesthetic or similar purposes.

**Single skin.** Where there is only the single outer skin and the air pressure is directly against that skin.

**CABLE-RESTRAINED, AIR-SUPPORTED STRUCTURE.** A structure in which the uplift is resisted by cables or webbings which are anchored to either foundations or dead men. Reinforcing cable or webbing is attached by various methods to the membrane or is an integral part of the membrane. This is not a cable-supported structure.

**MEMBRANE-COVERED CABLE STRUCTURE.** A nonpressurized structure in which a mast and cable system provides support and tension to the membrane weather barrier and the membrane imparts structural stability to the structure.

**MEMBRANE-COVERED FRAME STRUCTURE.** A nonpressurized building wherein the structure is composed of a rigid framework to support a tensioned membrane which provides the weather barrier.

**NONCOMBUSTIBLE MEMBRANE STRUCTURE.** A membrane structure in which the membrane and all component parts of the structure are noncombustible.

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

**Exception:** Plastic less than 30 feet (9144 mm) above any floor used in greenhouses, where occupancy by the general public is not authorized, and for aquaculture pond covers, is not required to be flame-resistant.

**3102.3.1 Membrane and interior liner material.** Membranes and interior liners shall be either noncombustible as set forth in Section 703.4, or flame-resistant as determined in accordance with NFPA 701 and the manufacturer's test protocol.

**Exception:** Plastic less than 20 mil (500 mm) in thickness used in greenhouses, where occupancy by the general public is not authorized, and for aquaculture pond covers, is not required to be flame resistant.

**3102.4 Allowable floor areas.** The area of a membrane structure shall not exceed the limitations set forth in Table 503, except as provided in Section 506.

**3102.5 Maximum height.** Membrane structures shall not exceed one story nor shall such structures exceed the height limitations in feet set forth in Table 503.

**Exception:** Noncombustible membrane structures serving as roofs only.

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

**3102.6.1 Noncombustible membrane.** A noncombustible membrane shall be permitted for use as the roof or as a skylight of any building or atrium of a building of any type of construction provided it is at least 20 feet (6096 mm) above any floor, balcony or gallery.

**3102.6.1.1 Flame-resistant membrane.** A flame-resistant membrane shall be permitted to be used as the roof or as a skylight on buildings of Types IIB, III, IV and V construction provided it is at least 20 feet (6096 mm) above any floor, balcony or gallery.

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

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

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

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

**3102.8.1.2 [Comm 62.3102] Blower equipment.** Blower equipment shall meet the following requirements:

1. Blowers shall be powered by continuous-rated motors at the maximum power required for any flow condition as required by the structural design.
2. Blowers shall be provided with inlet screens, belt guards and other protective devices as required to provide protection from injury.
3. Blowers shall be housed within a weather-protecting structure.
4. Blowers shall be equipped with back draft check dampers to minimize air loss when inoperative.

5. Blower inlet shall be located to provide protection from air contamination. The location of inlets shall be approved.

**3102.8.2 Standby power.** Wherever an auxiliary inflation system is required, an approved standby power-generating system shall be provided. The system shall be equipped with a suitable means for automatically starting the generator set upon failure of the normal electrical service and for automatic transfer and operation of all of the required electrical functions at full power within 60 seconds of such service failure. Standby power shall be capable of operating independently for a minimum of 4 hours.

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

## SECTION 3103 TEMPORARY STRUCTURES

**3103.1 General.** The provisions of this section shall apply to structures erected for a period of less than 180 days. Tents and other membrane structures erected for a period of less than 180 days shall comply with the *International Fire Code*. Those erected for a longer period of time shall comply with applicable sections of this code.

**Exception:** Provisions of the *International Fire Code* shall apply to tents and membrane structures erected for a period of less than 180 days.

**3103.1.1 Permit required.** Temporary structures that cover an area in excess of 120 square feet (11.16 m<sup>2</sup>), including connecting areas or spaces with a common means of egress or entrance which are used or intended to be used for the gathering together of ten or more persons, shall not be erected, operated or maintained for any purpose without obtaining a permit from the building official.

**Comm 62.3103 Local requirements.** Under IBC Sections 3103.1.1 and 3103.2, the requirements for permits and construction documents for temporary structures are at the option of the local code official.

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

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

**3103.4 Means of egress.** Temporary structures shall conform to the means of egress requirements of Chapter 10 and shall have a maximum exit access travel distance of 100 feet (30 480 mm).

## SECTION 3104 PEDESTRIAN WALKWAYS AND TUNNELS

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

**3104.2 [Comm 62.3104 (1)] Separate structures.** Buildings that are connected in accordance with IBC Section 3104 shall be considered to be separate structures.

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

**Exception:** Combustible construction shall be permitted where connected buildings are of combustible construction.

### 3104.4 Deleted.

**3104.5 Fire barriers between pedestrian walkways and buildings.** Walkways shall be separated from the interior of the building by fire barrier walls with a fire-resistance rating of not less than 2 hours. This protection shall extend vertically from a point 10 feet (3048 mm) above the walkway roof surface or the connected building roof line, whichever is lower, down to a point 10 feet (3048 mm) below the walkway and horizontally 10 feet (3048 mm) from each side of the pedestrian walkway. Openings within the 10-foot (3048 mm) horizontal extension of the protected walls beyond the walkway shall be equipped with devices providing a  $\frac{3}{4}$ -hour fire protection rating in accordance with Section 714.

**Exception:** The walls separating the pedestrian walkway from a connected building are not required to have a fire-resistance rating by this section where any of the following conditions exist:

1. The distance between the connected buildings is more than 10 feet (3048 mm), the pedestrian walkway and connected buildings are equipped throughout with an automatic sprinkler system in accordance with NFPA 13, and the wall is constructed of a tempered, wired or laminated glass wall and doors subject to the following:
  - 1.1. The glass shall be protected by an automatic sprinkler system in accordance with NFPA 13 and the sprinkler system shall completely wet the entire surface of interior sides of the glass wall when actuated.

- 1.2. The glass shall be in a gasketed frame and installed in such a manner that the framing system will deflect without breaking (loading) the glass before the sprinkler operates.

- 1.3. Obstructions shall not be installed between the sprinkler heads and the glass.

2. The distance between the connected buildings is more than 10 feet (3048 mm), and both side walls of the pedestrian walkway are at least 50 percent open with the open area uniformly distributed to prevent the accumulation of smoke and toxic gases.
3. Buildings are on the same lot, in accordance with Section 503.1.3.
4. Where exterior walls of connected buildings are required by Section 704 to have a fire-resistance rating greater than 2 hours, the walkway shall be equipped throughout with an automatic sprinkler system installed in accordance with NFPA 13.

The previous exceptions shall apply to pedestrian walkways having a maximum height above grade of three stories or 40 feet (12 192 mm), or five stories or 55 feet (16 764 mm) where sprinklered. The minimum height above grade shall be 8 feet (2438 mm).

**3104.6 Public way.** Pedestrian walkways over a public way shall also comply with Chapter 32.

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

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

**3104.9 Exit access travel.** The length of exit access travel shall not exceed 200 feet (60 960 mm).

### Exceptions:

1. Exit access travel distance on a pedestrian walkway equipped throughout with an automatic sprinkler system in accordance with NFPA 13 shall not exceed 250 feet (76 200 mm).
2. Exit access travel distance on a pedestrian walkway constructed with both sides at least 50 percent open shall not exceed 300 feet (91 440 mm).
3. Exit access travel distance on a pedestrian walkway constructed with both sides at least 50 percent open, and equipped throughout with an automatic sprinkler system in accordance with NFPA 13, shall not exceed 400 feet (122 m).

**3104.10 Tunneled walkway.** Separation between the tunneled walkway and the building to which it is connected shall not be less than 2-hour fire-resistant construction and openings therein shall be protected in accordance with Table 714.2.

**3104.11 Ventilation.** Smoke and heat venting shall be provided for enclosed walkways and tunneled walkways. Such venting shall be in accordance with NFPA 204 or other accepted engineering practice.

## SECTION 3105 AWNINGS AND CANOPIES

**3105.1 General.** Awnings or canopies shall comply with the requirements of this section and other applicable sections of this code.

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

**3105.3 Canopy materials.** Canopies shall be constructed of a rigid framework with an approved covering, that is flame resistant in accordance with NFPA 701 or that has a flame spread rating not greater than 25 when tested in accordance with ASTM E 84.

## SECTION 3106 MARQUEES

**3106.1 General.** Marquees shall comply with this section and other applicable sections of this code.

**3106.2 Thickness.** The maximum height or thickness of a marquee measured vertically from its lowest to its highest point shall not exceed 3 feet (914 mm) where the marquee projects more than two-thirds of the distance from the property line to the curb line, and shall not exceed 9 feet (2743 mm) where the marquee is less than two-thirds of the distance from the property 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 down spouts 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 RADIO AND TELEVISION TOWERS

**3108.1 General.** Subject to the provisions of Chapter 16 and the requirements of Chapter 15 governing the fire-resistance-ratings of buildings for the support of roof structures, radio and television towers shall be designed and constructed as herein provided.

**3108.2 Location and access.** Towers shall be located and equipped with step bolts and ladders so as to provide ready access for inspection purposes. Guy wires or 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 written consent of the owner of the encroached-upon property, space or above-ground electric utility lines.

**3108.3 Construction.** Towers shall be constructed of approved corrosion-resistant noncombustible material. The minimum type of construction of isolated radio towers not more than 100 feet (30 480 mm) in height shall be Type IIB.

**3108.4 Loads.** Towers shall be designed to resist wind loads in accordance with EIA/TIA 222-E. Consideration shall be given to conditions involving wind load on ice-covered sections in localities subject to sustained freezing temperatures.

**3108.4.1 Dead load.** Towers shall be designed for the dead load plus the ice load in regions where ice formation occurs.

**3108.4.2 Wind load.** Adequate foundations and anchorage shall be provided to resist two times the calculated wind load.

**3108.5 Grounding.** Towers shall be permanently and effectively grounded.

## SECTION 3109 SWIMMING POOL ENCLOSURES

**Comm 62.3109 Note:** See ch. Comm 90 for requirements for swimming pool enclosures.

**CHAPTER 32**  
**ENCROACHMENTS INTO THE PUBLIC RIGHT-OF-WAY**

**Deleted**



## CHAPTER 33

# SAFEGUARDS DURING CONSTRUCTION

### SECTION 3301 GENERAL Deleted

### SECTION 3302 CONSTRUCTION SAFEGUARDS

**3302.1 Remodeling and additions.** Required exits, existing structural elements, fire protection devices and sanitary safeguards shall be maintained at all times during remodeling, alterations, repairs or additions to any building or structure.

#### Exceptions:

1. When such required elements or devices are being remodeled, altered or repaired, adequate substitute provisions shall be made.
2. When the existing building is not occupied.

**3302.2 Deleted.**

### SECTION 3303 DEMOLITION

**3303.1 - 3303.4 Deleted.**

**3303.5 Water accumulation.** Provision shall be made to prevent the accumulation of water or damage to any foundations on the premises or the adjoining property.

**3303.6 Deleted.**

### SECTIONS 3304 - 3306 Deleted

### SECTION 3307 PROTECTION OF ADJOINING PROPERTY

**Comm 62.3307** Note: Sections 101.111 (1) to (6), Wisconsin Stats., read as follows:

- (1) **DEFINITION.** In this section 'excavator' means any owner of an interest in land making or causing to be made an excavation.
- (2) **CAVE-IN-PREVENTION.** Any excavator shall protect the excavation site in such a manner so as to prevent the soil of adjoining property from caving in or settling.
- (3) **LIABILITY FOR UNDERPINNING AND FOUNDATION EXTENSIONS.**
  - (a) If the excavation is made to a depth of 12 feet (3658 mm) or less below grade, the excavator may not be held liable for the expense of any necessary underpinning or extension of the foundations of buildings on adjoining properties.
  - (b) If the excavation is made to a depth in excess of 12 feet (3658 mm) below grade, the excavator shall be liable for the expense of any necessary underpinning or extension of the foundations of any adjoining buildings below the depth of 12 feet (3658 mm) below grade. The owners of adjoining buildings shall be liable for the expense of any necessary underpinning or extension of the foundations of their buildings to the depth of 12 feet (3658 mm) below grade.

(4) **NOTICE.** Unless waived by adjoining owners, at least 30 days prior to commencing the excavation the excavator shall notify, in writing, all owners of adjoining buildings of his or her intention to excavate. The notice shall state that adjoining buildings may require permanent protection. The owners of adjoining property shall have access to the excavation site for the purpose of protecting their buildings.

(5) **EMPLOYEES NOT LIABLE.** No worker who is an employee of an excavator may be held liable for his or her employer's failure to comply with this section.

(6) **FAILURE TO COMPLY; INJUNCTION.** If any excavator fails to comply with this section, any aggrieved person may commence an action to obtain an order under ch. 813 directing such excavator to comply with this section and restraining the excavator from further violation thereof. If the aggrieved person prevails in the action, he or she shall be reimbursed for all his or her costs and disbursements together with such actual attorney fees as may be approved by the court."

### SECTIONS 3308 - 3312 Deleted



## CHAPTER 34

# EXISTING STRUCTURES

**Comm 62.3400 (2) Community-based residential facilities serving 20 or fewer unrelated residents.** Where an existing building or portion thereof is converted to a community-based residential facility serving 20 or fewer residents who are not related to the operator or administrator, the building or portion thereof shall be classified as Group R-4. The building or portion thereof shall comply with the provisions of this code that are applicable to a Group R-4 occupancy.

### SECTIONS 3401 - 3405 Deleted

### SECTION 3406 HISTORIC BUILDINGS

**3406.1 [Comm 62.3406] Historic buildings.** The construction, repair, alteration, addition, restoration, movement, and change of occupancy of historic buildings shall comply with ch. Comm 70.

### SECTION 3407 MOVED STRUCTURES Deleted

### SECTION 3408 ACCESSIBILITY FOR EXISTING BUILDINGS

**3408.1 [Comm 62.3408 (1)] Scope.**

- (a) **General.** Except as specified in par. (b), the requirements in Sections 3408.2 to 3408.7.14 apply to maintenance, change of occupancy, additions and alterations to existing buildings, including those identified as historic buildings.
- (b) **Exception:** When dwelling units are remodeled in housing with three or more dwelling units, the dwelling units shall comply with sub. (4). The term "remodeled" has the meaning given in s. 101.132 (1) (h), Stats., and the term "housing" has the meaning given in s. 106.50 (1) (L), Stats.

**Note:** Under section 101.132 (1) (h), Wisconsin Stats., "remodel" means to substantially improve, alter, extend or otherwise change the structure of a building or change the location of exits, but does not include maintenance, re-decoration, reroofing or alteration of mechanical or electrical systems.

