



**SOUTHERN NEVADA  
AMENDMENTS  
TO THE  
2009 INTERNATIONAL BUILDING CODE**

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## PREFACE

This document was developed by the Southern Nevada Building Officials' International Building Code Committee and presents recommended amendments to the 2009 *International Building Code* (IBC) as published by the International Code Council (ICC).

Participation in the 2009 International Building Code Committee was open to all interested parties. However, voting on amendment proposals was limited to one vote each for the seven Southern Nevada municipalities (Clark County, Henderson, Las Vegas, North Las Vegas, Boulder City, Pahrump, and Mesquite), the Clark County School District, and three industry representatives. All International Building Code Committee proceedings were conducted in accordance with Robert's Rules of Order.

The recommended amendments contained herein are not code unless adopted and codified by governmental jurisdictions. These amendments are not intended to prevent the use of any material or method of construction not specifically prescribed herein, provided any alternates have been approved and their use authorized by the Building Official. This document may be copied and used in whole or in part without permission or approval from the organizations listed on the cover page.

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## **Chapter 1 Administration.**

*Delete Part 2 (“Administration and Enforcement”), including Sections 103 through 116 in their entirety, from Chapter 1.*

### **Section 202 Definitions.**

*Revise Section 202, definition of “High-Rise Building”, as follows:*

**HIGH-RISE BUILDING.** A building with an occupied floor located more than 55 feet (16 764 mm) above the lowest level of fire department vehicle access.

*Revise Section 202 to include the following new definitions:*

**FIRE CODE OFFICIAL.** The fire chief or other designated authority charged with the administration and enforcement of the *International Fire Code*, or a duly authorized representative.

**INTERNATIONAL ELECTRICAL CODE.** The Electrical Code as amended and adopted by the local jurisdiction.

**INTERNATIONAL ENERGY CONSERVATION CODE.** The Energy Conservation Code as amended and adopted by the local jurisdiction.

**INTERNATIONAL EXISTING BUILDING CODE.** The Existing Building Code as amended and adopted by the local jurisdiction.

**INTERNATIONAL FIRE CODE.** The Fire Code as amended and adopted by the local jurisdiction.

**INTERNATIONAL FUEL GAS CODE.** The Fuel Gas Code as amended and adopted by the local jurisdiction.

**INTERNATIONAL MECHANICAL CODE.** The Mechanical Code as amended and adopted by the local jurisdiction.

**INTERNATIONAL PLUMBING CODE.** The Plumbing Code as amended and adopted by the local jurisdiction.

**INTERNATIONAL PRIVATE SEWAGE DISPOSAL CODE.** The Private Sewage Disposal Code as amended and adopted by the local jurisdiction.

**INTERNATIONAL PROPERTY MAINTENANCE CODE.** The Property Maintenance Code as amended and adopted by the local jurisdiction.

**INTERNATIONAL RESIDENTIAL CODE.** The Residential Code as amended and adopted by the local jurisdiction.

**INTERNATIONAL WILDLAND-URBAN INTERFACE CODE.** The Wildland-Urban Interface Code as amended and adopted by the local jurisdiction.

## **Section 303.1 Assembly Group A.**

*Revise Section 303.1 Subsection A-2, as follows:*

**A-2** Assembly uses intended for food and/or drink consumption including, but not limited to:

- Banquet halls
- Night clubs
- Restaurants
- Taverns and bars
- Casinos

*Remainder of Section 303.1 to remain unchanged.*

## **Section 308.3.1 Definitions.**

*Revise Sections 308.3.1, as follows:*

**308.3.1 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.

**CHILD CARE FACILITIES.** Facilities that provide care on a 24-hour basis to more than six children, 2½ years of age or less.

*Other definitions remain unchanged.*

## **Section 308.5 Group I-4, day care facilities.**

*Revise Section 308.5, as follows:*

**308.5 Group I-4, day care facilities.** This group shall include buildings and structures occupied by persons of any age who receive custodial care for less than 24 hours by individuals other than parents or guardians, relatives by blood, marriage or adoption, and in a place other than the home of the person cared for. A facility such as the above with six or fewer persons shall be classified as a Group R-3 or shall comply with the *International Residential Code* in accordance with Section 101.2. Places of worship during religious functions are not included.

*Section 308.5.1 remains unchanged.*

## **Section 308.5.2 Child care facility.**

*Revise Section 308.5.2, as follows:*

**308.5.2 Child care facility.** A facility that provides supervision and personal care on less than a 24-hour basis for more than six children 2½ years of age or less shall be classified as a Group I-4.

**Exception:** A child day care facility that provides care for more than six but no more than 100 children 2½ years or less of age, where the rooms in which the children are cared for are located on a *level of exit discharge* serving such rooms and each of these child care rooms has an *exit* door directly to the exterior, shall be classified as Group E.



## **Section 310.1 Residential Group R.**

*Revise Section 310.1, as follows:*

**310.1 Residential Group R.** Residential Group R includes, among others, the use of a building or structure, or a portion thereof, for sleeping purposes when not classified as an Institutional Group I or when not regulated by the *International Residential Code* in accordance with Section 101.2. Residential occupancies shall include the following:

**R-1** Residential occupancies containing *sleeping units* where the occupants are primarily transient in nature, including:

- Boarding houses* (transient)
- Hotels (transient)
- Motels (transient)

*Congregate living facilities* (transient) with 10 or fewer occupants are permitted to comply with the construction requirements for Group R-3.

**R-2** Residential occupancies containing *sleeping units* or more than two *dwelling units* where the occupants are primarily permanent in nature, including:

- Apartment houses
- Boarding houses* (non-transient)
- Condominiums (non-transient)
- Convents
- Dormitories
- Fraternities and sororities
- Hotels (non-transient)
- Live/work units
- Monasteries
- Motels (non-transient)
- Vacation timeshare properties

**R-3** Residential occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:

Buildings that do not contain more than two *dwelling units*.

Adult care facilities that provide accommodations for five or fewer persons of any age for less than 24 hours.

Child care facilities that provide accommodations for six or fewer persons of any age for less than 24 hours.

*Congregate living facilities* with 16 or fewer persons.

Adult care and child care facilities that are within a single-family home are permitted to comply with the *International Residential Code*.

*Remainder of Section 310.1 to remain unchanged.*

## **Section 311.2 Moderate-hazard storage, Group S-1.**

*Revise Section 311.2, as follows:*

**311.2 Moderate-hazard storage, Group S-1.** Buildings occupied for storage uses that are not classified as Group S-2, including, but not limited to, storage of the following:

- Aerosols, Levels 2 and 3
- Aircraft hangar (storage and repair)
- Bags; cloth, burlap and paper
- Bamboos and rattan
- Baskets
- Belting: canvas and leather
- Books and paper in rolls or packs
- Boots and shoes
- Buttons, including cloth covered, pearl or bone
- Cardboard and cardboard boxes
- Clothing, woolen wearing apparel
- Cordage
- Dry boat storage (indoor)
- Furniture
- Furs
- Glues, mucilage, pastes and size
- Grains
- Horns and combs, other than celluloid
- Leather
- Linoleum
- Lumber
- Motor vehicle repair garages complying with the maximum allowable quantities of hazardous materials listed in Table 307.1(1) (see Section 406.6)
- Photo engravings
- Resilient flooring
- Self-Service Storage Facility
- Silks
- Soaps
- Sugar
- Tires, bulk storage of
- Tobacco, cigars, cigarettes and snuff
- Upholstery and mattresses
- Wax candles

**Section 402.5.1 Minimum width.**

*Revise Section 402.5.1, as follows:*

**402.5.1 Minimum width.** The minimum width of the mall shall be 20 feet (6096 mm). The mall width shall be sufficient to accommodate the *occupant load* served. There shall be a minimum of 10 feet (3048 mm) clear exit width to a height of 8 feet (2438 mm) in front of, adjacent to, and parallel to the store front of a tenant space bordering the mall. Kiosks, vending machines, benches, display openings, food courts or other obstructions to *means of egress* travel shall not be permitted to be located within the minimum required clear exit width to a height of 8 feet.

**Section 402.9 Automatic sprinkler system.**

*Revise Section 402.9, as follows:*

**[F] 402.9 Automatic sprinkler system.** The *covered mall building* and buildings connected shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, which shall comply with the following:

1. The *automatic sprinkler system* shall be complete and operative throughout occupied space in the *covered mall building* prior to occupancy of any of the tenant spaces. Unoccupied tenant spaces shall be similarly protected unless provided with *approved* alternative protection.
2. Sprinkler protection for the mall shall be independent from that provided for tenant spaces or anchors. Where tenant spaces are supplied by the same system, they shall be independently controlled and the control valve shall be electrically supervised through the fire alarm system.

**Exception:** An *automatic sprinkler system* shall not be required in spaces or areas of:

1. *Open parking garages* constructed in accordance with Section 406.3.
2. *Open malls* as defined in Section 402.2.

### **Section 402.11 Kiosks.**

*Revise Section 402.11, as follows:*

**402.11 Kiosks.** Kiosks and similar structures (temporary or permanent) shall meet the following requirements:

1. *Unchanged.*
2. Kiosks or similar structures located within the mall shall be provided with *approved* fire suppression and detection devices.
3. *Unchanged.*
4. *Unchanged.*

### **Section 403.1 Applicability.**

*Revise Section 403.1, as follows:*

**403.1 Applicability.** High-rise buildings shall comply with Sections 403.2 through 403.6.

**Exception:** The provisions of Sections 403.2 through 403.6 shall not apply to the following buildings and structures:

1. Airport traffic control towers in accordance with Section 412.3.
2. Open parking garages in accordance with Section 406.3.
3. Special industrial occupancies in accordance with Section 503.1.1.

### **Section 403.3 Automatic sprinkler system.**

*Revise Section 403.3, as follows:*

**[F] 403.3 Automatic sprinkler system.** Buildings and structures shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 and a secondary water supply where required by Section 903.3.5.2.

**Exception:** An *automatic sprinkler system* shall not be required in *open parking garages* in accordance with Section 406.3.

#### **Section 403.4 Emergency systems.**

*Revise Section 403.4, as follows:*

**403.4 Emergency systems.** The detection, alarm and emergency systems of high-rise buildings shall comply with Sections 403.4.1 through 403.4.9.

#### **Section 403.4.6 Smoke removal.**

*Revise Section 403.4.6, as follows:*

**403.4.6 Smoke removal.** To facilitate smoke removal in post-fire salvage and overhaul operations, buildings and structures shall be equipped with natural or mechanical ventilation for removal of products of combustion in accordance with one of the following:

1. Easily identifiable, manually operable windows or panels shall be distributed around the perimeter of each floor at not more than 50-foot (15 240 mm) intervals. The area of operable windows or panels shall not be less than 40 square feet (3.7 m<sup>2</sup>) per 50 linear feet (15 240 mm) of perimeter.

##### **Exceptions:**

1. In Group R-1 occupancies, each *sleeping unit* or suite having an *exterior wall* shall be permitted to be provided with 2 square feet (0.19 m<sup>2</sup>) of venting area in lieu of the area specified in Item 1.
  2. Where permitted by the fire code official, windows of tempered glass shall be permitted to be fixed provided that no coating or film is applied and the glazing can be cleared by firefighters.
  3. Manually operable windows or panels are not required in Group R-1 and R-2 residential units provided the residential units comply with the passive requirements of Section 909 and all corridors between the residential units and the exit enclosures serving the residential units comply with Section 403.4.6, Item 3.
2. Mechanical air-handling equipment providing one exhaust air change every 15 minutes for the area involved. Return and exhaust air shall be moved directly to the outside without recirculation to other portions of the building. The volume of air shall be calculated based upon the volume of the space between the floor and the floor or roof structure above. The exhaust air quantity shall be as measured at the exhaust fan.