**Note:** Under section 106.50 (1) (L), Wisconsin Stats., "housing" means any improved property, or any portion thereof, including a mobile home as defined in s. 66.0435 (1) (d) or condominium, that is used or occupied, or is intended, arranged or designed to be used or occupied, as a home or residence. "Housing" includes any vacant land that is offered for sale or rent for the construction or location thereon of any building, structure or portion thereof that is used or occupied, or is intended, arranged or designed to be used or occupied, as a home or residence.

**3408.2 Maintenance of facilities.** A building, facility or element that is constructed or altered to be accessible shall be maintained accessible during occupancy.

**3408.3 [Comm 62.3408 (2)] Change of occupancy.**

- (a) **General.** Except as specified in par. (b), existing buildings, or portions thereof, that undergo a change of group or occupancy shall have all of the following accessible features:
  - 1. At least one accessible building entrance.
  - 2. At least one accessible route from an accessible building entrance to primary function areas.
  - 3. Signage complying with s. Comm 62.1110.
  - 4. Accessible parking, where parking is provided.
  - 5. At least one accessible passenger loading zone, when loading zones are provided.
  - 6. At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.
- (b) **Exception.** Where it is technically infeasible to comply with the new construction standards for any of these requirements for a change of group or occupancy, the items specified in subs. 1. to 6. shall conform to the requirements to the maximum extent technically feasible. Change of group or occupancy that incorporates any alterations or additions shall comply with par. (a), subs. (3) and (4), and IBC Sections 3408.4, 3408.5, 3408.6 and 3407.

**3408.4 Additions.** Provisions for new construction shall apply to additions. An addition that affects the accessibility to, or contains an area of primary function, shall comply with the requirements in Section 3408.6 for accessible routes.

**3408.5 [Comm 62.3408 (3)] Alterations.**

- (a) **General.** A building, facility or element that is altered shall comply with the applicable provisions in ss. Comm 62.1100 to 62.1110 and ICC/ANSI A117.1, unless technically infeasible. Where compliance with this section is technically infeasible, the alteration shall provide access to the maximum extent technically feasible.
- (b) **Exceptions.**

- 1. The altered element or space is not required to be on an accessible route, unless required by IBC Section 3408.6.
- 2. Accessible means of egress required by IBC Chapter 10 are not required to be provided in existing buildings or facilities.

**3408.5.1 Extent of application.** An alteration of an existing element, space, or area of a building or facility shall not impose a requirement for greater accessibility than that which would be required for new construction.

Alterations shall not reduce or have the effect of reducing accessibility of a building, portion of a building, or facility.

**Comm 62.3408 (4) Accessibility requirements for remodeled housing.**

- (a) **Remodeled housing.** When housing with three or more dwelling units is remodeled, the remodeling percentages specified in s. 101.132 (2) (b), Stats., shall be applied, and the remodeling shall comply with the applicable portions of ch. Comm 62.

Note: Section 101.132 (2) (b), Wisconsin Stats., reads as follows:

1. If more than 50 percent of the interior square footage of any housing with 3 or more dwelling units is to be remodeled, the entire housing shall conform to the standards in par. (a), regardless of when the housing was first intended for occupancy.
2. If 25 percent to 50 percent of the interior square footage of any housing with three or more dwelling units is to be remodeled, that part of the housing that is to be remodeled shall conform to the standards in par. (a), regardless of when the housing was first intended for occupancy.
3. If less than 25 percent of the interior square footage of any housing with three or more dwelling units is to be remodeled, the remodeling is not subject to the standards in par. (a) unless the alteration involves work on doors, entrances, exits or toilet rooms, in which case the doors, entrances, exits or toilet rooms shall conform to the standards in par. (a) regardless of when the housing was first intended for occupancy.

(b) **Remodeled buildings with multiple occupancies.**

1. Except as specified in subd. 2., if a building that has multiple occupancies including housing with three or more dwelling units is remodeled, an accessible route shall be provided to the remodeled dwelling units.
2. An accessible route to the remodeled area is not required, if the cost to provide the accessible route exceeds 20 percent of the cost of the alteration, as specified in IBC Section 3408.6.

**3408.6 Alterations affecting an area containing a primary function.** Where an alteration affects the accessibility to, or contains an area of primary function, the route to the primary function area shall be accessible. The accessible route to the primary function area shall include toilet facilities or drinking fountains serving the area of primary function.

**Exceptions:**

1. The cost of providing the accessible route is not required to exceed 20 percent of the costs of the alterations affecting the area of primary function.
2. This provision does not apply to alterations limited solely to windows, hardware, operating controls, electrical outlets and signs.
3. This provision does not apply to alterations limited solely to mechanical systems, electrical systems, installation or alteration of fire-protection systems, and abatement of hazardous materials.
4. This provision does not apply to alterations undertaken for the primary purpose of increasing the accessibility of an existing building, facility or element.

**3408.7 Scoping for alterations.** The provisions of Section 3408.7.1 through 3408.7.14 shall apply to alterations to existing buildings and facilities.

**3408.7.1 Elevators.** Altered elements of existing elevators shall comply with ASME A17.1 and ICC A117.1. Such elements shall also be altered in elevators programmed to respond to the same hall call control as the altered elevator.

**3408.7.2 [Comm 62.3408 (5)] Platform lifts.** Platform lifts complying with ICC/ANSI A117.1 and ch. Comm 18 shall be permitted as a component of an accessible route.

**3408.7.3 Stairs and escalators in existing buildings.** In alterations where an escalator or stair is added where none existed previously, an accessible route shall be provided in accordance with Sections 1104.4 and 1104.5.

**3408.7.4 Ramps.** Where steeper slopes than allowed by Section 1003.3.4.1 are necessitated by space limitations, the slope of ramps in or providing access to existing buildings or facilities shall comply with Table 3408.7.4.

**TABLE 3408.7.4  
RAMPS**

| SLOPE                                       | MAXIMUM RISE |
|---------------------------------------------|--------------|
| Steeper than 1:10 but not steeper than 1:8  | 3 inches     |
| Steeper than 1:12 but not steeper than 1:10 | 6 inches     |

For SI: 1 inch = 25.4 mm.

**3408.7.5 Dining areas.** An accessible route to raised or sunken dining areas, or to outdoor seating areas is not required provided that the same services and decor are provided in an accessible space usable by any occupant and not restricted to use by people with a disability.

**3408.7.6 Performance areas.** Where it is technically infeasible to alter performance areas to be on an accessible route, at least one of each type of performance area shall be made accessible.

**3408.7.7 Assembly areas.** Seating shall adjoin an accessible route that also serves as a means of egress. Where it is technically infeasible to disperse accessible seating throughout an altered assembly area, the minimum required number of wheelchair space clusters shall be one-half of that required by Section 1107.2.2.1. In existing assembly seating areas with a mezzanine, where the main level provides three-fourths or more of the total seating capacity, wheelchair space clusters are permitted to be dispersed on the main level. Each accessible seating area shall have provisions for companion seating.

**3408.7.8 Sleeping rooms and accommodations.** Where I-1 sleeping rooms, I-2 sleeping rooms or patient rooms, I-3 residential units, or R-1 and R-2 sleeping accommodations are being altered or added, the requirements of Section 1107 for accessible rooms and Chapter 9 for accessible alarms apply only to the quantity of spaces being altered or added.

**3408.7.9 Toilet rooms.** Where it is technically infeasible to alter existing toilet and bathing facilities to be accessible, an accessible unisex toilet or bathing facility is permitted. The unisex facility shall be located on the same floor and in the same area as the existing facilities.

**3408.7.10 Dressing, fitting and locker rooms.** Where it is technically infeasible to provide accessible dressing, fitting or locker rooms at the same location as similar types of rooms, one accessible room on the same level shall be pro-

vided. Where separate sex facilities are provided, accessible rooms for each sex shall be provided. Separate sex facilities are not required where only unisex rooms are provided.

**3408.7.11 Check-out aisles.** Where check-out aisles are altered in facilities having a selling space of 5,000 square feet (465 m<sup>2</sup>) or more, at least one check-out aisle serving each function shall be made accessible.

**3408.7.12 Dispersion of seating at fixed or built-in tables, counters, or work surfaces.** Accessible seating at fixed or built-in tables, counters or work surfaces shall be distributed throughout the space or facility as much as technically feasible.

**3408.7.13 Sales and service counters.** Where it is technically infeasible for existing counters for sales or distribution of goods or services to be made accessible, an accessible auxiliary counter shall be provided.

**3408.7.14 Thresholds.** The maximum height of thresholds at doorways shall be  $\frac{3}{4}$  inch (19.1 mm). Such threshold shall have beveled edges on each side.

**3408.8 Historic buildings.** These provisions shall apply to buildings and facilities designated as historic structures that undergo alterations or a change of occupancy, unless technically infeasible. Where compliance with the requirements for accessible routes, ramps, entrances or toilet facilities would threaten or destroy the historic significance of the building or facility, as determined by the authority having jurisdiction, the alternative requirements of Section 3408.8.1 through 3408.8.5 for that element shall be permitted.

**3408.8.1 Site arrival points.** At least one accessible route from a site arrival point to an accessible entrance shall be provided.

**3408.8.2 Multilevel buildings and facilities.** An accessible route from an accessible entrance to public spaces on the level of the accessible entrance shall be provided.

**3408.8.3 Entrances.** At least one main entrance shall be accessible.

**Exception:** If a main entrance cannot be made accessible, an employee or service entrance that is unlocked while the building is occupied shall be made accessible.

The accessible entrance shall have a notification system or be provided with remote monitoring.

**3408.8.4 [Comm 62.3408 (6)] Toilet and bathing facilities.** Where toilet rooms are provided, at least one accessible toilet room complying with s. Comm 62.1109 (2) (c) shall be provided.

**3408.8.5 Ramps.** The slope of a ramp run of 24 inches (610 mm) maximum shall not be steeper than one unit vertical in eight units horizontal (12-percent slope).

**Comm 62.3408 (7) Definition. TECHNICALLY INFEASIBLE.** An alteration of a building or a facility that has little likelihood of being accomplished because the existing structural conditions require the removal or alteration of a loadbearing member that is an essential part of the structural frame, or because other existing physical or site constraints prohibit modification or addition of elements, spaces or features that are in full and strict compliance with the minimum requirements for

new construction and which are necessary to provide accessibility.

## SECTION 3409 COMPLIANCE ALTERNATIVES Deleted



## CHAPTER 35

# REFERENCED STANDARDS

This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date and title, and the section or sections of this document that reference the standard. The application of the referenced standards shall be as specified in Section 102.4.

| <div> <div>AA</div> <div> Aluminum Association<br/> 900 - 19th Street N.W., Suite 300<br/> Washington, DC 20006 </div> </div> |                                                                                                                                                                                                       |                                   |
|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Standard reference number                                                                                                     | Title                                                                                                                                                                                                 | Referenced in code section number |
| AA—94                                                                                                                         | Aluminum Design Manual: Part 1-A Aluminum Structures, Allowable Stress Design; and Part 1- B<br>—Aluminum Structures, Load and Resistance Factor Design of Buildings and Similar Type Structure . . . | 1604.3.5, 2002.1                  |
| AA ASM 35—80                                                                                                                  | Aluminum Sheet Metal Work in Building Construction . . . . .                                                                                                                                          | 2002.1                            |

| <div> <div>AAMA</div> <div> American Architectural Manufacturers Association<br/> 1827 Waldon Office Square Suite 104<br/> Schaumburg, IL 60173 </div> </div> |                                              |                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------|
| Standard reference number                                                                                                                                     | Title                                        | Referenced in code section number |
| AAMA 1402—86                                                                                                                                                  | Aluminum Siding, Soffit and Fascia . . . . . | 1404.5.1                          |

| <div> <div>ACI</div> <div> American Concrete Institute<br/> P.O. Box 9094<br/> Farmington Hills, MI 48333-9094 </div> </div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standard reference number                                                                                                    | Title                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Referenced in code section number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| ACI 216.1—97                                                                                                                 | Standard Method for Determining Fire Resistance of Concrete and Masonry Construction Assemblies . .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Table 719.1(2), 720.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| ACI 318—95                                                                                                                   | Building Code Requirements for Structural Concrete . . . . .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2213.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| ACI 318—99                                                                                                                   | Building Code Requirements for Structural Concrete . . . . .<br>1617.6.4.3, 1805.4.2.6, 1805.9, 1807.2.23.2, 1808.2.3.2, 1808.2.3.2.2, 1811.8, 1901.2, 1901.3, 1901.4, 1902, 1903.1, 1903.2, 1903.3, 1903.4, 1903.5.1, 1903.6, 1904.4.2, 1905.1.4, 1905.3, 1905.4, 1905.5, 1905.6.5.5, 1905.8.3, 1905.11.3, 1906.1.5, 1906.3, 1906.4.3, 1907.1, 1907.2, 1907.4.1, 1907.6, 1907.7.2, 1907.7.3, 1907.7.4, 1907.8, 1907.9, 1907.10, 1907.11, 1907.12, 1907.13, 1908, 1909.1, 1909.3, 1909.4, 1909.5, 1909.6, 1910.1, 1910.2.1, 1910.2.3, 1910.2.4, 1910.3.1, 1910.4.2, 1910.4.3, 1910.4.4, 1910.4.4.1, 1910.5.2, 1913.1, 1913.2.1, 1913.3.2, 1913.4.4, 1913.4.5, 1913.5.2.7, 1913.8.1 | 1604.3.2, 1604.3.4, 1605.2.1, Table 1617.6, 1617.6.4.3, 1805.4.2.6, 1805.9, 1807.2.23.2, 1808.2.3.2, 1808.2.3.2.2, 1811.8, 1901.2, 1901.3, 1901.4, 1902, 1903.1, 1903.2, 1903.3, 1903.4, 1903.5.1, 1903.6, 1904.4.2, 1905.1.4, 1905.3, 1905.4, 1905.5, 1905.6.5.5, 1905.8.3, 1905.11.3, 1906.1.5, 1906.3, 1906.4.3, 1907.1, 1907.2, 1907.4.1, 1907.6, 1907.7.2, 1907.7.3, 1907.7.4, 1907.8, 1907.9, 1907.10, 1907.11, 1907.12, 1907.13, 1908, 1909.1, 1909.3, 1909.4, 1909.5, 1909.6, 1910.1, 1910.2.1, 1910.2.3, 1910.2.4, 1910.3.1, 1910.4.2, 1910.4.3, 1910.4.4, 1910.4.4.1, 1910.5.2, 1913.1, 1913.2.1, 1913.3.2, 1913.4.4, 1913.4.5, 1913.5.2.7, 1913.8.1 |
| ACI 530—99                                                                                                                   | Building Code Requirements for Masonry Structures . . . . .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1405.5, 1405.5.3, 1405.5.3.1, 1405.9, 1604.3.4, 1805.5.2, 1811.7, 2101.2.3, 2101.2.4, 2104.1, 2104.1.1, 2106.1.1, 2106.1.1.1, 2106.1.1.2, 2106.1.1.3, 2106.1.1.4, 2106.1.1.5, 2106.1.2, 2106.1.2.1, 2106.1.2.2, 2106.1.2.3, 2106.2, 2106.4.2.1, 2106.4.2.2, 2106.5.1, 2107.1, 2107.2, 2107.2.1, 2107.2.2, 2107.2.3, 2107.2.4, 2107.2.5, 2108.6.5, 2108.7.2, 2109.1, 2109.2.3.1                                                                                                                                                                                                                                                                                 |
| ACI 530.1—99                                                                                                                 | Masonry Structures . . . . .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1405.5.2, 1405.9.1, 1805.5.2, 2104.1, 2104.1.1, 2108.7.2, 2109.1, 2109.2.3.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