**Exception:** Smoke removal is not required for normally unoccupied areas such as mechanical equipment rooms, electrical rooms, storage rooms that do not exceed 500 square feet in area, elevator equipment rooms, or similar areas as approved by the *building official*.

3. A smoke control system in accordance with Section 403.4.9 that provides a minimum of one exhaust air change every 15 minutes for the area involved upon manual activation of the smoke removal feature at the smoke control graphics panel. The volume of air shall be calculated based upon the volume of the space between the floor and the floor or roof structure above. The exhaust air quantity shall be as measured at the exhaust fan.
4. Any other *approved* design that will produce equivalent results where permitted by the Authority Having Jurisdiction.

**403.4.6.1 Design requirements.** Smoke removal systems shall be capable of manual activation and shall be designed in accordance with Sections 403.4.6.1.1 through 403.4.6.1.4.

**403.4.6.1.1 Fans.** Fans shall be selected for stable performance based on normal temperature. Calculations and manufacturer's fan curves shall be part of the documentation procedures. Fans shall be supported and restrained by noncombustible devices in accordance with the requirements of Chapter 16.

**403.4.6.1.1.1 Fan belts.** Belt-driven fans shall have 1.5 times the number of belts required for the design duty, with the minimum number of belts being two.

**403.4.6.1.1.2 Fan motors.** Motors driving fans shall not be operated beyond their nameplate horsepower (kilowatts), as determined from measurement of actual current draw, and shall have a minimum service factor of 1.15.

**403.4.6.1.2 Ducts.** Ducts shall be constructed and supported in accordance with the *International Mechanical Code*. Exhaust ducts shall be leak tested to 1.5 times the maximum design pressure in accordance with nationally accepted practices. Measured leakage shall not exceed 5 percent of design flow. Results of such testing shall be a part of the special inspections report in accordance with Section 403.4.6.3.3.

**Exception:** Leakage testing shall not be required where the exhaust ducts are contained completely within the smoke removal zone they serve.

**403.4.6.1.3 Power.** The smoke removal system shall be supplied with two sources of power. Primary power shall be from the normal building power systems. Secondary power shall be from an *approved* standby source complying with Chapter 27 of this code.

**Exception:** Secondary power for the smoke removal system is not required where normal power can be automatically restored from the fire command center following a normal power shunt.

**403.4.6.1.3.1 Standby power source enclosure.** The standby power source and its transfer switches shall be in a room separate from the normal power transformers and switch gears and ventilated directly to and from the exterior. The room shall be enclosed with not less than 1-hour *fire barriers* constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 712, or both.

**403.4.6.1.3.2 Power sources and power surges.** Elements of the smoke removal system relying on volatile memories shall be supplied with uninterruptable power sources of sufficient duration to span a 15-minute primary power interruption. Elements of the smoke removal system susceptible to power surges shall be suitably protected by conditioners, suppressors or other *approved* means.

**403.4.6.1.3.3 Secondary power supply.** The secondary power supply shall be sized to accommodate the electrical requirements of the two largest adjacent smoke removal zones simultaneously.

**403.4.6.1.4 Status indicators and controls.** Status indicators and controls for the smoke removal system shall be provided on a graphic control panel in the fire command center. The graphic control panel shall be designed in accordance with the *International Fire Code* and shall provide status of smoke removal fans and controls for the smoke removal systems. The control panel for the smoke removal system shall be permitted to operate through the building HVAC management system or the fire alarm system. The control panel for the smoke removal system shall not be required to be listed as smoke control equipment.

**403.4.6.2 Control diagrams.** The *construction documents* shall provide sufficient information and detail to adequately describe the elements of the design necessary for the proper implementation of the smoke removal systems. The construction documents shall include smoke removal system control diagrams that show all devices in the system and identify their location and function. The smoke removal system drawings shall be permitted to be combined with smoke control system drawings, where applicable. Approved copies of the smoke removal system control diagrams shall be maintained current and kept on file with the Authority Having Jurisdiction and in the fire command center in an *approved* format and manner.

**403.4.6.3 Special inspections for smoke removal.** Smoke removal systems shall be tested by a special inspector.

**Exception:** Special inspections shall not be required where smoke removal is achieved by natural ventilation in accordance with Section 403.4.6, Item 1.

**403.4.6.3.1 Scope of testing.** *Special inspections* shall be conducted in accordance with the following:

1. During erection of ductwork and prior to concealment for the purposes of leakage testing and recording device location.
2. Prior to occupancy and after sufficient completion for the purposes of exhaust air change rate measurements and control verification.

**403.4.6.3.2 Qualifications.** *Special inspection* agencies for smoke removal shall have expertise in fire protection engineering, mechanical engineering and certification as air balancers.

**403.4.6.3.3 Reports.** A complete report of testing shall be prepared by the special inspector or *special inspection* agency. The report shall include identification of all devices by manufacturer, nameplate data, design values, measured values and identification tag or *mark*. The report shall be reviewed by the responsible *registered design professional* and, when satisfied that the design intent has been achieved, the responsible *registered design professional* shall seal, sign and date the report with a statement as follows:

“I have reviewed this report and by personal knowledge and on-site observation certify that the smoke removal system is in substantial compliance with the design intent, and to the best of my understanding complies with the requirements of the code.”

**403.4.6.3.3.1 Report filing.** A copy of the final report shall be filed with the Authority Having Jurisdiction and an identical copy shall be maintained in the *fire command center*.

### **Section 403.4.7.2 Standby power loads.**

*Revise Section 403.4.7.2, as follows:*

**[F] 403.4.7.2 Standby power loads.** The following are classified as standby power loads:

1. Power and lighting for the fire command center required by Section 403.8;
2. Ventilation and automatic fire detection equipment for smokeproof enclosures;
3. Standby power shall be provided for elevators in accordance with Sections 1007.4, 3003, 3007 and 3008; and
4. Smoke control systems.

### **Section 403.4.9 Smoke control.**

*Add a new Section 403.4.9, as follows:*

**403.4.9 Smoke control.** A smoke control system shall be provided for all Group R-1 or R-2 occupancies. The smoke control system shall be in accordance with Section 909 except as modified in Section 403.4.9.1.

#### **Exceptions:**

1. Compliance with Sections 909.6, 909.7, 909.8, 909.9, and 909.12.3 shall not be required.
2. The preprogrammed test sequence for smoke control systems required by Section 909.12 shall be permitted to be performed on a quarterly basis and shall be permitted to only test manually restorable components on an individual basis, such that no single component shall be required to activate more than once during the test sequence.

**403.4.9.1 Design criteria.** Corridors serving Group R-1 sleeping units or Group R-2 dwelling units shall be provided with mechanical ventilation that achieves a minimum of one exhaust air change each 10 minutes for the area involved (6 air changes per hour). The exhaust rate for the smoke control system shall exceed the supply (makeup) air rate by a minimum of 20 percent to ensure that the corridor is maintained slightly negative relative to adjacent areas. All Group R-1 sleeping units and Group R-2 dwelling units shall be passive smoke control zones.

**Exception:** Where approved by the *building official*, passive smoke control shall be permitted for the corridors.

**403.4.9.1.1 System activation.** The smoke control system shall be automatically activated upon smoke detection in the corridor.

**Exception:** Where corridor smoke detection is not required by other sections of this code, activation of the smoke control system by activation of sprinkler systems shall be permitted. The sprinkler system used to initiate the smoke control system shall protect only the corridor for which active smoke control is provided and shall be separately zoned from sprinkler systems protecting all rooms and areas that are not part of the active smoke control zone.

**403.4.9.1.2 Arrangement of supply and exhaust openings.** The supply and exhaust openings serving the smoke control system shall be sufficiently separated from each other, but not less than a horizontal distance equal to two-thirds of the overall length of the corridor served. The entire exhaust opening shall be within the upper one-third of the average height of the corridor. The entire supply opening shall be within the lower one-third of the average height of the corridor.

**403.4.9.1.3 Sequence of operation.** Upon activation, the corridor smoke control system shall exhaust air directly to the exterior without recirculation. Recirculating fan-coil units serving the corridor and air-handling equipment serving residential units shall be permitted to continue to operate in normal mode. All other exhaust systems, including those serving toilets, kitchens, vending rooms, or other similar spaces shall be permitted to continue to operate in normal mode.

**403.4.9.1.4 Number of zones.** Where doors are provided to divide the corridors into multiple sections, each section shall be provided with the required ventilation rate.

### **Section 403.5.2 Additional exit stairway.**

*Add new Sections 403.5.2.1 and 403.5.2.2, as follows:*

**403.5.2 Additional exit stairway.** For buildings other than Group R-2, that are more than 420 feet (128 m) in *building height*, one additional *exit stairway* meeting the requirements of Sections 1009 and 1022 shall be provided in addition to the minimum number of *exits* required by Section 1021.1. The total width of any combination of remaining *exit stairways* with one *exit stairway* removed shall not be less than the total width required by Section 1005.1. *Scissor stairs* shall not be considered the additional *exit stairway* required by this section.

**403.5.2.1 Access.** Access into the additional exit stairway shall be provided on every floor level equal to the exit stairways serving those areas of the building greater than 420 feet (128 m) in building height. The additional exit stairway shall not be required to be provided for redundancy to stairs serving only those portions of the building less than 420 feet (128 m) in building height.

**403.5.2.2 Multiple towers.** For buildings containing multiple towers, the additional exit stairway shall only be required for those towers exceeding 420 feet (128 m) in building height.

**Exception:** An additional *exit stairway* shall not be required to be installed in buildings having elevators used for occupant self-evacuation in accordance with Section 3008.

### **Section 403.5.3 Stairway door operation.**

*Revise Section 403.5.3, as follows:*

**403.5.3 Stairway door operation.** Stairway doors other than the *exit discharge* doors shall be permitted to be locked from stairway side. Stairway doors that are locked from the stairway side shall be unlocked simultaneously without unlatching upon any of the following: a signal from the fire command center; activation of a fire alarm signal in an area served by the stairway; or failure of the power supply.

**Exception:** Upon approval of the *building official*, stairway doors opening directly into privately owned residential units or leased tenant spaces are permitted to unlock without unlatching only upon signal from the fire command center.

### **Section 403.5.4 Smokeproof exit enclosures.**

*Revise Section 403.5.4, as follows:*

**403.5.4 Smokeproof exit enclosures.** Every required level *exit stairway* serving floors more than 55 feet (16 764 mm) above the lowest level of fire department vehicle access shall comply with Sections 909.20 and 1022.9.



### **Section 403.6.1 Fire service access elevator.**

*Revise Section 403.6.1, as follows:*

**403.6.1 Fire service access elevator.** In buildings with an occupied floor more than 120 feet (36 576 mm) above the lowest level of fire department vehicle access, a minimum of one fire service access elevator shall be provided in accordance with Section 3007.

**Exception:** Where a building is provided with multiple elevators in accordance with Section 3002.4 and Table 3002.4, a fire service access elevator shall not be required.

### **Section 404.3 Automatic sprinkler protection.**

*Delete Exception No. 1 and No. 2 in Section 404.3, as follows:*

**[F] 404.3 Automatic sprinkler protection.** An approved automatic sprinkler system shall be installed throughout the entire building.