## REFERENCED STANDARDS

### AF&PA

American Forest & Paper Association  
1111 19th St, NW Suite 800  
Washington, DC 20036

| Standard reference number | Title                                                                                                                                                                                              | Referenced in code section number                   |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| AF&PA/ASCE 16—95          | Standard for Load and Resistance Factor Design (LRFD) for Engineered Wood Construction . . . . .                                                                                                   | 2307.1                                              |
| No. 4—89                  | Plank and Beam Framing for Residential Buildings . . . . .                                                                                                                                         | 2306.1.2                                            |
| WFCM                      | Wood Frame Construction Manual for One-and Two-family Dwellings,<br>1995 SBC High-wind Edition, Copyright 1996. . . . .                                                                            | 1609.1.1, 2308.2                                    |
| Technical Report 7—87     | Basic Requirements for Permanent Wood Foundation System . . . . .                                                                                                                                  | 1805.4.6, 1806.2, 2304.9.5                          |
| AF&PA NDS—97              | Wood Construction and Supplement . . . . .<br>1715.1.4, 1805.4.5, 1808.1, 2306.1, 2306.2.1, 2306.3.2, Table 2306.3.1, Table 2306.4.1, 2306.3.4, 2306.3.5, 2306.4.1,<br>2308.2.1, Table 2308.9.3(4) | 720.6.3.2, 1715.1.1,<br>2308.2.1, Table 2308.9.3(4) |
| AF&PA                     | Span Tables for Joists and Rafters . . . . .                                                                                                                                                       | 2306.1.1, 2308.8, 2308.10.2, 2308.10.3              |

### AHA

American Hardwood Association  
1210 West N.W. Highway  
Palatine, IL 60067

| Standard reference number | Title                                    | Referenced in code section number |
|---------------------------|------------------------------------------|-----------------------------------|
| AHA A135.4—95             | Basic Hardboard . . . . .                | 1404.3.1, 2303.1.6                |
| AHA A135.5—95             | Prefinished Hardboard Paneling . . . . . | 2303.1.6, 2304.6.2                |
| AHA A135.6—98             | Hardboard Siding . . . . .               | 1404.3.2, 2303.1.6                |
| AHA 194.1—85              | Cellulosic Fiber Board . . . . .         | 2303.1.5                          |

### AISC

American Institute of Steel Construction  
One East Wacker Drive, Suite 3100  
Chicago, IL 60601-2001

| Standard reference number | Title                                                                                                                                      | Referenced in code section number                               |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| AISC ASD (1989)           | Specification for Structural Steel Buildings—Allowable Stress Design and Plastic Design . . . . .                                          | 1604.3.3, 1621.3.13.2,<br>Table 1617.6, 2203.2, 2204            |
| AISC LRFD (1993)          | Load and Resistance Factor Design Specification for Structural Steel Buildings,<br>including Supplement No. 1 Dated January 1998 . . . . . | 1604.3.3,<br>Table 1617.6, 2203.2, 2204, 2213.1                 |
| AISC HSS (1997)           | Specification for the Design of Steel Hollow Structural Sections . . . . .                                                                 | 1604.3.3,<br>Table 1617.6, 2203.2, 2204                         |
| AISC Seismic (1997)       | Seismic Provisions for Structural Steel Buildings,<br>including Supplement No. 1 dated 1999 . . . . .                                      | Table 1617.6, 1622.3.4.1,<br>2212.1.1, 2212.1.2, 2213.1, 2213.2 |

### AISI

American Iron and Steel Institute  
1101 - 17th Street, N.W., Suite 1300  
Washington, DC 20036-4700

| Standard reference number | Title                                                                      | Referenced in code section number |
|---------------------------|----------------------------------------------------------------------------|-----------------------------------|
| AISI (1996)               | Specification for Design of Cold-formed Steel Structural Members . . . . . | 1604.3.3, 2205.1, 2211.1          |

# AITC

American Institute of Timber Construction  
Suite 140  
7012 S. Revere Parkway  
Englewood, CO 80112

| Standard<br>reference<br>number | Title                                                                                                                                                                                                                                     | Referenced<br>in code<br>section number |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| AITC A 190.1—92                 | Structural Glued Laminated Timber .....                                                                                                                                                                                                   | 2303.1.3, 2306.1                        |
| AITC Technical Note 7—1996      | Calculation of Fire Resistance of Glued Laminated Timbers .....                                                                                                                                                                           | 720.6.3.3                               |
| AITC 104—84                     | Typical Construction Details .....                                                                                                                                                                                                        | 2306.1                                  |
| AITC 110—97                     | Standard Appearance Grades for Structural Glued Laminated Timber .....                                                                                                                                                                    | 2306.1                                  |
| AITC 112—93                     | Standard for Tongue-and-Groove Heavy Timber Roof Decking .....                                                                                                                                                                            | 2306.1                                  |
| AITC 113—93                     | Standard for Dimensions of Structural Glued Laminated Timber .....                                                                                                                                                                        | 2306.1                                  |
| AITC 117—93                     | Standard Specifications for Structural Glued Laminated Timber of Softwood Species — Design,<br>with February 27, 1998 Addendum Standard Specifications for Structural Glued Laminated<br>Timber of Softwood Species — Manufacturing ..... | 2306.1                                  |
| AITC 119—96                     | Standard Specifications for Structural Glued Laminated Timber of Hardwood Species .....                                                                                                                                                   | 2306.1                                  |
| AITC 200—92                     | Inspection Manual .....                                                                                                                                                                                                                   | 2306.1                                  |
| AITC 500—91                     | Determination of Design Values for Structural Glued Laminated Timber .....                                                                                                                                                                | 2306.1                                  |

# ALI

Automotive Lift Institute  
P.O. Box 33116  
Indialantic, FL 32903-3116

| Standard<br>reference<br>number | Title                                                                                            | Referenced<br>in code<br>section number |
|---------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------|
| ALI ALCTV—98                    | Standard for Automotive Lifts—Safety Requirements for Construction, Testing and Validation ..... | 3001.2                                  |

# ANSI

American National Standards Institute  
25 West 43rd Street, Fourth Floor  
New York, NY 10036

| Standard<br>reference<br>number | Title                                                                                                                        | Referenced<br>in code<br>section number |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| ANSI A 13.1—96                  | Scheme for Identification of Piping Systems .....                                                                            | 415.9.6.4                               |
| ANSI A 42.2—71                  | Portland Cement and Portland Cement Lime Plastering, Exterior (Stucco) and Interior .....                                    | 2109.8.4.6                              |
| ANSI A 42.3—71                  | Lathing and Furring for Portland Cement and Portland Cement Lime Plastering, Exterior Stucco and Interior .....              | 2109.8.4.6                              |
| ANSI A 108.1A&B—92              | Glazed Wall Tile, Ceramic Mosaic Tile, Quarry Tile and Paver Tile Installed with Portland Cement Mortar .....                | 2103.9                                  |
| ANSI A 108.4—92                 | Ceramic Tile Installed with Organic Adhesives or Water-cleanable Tile Setting Epoxy Adhesives .....                          | 2103.9.7                                |
| ANSI A 108.5—92                 | Ceramic Tile Installed with Dry-set Portland Cement Mortar or Latex Portland Cement Mortar .....                             | 2103.9.1, 2103.9.2, 2103.9.3            |
| ANSI A 108.6—92                 | Ceramic Tile Installed with Chemical-resistant, Water Cleanable Tile-setting-and-grout Epoxy .....                           | 2103.9.4                                |
| ANSI A 108.8—92                 | Ceramic Tile Installed with Chemical-resistant Furan Mortar and Grout .....                                                  | 2103.9.5                                |
| ANSI A 108.9—92                 | Ceramic Tile Installed with Modified Epoxy Emulsion Mortar/Grout .....                                                       | 2103.9.6                                |
| ANSI A 108.10—92                | Installation of Grout in Tilework .....                                                                                      | 2103.9.8                                |
| ANSI A 118.1—92                 | Dry-set Portland Cement Mortar .....                                                                                         | 2103.9.1                                |
| ANSI A 118.2—92                 | Conductive Dry-set Portland Cement Mortar .....                                                                              | 2103.9.2                                |
| ANSI A 118.3—92                 | Chemical-resistant, Water-cleanable Tile-setting and Grouting Epoxy and Water Cleanable<br>Tile-setting Epoxy Adhesive ..... | 2103.9.4                                |
| ANSI A 118.4—92                 | Latex-portland Cement Mortar .....                                                                                           | 2103.9.3                                |
| ANSI A 118.5—92                 | Specifications for Chemical Resistant Furan .....                                                                            | 2103.9.5                                |
| ANSI A 118.6—92                 | Ceramic Tile Grouts .....                                                                                                    | 2103.9.8                                |
| ANSI A 118.8—92                 | Modified Epoxy Emulsion Mortar/Grout .....                                                                                   | 2103.9.6                                |
| ANSI A 136.1—92                 | Organic Adhesives for Installation of Ceramic Tile .....                                                                     | 2103.9.7                                |
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### ASAE

American Society of Agricultural Engineers  
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| Standard<br>reference<br>number | Title                                                                               | Referenced<br>in code<br>section number |
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| ASAE EP 484.2                   | Diaphragm Design of Metal-Clad, Post-Frame Rectangular Buildings .....              | 2306.1                                  |
| ASAE 559                        | Design Requirements and Bending Properties for Mechanically Laminated Columns ..... | 2306.1                                  |

### ASCE

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| Standard<br>reference<br>number | Title                                                                                                                                                                                                                                                                                                                                                              | Referenced<br>in code<br>section number                                                                                                                                                |
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| ASCE 8—90                       | Standard Specifications for the Design of Cold-formed Stainless Steel Structural Members .....                                                                                                                                                                                                                                                                     | 1604.3.3, 2205.1, 2211.1                                                                                                                                                               |
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### ASME

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| Standard<br>reference<br>number     | Title                                                                                         | Referenced<br>in code<br>section number                                                                                        |
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| Standard<br>reference<br>number | Title                                                                                                                                                                | Referenced<br>in code<br>section number           |
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| A 82—97a                        | Specification for Steel Wire, Plain, for Concrete Reinforcement . . . . .                                                                                            | 2103.11.5                                         |
| A 153M—95                       | Specification for Zinc Coating (Hot-dip) on Iron and Steel Hardware . . . . .                                                                                        | 2103.11.6                                         |
| A 167—96                        | Specification for Stainless and Heat-Resisting Chromium-nickel Steel Plate, Sheet and Strip . . . . .                                                                | 2103.11.5, 2103.11.6                              |
| A 185—97                        | Specification for Steel Welded Wire Fabric, Plain for Concrete Reinforcement . . . . .                                                                               | 2103.11.4, 2103.11.5                              |
| A 252—98                        | Specification for Welded and Seamless Steel Pipe Piles . . . . .                                                                                                     | 1808.3.1, 1809.6.1                                |
| A 283/A 283M—98                 | Specification for Low and Intermediate Tensile Strength Carbon Steel Plates . . . . .                                                                                | 1808.3.1, 1809.6.1                                |
| A 307—97                        | Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength . . . . .                                                                                | 1912.1                                            |
| A 366/A 366M—97                 | Specification for Commercial Steel (CS) Sheet Carbon (0.15 maximum percent) . . . . .                                                                                | 2103.11.5                                         |
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| A 496—97a                       | Specification for Steel Wire, Deformed for Concrete Reinforcement . . . . .                                                                                          | 2103.11.3, 2103.11.4                              |
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| A 641—98                        | Specification for Zinc-coated (Galvanized) Carbon Steel Wire . . . . .                                                                                               | 2103.11.6                                         |
| A 653/A 653M—97a                | Specification for Steel Sheet, Zinc-coated or Zinc-coated (Galvanized or Zinc-iron Alloy-Coated)<br>by the Hot-dip Process . . . . .                                 | Table 1507.4.3, 2211.2.1, 2211.5                  |
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| A 792/A 792M—97a                | Specification for Steel Sheet, 5% Aluminum-zinc Alloy-coated by the Hot-dip Process . . . . .                                                                        | Table 1507.4.3, 2211.2.1, 2211.5                  |
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| A 951—98                        | Specification for Masonry Joint Reinforcement . . . . .                                                                                                              | 2103.11.2, 2103.11.6                              |
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| C 5—98                          | Specification for Quicklime for Structural Purposes . . . . .                                                                                                        | Table 2507.2                                      |
| C 22/C 22M—96                   | Specification for Gypsum . . . . .                                                                                                                                   | Table 2506.2                                      |
| C 27—98                         | Specification for Standard Classification of Fireclay and High-alumina Refractory Brick . . . . .                                                                    | 2111.5, 2111.8                                    |
| C 28—96                         | Specification for Gypsum Plasters . . . . .                                                                                                                          | Table 2507.2                                      |
| C 31/31M—96                     | Standard Practice for Making and Curing Concrete Test Specimens in the Field . . . . .                                                                               | 1905.6.3.2, 1905.6.4.2                            |
| C 33—97                         | Specification for Concrete Aggregates . . . . .                                                                                                                      | 720.3.1.4, 720.4.1.1.3, Table 1904.2.1            |
| C 34—96                         | Specification for Structural Clay Load-bearing Wall Tile . . . . .                                                                                                   | 2103.2                                            |
| C 35—95                         | Specification for Inorganic Aggregates for Use in Gypsum Plaster . . . . .                                                                                           | Table 2507.2                                      |
| C 36—97                         | Specification for Gypsum Wallboard . . . . .                                                                                                                         | Figure 720.5.1(3), Table 720.5.1(2), Table 2506.2 |
| C 37—95                         | Specification for Gypsum Lath . . . . .                                                                                                                              | Table 2507.2                                      |
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| C 42—94                    | Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete . . . . .                                                  | 1905.6.5.2                                                   |
| C 55—97                    | Specification for Concrete Brick . . . . .                                                                                                          | Table 720.3.2, 2103.1, 2105.2.2.1.2                          |
| C 56—96                    | Specification for Structural Clay Non-load Bearing Tile . . . . .                                                                                   | 2103.2                                                       |
| C 59—95                    | Specification for Gypsum Casting and Molding Plaster . . . . .                                                                                      | Table 2507.2                                                 |
| C 61—95                    | Specification for Gypsum Keene's Cement . . . . .                                                                                                   | Table 2507.2                                                 |
| C 62—97a                   | Specification for Building Brick (Solid Masonry Units Made from Clay or Shale) . . . . .                                                            | 2103.2, 2105.2.2.1.1                                         |
| C 67—98                    | Standard Test Methods of Sampling and Testing Brick and Structural Clay Tile . . . . .                                                              | 720.4.1.1.1, 1507.3.5, 2104.5, 2105.2.2.1.1, 2109.8.1.1      |
| C 73—99                    | Specification for Calcium Silicate Face Brick (Sand-lime Brick) . . . . .                                                                           | Table 720.3.2, 2103.1                                        |
| C 79M—97                   | Specification for Treated Core and Non-treated Core Gypsum Sheathing Board . . . . .                                                                | Table 2506.2                                                 |
| C 90—99                    | Specification for Loadbearing Concrete Masonry Units . . . . .                                                                                      | Table 720.3.2, 1805.5.2, 2103.1, 2105.2.2.1.2                |
| C 91—97                    | Specification for Masonry Cement . . . . .                                                                                                          | Table 2103.7(1), Table 2507.2                                |
| C 94—98                    | Specification for Ready-mix Concrete . . . . .                                                                                                      | 1905.8.2                                                     |
| C 126—96                   | Specification for Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units . . . . .                                       | 2103.2                                                       |
| C 140—98                   | Standard Test Method Sampling and Testing Concrete Masonry Units . . . . .                                                                          | 720.3.1.2, 1507.3.5, 2105.2.2.1.2                            |
| C 150—97a                  | Specification for Portland Cement . . . . .                                                                                                         | 1904.1, Table 1904.2.3, Table 2103.7(1), Table 2507.2        |
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| C 212—96                   | Specification for Structural Clay Facing Tile . . . . .                                                                                             | 2103.2                                                       |
| C 216—98                   | Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale) . . . . .                                                              | 2103.2, 2105.2.2.1.1                                         |
| C 270—99                   | Specification for Mortar for Unit Masonry . . . . .                                                                                                 | 2103.7, Table 2103.7(2), 2105.4                              |
| C 315—98b                  | Specification for Clay Flue Linings . . . . .                                                                                                       | 2113.11.1, Table 2113.16(1), Table 2113.16(2)                |
| C 317—93a                  | Specification for Gypsum Concrete . . . . .                                                                                                         | 1915.1                                                       |
| C 330—97                   | Specification for Lightweight Aggregates for Structural Concrete . . . . .                                                                          | 702.1, 1905.1.4                                              |
| C 331—98                   | Specification for Lightweight Aggregates for Concrete Masonry Units . . . . .                                                                       | 720.3.1.4, 720.4.1.1.3                                       |
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| C 442—97 (1988)            | Specification for Gypsum Backing Board and Coreboard . . . . .                                                                                      | Table 2506.2                                                 |
| C 472—93                   | Specification for Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete . . . . .                               | Table 2506.2                                                 |
| C 473—97                   | Specification for Standard Test Method for Physical Testing of Gypsum Panel Products . . . . .                                                      | Table 2506.2                                                 |
| C 474—97                   | Standard Test Methods for Joint Treatment Materials for Gypsum Board Construction . . . . .                                                         | Table 2506.2                                                 |
| C 475—94                   | Specification for Joint Compound and Joint Tape for Finishing Gypsum Board . . . . .                                                                | Table 2506.2                                                 |
| C 476—99                   | Specification for Grout for Masonry . . . . .                                                                                                       | 2103.10, 2105.2.2.1.1, 2105.2.2.1.2                          |
| C 503—97                   | Specification for Marble Dimension Stone (Exterior) . . . . .                                                                                       | 2103.3                                                       |
| C514—96                    | Specification for Nails for the Application of Gypsum Board . . . . .                                                                               | Table 719.1(2), Table 719.1(3), Table 2306.4.5, Table 2506.2 |
| C 516—80 (1990)            | Specifications for Vermiculite Loose Fill Thermal Insulation . . . . .                                                                              | 720.3.1.4, 720.4.1.1.3                                       |
| C 547—95                   | Specification for Mineral Fiber Pipe Insulation . . . . .                                                                                           | Table 719.1(2), Table 719.1(3)                               |
| C 549—81 (1995)            | Specification for Perlite Loose Fill Insulation . . . . .                                                                                           | 720.3.1.4, 720.4.1.1.3                                       |
| C 557—93a                  | Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing . . . . .                                                                | Table 2506.2                                                 |
| C 568—96                   | Specification for Limestone Dimension Stone . . . . .                                                                                               | 2103.3                                                       |
| C 587—97                   | Specification for Gypsum Veneer Plaster . . . . .                                                                                                   | Table 2507.2                                                 |
| C 588—95a                  | Specification for Gypsum Base for Veneer Plasters . . . . .                                                                                         | Table 2507.2                                                 |
| C 595—95a                  | Specification for Blended Hydraulic Cements [METRIC] . . . . .                                                                                      | 1904.1, Table 1904.2.3, Table 2103.7(1), Table 2507.2        |
| C 615—96                   | Specification for Granite Dimension Stone . . . . .                                                                                                 | 2103.3                                                       |
| C 616—97                   | Specification for Quartz-based Dimension Stone . . . . .                                                                                            | 2103.3                                                       |
| C 618—97                   | Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete . . . . .                 | 1904.1, Table 1904.2.3                                       |
| C 629—97                   | Specification for Slate Dimension Stone . . . . .                                                                                                   | 2103.3                                                       |
| C 630/C 630M—96a           | Specification for Water-resistant Gypsum Backing Board . . . . .                                                                                    | Table 2506.2                                                 |
| C 631—95a                  | Specification for Bonding Compounds for Interior Gypsum Plastering . . . . .                                                                        | Table 2507.2                                                 |
| C 635—97                   | Specification for the Manufacturer, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings . . . . .    | 803.8.1.1, 2506.2.1                                          |
| C 636—96                   | Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels . . . . .                              | 803.8.1.1                                                    |
| C 645—99                   | Specification for Non-load (Axial) Bearing Steel Studs, Runners (Tracks) and Rigid Furring Channels for Screw Application of Gypsum Board . . . . . | Table 2506.2, Table 2507.2                                   |
| C 652—97                   | Specification for Hollow Brick (Hollow Masonry Units Made from Clay or Shale) . . . . .                                                             | 2103.2, 2105.2.2.1.1                                         |
| C 685—98a                  | Specification for Concrete Made by Volumetric Batching and Continuous Mixing . . . . .                                                              | 1905.8.2                                                     |
| C 744—98                   | Specification for Prefaced Concrete and Calcium Silicate Masonry Units . . . . .                                                                    | 2103.1                                                       |

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| C 754—97                       | Specification for Installation of Steel Framing Members to Receive<br>Screw-attached Gypsum Panel Products.....                                                                                   | Table 2508.1, Table 2511.1                                                                          |
| C 780—96                       | Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and<br>Reinforced Unit Masonry .....                                                                    | 2105.4                                                                                              |
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| C 840—98                       | Specification for Application and Finishing of Gypsum Board.....                                                                                                                                  | Table 2508.1, 2509.1.2                                                                              |
| C 841—97                       | Specification for Installation of Interior Lathing and Furring.....                                                                                                                               | Table 2508.1, Table 2511.1                                                                          |
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| C 897—88 (1993) <sup>el</sup>  | Standard Practice for Vapor Attack on Refractories for Furnace Superstructures.....                                                                                                               | Table 2507.2                                                                                        |
| C 926—98                       | Specification for Application of Portland Cement Based Plaster .....                                                                                                                              | 2510.3, Table 2511.1, 2511.3, 2511.4, 2512.1,<br>2512.1.2, 2512.2, 2512.6, 2512.8.2, 2513.7, 2512.9 |
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| C 932—98                       | Specification for Surface-applied Bonding Compounds for Exterior Plastering.....                                                                                                                  | Table 2507.2                                                                                        |
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| C 946—91 (1996) <sup>el</sup>  | Specification for Practice for Construction of Dry-stacked, Surface-bonded Walls .....                                                                                                            | 2103.8, 2109.2.3.2                                                                                  |
| C 954—98                       | Specification for Steel Drill Screws for the Application of Gypsum Panel Products<br>or Metal Plaster Bases to Steel Studs from 0.033 inch (0.84 mm) to 0.112 inch<br>(2.84 mm) in Thickness..... | 2211.4.3, Table 2506.2, Table 2507.2                                                                |
| C 955—98                       | Specification for Load Bearing (Transverse and Axial) Steel Studs, Runners<br>(Tracks), and Bracing or Bridging, for Screw Application of Gypsum<br>Panel Products and Metal Plaster Bases .....  | Table 2506.2, Table 2507.2                                                                          |
| C 956—81 (1986)                | Specification for Installation of Cast-in-place Reinforced Gypsum Concrete .....                                                                                                                  | 1915.1                                                                                              |
| C 957—93                       | Specification for High-solids Content, Cold Liquid-applied Elastomeric Waterproofing<br>Membrane with Integral Wearing Surface .....                                                              | 1507.15.2                                                                                           |
| C 960—97                       | Specification for Predecorated Gypsum Board .....                                                                                                                                                 | Table 2506.2                                                                                        |
| C 989—97b                      | Specification for Ground Granulated Blast-furnace Slag for Use in Concrete and Mortars .....                                                                                                      | 1904.1, Table 1904.2.3                                                                              |
| C 1002—98                      | Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal<br>Plaster Bases .....                                                                                 | Table 2506.2, Table 2507.2                                                                          |
| C 1007—97 (1990)               | Specification for Installation of Load Bearing (Transverse and Axial) Steel<br>Studs and Related Accessories .....                                                                                | Table 2508.1, Table 2511.1                                                                          |
| C 1019—98a                     | Standard Test Method of Sampling and Testing Grout .....                                                                                                                                          | 2105.2.2.1.1, 2105.2.2.1.2, 2105.5                                                                  |
| C 1029—96                      | Specification for Spray-applied Rigid Cellular Polyurethane Thermal Insulation.....                                                                                                               | 1507.14.2                                                                                           |
| C 1032—96                      | Specification for Woven Wire Plaster Base .....                                                                                                                                                   | Table 2507.2                                                                                        |
| C 1047—98                      | Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base .....                                                                                                                   | Table 2506.2, Table 2507.2                                                                          |
| C 1063—98                      | Specification for Installation of Lathing and Furring to Receive Interior and<br>Exterior Portland Cement Based Plaster.....                                                                      | 2510.3, Table 2511.1, 2512.1.1                                                                      |
| C 1088—96                      | Specification for Thin Veneer Brick Units Made from Clay or Shale.....                                                                                                                            | 2103.2                                                                                              |
| C 1157—95                      | Standard Performance Specification for Hydraulic Cements .....                                                                                                                                    | 1903.2, 1904.1, Table 1904.2.3                                                                      |
| C 1167—96                      | Specification for Clay Roof Tiles .....                                                                                                                                                           | 1507.3.4, 1507.3.5                                                                                  |
| C 1177/C 1177M—96              | Specification for Glass Mat Gypsum Substrate for Use as Sheathing.....                                                                                                                            | Table 2506.2                                                                                        |
| C 1178/C 1178M—96              | Specification for Glass Mat Water-resistant Gypsum Backing Panel .....                                                                                                                            | Table 2506.2                                                                                        |
| C 1218—97                      | Standard Test Method for Water-soluble Chloride in Mortar and Concrete.....                                                                                                                       | 1904.4.1                                                                                            |
| C 1240—98                      | Specification for Silica Fume for Use as a Mineral Admixture in Hydraulic-cement<br>Concrete, Mortar and Grout .....                                                                              | 1904.1, Table 1904.2.3                                                                              |
| C 1261—98                      | Specification for Firebox Brick for Residential Fireplaces .....                                                                                                                                  | 2111.5, 2111.8                                                                                      |
| C 1278/C 1278M—96              | Specification for Standard Specification for Fiber-reinforced Gypsum Panels.....                                                                                                                  | Table 2506.2                                                                                        |
| C 1280—98                      | Specification for Application of Gypsum Sheathing .....                                                                                                                                           | Table 2506.2, Table 2508.1, Table 2508.2                                                            |
| C 1283-99                      | Standard Practice for Installing Clay Flue Liners .....                                                                                                                                           | 2113.12                                                                                             |
| C 1314—98                      | Standard Test Method for Construction and Testing Masonry Prisms Used to Determine Compliance<br>with Specified Compressive Strength of Masonry .....                                             | 2105.2.2.2.2, 2105.2.2.2.3, 2105.3.1, 2105.3.2                                                      |
| C 1328—98                      | Specification for Plastic (Stucco Cement) .....                                                                                                                                                   | Table 2507.2                                                                                        |
| C 1329—98                      | Specification for Mortar Cement.....                                                                                                                                                              | Table 2103.7(1)                                                                                     |
| C 1395/1395M—98                | Specification for Gypsum Ceiling Board.....                                                                                                                                                       | Table 2506.2                                                                                        |
| D 25—91                        | Specification for Round Timber Piles.....                                                                                                                                                         | 1808.1.1                                                                                            |
| D 41—94                        | Specification for Asphalt Primer Used in Roofing, Dampproofing and Waterproofing.....                                                                                                             | Table 1507.10.2                                                                                     |
| D 56—98a                       | Standard Test Method for Flash Point By Tag Closed Tester .....                                                                                                                                   | 307.2                                                                                               |