### **Section 404.6 Enclosure of atriums.**

*Revise Section 404.6, as follows:*

**404.6 Enclosure of atriums.** Atrium spaces shall be separated from adjacent spaces by a 1-hour *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* construction in accordance with Section 712, or both.

#### **Exceptions:**

1. A glass wall forming a smoke partition where a separately zoned system of automatic sprinklers are spaced 6 feet (1829 mm) or less along both sides of the separation wall, or on the room side only if there is not a walkway on the atrium side, and between 4 inches and 12 inches (102 mm and 305 mm) away from the glass and designed so that the entire surface of the glass is wet upon activation of the sprinkler system without obstruction. The glass shall be installed in a frame so that the framing system deflects without breaking (loading) the glass before the sprinkler system activates.
2. *Unchanged.*
3. *Unchanged.*

### **Section 405.8.1 Standby power loads.**

*Revise Section 405.8.1, as follows:*

**[F] 405.8.1 Standby power loads.** The following loads are classified as standby power loads:

1. Smoke control system.
2. Ventilation and automatic fire detection equipment for smokeproof enclosures.

Standby power shall be provided for elevators in accordance with Section 3003.

### Section 405.9.1 Emergency power loads.

Revise Section 405.9, as follows:

[F] **405.9.1 Emergency power loads.** The following loads are classified as emergency power loads:

1. Emergency voice/alarm communication systems.
2. Fire alarm systems.
3. Automatic fire detection systems.
4. Elevator car lighting.
5. *Means of egress* and exit sign illumination required by Chapter 10.
6. Electrically powered Fire Pimps.

### Section 406.1.2 Area increase.

Add a new exception after last paragraph of Section 406.1.2, as follows:

**406.1.2 Area increase.** Group U occupancies used for the storage of private or pleasure-type motor vehicles where no repair work is completed or fuel is dispensed are permitted to be 3,000 square feet (279 m<sup>2</sup>) when the following provisions are met:

1. For a mixed occupancy building, the *exterior wall* and opening protection for the Group U portion of the building shall be as required for the major occupancy of the building. For such a mixed occupancy building, the allowable floor area of the building shall be as permitted for the major occupancy contained therein.
2. For a building containing only a Group U occupancy, the *exterior wall* shall not be required to have a *fire-resistance rating* and the area of openings shall not be limited when the *fire separation distance* is 5 feet (1524 mm) or more.

More than one 3,000-square-foot (279 m<sup>2</sup>) Group U occupancy shall be permitted to be in the same building, provided each 3,000-square-foot (279 m<sup>2</sup>) area is separated by *fire walls* complying with Section 706.

**Exception:** Noncombustible carports may be of unlimited area when they are open on all sides, not over twelve feet (3658 mm) in height, and located a minimum of 5 feet (1524 mm) from any property line or assumed property line, measured from the roof edge.

### Section 406.1.4 Separation.

Revise Section 406.1.4 by adding new Item Nos. 4 and 5, as follows:

**406.1.4 Separation.** Separations shall comply with the following:

1. *Unchanged.*
2. *Unchanged.*
3. *Unchanged.*
4. Noncombustible carports do not require exterior wall and opening protection when they are open on all sides, not over twelve feet (3658 mm) in height, and located a minimum of 5 feet (1524 mm) from any property line or assumed property line, as measured from the roof edge.
5. When a Group B, F, M, R, or S occupancy structure and a noncombustible carport are located on the same property with a minimum separation of ten feet (3048) between the structure and the carport, as measured from the roof edges, exterior wall and opening protection is not required for either structure.

### Section 406.2.6.1 Floor drains.

Add a new Section 406.2.1, as follows:

**406.2.6.1 Floor drains.** Where provided, floor drains installed in enclosed parking garages or repair garages shall drain to an *approved* sand/oil separator in accordance with the *International Plumbing Code*.

### Section 406.4.2 Ventilation.

Revise Section 406.4.2, as follows:

**406.4.2 Ventilation.** A mechanical ventilation system shall be provided in accordance with the *International Mechanical Code*.

#### Exceptions:

1. A mechanical ventilation system shall not be required in an enclosed parking garage when openings complying with Section 406.3.3.1 are provided.
2. A mechanical ventilation system shall not be required in an enclosed parking garage having a floor area of 1,000 ft<sup>2</sup> or less and used for the storage of five (5) or less private motor vehicles.

**406.4.2.1 Minimum ventilation.** The mechanical ventilation system shall be capable of producing a ventilation rate of 0.75 cfm per square foot (0.0038 m<sup>3</sup>/s·m<sup>2</sup>) of floor area.

**Exception:** When approved by the *building official*, the mechanical ventilation system may be designed to exhaust a minimum of 14,000 cfm (6.61 m<sup>3</sup>/s) for each operating vehicle. Such system shall be based on the anticipated instantaneous movement rate of vehicles, but not less than 2.5 percent of the garage capacity, or one vehicle, whichever is greater.

**406.4.2.2 Intermittent operation.** The mechanical ventilation system shall not be required to operate continuously where *approved* automatic carbon monoxide sensing devices are provided to operate the system automatically to maintain a maximum average concentration of carbon monoxide of 50 parts per million during any eight-hour period, with a maximum concentration not greater than 200 parts per million for a period not exceeding one hour.

**406.4.2.3 Occupied spaces accessory to public garages.** Connecting offices, waiting rooms, ticket booths and similar uses that are accessory to a public garage shall be supplied with conditioned air and maintained at a positive pressure.

### Section 406.6.3 Ventilation.

Revise Section 406.6.3, as follows:

**406.6.3 Ventilation.** Repair garages shall be mechanically ventilated in accordance with the *International Mechanical Code*. The ventilation system shall be controlled at the entrance to the garage.

**406.6.3.1 Minimum ventilation.** The mechanical ventilation system shall be capable of producing a ventilation rate of 1.5 cfm per square foot (0.0076 m<sup>3</sup>/s·m<sup>2</sup>) of floor area. Each engine repair stall shall be equipped with an exhaust pipe extension duct, extending to the outside of the building, which, if over 10 feet (3048 mm) in length, shall mechanically exhaust 300 cfm (0.142 m<sup>3</sup>/s).

**406.6.3.2 Occupied spaces accessory to repair garages.** Connecting offices, waiting rooms and similar uses that are accessory to a repair garage shall be supplied with conditioned air and maintained at a positive pressure.

#### **Section 410.3.4 Proscenium wall.**

*Add a new Exception to Section 410.3.4, as follows:*

**410.3.4 Proscenium wall.** Where the stage height is greater than 50 feet (15 240 mm), all portions of the stage shall be completely separated from the seating area by a proscenium wall with not less than a 2-hour *fire-resistance rating* extending continuously from the foundation to the roof.

**Exception:** Where a stage is located in a building of Type I construction, the proscenium wall is permitted to extend continuously from the 2-hour *fire-resistance-rated* floor slab of the space containing the stage to the roof or a 2-hour *fire-resistance-rated* floor deck above. This exception shall not apply to buildings of Type IB construction in which the minimum fire-resistance ratings of the building elements in Table 601 have been reduced in accordance with Section 403.2.1.1.

#### **Section 410.3.5.1 Activation.**

*Add a new Section 410.3.5.1, as follows:*

**410.3.5.1 Activation.** When provided, a fire curtain shall be activated by manual emergency operation, fusible link, rate-of-rise heat detection installed in accordance with Section 907.3 operating at a rate of temperature rise of 15 to 20°F per minute (8 to 11°C per minute), or signal of water flow from any sprinkler system covering the stage as required by Section 410.6.

#### **Section 410.6 Automatic sprinkler system.**

*Delete Exceptions No. 1 and 2 in Section 410.6, as follows:*

**[F] 410.6 Automatic sprinkler system.** Stages shall be equipped with an automatic fire-extinguishing system in accordance with Chapter 9. Sprinklers shall be installed under the roof and gridiron and under all catwalks and galleries over the stage. Sprinklers shall be installed in dressing rooms, performer lounges, shops and storerooms accessory to such stages.

**Exception:** Sprinklers are not required within portable orchestra enclosures on stages.

#### **Section 410.8 Special effects.**

*Add a new Section 410.8, as follows:*

**410.8 Special effects.** Special effects are regulated by the *International Fire Code*.

#### **Section 412.4.6 Fire suppression.**

*Delete the Exception in Section 412.4.6, as follows:*

**412.4.6 Fire suppression.** Aircraft hangars shall be provided with a fire suppression system designed in accordance with NFPA 409, based upon the classification for the hangar given in Table 412.4.6.

#### **Section 419.5 Fire Protection.**

*Revise Section 419.5, as follows:*

**419.5 Fire Protection.** The live/work unit shall be provided with a monitored fire alarm system where required by Section 907.2.9 and an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2

#### **Section 420.4 Visual access.**

*Add a new Section 420.4, as follows:*

**420.4 Visual access.** The primary entrance door of individual units in motels, hotels, apartment houses, condominiums, and vacation timeshare properties shall contain a means to allow the occupant to visually identify a visitor without opening the unit entry door.

#### **Section 421.5 Ventilation.**

*Revise Section 421.5, as follows:*

**421.5 Ventilation.** Cutoff rooms shall be provided with mechanical ventilation.

**Exception:** Where approved by the *building official*, natural ventilation shall be permitted in lieu of mechanical ventilation.

**421.5.1 Ventilation rate.** Mechanical ventilation of hydrogen cutoff rooms shall be provided at a minimum rate of 1 cubic foot per minute per 12 cubic feet [0.00138 m<sup>3</sup>/(s·m<sup>3</sup>)] of room volume.

**421.5.2 Inlets and outlets.** Hydrogen cutoff rooms shall be ventilated utilizing air supply inlets and exhaust outlets arranged to provide uniform air movement to the extent practical. Inlets shall be uniformly arranged on exterior walls near floor level. Outlets shall be located at the high point of the room in exterior walls or the roof.

**421.5.3 Operation.** Ventilation shall be by a continuous mechanical ventilation system.

**Exception:** Where approved by the *building official*, ventilation shall be permitted to be by a mechanical ventilation system activated by a continuously monitoring flammable gas detection system that activates at a gas concentration of 25 percent of the lower flammable limit (LFL).

**421.5.4 Shutdown.** The gaseous hydrogen system shall be automatically shut down in the event of failure of the ventilation system.

#### **Section 505.1 General.**

*Revise Section 505.1, as follows:*

**505.1 General.** A *mezzanine* or *mezzanines* in compliance with Section 505 shall be considered a portion of the *story* in which it is contained. Such *mezzanines* shall not contribute to either the *building area* or number of *stories* as regulated by Section 503.1. The area of the *mezzanine* shall be included in determining the *fire area* defined in Section 902. The clear height above and below the *mezzanine* floor construction shall not be less than 7 feet-6 inches (2286 mm).

**Exception:** The clear height above and below the mezzanine shall not be less than 7 feet for any of the following conditions:

1. For Group A, B, E, F, M and U occupancies, where the occupant load does not exceed 49.
2. For Group H-1, H-2, and H-3 occupancies, where the occupant load does not exceed 3.
3. For Groups H-4, H-5, I-1, I-3, I-4, and R, where the occupant load does not exceed 10.
4. For Group S, where the occupant load does not exceed 29.