## REFERENCED STANDARDS

### ASTM—continued

|                     |                                                                                                                                                 |                                                                                                                                        |
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| D 86—99             | Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure. . . . .                                                    | 307.2                                                                                                                                  |
| D 93—99             | Standard Test Method for Flash Point By Pensky-Martens Closed Cup Tester . . . . .                                                              | 307.2                                                                                                                                  |
| D 224—89 (1996)     | Specification for Smooth-Surfaced Asphalt Roll Roofing (Organic Felt). . . . .                                                                  | 1507.2.9.2, 1507.6.4                                                                                                                   |
| D 225—95            | Specification for Asphalt Shingles (Organic Felt) Surfaced with Mineral Granules . . . . .                                                      | 1507.2.5                                                                                                                               |
| D 226—97a           | Specification for Asphalt-Saturated Organic Felt Used in Roofing and<br>Waterproofing. . . . .                                                  | 1404.2, Table 1507.2, 1507.2.3, 1507.3.3,<br>1507.5.3, 1507.6.3, 1507.7.3, Table 1507.8, 1507.8.3, 1507.9.3, 1507.9.4, Table 1507.10.2 |
| D 227—97a           | Specification for Coal-tar-saturated Organic Felt Used in Roofing and Waterproofing. . . . .                                                    | Table 1507.10.2                                                                                                                        |
| D 249—89 (1996)     | Specification for Asphalt Roll Roofing (Organic Felt) Surfaced with Mineral Granules . . . . .                                                  | 1507.3.3, 1507.6.4                                                                                                                     |
| D 312—95a           | Specification for Asphalt Used in Roofing . . . . .                                                                                             | Table 1507.10.2                                                                                                                        |
| D 371—89 (1996)     | Specification for Asphalt Roll Roofing (Organic Felt) Surfaced with Mineral Granules: Wide-selvage. . . . .                                     | 1507.6.4                                                                                                                               |
| D 422—63 (1990)     | Standard Test Method for Particle-size Analysis of Soils. . . . .                                                                               | 1802.3.2                                                                                                                               |
| D 450—96            | Specification for Coal-tar Pitch Used in Roofing, Dampproofing and Waterproofing. . . . .                                                       | Table 1507.10.2                                                                                                                        |
| D 635—97            | Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics<br>in a Horizontal Position . . . . .                    | 2606.4                                                                                                                                 |
| D 1143—81 (1994) el | Standard Test Method for Piles Under Static Axial Compressive Load . . . . .                                                                    | 1807.2.8.3                                                                                                                             |
| D 1227—95           | Specification for Emulsified Asphalt Used as a Protective Coating for Roofing . . . . .                                                         | Table 1507.10.2, 1507.15.2                                                                                                             |
| D 1557—91           | Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort . . . . .                                          | 1803.4                                                                                                                                 |
| D 1586—99           | Specification for Penetration Test and Split-barrel Sampling of Soils . . . . .                                                                 | 1615.1.5                                                                                                                               |
| D 1761—88 (1995) el | Standard Test Method for Mechanical Fasteners in Wood . . . . .                                                                                 | 1715.1.1, 1715.1.2, 1715.1.3                                                                                                           |
| D 1863—93 (1996)    | Specification for Mineral Aggregate Used on Built-up Roofs . . . . .                                                                            | Table 1507.10.2                                                                                                                        |
| D 1929—96           | Standard Test Method for Ignition Properties of Plastics . . . . .                                                                              | 402.14.4, 406.5.2, 1407.10.2.1, 2606.4                                                                                                 |
| D 1970—97           | Specification for Self-adhering Polymer Modified Bituminous Sheet Materials<br>Used as Steep Roof Underlayment for Ice Dam Protection . . . . . | 1507.2.4, 1507.2.9.2                                                                                                                   |
| D 2166—98a          | Standard Test Method for Unconfined Compressive Strength of Cohesive Soil . . . . .                                                             | 1615.1.5                                                                                                                               |
| D 2178—97a          | Specification for Asphalt Glass Felt Used in Roofing and Waterproofing . . . . .                                                                | Table 1507.10.2                                                                                                                        |
| D 2216—92           | Standard Test Method for Laboratory Determination of Water (Moisture) Content<br>of Soil and Rock by mass . . . . .                             | 1615.1.5                                                                                                                               |
| D 2487—93           | Standard Practice for Classification of Soils for Engineering Purposes<br>(Unified Soil Classification System) . . . . .                        | Table 1610.1, 1802.3.1                                                                                                                 |
| D 2626—97b          | Specification for Asphalt Saturated and Coated Organic Felt Base Sheet Used in Roofing . . . . .                                                | 1507.3.3, Table 1507.10.2                                                                                                              |
| D 2822—91(97) el    | Specification for Asphalt Roof Cement . . . . .                                                                                                 | Table 1507.10.2                                                                                                                        |
| D 2823—90(97) el    | Specification for Asphalt Roof Coatings . . . . .                                                                                               | Table 1507.10.2                                                                                                                        |
| D 2843—93           | Standard Test for Density of Smoke from the Burning or Decomposition of Plastics . . . . .                                                      | 2606.4                                                                                                                                 |
| D 2850—95           | Standard Test Method for Unconsolidated, Undrained Strength of Cohesive Soils in Triaxial<br>Compression . . . . .                              | 1615.1.5                                                                                                                               |
| D 2898—94 (1999)    | Standard Test Methods for Accelerated Weathering of Fire-retardant-treated Wood<br>for Fire Testing . . . . .                                   | 1505.1, 1505.6, 2303.2.3                                                                                                               |
| D 3019—94           | Specification for Lap Cement Used with Asphalt Roll Roofing, Non-fibered,<br>Asbestos Fibered, and Non Asbestos Fibered. . . . .                | Table 1507.10.2                                                                                                                        |
| D 3201—94 (1998) el | Standard Test Method for Hygroscopic Properties of Fire-retardant Wood and Wood-base Products . . . . .                                         | 2303.2.4                                                                                                                               |
| D 3278—96           | Standard Test Methods for Flash Point of Liquids by Small Scale Closed-cup Apparatus. . . . .                                                   | 307.2                                                                                                                                  |
| D 3462—96           | Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules . . . . .                                            | 1507.2.5                                                                                                                               |
| D 3468—90           | Specification for Liquid-applied Neoprene and Chlorosulfonated Polyethylene Used<br>in Roofing and Waterproofing . . . . .                      | 1507.15.2                                                                                                                              |
| D 3679—96a          | Specification for Rigid Poly [Vinyl Chloride (PVC) Siding]. . . . .                                                                             | 1404.9, 1405.13                                                                                                                        |
| D 3689—90 (1995)    | Specification for Individual Piles Under Static Axial Tensile Load . . . . .                                                                    | 1807.2.8.5                                                                                                                             |
| D 3737—96           | Standard Practice for Establishing Stresses for Structural Glued Laminated Timber (Glulam) . . . . .                                            | 2303.1.3                                                                                                                               |
| D 3746—85 (1996) el | Specification for Test Method for Impact Resistance of Bituminous Roofing Systems . . . . .                                                     | 1504.6                                                                                                                                 |
| D 3747—79(1995)     | Specification for Emulsified Asphalt Adhesive Roof Insulation . . . . .                                                                         | Table 1507.10.2                                                                                                                        |
| D 3909—97b          | Specification for Asphalt Roll Roofing (Glass Felt) Surfaced with Mineral Granules. . . . .                                                     | 1507.6.4, Table 1507.10.2                                                                                                              |
| D 4022—94           | Specification for Coal Tar Roof Cement, Asbestos Containing . . . . .                                                                           | Table 1507.10.2                                                                                                                        |
| D 4272—96           | Standard Test Method for Total Energy Impact of Plastic Films by Dart Drop . . . . .                                                            | 1504.6                                                                                                                                 |
| D 4318—98           | Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils . . . . .                                                   | 1615.1.5, 1802.3.2                                                                                                                     |
| D 4434—96           | Specification for Poly (Vinyl Chloride) Sheet Roofing . . . . .                                                                                 | 1507.13.2                                                                                                                              |
| D 4479—93           | Specification for Asphalt Roof Coatings - Asbestos-Free . . . . .                                                                               | Table 1507.10.2                                                                                                                        |
| D 4586—93           | Specification for Asphalt Roof Cement, Asbestos-Free . . . . .                                                                                  | Table 1507.10.2                                                                                                                        |
| D 4601—98           | Specification for Asphalt-coated Glass Fiber Base Sheet Used in Roofing . . . . .                                                               | Table 1507.10.2                                                                                                                        |
| D 4637—96           | Specification for EPDM Sheet Used in Single-ply Roof Membrane . . . . .                                                                         | 1507.12.2                                                                                                                              |

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| D 4869—89 (1993) <sup>e1</sup> | Specification for Asphalt-saturated Organic Felt Shingle Underlayment Used in Roofing . . . . .                                                                                 | Table 1507.2, 1507.2.3                                                                                                                                                                                  |
| D 4897—98                      | Specification for Asphalt-coated Glass Fiber Venting Base Sheet Used in Roofing . . . . .                                                                                       | Table 1507.10.2                                                                                                                                                                                         |
| D 4990—97a                     | Specification for Coal Tar Glass Felt Used in Roofing and Waterproofing . . . . .                                                                                               | Table 1507.10.2                                                                                                                                                                                         |
| D 4945—96                      | Test Method for High-Strain Dynamic Testing of Piles . . . . .                                                                                                                  | P1807.2.8.3                                                                                                                                                                                             |
| D 5055—97 <sup>e1</sup>        | Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-joists . . . . .                                                                    | 2303.1.2                                                                                                                                                                                                |
| D 5456—98                      | Specification for Evaluation of Structural Composite Lumber Products . . . . .                                                                                                  | 2303.1.9                                                                                                                                                                                                |
| D 5643—94                      | Specification for Coal Tar Roof Cement, Asbestos-Free . . . . .                                                                                                                 | Table 1507.10.2                                                                                                                                                                                         |
| D 5665—97a                     | Specification for Thermoplastic Fabrics Used in Cold-Applied Roofing and Waterproofing . . . . .                                                                                | Table 1507.10.2                                                                                                                                                                                         |
| D 5726—97a                     | Specification for Thermoplastic Fabrics Used in Hot-Applied Roofing and Waterproofing . . . . .                                                                                 | Table 1507.10.2                                                                                                                                                                                         |
| D 6083—97a                     | Specification for Liquid Applied Acrylic Coating Used in Roofing . . . . .                                                                                                      | Table 1507.10.2, 1507.15.2                                                                                                                                                                              |
| D 6162—98                      | Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet<br>Materials Using a Combination of Polyester and Glass Fiber Reinforcements . . . . .              | 1507.11.2                                                                                                                                                                                               |
| D 6163—97                      | Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet<br>Materials Using Glass Fiber Reinforcements . . . . .                                             | 1507.11.2                                                                                                                                                                                               |
| D 6164—98                      | Specification for Styrene (SBS) Modified Bituminous Sheet Metal Materials Using<br>Polyester Reinforcements . . . . .                                                           | 1507.11.2                                                                                                                                                                                               |
| E 84—98 <sup>e1</sup>          | Standard Test Methods for Surface Burning Characteristics<br>of Building Materials . . . . .                                                                                    | 402.14.4, 406.5.2, 410.3.5.3,<br>703.4.2, 718.1, 718.4, 802.1, 803.1, 803.5.1, 803.5.2, 1407.9.1, 1407.10.1.2, 1407.10.2.1,<br>1407.11.1, 2303.2, 2303.3, 2603.3, 2603.5.4, 2604.2.4, 2606.4, 3105.3    |
| E 90—97                        | Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building<br>Partitions and Elements . . . . .                                            | 1206.2                                                                                                                                                                                                  |
| E 96—95                        | Standard Test Method for Water Vapor Transmission of Materials . . . . .                                                                                                        | 1202.2, 1403.3                                                                                                                                                                                          |
| E 108—96                       | Standard Test Method for Fire Tests of Roof Coverings . . . . .                                                                                                                 | 1505.1, 1505.6, 2603.6, 2610.2, 2610.3                                                                                                                                                                  |
| E 111—97                       | Standard Test Method for Young's Modulus, Tangent Modulus and Chord Modulus . . . . .                                                                                           | 2108.7.2                                                                                                                                                                                                |
| E 119—98                       | Standard Test Methods for Fire Tests of Building<br>Construction and Materials . . . . .                                                                                        | 410.3.5.2, 703.2, 703.2.1, 703.2.3,<br>703.3, 704.7, 704.9, 706.6, 711.3.1, 711.4.1, 711.4.6, 712.1, 712.4, 714.3.8,<br>715.5.2, 715.5.3.1, 715.6.2, Table 719.1(1), 1407.9.2, 2103.2, 2603.4, 2603.5.1 |
| E 136—98 <sup>e1</sup>         | Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C. . . . .                                                                                     | 703.4.1                                                                                                                                                                                                 |
| E 331—93                       | Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform<br>Static Air Pressure Difference . . . . .                                 | 1403.2                                                                                                                                                                                                  |
| E 492—90 (1996) <sup>e1</sup>  | Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-<br>ceiling Assemblies Using the Tapping Machine . . . . .                           | 1206.3                                                                                                                                                                                                  |
| E 681—98                       | Standard Test Methods for Concentration Limits of Flammability of Chemicals (Vapors and Gases). . . . .                                                                         | 307.2                                                                                                                                                                                                   |
| E 814—97                       | Standard Test Method of Fire Tests of Through-penetration Fire Stops . . . . .                                                                                                  | 702.1, 711.3.1.2, 711.4.1.2                                                                                                                                                                             |
| E 970—98                       | Standard Test Method for Critical Radiant Flux of Exposed Attic Floor Insulation<br>Using a Radiant Heat Energy Source . . . . .                                                | 718.3.1                                                                                                                                                                                                 |
| E 1300—98                      | Standard Practice for Determining Load Resistance of Glass in Buildings . . . . .                                                                                               | Table 2404.1, Table 2404.2                                                                                                                                                                              |
| E 1592—95                      | Test Method for Structural Performance of Sheet Metal Roof and Siding Systems<br>by Uniform Static Air Pressure Difference. . . . .                                             | 1504.3.2                                                                                                                                                                                                |
| E 1602—94                      | Standard Guide for Construction of Solid Fuel Burning Masonry Heaters. . . . .                                                                                                  | 2112.2                                                                                                                                                                                                  |
| E 1886—97                      | Standard Test Method for Performance of Exterior Windows, Curtain Wall, Doors and Storm<br>Shutters Impacted by Missiles and exposed to Cyclic Pressure Differentials . . . . . | 1609.1.4                                                                                                                                                                                                |
| E 1996—99                      | Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors<br>and Storm Shutters Impacted by Windborne Debris in Hurricanes . . . . .                     | 1609.1.4                                                                                                                                                                                                |
| F 547—77 (1995)                | Standard Terminology of Nails for Use with Wood and Wood-base Materials . . . . .                                                                                               | Table 2506.2                                                                                                                                                                                            |
| F 1346—91 (1996)               | Standard Performance for Safety Covers and Labeling Requirements for All<br>Covers for Swimming Pools, Spas and Hot Tubs. . . . .                                               | 3104.9, 3109.4.1.8                                                                                                                                                                                      |
| F 1667—97                      | Specification for Driven Fasteners: Nails, Spikes, and Staples . . . . .                                                                                                        | Table 719.1(2), Table 719.1(3),<br>1507.2.6, 2303.6, Table 2506.2                                                                                                                                       |
| G 23—96                        | Standard Practice for Operating Light Exposure Apparatus (Carbon Arc Type) With and Without Water<br>for Exposure of Nonmetallic Materials . . . . .                            | 1504.5                                                                                                                                                                                                  |
| G 26—96                        | Standard Practice for Operating Light-Exposure Apparatus (Xenon-arc Type) With and Without Water<br>for Exposure of Nonmetallic Materials . . . . .                             | 1504.5                                                                                                                                                                                                  |
| G 53—96                        | Standard Practice for Operating Light- and Water-exposure Apparatus (Fluorescent UV-Condensation<br>Type) for Exposure of Nonmetallic Materials . . . . .                       | 1504.5                                                                                                                                                                                                  |

## REFERENCED STANDARDS

### AWPA

American Wood-Preservers' Association  
P.O. Box 5690  
Grandbury, TX 76049

| Standard reference number | Title                                                                                                                                                                                                      | Referenced in code section number                                                     |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| AWPA C1—98                | All Timber Products-Preservative Treatment by Pressure Processes . . . . .                                                                                                                                 | 1403.6, 1505.6.1, 2303.1.8                                                            |
| AWPA C2—98                | Lumber, Timber, Bridge Ties and Mine Ties-Preservative Treatment by Pressure Processes . . . . .                                                                                                           | 1403.6, Table 1507.9.5, 1805.4.5, 1805.7.1, 2303.1.8, 2304.11.2, 2304.11.4, 2304.11.7 |
| AWPA C3—97                | Piles-Preservative Treatment by Pressure Processes . . . . .                                                                                                                                               | 1403.6, 1805.4.5, 1808.1.2, 2303.1.8                                                  |
| AWPA C4—95                | Poles-Preservative Treatment by Pressure Processes . . . . .                                                                                                                                               | 1403.6, 1805.7.1, 1808.1.2, 2303.1.8                                                  |
| AWPA C9—97                | Plywood-Preservative Treatment by Pressure Processes . . . . .                                                                                                                                             | 1403.6, 2303.1.8, 2304.11.2, 2304.11.4, 2304.11.7                                     |
| AWPA C14—90               | Wood for Highway Construction, Pressure Treatment . . . . .                                                                                                                                                | 2303.1.8                                                                              |
| AWPA C15—98               | Wood for Commercial-Residential Construction Preservative Treatment by Pressure Process . . . . .                                                                                                          | 1403.6, 2303.1.8                                                                      |
| AWPA C16—90               | Wood Used on Farms, Pressure Treatment . . . . .                                                                                                                                                           | 2303.1.8                                                                              |
| AWPA C18—95               | Standard for Pressure Treated Material in Marine Construction . . . . .                                                                                                                                    | 1403.6                                                                                |
| AWPA C20—93               | Structural Lumber-Fire Retardant Treatment by Pressure Processes . . . . .                                                                                                                                 | 2303.2                                                                                |
| AWPA C22—96               | Lumber and Plywood for Permanent Wood Foundations-Preservative Treatment by Pressure Processes . . . . .                                                                                                   | 1403.6, 1805.4.6, 2303.1.8                                                            |
| AWPA C23—94               | Poles Used in Building Construction—Preservative Treatment by Pressure Processes . . . . .                                                                                                                 | 2303.1.8                                                                              |
| AWPA C24—96               | Sawn Timber Piles Used for Residential Commercial Building . . . . .                                                                                                                                       | 1403.6, 1808.1.2, 2303.1.8                                                            |
| AWPA C27—93               | Plywood-Fire-Retardant Treatment by Pressure Process . . . . .                                                                                                                                             | 2303.2                                                                                |
| AWPA C28—99               | Standard for Preservative Treatment of Structural Glued Laminated Members and Laminations before Glueing of Southern Pine, Coastal Douglas-Fir, Hemfir and Western Hemlock by Pressure Processes . . . . . | 1403.6, 2303.1.8                                                                      |
| AWPA M4—95                | Standard for the Care of Preservative-Treated Wood Products . . . . .                                                                                                                                      | 1808.1.2, 2303.1.8                                                                    |
| AWPA P1/13—95             | Standard for Coal Tar Creosote for Land and Fresh Water and Marine (Coastal Water) Use . . . . .                                                                                                           | 1403.6, 2303.1.8                                                                      |
| AWPA P2—98                | Standard for Creosote Solutions . . . . .                                                                                                                                                                  | 1403.6, 2303.1.8                                                                      |
| AWPA P5—95                | Standard for Waterborne Preservatives . . . . .                                                                                                                                                            | 2303.1.8                                                                              |
| AWPA P8—95                | Standard for Oil-borne Preservatives . . . . .                                                                                                                                                             | 2303.1.8                                                                              |
| AWPA P9—92                | Standard for Solvents and Formulations for Organic Preservative Systems . . . . .                                                                                                                          | 2303.1.8                                                                              |

### AWS

American Welding Society  
550 N.W. LeJeune Road  
Miami, FL 33126

| Standard reference number | Title                                               | Referenced in code section number |
|---------------------------|-----------------------------------------------------|-----------------------------------|
| D1.4—98                   | Structural Welding Code—Reinforcing Steel . . . . . | 1903.5.2, 2108.9.2.11- Item 2     |

### BHMA

Builders Hardware Manufacturers' Association  
355 Lexington Avenue, 17th Floor  
New York, NY 10017-6603

| Standard reference number | Title                                                | Referenced in code section number |
|---------------------------|------------------------------------------------------|-----------------------------------|
| A 156.10—85               | Power Operated Pedestrian Doors . . . . .            | 1003.3.1.3.2                      |
| A 156.19—97               | Power Assist and Low Energy Operated Doors . . . . . | 1003.3.1.3.2                      |

# CGSB

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Ottawa, Ontario, Canada KIA 1G6

| Standard<br>reference<br>number | Title                                                                                                                | Referenced<br>in code<br>section number |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| 37-52M—84                       | Roofing and Waterproofing Membrane, Sheet Applied, Elastomeric . . . . .                                             | 1504.6, 1507.12.2                       |
| 37-54M—79                       | Roofing and Waterproofing Membrane, Sheet Applied, Flexible, Polyvinyl Chloride . . . . .                            | 1507.13.2                               |
| 37-56M—80                       | Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing<br>—with December 1985 Amendment . . . . . | 1507.11.2                               |

# CISCA

Ceiling and Interior Systems Construction Association  
1500 Lincoln Highway, Suite 202  
St. Charles, IL 60174

| Standard<br>reference<br>number | Title                                                                               | Referenced<br>in code<br>section number |
|---------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------|
| 02—91                           | Recommendations for Direct-hung Acoustical Tile and Lay-in panel ceilings . . . . . | 1621.2.5.2.1                            |
| 3-4—91                          | Guidelines for Seismic Restraint Direct Hung Suspended Ceiling Assemblies . . . . . | 1621.2.5.2.2                            |

# CPSC

Consumer Product Safety Commission  
4330 East West Highway  
Bethesda, MD 20814-4408

| Standard<br>reference<br>number    | Title                                                                                  | Referenced<br>in code<br>section number |
|------------------------------------|----------------------------------------------------------------------------------------|-----------------------------------------|
| 16 CFR 107—97                      | Room Fire Test Standard for Garage Doors Using Foam Plastic Insulation . . . . .       | 2603.4.1.9                              |
| 16 CFR 1201—77                     | Safety Standard for Architectural Glazing . . . . .                                    | 2406.1, 2406.1.2, 2407.1, 2408.2        |
| 16 CFR 1209—79                     | Interim Safety Standard for Cellulose Insulation . . . . .                             | 718.6                                   |
| 16 CFR 1404—79                     | Cellulose Insulation . . . . .                                                         | 718.6                                   |
| 16 CFR 1500—91                     | Hazardous Substance and Articles; Administration and Enforcement Regulations . . . . . | 307.2                                   |
| 16 CFR 1500 44—91                  | Method for Determining Extremely Flammable and Flammable Solids . . . . .              | 307.2                                   |
| 16 CFR 1507—91                     | Fireworks Devices . . . . .                                                            | 307.2                                   |
| 16 CFR 1630—70<br>(DOC FF-1-70)—98 | Standard for the Surface Flammability of Carpets and Rugs . . . . .                    | 804.5.1                                 |

# CSSB

Cedar Shake and Shingle Bureau  
P.O. Box 1178  
Sumas, WA 98295-1178

| Standard<br>reference<br>number | Title                   | Referenced<br>in code<br>section number |
|---------------------------------|-------------------------|-----------------------------------------|
| CSSB-97                         | Grading Rules . . . . . | Table 1507.8.4, Table 1507.9.5          |

# DASMA

Door and Access Systems Manufacturer's  
Association International  
1300 Summer Avenue  
Cleveland, OH 44115-2851

| Standard<br>reference<br>number | Title                                                                            | Referenced<br>in code<br>section number |
|---------------------------------|----------------------------------------------------------------------------------|-----------------------------------------|
| 107—97                          | Room Fire Test Standard for Garage Doors Using Foam Plastic Insulation . . . . . | 2603.4.1.9                              |

## REFERENCED STANDARDS

### DOC

U.S. Department of Commerce  
National Institute of Standards and Technology  
100 Bureau Drive Stop 3460  
Gaithersburg, MD 20899

| Standard reference number | Title                                                               | Referenced in code section number                                                                  |
|---------------------------|---------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| PS-1—95                   | Construction and Industrial Plywood . . . . .                       | 2211.3.1, 2303.1.4, 2304.6.2, Table 2304.7(4), 2306.3.2                                            |
| PS-2—92                   | Performance Standard for Wood-based Structural-use Panels . . . . . | 1808.1.1, 2211.3.1, 2303.1.4, 2304.6.2, Table 2304.7(4), Table 2304.7(5), Table 2306.3.1, 2306.3.2 |
| PS 20—99                  | American Softwood Lumber Standard . . . . .                         | 1808.1.1, 2302, 2303.1.1                                                                           |

### DOL

U.S. Department of Labor  
c/o Superintendent of Documents  
U.S. Government Printing Office  
Washington, DC 20402-9325

| Standard reference number | Title                      | Referenced in code section number |
|---------------------------|----------------------------|-----------------------------------|
| 29 CFR 1910.1000—74       | Air Contaminants . . . . . | 902.1                             |

### DOTn

U.S. Department of Transportation  
c/o Superintendent of Documents  
U.S. Government Printing Office  
Washington, DC 20402-9325

| Standard reference number               | Title                                                                                                                                                  | Referenced in code section number |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| 49 CFR (173-178)—88<br>UN 0335, UN 0336 | Specification of Transportation of Explosive and Other Dangerous Articles, Shipping Containers. . . . .                                                | 307.2                             |
| 49 CFR(172)—88                          | Hazardous Materials Tables, Special Provisions, Hazardous Materials Communications, Emergency Response Information and Training Requirements . . . . . | 307.2                             |

### EIA

Electronics Industries Association  
2500 Wilson Boulevard  
Arlington, VA 22201-3834

| Standard reference number | Title                                                                                     | Referenced in code section number |
|---------------------------|-------------------------------------------------------------------------------------------|-----------------------------------|
| EIA/TIA 222-E—91          | Structural Standards for Steel Antenna Towers and Antenna Supporting Structures . . . . . | 3108.4                            |

### EWA

APA - Engineered Wood Association  
P.O. Box 11700  
Tacoma, WA 98411-0700

| Standard reference number | Title                                                                         | Referenced in code section number                              |
|---------------------------|-------------------------------------------------------------------------------|----------------------------------------------------------------|
| APA PDS—97                | Plywood Design Specification . . . . .                                        | 2306.1, Table 2306.3.1, 2306.3.2, 2306.3.4, 2306.3.5, 2306.4.1 |
|                           | Supplement 1-Design and Fabrication of Plywood Curved Panels . . . . .        | 2306.1                                                         |
|                           | Supplement 2-Design and Fabrication of Glued Plywood-lumber beams. . . . .    | 2306.1                                                         |
|                           | Supplement 3-Design and Fabrication of Plywood Stressed-skin Panels . . . . . | 2306.1                                                         |
|                           | Supplement 4-Design and Fabrication of Plywood Sandwich Panels. . . . .       | 2306.1                                                         |
|                           | Supplement 5-Design and Fabrication of All-plywood Beams . . . . .            | 2306.1                                                         |
| EWS R540—96               | Builders Tips: Proper Storage and Handling of Glulam Beams . . . . .          | 2306.1                                                         |
| EWS S475—99               | Glued Laminated Beam Design Tables . . . . .                                  | 2306.1                                                         |

EWA—continued

|             |                                                                       |        |
|-------------|-----------------------------------------------------------------------|--------|
| EWS S560—99 | Field Notching and Drilling of Glued Laminated Timber Beams . . . . . | 2306.1 |
| EWS T300—99 | Glulam Connection Details . . . . .                                   | 2306.1 |
| EWS X440—98 | Product and Application Guide . . . . .                               | 2306.1 |
| EWS X445—97 | Glulam in Residential Construction — Southern Edition . . . . .       | 2306.1 |
| EWS X450—97 | Glulam in Residential Construction — Western Edition . . . . .        | 2306.1 |

# FEMA

Federal Emergency Management Agency  
Federal Center Plaza  
500 C Street S.W.  
Washington, DC 20472

| Standard<br>reference<br>number | Title                                                                                                                                                                    | Referenced<br>in code<br>section number |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| FEMA 302                        | NEHRP Recommended Provisions for Seismic Regulations for New Buildings<br>and Other Structures . . . . . Figure 1615(7), Figure 1615(8), Figure 1615(9), Figure 1615(10) |                                         |

# FM

Factory Mutual  
Standards Laboratories Department  
1151 Boston-Providence Turnpike  
Norwood, MA 02062

| Standard<br>reference<br>number | Title                                                                                                                                                                                                                                                   | Referenced<br>in code<br>section number |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| 4450—90                         | Approval Standard for Class 1 Insulated Steel Deck Roofs—with Supplements thru 7/92 . . . . .                                                                                                                                                           | 1504.3.1,<br>1508.1, 2603.3, 2603.4.1.5 |
| 4470—86                         | Approval Standard for Class 1 Roof Coverings—with Supplements thru August 1992. . . . .                                                                                                                                                                 | 1504.3.1, 1504.6                        |
| 4880—94                         | Approval Standard for Class 1: a) Insulated Wall or Wall and Roof/Ceiling Panels,<br>b) Plastic Interior Finish Materials, c) Plastic Exterior Building Panels,<br>d) Wall/Ceiling Coating Systems and e) Interior or Exterior Finish Systems . . . . . | 2603.4, 2603.7                          |

# GA

Gypsum Association  
810 First Street N.E. #510  
Washington, DC 20002-4268

| Standard<br>reference<br>number | Title                                                             | Referenced<br>in code<br>section number        |
|---------------------------------|-------------------------------------------------------------------|------------------------------------------------|
| GA 216—96                       | Application and Finishing of Gypsum Board . . . . .               | Table 2508.1, 2509.2                           |
| GA 600—97                       | Fire-resistance Design Manual, 15th Edition, April, 1997. . . . . | Table 719.1(1), Table 719.1(2), Table 719.1(3) |

# HPVA

Hardwood Plywood Veneer Association  
1825 Michael Faraday Drive  
Reston, VA 20190-5350

| Standard<br>reference<br>number | Title                                                                       | Referenced<br>in code<br>section number |
|---------------------------------|-----------------------------------------------------------------------------|-----------------------------------------|
| HPVA HP-1—94                    | The American National Standard for Hardwood and Decorative Plywood. . . . . | 2303.3, 2304.6.2                        |