**Section 507.2 Group F-2 or S-2, one story.**

*Revise Section 507.2, as follows:*

**507.2 Group F-2 or S-2, one story.** The area of a Group F-2 or S-2 building no more than one *story* in height shall not be limited when the building is surrounded and adjoined by *public ways* or *yards* not less than 60 feet (18 288 mm) in width and the building is provided with an automatic sprinkler system throughout when required by Section 903.2 or the *International Fire Code*.

**Section 507.3 Sprinklered, one story.**

*Delete Exception No. 2 in Section 507.3, as follows:*

**507.3 Sprinklered, one story.** The area of a Group B, F, M or S building no more than one *story above grade plane*, or a Group A-4 building no more than one *story above grade plane* of other than Type V construction, shall not be limited when the building is provided with an *automatic sprinkler system* throughout in accordance with Section 903.3.1.1 and is surrounded and adjoined by *public ways* or *yards* not less than 60 feet (18 288 mm) in width.

**Exception:** Buildings and structures of Type I and II construction for rack storage facilities that do not have access by the public shall not be limited in height, provided that such buildings conform to the requirements of Sections 507.3, 903.3.1.1 and Chapter 23 of the *International Fire Code*.

**Table 508.2.5 Incidental Accessory Occupancies.**

*Revise Table 508.2.5, as follows:*

**TABLE 508.2.5  
INCIDENTAL ACCESSORY OCCUPANCIES**

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Rooms containing fire pumps in nonhigh-rise buildings	2 hours

*All other parts of Table 508.2.5 to remain unchanged.*

## Section 603.1.2 Piping.

Revise Section 603.1.2, as follows:

**603.1.2 Piping.** The use of combustible piping materials shall be permitted when installed in accordance with the limitations of the *International Mechanical Code* and the *International Plumbing Code*; or the following:

**603.1.2.1 Equipment rooms.** Combustible piping shall be permitted to be installed in an equipment room that is enclosed by 2-hour fire-resistance rated construction and protected throughout by automatic sprinklers. The combustible piping shall be permitted to be extended from the equipment room to other rooms provided the piping is encased in an approved, dedicated 2-hour fire-resistance rated assembly. Where such combustible piping penetrates a fire-resistance rated wall and/or floor/ceiling assembly, the penetration shall be protected by a through-penetration firestop system that is listed for the specific piping material and that has F and T ratings not less than the required fire-resistance rating of the penetrated assembly. The combustible piping shall not penetrate more than a single floor.

**603.1.2.2 Chemical waste systems.** Combustible piping shall be permitted to be installed for chemical waste and vent systems when the chemical waste would otherwise react with noncombustible piping. Combustible piping serving such systems shall be protected as required in Section 603.1.2.1.

**603.1.2.3 Medical water systems.** Combustible piping shall be permitted to be installed for purified water systems that are used in conjunction with medical treatment systems, such as dialysis. Combustible piping serving such systems shall be protected as required in Section 603.1.2.1.

**603.1.2.4 Bars and soda fountains.** Combustible piping shall be permitted to be installed for distribution/process systems that serve bars and soda fountains. Combustible piping serving such systems shall either be installed below a fire-resistance rated slab-on-grade, protected as required in Section 603.1.2.1, or sleeved within noncombustible EMT conduit or metal piping from the room of origin to the area of end use. Where combustible piping serving bars and soda fountains is sleeved within noncombustible EMT conduit or metal piping, the end points of the conduit or pipe shall be sealed in accordance with Southern Nevada Health District requirements.

**603.1.2.5 Fire sprinkler systems.** CPVC piping that is specifically listed and labeled for fire protection use shall be permitted to be installed for fire sprinkler system piping provided that it is installed in accordance with its listing, the manufacturer's installation requirements, and the *International Building Code*.

**603.1.2.6 Under slab-on-grade.** Combustible piping shall be permitted to be installed under a fire-resistance rated slab-on-grade provided the transition from combustible to noncombustible piping occurs entirely below the slab-on-grade. The transition from combustible to noncombustible piping shall be permitted to occur within an equipment room directly above the slab-on-grade when the room is protected as required in Section 603.1.2.1.

## Section 703.6 Marking and identification.

Revise Section 703.6, as follows:

**703.6 Marking and identification.** Fire walls, fire barriers, fire partitions, smoke barriers and smoke partitions or any other wall required to have protected openings or penetrations shall be effectively and permanently identified with signs or stenciling in all accessible concealed floor, floor-ceiling or attic spaces. Such identification shall:

1. Be located within 15 feet (4572 mm) of the end of each wall, and at intervals not exceeding 30 feet (9144 mm) measured horizontally along the wall or partition; and
2. Include lettering not less than 2 inches (50.8 mm) in height with a minimum 3/8 inch stroke (9.5 mm) in a contrasting color, incorporating the suggested wording: “FIRE AND/OR SMOKE BARRIER—PROTECT ALL OPENINGS,” or other wording.

**Exception:** Walls in group R-2 occupancies that do not have a removable decorative ceiling allowing access to the concealed space

**Table 705.8 Maximum Area of Exterior Wall Openings Based on Fire Separation Distance and Degree of Opening Protection**

Revise Table 705.8, as follows:

<b>TABLE 705.8 MAXIMUM AREA OF EXTERIOR WALL OPENINGS BASED ON FIRE SEPARATION DISTANCE AND DEGREE OF OPENING PROTECTION</b>		
<b>FIRE SEPARATION DISTANCE (feet)</b>	<b>DEGREE OF OPENING PROTECTION</b>	<b>ALLOWABLE AREA<sup>a</sup></b>
0 to less than 3 <sup>b,c</sup>	Unprotected, Nonsprinklered (UP, NS)	Not Permitted
	Unprotected, Sprinklered (UP, S) <sup>i</sup>	Not Permitted
	Protected (P)	Not Permitted
3 to less than 5 <sup>d,e</sup>	Unprotected, Nonsprinklered (UP, NS)	Not Permitted
	Unprotected, Sprinklered (UP, S) <sup>i</sup>	15%
	Protected (P)	15%
5 to less than 10 <sup>e,f,j</sup>	Unprotected, Nonsprinklered (UP, NS)	10% <sup>h</sup>
	Unprotected, Sprinklered (UP, S) <sup>i</sup>	25%
	Protected (P)	25%
10 to less than 15 <sup>e, f, g, j</sup>	Unprotected, Nonsprinklered (UP, NS)	15% <sup>h</sup>
	Unprotected, Sprinklered (UP, S) <sup>i</sup>	45%
	Protected (P)	45%
15 to less than 20 <sup>f, g, j</sup>	Unprotected, Nonsprinklered (UP, NS)	25%
	Unprotected, Sprinklered (UP, S) <sup>i</sup>	75%
	Protected (P)	75%
20 to less than 25 <sup>f, g, j</sup>	Unprotected, Nonsprinklered (UP, NS)	45%
	Unprotected, Sprinklered (UP, S) <sup>i</sup>	No Limit
	Protected (P)	No Limit
25 to less than 30 <sup>f, g, j</sup>	Unprotected, Nonsprinklered (UP, NS)	70%
	Unprotected, Sprinklered (UP, S) <sup>i</sup>	No Limit
	Protected (P)	No Limit
30 or greater	Unprotected, Nonsprinklered (UP, NS)	No Limit
	Unprotected, Sprinklered (UP, S) <sup>i</sup>	No Limit
	Protected (P)	No Limit

Notes and Footnotes remain unchanged except for the addition of j, as follows.

- j. For special requirements for Group U occupancies, see Sections 406.1.2 and 406.1.4.



### **Section 708.13.3 Refuse and laundry chute access rooms.**

*Revise Section 708.13.3, as follows:*

**708.13.3 Refuse and laundry chute access rooms.** Access openings for refuse and laundry chutes shall be located in rooms or compartments enclosed by not less than 1-hour fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with 712, or both. Openings into the access rooms shall be protected by opening protectives having a fire protection rating of not less than  $\frac{3}{4}$  hour. Doors shall be self- or automatic-closing upon the detection of smoke in accordance with Section 715.4.8.3. The room or compartment shall be sized to allow the access door to the room or compartment to close and latch with the access panel to the refuse or laundry chute in any position.

### **Section 708.13.4 Termination room.**

*Revise Section 708.13.4, as follows:*

**708.13.4 Termination room.** Refuse and laundry chutes shall discharge into an enclosed room separated from the remainder of the building by fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 712, or both. Construction shall be a minimum of 1-hour, but not less than the fire-resistance rating of the shaft enclosure. Openings into the termination room shall be protected by opening protectives having a fire protection rating of not less than  $\frac{3}{4}$  hour for 1-hour termination rooms and  $1\frac{1}{2}$  -hour for 2-hour termination rooms. Doors shall be self- or automatic-closing upon the detection of smoke in accordance with Section 715.4.8.3. Refuse chutes shall not terminate in an incinerator room. Refuse and laundry rooms that are not provided with chutes need only comply with Table 508.2.5.

### **Section 710.4 Continuity.**

*Revise Section 710.4, as follows:*

**710.4 Continuity.** *Smoke barriers* shall form an effective membrane continuous from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, deck or slab above, including continuity through concealed spaces, such as those found above suspended ceilings, and interstitial structural and mechanical spaces. The supporting construction shall be protected to afford the required *fire-resistance rating* of the wall or floor supported in buildings of other than Type IIB, IIIB or VB construction.

**Exception:** Smoke-barrier walls are not required in interstitial spaces where such spaces are designed and constructed with ceilings that provide resistance to the passage of fire and smoke equivalent to that provided by the smoke-barrier walls.

### **Table 715.4 Fire Door and Shutter Fire Protection Ratings**

*Revise Table 715.4 by adding a new Note, at the bottom of the Table, as follows:*

**Note:** As specified in Section 909.20, 20-minute fire rated door opening protectives are allowed in *fire barrier* walls separating a vestibule and the stairway.

*Footnotes " a " and " b " remain.*

### **Section 715.4.8 Door Closing.**

*Revise Section 715.4.8, as follows:*

**715.4.8 Door Closing.** *Fire doors* in fire walls shall be automatic-closing in accordance with this section. *Fire doors in other than fire walls* shall be self- or automatic-closing in accordance with this section.

#### **Exceptions:**

1. *Fire doors* located in common walls separating sleeping units in Group R-1 and between dwelling units of transient nature in Group R-2 shall be permitted without automatic- or self-closing devices.
2. The elevator car doors and the associated hoistway enclosure doors at the floor level designated for recall in accordance with Section 3003.2 shall be permitted to remain open during Phase I emergency recall operations.

### **Section 717.3.2 Groups R-1, R-2, R-3 and R-4.**

*Revise Section 717.3.2, as follows:*

**717.3.2 Groups R-1, R-2, R-3 and R-4.** Draftstopping shall be provided in floor/ceiling spaces in Group R-1 buildings, in Group R-2 buildings with three or more dwelling units, in Group R-3 buildings with two dwelling units and in Group R-4 buildings. Draftstopping shall be located above and in line with the dwelling unit and sleeping unit separations.

#### **Exceptions:**

1. Draftstopping is not required in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Draftstopping is not required in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.2, provided that automatic sprinkler systems in accordance with Section 903.3.1.1 are also installed in the combustible concealed spaces.

### **Section 717.4.2 Groups R-1 and R-2.**

*Revise Section 717.4.2, as follows:*

**717.4.2 Groups R-1 and R-2.** Draftstopping shall be provided in attics, mansards, overhangs or other concealed roof spaces of Group R-2 buildings with three or more dwelling units and in all Group R-1 buildings. Draftstopping shall be installed above, and in line with, sleeping unit and dwelling unit separation walls that do not extend to the underside of the roof sheathing above.