## REFERENCED STANDARDS

# ICC

International Code Council  
5203 Leesburg Pike, Suite 600  
Falls Church, VA 22041

| Standard<br>reference<br>number | Title                                                                                                                                                        | Referenced<br>in code<br>section number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ICC A 117.1—98                  | Accessible and Usable Buildings and Facilities . . . . .                                                                                                     | 406.2.2, 907.9.1.3,<br>1003.2.13.5.5, 1003.3.4, 1003.3.4.5.5, 1003.3.4.8, Comm 62.1100-62.1110,<br>1405.10.4, 1607.7, 3001.3, 3408.5, 3408.7.1, 3408.7.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| EC—2000                         | ICC Electrical Code™ . . . . .                                                                                                                               | 904.3.1, 907.5, 909.11, 909.12.1,<br>909.16.3, 1003.2.10.5, 1003.2.11.2, 1204.4.1, 1405.10.4, 2701.1, 2702.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| IECC—2000                       | International Energy Conservation Code® . . . . .                                                                                                            | 1202.3.2, 1301.1.1, 1403.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| IFC—2000                        | International Fire Code® . . . . .                                                                                                                           | 102.6, 307.2, 307.9, Table 307.7(1), Table 307.7(2), 403.8, 404.2,<br>406.5.1, 410.3.7, 411.1, 412.4.1, 413.1, 414.1.1, 414.1.2, 414.2.4, Table 414.2.4, 414.3, 414.5, 414.5.1, Table 414.5.1,<br>414.5.2, 414.5.4, 414.5.5, 414.6, 415.1, 415.3, Table 415.3.1, 415.7, 415.7.1, 415.7.1.4, 415.7.2, 415.7.2.3, 415.7.2.5,<br>415.7.2.7, 415.7.2.8, 415.7.2.9, 415.7.3, 415.7.3.3.3, 415.7.3.5, 415.7.4, 415.8, 415.9.1, 415.9.2.7, 415.9.5.1, 415.9.7.2,<br>704.8.2, 901.2, 901.3, 901.5, 903.2.6.1, 903.2.13, Table 903.2.15, 903.5, 904.2.1, 905.1, 906.1, 907.2.5, 907.2.12.2,<br>907.2.14, 907.2.16, 907.19, 909.20, 910.2.3, Table 910.3, 1001.3, 1202.4.2, 1202.5, 2702.2.8, 2702.2.10, 2702.2.11,<br>2702.3, 2702.12, 3102.1, 3103.1 |
| IFGC—2000                       | International Fuel Gas Code® . . . . .                                                                                                                       | 201.3, 307.9, 415.7.3, 2113.11.2, 2801.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| IMC—2000                        | International Mechanical Code® . . . . .                                                                                                                     | 201.3, 307.9, 406.4.2, 406.6.3, 409.3, 412.4.6, 414.1.2,<br>414.3, 415.7.1.4, 415.7.2, 415.7.2.8, 415.7.3, 415.7.4, 415.9.11.1, 416.3, 603.1, 707.2, 715.2.2, 715.5.4, 715.6.1, 715.6.2,<br>715.6.3, 716.5, 718.1, 903.2.14.1, 904.2.1, 908.6, 909.1, 909.10.2, 1004.3.2.4, 1007.3, 1202.1, 1202.2.1, 1202.4.2,<br>1202.4.2.1, 1202.5, 1208.3, 2304.5, 2801.1, 3004.3.1                                                                                                                                                                                                                                                                                                                                                                      |
| IPC—2000                        | International Plumbing Code® . . . . .                                                                                                                       | 102.6, 201.3, 415.7.4, 716.5, 903.3.5,<br>1205.3.3, 1503.4, 1611.1, 1806.4.3, 2901.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| IPMC—2000                       | International Property Maintenance Code® . . . . .                                                                                                           | 102.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| IPSDC—2000                      | International Private Sewage Disposal Code® . . . . .                                                                                                        | 2901.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| IRC—2000                        | International Residential Code® . . . . .                                                                                                                    | 2113.15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| SBCCI SSTD 7—99                 | Standard for Soil Expansion Index Test . . . . .                                                                                                             | 1802.3.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| SBCCISSTD 10—99                 | Standard for Hurricane Resistant Residential Construction . . . . .                                                                                          | 1609.1.1, 2308.2.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| SBCCISSTD 11—97                 | Test Standard for Determining Wind Resistance of Concrete or Clay Roof Tiles . . . . .                                                                       | 1715.2.1, 1715.2.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| SBCCI SSTD 12—97                | Standard for Determining Impact Resistance from Windborne Debris . . . . .                                                                                   | 1609.1.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| UBC Standard 18—2               | Expansion Index Test . . . . .                                                                                                                               | 1802.3.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| UBC 26-4—97                     | Method of Test for the Evaluation of Flammability Characteristics of Exterior, Nonload-Bearing Wall Panel Assemblies Using Foam Plastic Insulation . . . . . | 2603.5.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

# NAAMM

National Association of Architectural  
Metal Manufacturers  
8 South Michigan Ave  
Chicago, IL 60603

| Standard<br>reference<br>number | Title                                                         | Referenced<br>in code<br>section number |
|---------------------------------|---------------------------------------------------------------|-----------------------------------------|
| NAAMM 1001—90                   | Guide Specifications for Design of Metal Flag Poles . . . . . | 1609.1.1                                |

# NBS

National Bureau of Standards  
U.S. Department of Commerce  
Superintendent of Documents  
Government Printing Office  
Washington, DC 20401

| Standard<br>reference<br>number | Title                                                                                   | Referenced<br>in code<br>section number |
|---------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------|
| BMS 71—41                       | Fire Tests of Wood and Metal-framed Partitions . . . . .                                | 720.7                                   |
| TRBM-44—46                      | Fire-resistance and Sound-insulation Ratings for Walls, Partitions and Floors . . . . . | 720.7                                   |

# NCMA

National Concrete Masonry Association  
2302 Horse Pen Road  
Herndon, VA 22071-3499

| Standard<br>reference<br>number | Title                                                    | Referenced<br>in code<br>section number |
|---------------------------------|----------------------------------------------------------|-----------------------------------------|
| NCMA—TBK 5-8 (1978)             | Design Details for Concrete Masonry Fire Walls . . . . . | Table 719.1(2)                          |

# NEMA

National Electrical Manufacturers Association  
2101 L Street, N.W., Suite 300  
Washington, DC 20037

| Standard<br>reference<br>number | Title                                                           | Referenced<br>in code<br>section number |
|---------------------------------|-----------------------------------------------------------------|-----------------------------------------|
| NEMA—250—97                     | Enclosures for Electrical Equipment (1000 volts, Max) . . . . . | 1621.3.13.1                             |
| NEMA ICS 6—93                   | Industrial Control and System Enclosures . . . . .              | 1621.3.13.1                             |

# NFPA

National Fire Protection Association  
1 Batterymarch Park  
Quincy, MA 02269-9101

| Standard<br>reference<br>number | Title                                                                                                                | Referenced<br>in code<br>section number                                                                                                                                                                                         |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NFPA 11—98                      | Low Expansion Foam . . . . .                                                                                         | 904.7                                                                                                                                                                                                                           |
| NFPA 11A—99                     | Medium- and High-expansion Foam Systems . . . . .                                                                    | 904.7                                                                                                                                                                                                                           |
| NFPA 12—98                      | Carbon Dioxide Extinguishing Systems . . . . .                                                                       | 904.8, 904.11                                                                                                                                                                                                                   |
| NFPA 12A—97                     | Halon 1301 Fire Extinguishing Systems . . . . .                                                                      | 904.9                                                                                                                                                                                                                           |
| NFPA 13—99                      | Installation of Sprinkler Systems [Comm 62.3500 (1)] . . . . .                                                       | 704.12, 707.2, 903.3.1.1, 903.3.2,<br>903.3.5.1.1, 904.11, 907.8, 1621.3.10.1, 3104.5, 3104.9                                                                                                                                   |
| NFPA 13D—96                     | Installation of Sprinkler Systems in One- and Two-family<br>Dwellings and Manufactured Homes . . . . .               | 903.1.2, 903.3.1.3, 903.3.5.1.1                                                                                                                                                                                                 |
| NFPA 13R—99                     | Installation of Sprinkler Systems in Residential Occupancies Up to and Including<br>Four Stories in Height . . . . . | 903.1.2, 903.3.1.2, 903.3.5.1.1, 903.3.5.1.2, 903.4                                                                                                                                                                             |
| NFPA 14—96                      | Standpipe and Hose System . . . . .                                                                                  | 905.2, 905.3.2, 905.3.5, 905.4.2, 905.8                                                                                                                                                                                         |
| NFPA 16—99                      | Installation of Deluge Foam-water Sprinkler and Foam-water Spray Systems . . . . .                                   | 904.7, 904.11                                                                                                                                                                                                                   |
| NFPA 17—98                      | Dry Chemical Extinguishing Systems . . . . .                                                                         | 904.6, 904.11                                                                                                                                                                                                                   |
| NFPA 17A—98                     | Wet Chemical Extinguishing Systems . . . . .                                                                         | 904.5, 904.11                                                                                                                                                                                                                   |
| NFPA 30—00                      | Flammable and Combustible Liquids Code . . . . .                                                                     | 307.9, 415.3                                                                                                                                                                                                                    |
| NFPA 30B—98                     | Manufacture and Storage of Aerosol Products . . . . .                                                                | 307.9                                                                                                                                                                                                                           |
| NFPA 32—96                      | Dry Cleaning Plants . . . . .                                                                                        | 415.7.4                                                                                                                                                                                                                         |
| NFPA 33—00                      | Spray Application Using Flammable or Combustible Materials . . . . .                                                 | 307.9, 416.1                                                                                                                                                                                                                    |
| NFPA 34—00                      | Dipping and Coating Processes Using Flammable or Combustible Liquids . . . . .                                       | 307.9, 416.1                                                                                                                                                                                                                    |
| NFPA 40—97                      | Storage and Handling of Cellulose Nitrate Motion Picture Film . . . . .                                              | 409.1                                                                                                                                                                                                                           |
| NFPA 61—95                      | Prevention of Fires and Dust Explosions in Agricultural Food . . . . .                                               | 415.7.1                                                                                                                                                                                                                         |
| NFPA 65—93                      | Processing & Finishing of Aluminum . . . . .                                                                         | 415.7.1                                                                                                                                                                                                                         |
| NFPA 72—99                      | National Fire Alarm Code [Comm 62.3500 (1)] . . . . .                                                                | 505.4, 901.6, 903.4.1, 904.3.5, 907.2,<br>907.2.1, 907.2.1.1, 907.2.10, 907.2.10.4, 907.2.11.2, 907.2.11.3, 907.2.12.2.3, 907.2.12.3, 907.4, 907.5, 907.9.2, 907.10,<br>907.14, 907.16, 907.17, 909.12, 909.12.3, 911.1, 3006.5 |
| NFPA 80—99                      | Fire Doors and Fire Windows . . . . .                                                                                | 302.1.1.1, 714.2, 714.2.6.1,<br>714.2.7.2, 714.3, 714.3.3, 1003.3.1.3.3                                                                                                                                                         |
| NFPA 96—98                      | Ventilation Control and Fire Protection of Commercial Cooking Operations . . . . .                                   | 904.11                                                                                                                                                                                                                          |
| NFPA 101—97                     | Code for Safety to Life from Fire in Buildings and Structures . . . . .                                              | 1008.5.2                                                                                                                                                                                                                        |
| NFPA 102—95                     | Assembly Seating, Tents and Membrane Structures . . . . .                                                            | Table 1607.1                                                                                                                                                                                                                    |
| NFPA 110—99                     | Emergency and Standby Power Systems . . . . .                                                                        | 2702.1                                                                                                                                                                                                                          |
| NFPA 111—96                     | Stored Electrical Energy Emergency and Standby Power Systems . . . . .                                               | 2702.1                                                                                                                                                                                                                          |
| NFPA 120—99                     | Coal Preparation Plants . . . . .                                                                                    | 415.7.1                                                                                                                                                                                                                         |
| NFPA 204—98                     | Guide for Smoke and Heat Venting . . . . .                                                                           | 3104.11                                                                                                                                                                                                                         |
| NFPA 231C—98                    | Rack Storage of Materials . . . . .                                                                                  | 507.2                                                                                                                                                                                                                           |
| NFPA 252—95                     | Standard Methods of Fire Tests of Door Assemblies . . . . .                                                          | 714.2.1, 714.2.2, 714.2.3, 714.2.4.1                                                                                                                                                                                            |

## REFERENCED STANDARDS

### NFPA—continued

|              |                                                                                                                                                                                                                           |                                            |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| NFPA 253—95  | Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Heat Source . . . . .                                                                                                                     | 804.2, 804.3                               |
| NFPA 257—96  | Standard on Fire Test for Window and Glass Block Assemblies . . . . .                                                                                                                                                     | 714.2.3, 714.3, 714.3.1                    |
| NFPA 259—98  | Test Method for Potential Heat of Building Materials. . . . .                                                                                                                                                             | 2603.4.1.10, 2603.5.3                      |
| NFPA 265—98  | Standard Methods of Fire Tests for Evaluating Room Fire Growth Contribution of Textile Wall Coverings . . . . .                                                                                                           | 803.5.1                                    |
| NFPA 268—96  | Standard Test Method for Determining Ignitibility of Exterior Wall Assemblies Using a Radiant Heat Energy Source . . . . .                                                                                                | 1406.2.1, 1406.2.1.1, 1406.2.1.2, 2603.5.7 |
| NFPA 285—98  | Standard Method of Test for the Evaluation of Flammability Characteristics of Exterior Nonloadbearing Wall Assemblies Containing Combustible Components Using the International Scale, Multistory Test Apparatus. . . . . | 2603.5.5                                   |
| NFPA 409—95  | Standard on Aircraft . . . . .                                                                                                                                                                                            | 412.2.6, 412.4.5                           |
| NFPA 418—95  | Standard for Heliports. . . . .                                                                                                                                                                                           | 412.5.6                                    |
| NFPA 651—98  | Manufacture of Aluminum Powder . . . . .                                                                                                                                                                                  | 415.7.1                                    |
| NFPA 654—97  | Prevention of Fire & Dust Explosions in the Chemical, Dye, Pharmaceutical, Plastics, and Industries. . . . .                                                                                                              | 415.7.1                                    |
| NFPA 655—93  | Prevention of Sulfur Fires and Explosions . . . . .                                                                                                                                                                       | 415.7.1                                    |
| NFPA 664—98  | Prevention of Fires Explosions in Wood Processing and Woodworking Facilities . . . . .                                                                                                                                    | 415.7.1                                    |
| NFPA 701—96  | Methods of Fire Test for Flame-resistant Textiles and Films . . . . .                                                                                                                                                     | 802.1, 805.1, 805.2, 3102.3.1, 3105.3      |
| NFPA 704—96  | Standard System for the Identification of the Hazards of Materials for Emergency Response . . . . .                                                                                                                       | 414.7.2, 415.2                             |
| NFPA 750—96  | Standard on Water Mist Fire Protection Systems [Comm 62.3500 (2)] . . . . .                                                                                                                                               | Comm 62.0904(1)                            |
| NFPA 1124—98 | Manufacture, Transportation, and Storage of Fireworks and Pyrotechnic Articles . . . . .                                                                                                                                  | 415.3.1                                    |
| NFPA 1963—98 | Fire Hose Connections . . . . .                                                                                                                                                                                           | 903.3.6, 905.1                             |
| NFPA 2001—96 | Standard on Clean Agent Fire Extinguishing Systems . . . . .                                                                                                                                                              | 904.10                                     |
| NFPA 8503—97 | Pulverized Fuel Systems . . . . .                                                                                                                                                                                         | 415.7.1                                    |

## PCI

Precast Prestressed Concrete Institute  
175 W. Jackson Boulevard, Suite 1859  
Chicago, IL 60604-9773

| Standard<br>reference<br>number | Title                                                                | Referenced<br>in code<br>section number |
|---------------------------------|----------------------------------------------------------------------|-----------------------------------------|
| MNL124—1977                     | Design for Fire Resistance of Precast Prestressed Concrete . . . . . | 720.2.3.1                               |

## PTI

Post-Tensioning Institute  
1717 W. Northern Avenue, Suite 114  
Phoenix, AZ 85021

| Standard<br>reference<br>number | Title                                                                            | Referenced<br>in code<br>section number |
|---------------------------------|----------------------------------------------------------------------------------|-----------------------------------------|
| PTI—1996                        | Design and Construction of Post-tensioned Slabs-on-ground, 2nd Edition . . . . . | 1805.8.2                                |

## RMA

Rubber Manufacturers Association  
1400 K. Street, N.W. #900  
Washington, DC 20005

| Standard<br>reference<br>number | Title                                                                                   | Referenced<br>in code<br>section number |
|---------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------|
| RP-1—90                         | Minimum Requirements for Non-reinforced Black EPDM Rubber Sheets . . . . .              | 1507.12.2                               |
| RP-2—90                         | Minimum Requirements for Fabric-reinforced Black EPDM Rubber Sheets . . . . .           | 1507.12.2                               |
| RP-3—85                         | Minimum Requirements for Fabric-reinforced Black Polychloroprene Rubber Sheets. . . . . | 1507.12.2                               |
| RMA/SPRI RP-4—1988              | Wind Design Guide for Ballasted Single-ply Roofing Systems . . . . .                    | 1504.4                                  |

# RMI

Rack Manufacturers Institute  
8720 Red Oak Boulevard, Suite 201  
Charlotte, NC 28217

| Standard reference number | Title                                                                       | Referenced in code section number |
|---------------------------|-----------------------------------------------------------------------------|-----------------------------------|
| RMI (1997)                | Design, Testing and Utilization of Industrial Steel Storage Racks . . . . . | 2210, 1622.3.4                    |

# SAE

Society of Automotive Engineers  
400 Common Wealth Drive  
Warrendale, PA 15096

| Standard reference number | Title                                        | Referenced in code section number |
|---------------------------|----------------------------------------------|-----------------------------------|
| SAE J78—79                | Steel Self Drilling Tapping Screws . . . . . | 2211.2, 2211.3.3                  |

# SJI

Steel Joist Institute  
3127 10th Avenue, North  
Myrtle Beach, SC 29577-6760

| Standard reference number | Title                                                                                              | Referenced in code section number |
|---------------------------|----------------------------------------------------------------------------------------------------|-----------------------------------|
| SJI—1994                  | Standard Specification, Load Tables and Weight Tables for Steel Joists and Joist Girders . . . . . | 1604.3.3, 2206                    |
| SJI—1994                  | OpenWeb Steel Joists, K Series . . . . .                                                           | 2206                              |
| SJI—1994                  | Longspan Steel Joists, LH Series and Deep Longspan Steel Joists, DLH Series . . . . .              | 2206                              |

# SMACNA

Sheet Metal & Air Conditioning Contractor's National Assn., Inc.  
4201 Lafayette Center Drive  
Chantilly, VA 20151

| Standard reference number | Title                                                                                                  | Referenced in code section number |
|---------------------------|--------------------------------------------------------------------------------------------------------|-----------------------------------|
| SMACNA-HVAC—1995          | HVAC Duct Construction Standards, Metal and Flexible . . . . .                                         | 1621.3.9                          |
| SMACNA-Seismic—1998       | Seismic Restraint Manual Guidelines for Mechanical Systems, 1991, including Appendix B, 1998 . . . . . | 1621.3.9                          |

# TIA

Telecommunications Industry Association  
2500 Wilson Boulevard  
Arlington, VA 22201-3834

| Standard reference number | Title                                                                                     | Referenced in code section number |
|---------------------------|-------------------------------------------------------------------------------------------|-----------------------------------|
| EIA-TIA 222-E—91          | Structural Standards for Steel Antenna Towers and Antenna Supporting Structures . . . . . | 3108.4                            |

# TMS

The Masonry Society  
3970 Broadway, Unit 201-D  
Boulder, CO 80304-1135

| Standard reference number | Title                                                                                                     | Referenced in code section number |
|---------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------|
| 0216—97                   | Standard Method for Determining Fire Resistance of Concrete and Masonry Construction Assemblies . . . . . | Table 719.1(2), 720.1             |

## REFERENCED STANDARDS

### TMS—continued

|        |                                                             |                                                                                                                                                                                                                                                                                                                                                    |
|--------|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 402—99 | Building Code Requirements for Masonry Structures . . . . . | 1405.5, 1405.5.3, 1405.5.3.1, 1405.9, 1604.3.4, 1805.5.2, 1811.7, 2101.2.3, 2101.2.4, 2106.1.1, 2106.1.1.1, 2106.1.1.2, 2106.1.1.3, 2106.1.1.4, 2106.1.1.5, 2106.1.2, 2106.1.2.1, 2106.1.2.2, 2106.1.2.3, 2106.2, 2106.4.2.1, 2106.4.2.2, 2106.5.1, 2107.1, 2107.2, 2107.2.1, 2107.2.2, 2107.2.3, 2107.2.4, 2107.2.5, 2108.6.5, 2109.1, 2109.2.3.1 |
| 602—99 | Specification for Masonry Structures . . . . .              | 1405.5.2, 1405.9.1, 2104.1, 2104.1.1, 2108.7.2                                                                                                                                                                                                                                                                                                     |

## TPI

Truss Plate Institute  
583 D'Onofrio Drive, Suite 200  
Madison, WI 53719

| Standard reference number | Title                                                                                 | Referenced in code section number |
|---------------------------|---------------------------------------------------------------------------------------|-----------------------------------|
| TPI 1—1995                | National Design Standards for Metal-Plate-Connected Wood Truss Construction . . . . . | 2303.4, 2306.1                    |

## UL

Underwriters Laboratories  
333 Pfingsten Road  
Northbrook, IL 60062-2096

| Standard reference number | Title                                                                                                                                    | Referenced in code section number      |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| UL 10A—98                 | Tin Clad Fire Doors . . . . .                                                                                                            | 714.2                                  |
| UL 10B—97                 | Fire Tests of Door Assemblies . . . . .                                                                                                  | 714.2.2                                |
| UL 10C—98                 | Posture Pressure Fire Tests of Door Assemblies . . . . .                                                                                 | 714.2.1, 714.2.3                       |
| UL 14B—96                 | Sliding Hardware for Standard Horizontally Mounted Tin Clad Fire Doors . . . . .                                                         | 714.2                                  |
| UL 14C—96                 | Swinging Hardware for Standard Tin Clad Fire Doors Mounted Single and in Pairs . . . . .                                                 | 714.2                                  |
| UL 103—98                 | Chimneys, Factory-Built, 1 Residential Type and Building Heating Appliance<br>—with Revisions through March 1999 . . . . .               | 716.2.5                                |
| UL 127—99                 | Factory-built Fireplaces . . . . .                                                                                                       | 716.2.5                                |
| UL 268—96                 | Smoke Detectors for Fire Protective Signaling Systems—with Revisions Through January 1999 . . . . .                                      | 407.6, 907.2.6.1                       |
| UL 300—96                 | Fire Testing of Fire Extinguishing Systems for Protection of Restaurant Cooking Areas<br>—with Revisions through December 1998 . . . . . | 904.11                                 |
| UL 555—95                 | Fire Dampers . . . . .                                                                                                                   | 715.3                                  |
| UL 555C—96                | Ceiling Dampers . . . . .                                                                                                                | 715.3, 715.6.2                         |
| UL 555S—96                | Leakage Rated Dampers for Use in Smoke Control Systems . . . . .                                                                         | 715.3, 715.3.1.1                       |
| UL 580—94                 | Test for Uplift Resistance of Roof Assemblies—with Revisions through April 1995 . . . . .                                                | 1504.3.1, 1504.3.2                     |
| UL 641—95                 | Type L Low-Temperature Venting Systems . . . . .                                                                                         | 2113.11.1.4                            |
| UL 790—98                 | Tests for Fire Resistance of Roof Covering Materials . . . . .                                                                           | 1505.1, 1505.6, 2603.6, 2610.2, 2610.3 |
| UL 864—96                 | Control Units for Fire Protective Signaling Systems . . . . .                                                                            | 909.12                                 |
| UL 1040—98                | Fire Test of Insulated Wall Construction . . . . .                                                                                       | 1407.9.3, 2603.4, 2603.7               |
| UL 1256—98                | Fire Test of Roof Deck Construction . . . . .                                                                                            | 1508.1, 2603.3, 2603.4.1.5             |
| UL 1715—97                | Fire Test of Interior Finish Material . . . . .                                                                                          | 1407.9.2, 1407.9.3, 2603.4, 2603.7     |
| UL 1777—98                | Chimney Liners—with Revisions through July 1998 . . . . .                                                                                | 2113.11.1, 2113.19                     |
| UL 1784—95                | Air Leakage Tests of Door Assemblies . . . . .                                                                                           | 714.2.3, 714.2.5.1                     |
| UL 1897—98                | Uplift Tests for Roof Covering Systems . . . . .                                                                                         | 1504.3.1                               |
| UL 1975—90                | Fire Test of Foamed Plastic Used for Decorative Purposes . . . . .                                                                       | 402.14.5                               |
| UL 2079—98                | Tests for Fire Resistance of Building Joint Systems . . . . .                                                                            | 702.1, 712.3                           |

## ULC

Underwriters Laboratories of Canada  
7 Crouse Road  
Scarborough, Ontario, Canada M1R3A9

| Standard reference number | Title                                                                          | Referenced in code section number |
|---------------------------|--------------------------------------------------------------------------------|-----------------------------------|
| CAN/ULC/S102.2—88         | Surface Burning Characteristics of Building Materials and Assemblies . . . . . | 718.4                             |

# ULC

United States Code  
c/o Superintendent of Documents  
U.S. Government Printing Office  
Washington, DC 20402-9325

| Standard<br>reference<br>number | Title                                                                               | Referenced<br>in code<br>section number |
|---------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------|
| USC Title 18: Chapter 40—70     | Importation, Manufacture, Distribution and Storage of Explosive Materials . . . . . | 307.2                                   |

# WRI

Wire Reinforcement Institute, Inc.  
203 Loudon Street, S.W.  
2nd Floor, Suite 203C  
Leesburg, VA 22075

| Standard<br>reference<br>number | Title                                          | Referenced<br>in code<br>section number |
|---------------------------------|------------------------------------------------|-----------------------------------------|
| WRI/CRSI—81                     | Design of Slab-on-ground Foundations . . . . . | 1805.8.2                                |



## **APPENDICES A & B**

**Deleted**

|



## APPENDIX C

# GROUP U - AGRICULTURAL BUILDINGS

### SECTION C101 GENERAL

**C101.1 [Comm 62.3600 (2)] Scope.** The provisions of IBC Appendix C apply to Group U agricultural buildings, as described in IBC Section C101.1, that are not exempt from this code as outlined in ss. Comm 61.01 and Comm 61.02 (2) and (3).

1. Livestock shelters or buildings, including shade structures and milking barns.
2. Poultry buildings or shelters.
3. Barns.
4. Storage of equipment and machinery used exclusively in agriculture.
5. Horticultural structures, including detached production greenhouses and crop protection shelters.
6. Sheds.
7. Grain silos.
8. Stables.

### SECTION C102 ALLOWABLE HEIGHT AND AREA

**C102.1 General.** Buildings classified as Group U Agricultural Building shall not exceed the area or height limits specified in Table C102.1.

**C102.2 One-story unlimited area.** The area of a one-story Group U agricultural building shall not be limited if the building is surrounded and adjoined by public ways or yards not less than 60 feet in width.

**C102.3 Two-story unlimited area.** The area of a two-story Group U agricultural building shall not be limited if the building is surrounded and adjoined by public ways or yards not less than 60 feet (18 288 mm) in width and is provided with an approved automatic sprinkler system throughout in accordance with Section 903.3.1.1.

### SECTION C103 MIXED USES

**C103.1 Mixed uses.** Mixed uses shall be protected in accordance with Chapter 3.

### SECTION C104 EXITS

**C104.1 Exit facilities.** Exits shall be provided in accordance with Chapters 10 and 11.

#### Exceptions:

1. The maximum travel distance from any point in the building to an approved exit shall not exceed 300 feet (91 440 mm).
2. One exit is required for each 15,000 square feet (1393.5 m<sup>2</sup>) of area or fraction thereof.

**TABLE C102.1—BASIC ALLOWABLE AREA FOR A GROUP U,  
ONE STORY IN HEIGHT AND MAXIMUM HEIGHT OF SUCH OCCUPANCY**

| I                                               |        | II     |        | III and IV   |        | V      |        |
|-------------------------------------------------|--------|--------|--------|--------------|--------|--------|--------|
| A                                               | B      | A      | B      | III A and IV | III B  | A      | B      |
| <b>ALLOWABLE AREA (square feet)<sup>a</sup></b> |        |        |        |              |        |        |        |
| Unlimited                                       | 60,000 | 27,100 | 18,000 | 27,100       | 18,000 | 21,100 | 12,000 |
| <b>MAXIMUM HEIGHT IN STORIES</b>                |        |        |        |              |        |        |        |
| Unlimited                                       | 12     | 4      | 2      | 4            | 2      | 3      | 2      |
| <b>MAXIMUM HEIGHT IN FEET</b>                   |        |        |        |              |        |        |        |
| Unlimited                                       | 160    | 65     | 55     | 65           | 55     | 50     | 40     |

For SI: 1 square foot = 0.0929 m<sup>2</sup>.

a. See Section C102 for unlimited area under certain conditions.



## **APPENDICES D - J**

**Deleted**



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## W

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