#### **Exceptions:**

1. Where corridor walls provide a sleeping unit or dwelling unit separation, draftstopping shall only be required above one of the corridor walls.
2. Draftstopping is not required in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

3. In occupancies in Group R-2 that do not exceed four stories in height, the attic space shall be subdivided by draftstops into areas not exceeding 3,000 square feet (279 m<sup>2</sup>) or above every two dwelling units, whichever is smaller.
4. Draftstopping is not required in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.2, provided that automatic sprinkler systems in accordance with Section 903.3.1.1 are also installed in the combustible concealed spaces.

### **Section 717.5 Combustible materials in concealed spaces in Type I or II construction.**

*Revise Section 717.5, as follows:*

**717.5 Combustible materials in concealed spaces in Type I or II construction.** Combustible materials shall not be permitted in concealed spaces of buildings of Type I or II construction.

#### **Exceptions:**

1. Combustible materials in accordance with Section 603.
2. Combustible materials exposed within plenums complying with the *International Mechanical Code*.
3. Class A interior finish materials classified in accordance with Section 803 where the concealed space is protected with fire sprinklers as required by the Fire Code when fire sprinklers are required in the building by another section in this code.
4. Combustible insulation and covering on pipe and tubing, installed in concealed spaces other than plenums, complying with Section 719.7.
5. CPVC fire sprinkler system piping listed and labeled for fire protection use. Piping shall have a peak optical density not greater than 0.50, an average optical density of not greater than 0.15, and a flame spread of not greater than 5 feet when tested in accordance with UL 1887.

### **Section 721.6.2.3 Exterior Walls.**

*Revise Section 721.6.2.3, as follows:*

**721.6.2.3 Exterior Walls.** For an *exterior wall* with a *fire separation distance* greater than 10 feet (3048 mm), the wall is assigned a rating dependent on the interior membrane and the framing as described in Tables 721.6.2(1) and 721.6.2(2). The membrane on the outside of the non-fire-exposed side of the *exterior walls* with a *fire separation distance* greater than 10 feet (3048 mm) may consist of sheathing, sheathing paper and siding as described in table 721.6.2(3).

### **Section 802.1 General.**

*Revise Section 802.1, as follows:*

**802.1 General.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

**DECORATIVE MATERIALS.** See Section 202.

**EXPANDED VINYL WALL COVERING.** Wall covering consisting of a woven textile backing, an expanded vinyl base coat layer and a nonexpanded vinyl skin coat. The expanded base coat layer is a homogeneous vinyl layer that contains a blowing agent. During processing, the blowing agent decomposes, causing this layer to expand by forming closed cells. The total thickness of the wall covering is approximately 0.055 inch to 0.070 inch (1.4 mm to 1.78 mm).

*The remainder of this section remains unchanged.*

### **Section 803.11.2 Set-out construction.**

*Revise Section 803.11.2, as follows:*

**803.11.2 Set-out construction.** Where walls and ceilings are required to be of fire-resistance-rated or noncombustible construction and walls are set out or ceilings are dropped distances greater than specified in Section 803.11.1, noncombustible materials, in accordance with Section 703.4 shall be used except where *interior finish* materials meet one of the following:

1. Protected on both sides by an automatic sprinkler system in accordance with Section 903.3.1.1, or
2. The combustible void is filled with fiberglass or noncombustible insulation, or
3. Attached to a noncombustible backing, or
4. Attached to furring strips installed as specified in Section 803.11.1.

The hangers and assembly members of such dropped ceilings that are below the main ceiling line shall be of noncombustible materials, except that in Types III and V construction, *fire-retardant-treated wood* shall be permitted. The construction of each set-out wall shall be of fire-resistance-rated construction as required elsewhere in this code.

### **Section 803.13 Site-fabricated stretch systems.**

*Add a new Section 803.13.1, as follows:*

**803.13 Site-fabricated stretch systems.** Where used as interior wall or ceiling finish materials, site-fabricated stretch systems shall be tested in the manner intended for use, and shall comply with the requirements of Section 803.1.1 or 803.1.2. If the materials are tested in accordance with ASTM E 84 or UL 723, specimen preparation and mounting shall be in accordance with ASTM E 2573.

**803.13.1 Site-fabricated stretch ceiling systems.** Where used as a dropped ceiling, the following shall apply:

1. In Types I and II construction, frames shall be of non-combustible materials.
2. Where automatic sprinkler protection in accordance with Section 903.3.1.1 or 903.3.1.2 is required beneath the panel, core materials shall be of non-combustible materials.

### **Section 806.1 General requirements.**

*Add a new sentence to the end of the fourth paragraph of Section 806.1, as follows:*

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

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

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

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

### **Section 903.1.1 Alternative protection.**

*Delete Section 903.1.1, in its entirety.*

### **Section 903.2 Where required.**

*Revise Section 903.2, as follows:*

**903.2 Where required.** Approved automatic sprinkler systems in new buildings and structures shall be provided throughout all buildings, regardless of occupancy type, exceeding 5,000 sq ft (464 m<sup>2</sup>) in building area, and additionally in locations described in Section 903.2.1 through 903.2.12.

Exceptions:

1. Open parking garages with no other occupancy above any part of the open parking garage structure are not required to be protected with automatic sprinklers.
2. Buildings, structures, or service equipment and installations directly used in utility generation or distribution which are installed on properly recorded easements belonging to water, gas, power, telephone, or other utility companies that are preemptively regulated by the Nevada Public Service Commission, a State of Nevada charter, or other public franchise. This exception does not apply to non-exempted buildings or structures containing occupiable spaces such as offices, meeting rooms, service counters, public restrooms, or other normally occupied space.

If any fire area in a building or structure is provided with fire sprinklers, whether required or not, all fire areas in the building or structure shall be provided with fire sprinklers.

#### **Exceptions:**

1. Where a building is subdivided into separate buildings, each having a total building area of less than 5,000 sq ft (464 m<sup>2</sup>), by 4-hour rated fire walls with no openings constructed in accordance with the IBC.
2. Special hazard areas that require sprinklers for certain uses, such as medical gas rooms, may be fire sprinklered without requiring additional fire sprinklers, when approved by the code official.

For new construction expanding existing buildings, where an addition to any existing non-sprinklered building or structure expands the total area to greater than 5,000 square feet (464 m<sup>2</sup>), the entire building, including the existing portions, shall be provided with fire sprinklers.

**Exceptions:**

1. Group R-3 occupancies with fire flow in accordance with the International Fire Code.
2. Where the area of the addition does not exceed 25% of the original building area at the time of construction and the area of the addition does not exceed 5,000 square feet (464 m<sup>2</sup>).

**Section 903.2.3 Group E.**

*Revise Section 903.2.3, as follows:*

**903.2.3 Group E.** An automatic sprinkler system shall be provided for Group E occupancies where one of the following conditions exists:

1. The Group E *fire areas have an occupant load of 50 or more.*
2. Any portion of the Group E fire areas is below the lowest *level of exit discharge.*
3. Rooms used for kindergarten, first or second-grade pupils or for child care purposes, are located above or below the first story.
4. Daycare facilities used for child care between the hours of 12:00 a.m. and 6:00 a.m.

**Exception:** An *automatic sprinkler system* is not required in any area below the lowest *level of exit discharge* serving that area where every classroom throughout the building has at least one exterior *exit door* at ground level.

**Section 903.2.9 Group S-1.**

*Revise Section 903.2.9, as follows:*

**903.2.9 Group S-1.** An automatic sprinkler system shall be provided throughout all buildings containing a Group S-1 occupancy where one of the following conditions exists:

1. A Group S-1 fire area exceeds 12,000 square feet (1115 m<sup>2</sup>)
2. A Group S-1 fire area is located more than three stories above grade plane.
3. The combined area of all Group S-1 fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m<sup>2</sup>)
4. A Group S-1 fire area used for the storage of commercial trucks or buses where the fire area exceeds 5,000 square feet (464 m<sup>2</sup>)
5. A Group S-1 fire area used for self-storage where the fire area exceeds 2,500 square feet (279 m<sup>2</sup>)

**Section 903.3.1.1.1 Exempt locations.**

*Revise Section 903.1.1.1, as follows:*

**903.3.1.1.1 Exempt locations.** Automatic sprinklers shall not be required in the following rooms or areas where such rooms or areas are protected with an approved automatic fire detection system in accordance with Section 907.2 that will respond to visible or invisible particles of combustion. Sprinklers shall not be omitted from any room merely because it is damp, or fire-resistance rated construction, or contains electrical equipment.

1. Any room where the application of water, or flame and water, constitutes a serious life or fire hazard.
2. Any room or space where sprinklers are considered undesirable because of the nature of the contents, when *approved by the fire code official*

3. Fire service access elevator machine rooms and machinery spaces

**Section 903.3.1.2 NFPA 13R sprinkler systems.**

*Revise Section 903.3.1.2, as follows:*

**903.3.1.2 NFPA 13R sprinkler systems.** Where allowed in buildings of Group R, up to and including two stories in height, automatic sprinkler systems shall be installed in accordance with NFPA 13 or NFPA 13R.

**Section 903.3.1.3 NFPA 13D sprinkler systems.**

*Revise Section 903.3.1.3, as follows:*

**903.3.1.3 NFPA 13D sprinkler systems.** Where allowed, automatic sprinkler systems installed in one- and two-family dwellings and townhouses shall be permitted to be installed throughout in accordance with NFPA 13, NFPA 13R, or NFPA 13D.

**Section 903.3.5.2 Secondary water supply.**

*Revise Section 903.3.5.2, as follows:*

**903.3.5.2 Secondary water supply.** A dedicated secondary on-site water supply equal to the hydraulically calculated sprinkler demand, including a 100 gpm inside hose stream requirement, but not less than 15,000 usable gallons, shall be provided for high-rise buildings. The secondary water supply shall have a duration of not less than 30 minutes.

**Section 903.4 Sprinkler system supervision and alarms.**

*Revise Section 903.4, as follows:*

**903.4 Sprinkler system supervision and alarms.** Sprinkler system supervision and alarms are regulated by the *International Fire Code*.

**Section 904.2 Where required.**

*Revise Section 904.2, as follows:*

**904.2 Where required.** Automatic fire-extinguishing systems shall be approved by the fire code official. Automatic fire-extinguishing systems shall not be considered an alternative to the required automatic sprinkler systems of Section 903 or for the purpose of exceptions or reductions allowed by other requirements of this code.

### **Section 905.3.1 Height.**

*Revise Section 905.3.1, as follows:*

**905.3.1 Height.** Approved Class I standpipe systems shall be installed throughout buildings where the floor level of the highest story is located more than 30 feet (9144 mm) above the lowest level of the fire department vehicle access, or where the floor level of the lowest story is located more than 30 feet (9144 mm) below the highest level of the fire department vehicle access.

### **Section 905.3.2 Group A.**

*Revise Section 905.3.2, as follows:*

**905.3.2 Group A.** Class I automatic wet standpipes shall be provided in nonsprinklered Group A buildings having an occupant load exceeding 1,000 persons.

#### **Exceptions:**

1. Open-air seating spaces without enclosed spaces
2. Class I automatic dry and semiautomatic dry standpipes or manual wet standpipes are allowed in buildings where the highest floor surface used for human occupancy is 55 feet (16 764 mm) or less above the lowest level of fire department vehicle access.

### **Section 905.4 Location of Class I standpipe hose connections.**

*Revise Section 905.4, as follows:*

**905.4 Location of Class I standpipe hose connections.** Class I standpipe hose connection shall be provided in all of the following locations:

1. In every required stairway, a hose connection shall be provided for each floor level above or below grade. Hose connections shall be located on the floor level landing, as approved by the fire code official.
2. On each side of the wall adjacent to the exit opening of a horizontal exit.

**Exception:** Where floor areas adjacent to a horizontal exit are reachable from exit stairway hose connections by a 30-foot (9144 mm) hose stream from a nozzle attached to 100 feet (30 480 mm) of hose, a hose connection shall not be required at the horizontal exit.

3. In every exit passageway, at the entrance from the exit passageway to other areas of a building.

**Exception:** Where floor areas adjacent to an exit passageway are reachable from exit stairway hose connections by a 30-foot (9144 mm) hose stream from a nozzle attached to 100 feet (30 480 mm) of hose, a hose connection shall not be required at the entrance from the exit passageway to other areas of the building.

4. In covered mall buildings, adjacent to each exterior public entrance to the mall and adjacent to each entrance from an exit passageway or exit corridor to the mall.



5. Where the roof has a slope less than four units vertical in 12 units horizontal (33.3-percent slope), each standpipe shall be provided with a hose connection located either on the roof or at the highest landing of a stairway with stair access to the roof. An additional hose connection shall be provided at the top of the most hydraulically remote standpipe for testing purposes.
6. Throughout the entire building so that all portions of each floor level are provided with hose valve coverage utilizing 100 feet (30 480 mm) of hose and 30-foot (9144 mm) stream from any hose connection located on that floor or intermediate landing. The length of hose shall be along normal walking routes, and the stream shall not be expected to penetrate walls or windows.

#### **Section 905.4.1 Protection.**

*Revise Section 905.4.1, as follows:*

**905.4.1 Protection.** Risers and laterals of Class I standpipe systems not located within an enclosed stairway or pressurized enclosure shall be protected by a degree of fire resistance equal to that required for vertical enclosures in the building in which they are located.

**Exception:** In buildings constructed of Type I or Type II construction in accordance with the Building Code or in buildings equipped throughout with an approved automatic sprinkler system, standpipes that are not located within an enclosed stairway or pressurized enclosure are not required to be enclosed within fire-resistance-rated construction.

#### **Section 905.5 Location of Class II standpipe hose connections.**

*Revise Section 905.5, as follows:*

**905.5 Location of Class II standpipe hose connections.** Class II standpipe hose connections are regulated by the *International Fire Code*.

#### **Section 905.5.3 Class II system 1-inch hose.**

*Delete Section 905.5.3 in its entirety.*

#### **Section 906 Portable Fire Extinguishers**

*Delete 906.1 in its entirety and replace, as follows:*

**906.1 General.** Portable fire extinguishers are regulated by the *International Fire Code*.

#### **Section 907.1.2 Fire alarm shop drawings.**

*Revise Section 907.1.2, as follows:*

**907.1.2 Fire alarm shop drawings.** Fire alarm shop drawings are regulated by the *International Fire Code*.

#### **Section 907.2.7.1 Occupant Notification.**

*Delete Section 907.2.7.1 in its entirety.*

### **Section 907.2.9.1 Manual fire alarm system.**

*Revise Section 907.2.9.1, as follows:*

**907.2.9.1 Manual fire alarm system.** A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group R-2 occupancies where:

1. Any dwelling unit or sleeping unit is located three or more stories above the lowest level of exit discharge;
2. Any dwelling unit or sleeping unit is located more than one story below the highest level of exit discharge of exits serving the dwelling unit or sleeping unit; or
3. The building contains 15 or more dwelling units or sleeping units.

#### **Exceptions:**

1. A fire alarm system is not required in buildings not more than two stories in height where all dwelling units or sleeping units and contiguous attic and crawl spaces are separated from each other and public or common areas by at least 1-hour fire partitions and each dwelling unit or sleeping unit has an exit directly to a public way, exit court or yard.
2. Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and the occupant notification appliances will automatically activate throughout the notification zones upon a sprinkler water flow.
  - 2.1 At least one manual fire alarm box is installed at an approved location.
3. A fire alarm system is not required in buildings that do not have interior corridors serving dwelling units and are protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, provided that dwelling units either have a means of egress door opening directly to the exits or are served by open-ended corridors designed in accordance with Section 1026.6, Exception 4

### **Section 907.2.9.1.1 Automatic smoke detection system.**

*Add a new section 907.2.9.1.1, as follows:*

**907.2.9.1.1 Automatic smoke detection system.** When a fire alarm system is required, an automatic smoke detection system that activates the occupant notification system in accordance with Section 907.6 shall be installed throughout all interior corridors serving sleeping units.

**Exception:** An automatic smoke detection system is not required in buildings that do not have interior corridors serving sleeping units and where each sleeping unit has a means of egress doors opening directly to an exit or to an exterior exit access that leads directly to an exit.

### **Section 907.2.13 High-rise buildings.**

*Revise Section 907.2.13, as follows:*

**907.2.13 High-rise buildings.** Buildings with a floor used for human occupancy located more than 55 feet (16 764 mm) above the lowest level of fire department vehicle access shall be provided with an automatic smoke detection system in accordance with Section 907.2.13.1, a fire department communication system in accordance with Section 907.2.13.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.

**Exceptions:**

1. Airport traffic control towers in accordance with Section 907.2.22 and Section 412 of the IBC.
2. Open parking garages in accordance with Section 406.3 of the IBC.
3. Low-hazard special occupancies in accordance with Section 503.1.1 of the IBC.

**Section 907.2.13.1.1 Area smoke detection.**

*Revise item #1, add two new items #3 and #4 and a new exception to Section 907.2.13.1.1, as follows:*

**907.2.13.1.1 Area smoke detection.** Area smoke detectors shall be provided in accordance with this section. Smoke detectors shall be connected to an automatic fire alarm system. The activation of any detector required by this section shall operate the emergency voice/alarm communication system in accordance with Section 907.5.2.2. Smoke detectors shall be located as follows:

1. In each mechanical equipment, or similar room which is not provided with sprinkler protection.
2. In each elevator machine room and in elevator lobbies.
3. In each transformer, telephone equipment and information technology equipment room.
4. In each electrical room (i.e., a room designed and dedicated to electrical distribution).

**Exception:** Mechanical equipment and similar rooms containing electrical equipment necessary for the operation of that equipment, such as motor control centers, variable frequency drives, service disconnects, building automation controls, and other similar electrical equipment are not required to be provided with smoke detection.

**Section 907.4.1 Protection of fire alarm control unit.**

*Revise Section 907.4.1, as follows:*

**907.4.1 Protection of fire alarm control unit.** In areas that are not continuously occupied, automatic smoke detection shall be provided at the location of each fire alarm control unit, notification appliance circuit power extenders and supervising station transmitting equipment.

**Exceptions:**

1. Where ambient conditions prohibit installation of smoke detector, a heat detector shall be permitted.
2. Dedicated function fire alarm systems shall not have smoke detectors installed.

**Section 907.5.2.1.1 Average sound pressure.**

*Revise Section 907.5.2.1.1, as follows:*

**907.5.2.1.1 Average sound pressure.** The audible alarm notification appliances shall provide a sound pressure level of 15 decibels (15 dBA) above the average ambient sound level or 5 dBA above the maximum sound level having a duration of at least 60 seconds, whichever is greater, in every occupiable space within the building. The minimum sound pressure levels shall be: 90 dBA in mechanical equipment rooms; and 80 dBA in other occupancies. One of the two methods below shall be utilized to ensure that the minimum sound level will be achieved:

- (1) Audible notification devices shall be installed in each occupied area, including but not limited to spaces such as bathrooms, walk-in closets, storage rooms, and walk-in coolers/freezers.

- (2) In lieu of providing audible notification devices within certain spaces, calculations may be performed in order to prove that the alarm signals from the proposed adjacent audible devices will achieve a minimum of 80 decibels inside and throughout that space, where doors or other barriers between the space and the adjacent audibility device(s) are closed.

#### **Section 907.5.2.1.1.1 Average sound pressure.**

*Add new Section, 907.5.2.1.1.1, as follows:*

**907.5.2.1.1.1** Where occupants are incapable of evacuating themselves because of age, physical or mental disabilities, or physical restraint, the private mode as described in NFPA 72, National Fire Alarm Code, shall be permitted to be used when allowed by the AHJ. Only the attendants and other personnel required to evacuate occupants from a zone, area, floor, or building shall be required to be notified when allowed by the AHJ. The notification shall include means to readily identify the zone, area, floor, or building in need of evacuation

#### **Section 907.5.2.1.2 Maximum sound pressure.**

*Revise Section 907.5.2.1.2, as follows:*

**907.5.2.1.2 Maximum sound pressure.** The maximum sound pressure level for audible alarm notification appliances shall be 110 dBA at the minimum hearing distance from the audible appliance. Where the average ambient noise is greater than 95 dBA, visible alarm notification appliances shall be provided in accordance with NFPA 72.

#### **Section 907.5.2.3 Visible Alarms.**

*Revise Section 907.5.2.3, as follows:*

**907.5.2.3 Visible Alarms.** Visible alarm notification appliances shall be provided in accordance with Sections 907.5.2.3.1 through 907.5.2.3.4.

##### **Exceptions:**

1. Visible alarm notification appliances are not required in alterations, when the building does not have visible alarm notification appliances installed anywhere within the building, except where an existing fire alarm system is upgraded or replaced, or a new fire alarm system is installed.
2. Visible alarm notification appliances shall not be required in exits as defined in Section 1002.1.
3. Visible alarm notification appliances shall not be required in elevator cars.

#### **Section 907.6.3.1 Alarm Annunciator.**

*Revise Section 907.6.3.1, as follows:*

**907.6.3.1 Alarm Annunciator.** All required annunciation means shall be readily accessible to responding personnel to facilitate an efficient response to a fire situation. A remote annunciator shall be provided inside the building at the main entrance of all buildings. The location of an operated initiating device shall be displayed by alphanumeric display at the annunciator. The alphanumeric display shall state the device type, the floor level (if applicable), the device address and a descriptive location for the operated device(s). The visible annunciation of the location of operated initiating devices shall not be canceled by the means used to deactivate alarm notification appliances.

#### **Section 909.4.6 Duration of operation.**

*Revise Section 909.4.6, as follows:*

**[F] 909.4.6 Duration of operation.** All portions of active or passive smoke control systems shall be capable of continued operation after detection of the fire event for a period of not less than 20 minutes.

**Exception:** An engineered analysis utilizing twice the estimated egress time to demonstrate that all occupants can safely evacuate shall be permitted.

#### **Section 909.5.2 Opening protection.**

*Add a new Exception #6 to Section 909.5.2, as follows:*

**909.5.2 Opening protection.** Openings in *smoke barriers* shall be protected by automatic-closing devices actuated by the required controls for the mechanical smoke control system. Door openings shall be protected by *fire door assemblies* complying with Section 715.4.3.

##### **Exceptions:**

1. *Unchanged.*
2. *Unchanged.*
3. *Unchanged.*
4. *Unchanged.*
5. *Unchanged.*
6. Door openings in *smoke barriers* shall be permitted to be protected by *self-closing* fire doors in the following locations:
  - 6.1 Guest rooms.
  - 6.2 Individual dwelling units.
  - 6.3 Mechanical rooms.
  - 6.4 Elevator machine rooms.
  - 6.5 Electrical rooms used exclusively for that purpose.
  - 6.6 Doors typically maintained in a closed position as approved by the Building Official.

#### **Section 909.16 Fire-fighter's smoke control panel.**

*Revise Section 909.16, 909.16.1, 909.16.2, 909.16.3, as follows:*

**909.16 Fire-fighter's smoke control panel.** The Fire-fighter's smoke control panels are regulated by the *International Fire Code*.

## **Section 909.17 System response time.**

*Revise Section 909.17, as follows:*

**909.17 System response time.** Smoke-control system activation shall be initiated immediately after receipt of an appropriate automatic or manual activation command. Smoke control systems shall activate individual components (such as dampers and fans) in the sequence necessary to prevent physical damage to the fans, dampers, ducts and other equipment. For purposes of smoke control, the fire-fighter's smoke control panel response time shall be the same for automatic or manual smoke control action initiated from any other building control point. The total response time, including that necessary for detection, shut-down of operating equipment and smoke control system startup, shall allow for full operational mode to be achieved before the conditions in the space exceed the design smoke condition. Upon receipt of an alarm condition at the fire alarm control panel, fans, dampers and automatic doors shall have achieved their proper operating state and final status shall be indicated at the smoke control panel within 90 seconds. Verification –shall be reported in the required final report.

## **Section 909.18.8.3 Reports.**

*Revise Section 909.18.8.3 and 909.18.8.3.1, as follows:*

**909.18.8.3 Reports.** A complete report of testing shall be prepared by the special inspector or special inspection agency. The report shall include identification of all devices by manufacturer, nameplate data, design values, measured values and identification tag or mark. The report shall be reviewed by the responsible registered design professional and, when satisfied that the design intent has been achieved, the responsible registered design professional shall seal, sign and date the report with a statement as follows:

“I have reviewed this report and by personal knowledge and on-site observation certify that the smoke-control system is in substantial compliance with the design intent, and to the best of my understanding complies with requirements of the code.”

**909.18.8.3.1 Report filing.** A copy of the final report shall be filed with the code official and an identical copy shall be maintained in an approved location at the building.

## **Section 909.18.10 Alternative testing method.**

*Add a new Section 909.18.10, as follows:*

**909.18.10 Alternative testing method.** When required by the Code Official, theatrical smoke or other approved tracer gases shall be used during final acceptance testing to visually verify air movement.

## **Section 909.20 Smokeproof enclosures.**

*Revise Section 909.20, as follows:*

**909.20 Smokeproof enclosures.** Where required by Section 1022.9, a smokeproof enclosure shall be constructed in accordance with this section. A smokeproof enclosure shall consist of an enclosed interior *exit stairway* that conforms to Section 1022.1 and an open exterior balcony or pressurized stairway enclosure and vestibule meeting the requirements of this section. Where access to the roof is required by the *International Fire Code*, such access shall be from the smokeproof enclosure where a smokeproof enclosure is required.

Sections 909.20.1 through 909.20.3.3 remain with no changes.

#### **Section 909.20.4 Stair and vestibule pressurization alternative.**

Delete Section 909.20.4 in its entirety and replace, as follows:

**909.20.4 Stair and vestibule pressurization alternative.** The provisions of Sections 909.20.4.1 through 909.20.4.3 shall apply to smokeproof enclosures using a pressurized stairway enclosure and pressurized entrance vestibule.

**909.20.4.1 Vestibule doors.** The door assembly from the building into the vestibule shall be a fire door assembly complying with Section 715.4. The door assembly from the vestibule to the pressurized stairway enclosure shall not have less than a 20-minute fire protection rating and meet the requirements for a smoke door assembly in accordance with Section 715.4.3. The door shall be installed in accordance with NFPA 105.

**909.20.4.2 Pressure difference.** The stair enclosure shall be pressurized to a minimum of 0.05 inch of water gage (12.44 Pa) positive pressure relative to the vestibule with all stairway doors closed under the maximum anticipated stack pressures. The vestibule with doors closed shall have a minimum of 0.05 inch of water gage (12.44 Pa) positive pressure relative to the fire floor. The pressure difference across doors shall not exceed 30 lbs (133-N) maximum force to begin opening the door.

**909.20.4.3 Dampered relief opening.** A controlled relief vent discharging a minimum of 2,500 cfm (1180 L/s) of air at the design pressure difference shall be located in the upper portion of the pressurized stairway enclosure.

#### **Section 909.20.5 Stair pressurization alternative.**

Revise Section 909.20.5 and add a new subsection 909.20.5.1, as follows:

**909.20.5 Stair pressurization alternative.** Where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, the vestibule is not required, provided that interior *exit stairways* are pressurized to a minimum of 0.10 inches of water (25Pa) and a maximum of 0.35 inches of water (87Pa) in the shaft relative to the building measured with all *stairway* doors closed under maximum anticipated conditions of stack effect and wind effect. The pressure difference across doors shall not exceed 30 lbs (133-N) maximum force to begin opening the door.

**909.20.5.1 Dampered relief opening.** A controlled relief vent discharging a minimum of 2,500 cfm (1180 L/s) of air at the design pressure difference shall be located in the upper portion of the pressurized exit enclosure.

#### **Section 910.3.2.2 Sprinklered buildings.**

Revise Section 910.3.2.2, as follows:

**910.3.2.2 Sprinklered buildings.** Where installed in buildings provided with an approved automatic sprinkler system, smoke and heat vents shall be designed to operate automatically by actuation of a heat-responsive device rated at a minimum temperature of 360° F (182° C).

### **Section 910.3.5 Draft curtains.**

*Revise Section 910.3.5, as follows:*

**910.3.5 Draft curtains.** Where required by Table 910.3, draft curtains shall be installed only in non-sprinklered buildings on the underside of the roof in accordance with this section.

### **Section 911.1.3 Size.**

*Revise Section 911.1.3, as follows:*

**911.1.3 Size.** The fire command center shall be a minimum of 0.015 percent of the total building area of the facility served or 200 square feet (19m<sup>2</sup>) in area, whichever is greater, with a minimum dimension of 0.7 times the square root of the room area, or 10 feet (3048 mm), whichever is greater.

### **Section 911.1.5 Required features.**

*Revise Section 911.1.5, as follows:*

**911.1.5 Required features.** The fire command center shall comply with NFPA 72 and shall contain the following features:

1. The emergency voice/alarm communication control unit.
2. The fire department communication system.
3. Fire detection and alarm system annunciator.
4. Annunciator unit visually indicating the location of the elevators and whether they are operational.
5. Status indicator and controls for air distribution systems, including smoke removal systems where required by Section 403.4.6.
6. The fire-fighter's control panel required by Section 909.16 for smoke control systems installed in the building.
7. Controls for unlocking stairway doors simultaneously.
8. Sprinkler valve and waterflow detector display panels.
9. Emergency and standby power status indicators.
10. A telephone for fire department use with controlled access to the public telephone system.
11. Fire pump status indicators.
12. Current approved building plans including the Master Egress Plans, approved fire protection system shop drawings, approved Smoke Control Diagrams, the approved Fire Protection Report, fire/emergency preplans for the facility and manufacturers' operation manuals for all fire protection and life safety systems.
13. A new work table with a minimum size of three (3) feet by seven (7) feet capable of holding plans in an open position.
14. Generator supervision devices, manual start and transfer features.
15. Public address system, where specifically required by other sections of this code.
16. Elevator fire recall switch in accordance with ASME A17.1.



17. Elevator emergency or standby power selector switch(es), where emergency or standby power is provided.
18. An approved white board with a minimum size of three (3) feet by four (4) feet capable of easy erasure, with a marking device and an eraser attached.
19. Separate shunt trip switches for normal and emergency power.

### **Section 916 Fire Riser Rooms**

*Add a new Section 916, as follows:*

### **Section 916 Fire Riser Rooms**

**916.1 Where required.** A dedicated fire riser room shall be required in accordance with Section 916 of the International Fire Code.

**916.2 Exterior Access Door.** Fire riser rooms shall have an exterior access door with a minimum width of 36 inches (914 mm) and a minimum height of 80 inches (2032 mm).

**Exception:** For high-rise, terminal, and covered mall buildings, secondary fire risers may be contained in fire riser rooms that are located in dedicated rooms with direct corridor access inside the building without direct access from the exterior.

**916.3 Protection.** Fire riser rooms shall be separated from the rest of the building by 1-hour fire partitions.

**916.4 Conditioning.** Fire riser rooms shall be conditioned to maintain a minimum temperature of 40° F and a maximum temperature of 100° F. Heating and cooling units shall be permanently wired.

**Exception:** Where the riser room does not contain a Fire Alarm Control Unit or spare sprinklers heads, the riser room shall not be required to be conditioned for maximum temperature.

**916.5 Lighting.** Permanently installed artificial lighting with back-up power shall be provided for the riser room.

**916.6 Size.** The riser room shall have a minimum area of 16 square feet (1.49 m<sup>2</sup>), with a minimum dimension of 4 feet, for the first sprinkler riser, plus an additional 9 square feet (0.84 m<sup>2</sup>) for each additional riser contained.

**916.7 Clearances for a fire alarm control unit.** Where a fire alarm control unit is located in the fire riser room, the unit shall be located so that there is a minimum clearance in accordance with the electrical code.

### **Section 1006.3 Illumination emergency power.**

*Revise Section 1006.3, as follows:*

**1006.3 Illumination emergency power.** The power supply for *means of egress* illumination shall normally be provided by the premises' electrical supply.

In the event of power failure, an emergency electrical system shall automatically illuminate all of the following areas:

1. *Aisles* and unenclosed egress *stairways* in rooms and spaces that require two or more *means of egress*.
2. *Corridors*, *exit enclosures* and *exit passageways* in buildings required to have two or more *exits*.
3. Exterior egress components at other than their *levels of exit discharge* until *exit discharge* is accomplished for buildings required to have two or more *exits*.
4. Interior *exit discharge* elements, as permitted in Section 1027.1, in buildings required to have two or more *exits*.
5. Exterior landings as required by Section 1008.1.6 for *exit discharge* doorways in buildings required to have two or more *exits*.
6. Electrical equipment rooms, *fire command centers*, fire pump rooms, PBX rooms, and generator rooms.
7. Public restrooms which are greater than 64 square feet (5.9 square meters) and accessed by *means of egress* components which are required to have emergency illumination.

The emergency power system shall provide power for a duration of not less than 90 minutes and shall consist of storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Chapter 27.

### **Section 1007.1 Accessible means of egress required.**

*Revise Section 1007.1, as follows:*

**1007.1 Accessible means of egress required.** *Accessible means of egress* shall comply with this section. *Accessible* spaces shall be provided with not less than one *accessible means of egress*. Where more than one *means of egress* are required by Section 1015.1 or 1021.1 from any *accessible* space, each *accessible* portion of the space shall be served by not less than two *accessible means of egress*.

#### **Exceptions:**

1. *Accessible means of egress* are not required in alterations to existing facilities.
2. One *accessible means of egress* is required from an *accessible mezzanine* level in accordance with Section 1007.3, 1007.4 or 1007.5.
3. In assembly areas with sloped or stepped *aisles*, one *accessible means of egress* is permitted where the common path of travel from the wheelchair space is *accessible* and meets the requirements in Section 1028.8.

### **Section 1008.1.4.5 Security grilles.**

*Revise Section 1008.1.4.5, as follows:*

**1008.1.4.5 Security grilles.** In Groups A-2 and A-3 with occupant loads less than 300, and Groups B, F, M, and S, horizontal sliding or vertical security grilles are permitted at the main exit and shall be openable from the inside without the use of a key or special knowledge or effort during periods that the space is occupied. The grilles shall remain secured in the full-open position during the period of occupancy by the general public. Where two or more *means of egress* are required, not more than one-half of the *exits* or *exit access doorways* shall be equipped with horizontal sliding or vertical security grilles.

#### **Section 1008.1.5 Floor elevation.**

*Revise Section 1008.1.5, as follows:*

**1008.1.5 Floor elevation.** There shall be a floor or landing on each side of a door. Such floor or landing shall be at the same elevation on each side of the door. Landings shall be level except for exterior landings, which are permitted to have a slope not to exceed 0.25 unit vertical in 12 units horizontal (2-percent slope).

#### **Exceptions:**

1. *Unchanged.*
2. *Unchanged.*
3. *Unchanged.*
4. *Unchanged.*
5. *Unchanged.*
6. A single step with a maximum height of 7 inches (178 mm) is permitted for doors serving building equipment rooms that are not normally occupied and are not required to be accessible by Chapter 11.

#### **Section 1008.1.8 Door arrangement.**

*Revise Section 1008.1.8, as follows:*

**1008.1.8 Door arrangement.** Space between two doors in a series shall be 48 inches (1219 mm) minimum plus the width of a door swinging into the space. Doors in a series shall swing either in the same direction or away from the space between the doors.

#### **Exceptions:**

1. The minimum distance between horizontal sliding power-operated doors in a series shall be 48 inches (1219 mm).
2. Storm and screen doors serving individual dwelling units in Groups R-2 and R-3 need not be spaced 48 inches (1219 mm) from the other door.
3. Doors within individual dwelling units in Groups R-2 and R-3 other than within Type A dwelling units.
4. The space between doors serving access vestibules of smokeproof enclosures shall be permitted to be in accordance with Section 909.20.1.

#### **Section 1008.1.9.7 Delayed egress locks.**

*Revise Section 1008.1.9.7, as follows:*

**1008.1.9.7 Delayed egress locks.** *Approved, listed,* delayed egress locks shall be permitted to be installed on doors serving any occupancy except Group A, E and H occupancies in buildings which are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approved* automatic smoke detection system installed in accordance with Section 907, provided that the doors unlock in accordance with Items 1 through 6 below. A building occupant shall not be required to pass through more than one door equipped with a delayed egress lock before entering an *exit*.

1. The doors unlock upon actuation of the *automatic sprinkler system* or automatic smoke detection system.
2. The door unlock upon loss of power controlling the lock or lock mechanism.
3. The door locks shall have the capability of being unlocked by a signal from the fire command center.
4. The initiation of an irreversible process which will release the latch in not more than 15 seconds when a force of not more than 15 pounds (67 N) is applied for 1 second to the release device. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Once the door lock has been released by the application of force to the releasing device, relocking shall be by manual means only.
5. A sign shall be provided on the door located above and within 12 inches (305 mm) of the release device reading: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 SECONDS.
6. Emergency lighting shall be provided at the door.

#### **Section 1008.1.9.10 Stairway doors.**

*Revise Section 1008.1.9.10, as follows:*

**1008.1.9.10 Stairway doors.** *Interior stairway means of egress* doors shall be operable from both sides without the use of a key or special knowledge or effort.

#### **Exceptions:**

1. *Stairway* discharge doors shall be openable from the egress side and shall only be locked from the opposite side.
2. This section shall not apply to doors arranged in accordance with Section 403.5.3.
3. In *stairways* serving buildings other than high-rise buildings, doors are permitted to be locked from the side opposite the egress side, provided they are openable from the egress side. Except for exit discharge doors, the stairway doors shall be automatically unlocked simultaneously without unlatching upon any of the following: a signal from the fire command center, if present, or a signal by emergency personnel from an approved location inside the building; activation of a fire alarm system or a fire sprinkler system in an area served by the stairway; or failure of the power supply.
4. Upon approval of the *building official*, stairway doors opening directly into privately owned residential units or leased tenant spaces are permitted to be locked from the side opposite the egress side, provided they are openable from the egress side. The doors are permitted to unlock without unlatching only upon signal from the fire command center, if present, or a signal by emergency personnel from an approved location inside the building.

### **Section 1008.3 Turnstiles.**

*Revise Section 1008.3, as follows:*

**1008.3 Turnstiles.** Turnstiles or similar devices that restrict travel to one direction shall not be placed so as to obstruct any required *means of egress*.

**Exception:** Each turnstile or similar device shall be credited with no more than a 50-person capacity where all of the following provisions are met:

1. Each device shall turn free in the direction of egress travel when primary power is lost.
2. Such devices are not given credit for more than 50 percent of the required egress capacity.
3. Each device is not more than 39 inches (991 mm) high.
4. Each device has at least 16½ inches (419 mm) clear width at and below a height of 39 inches (991 mm) and at least 22 inches (559 mm) clear width at heights above 39 inches (991 mm).
5. Buildings are protected throughout by an approved automatic sprinkler system or an approved automatic smoke detection system.
6. Each device shall automatically turn free in the direction of egress travel upon activation of the automatic sprinkler system or the smoke detection system. The device shall remain unlocked until the fire protection system is reset.

Where located as part of an *accessible route*, turnstiles shall have at least 36 inches (914 mm) clear at and below a height of 34 inches (864 mm), at least 32 inches (813 mm) clear width between 34 inches (864 mm) and 80 inches (2032 mm) and shall consist of a mechanism other than a revolving device.

### **Section 1011.6 Floor proximity exit signs.**

*Add a new Section 1011.6, as follows:*

**1011.6 Floor proximity exit signs.** Where exit signs are required by Section 1011.1, additional approved floor proximity exit signs that are internally or externally illuminated shall be provided in all corridors serving residential units in Group R-1 occupancies and Group R-2 occupancies with transient use. The bottom of each such sign shall not be less than 6 inches (152 mm) nor more than 18 inches (455 mm) above the floor level and shall indicate the path of exit travel. For exit and exit-access doors, the sign shall be mounted on the door or adjacent to the door, with the nearest edge of the sign within 4 inches (102 mm) of the door frame.

### **Section 1012.9 Intermediate handrails.**

*Add new Exception to Section 1012.9, as follows:*

**1012.9 Intermediate handrails.** *Stairways* shall have intermediate *handrails* located in such a manner that all portions of the *stairway* width required for egress capacity are within 30 inches (762 mm) of a *handrail*. On monumental *stairs*, *handrails* shall be located along the most direct path of egress travel.

**Exception:** Stairs less than 88 inches in width.

### **Section 1015.2.2 Three or more exits or exit access doorways.**

*Revise Section 1015.2.2, as follows:*

**1015.2.2 Three or more exits or exit access doorways.** Where access to three or more *exits* is required, at least two *exit doors* or *exit access doorways* shall be arranged in accordance with the provisions of Section 1015.2.1. Additional *exits* or *exit access doorways* shall be distributed so that if one becomes blocked, the others will be available.

### **Section 1016.3 Corridor increases.**

*Add a new Section 1016.3, as follows:*

**1016.3 Corridor increases.** The travel distances specified in Table 1016.1 may be increased up to an additional 100 feet (30 480 mm) provided that the last portion of exit access leading to the exit occurs within a minimum one-hour fire-resistance rated corridor. The length of such corridor shall not be less than the amount of increase taken, in feet (mm).

### **Section 1021.1 Exits from stories.**

*Revise Section 1021.1, as follows:*

**1021.1 Exits from stories.** All spaces within each *story* shall have access to the minimum number of *approved* independent *exits* as specified in Table 1021.1 based on the *occupant load* of the *story*. For the purposes of this chapter, occupied roofs shall be provided with *exits* as required for stories.

#### **Exceptions:**

1. *Unchanged.*
2. *Unchanged.*
3. *Unchanged.*
4. In Group R-1, R-2 and R-3 occupancies, one *means of egress* is permitted within and from individual sleeping or dwelling units with a maximum *occupant load* of 20 where the sleeping or dwelling unit is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.

### **Section 1022.3 Openings and penetrations.**

*Revise Section 1022.3, as follows:*

**1022.3 Openings and penetrations.** *Exit enclosure* opening protectives shall be in accordance with the requirements of Section 715.

Openings in *exit enclosures* other than unprotected exterior openings shall be limited to those necessary for *exit access* to the enclosure from normally occupied spaces and for egress from the enclosure.

Elevators shall not open into an *exit enclosure*.

### **Exceptions:**

1. In buildings required to comply with Section 403 or 405, each of the *exit enclosures* serving a *story* with a floor surface located more than 55 feet (16 764 mm) above the lowest level of fire department vehicle access or more than 30 feet (9144 mm) below the finished floor of the lowest level of exit discharge, and accessed by way of a vestibule in accordance with Section 1022.9.2 are permitted to provide a second vestibule providing access into the required vestibule for areas considered normally non-occupied spaces. The second vestibule is required to be constructed in accordance with Section 909.20 and provided with automatic closing opening protection in accordance with Section 715. Smoke detection connected to the building fire alarm system shall be provided within the second vestibule.
2. In buildings not required to comply with Sections 403 or 405, each of the *exit enclosures* are permitted to provide a vestibule between the floor and the *exit enclosure* for areas considered normally non-occupied spaces. The vestibule is required to be constructed in accordance with Section 909.20 and provided with automatic closing opening protection in accordance with Section 715. Smoke detection connected to the building fire alarm system shall be provided within the vestibule.

### **Section 1022.9 Smokeproof enclosures and pressurized stairways.**

*Revise Section 1022.9, as follows:*

**1022.9 Smokeproof enclosures and pressurized stairways.** In buildings required to comply with Section 403 or 405, each of the *exit enclosures* serving a *story* with a floor surface located more than 55 feet (16 764 mm) above the lowest level of fire department vehicle access or more than 30 feet (9144 mm) below the finished floor of a *level of exit discharge* serving such stories shall be a *smokeproof enclosure* or *pressurized stairway* in accordance with Section 909.20. Pressurization shall occur automatically upon activation of an *approved* fire alarm system.

### **Section 1024.1 General.**

*Revise Section 1024.1, as follows:*

**1024.1 General.** *Approved* luminous egress path markings delineating the exit path shall be provided in exit enclosures in buildings of Groups A, B, E, I, M and R-1 having occupied floors located more than 55 feet (16 764 mm) above the lowest level of fire department vehicle access in accordance with Sections 1024.1 through 1024.5.

### **Exceptions:**

1. Luminous egress path markings shall not be required on the *level of exit discharge* in lobbies that serve as part of the exit path in accordance with Section 1027.1, Exception 1.
2. Luminous egress path markings shall not be required in areas of *open parking garages* that serve as part of the exit path in accordance with Section 1027.1, Exception 3.
3. Luminous egress path markings shall not be required in exit enclosures that do not serve a *story* located more than 55 feet above the lowest level of fire department vehicle access.

## **Section 1026.2 Use in a means of egress.**

*Revise Section 1026.2, as follows:*

**1026.2 Use in a means of egress.** *Exterior exit stairways* shall not be used as an element of a required *means of egress* for Group I-2 occupancies. For occupancies in other than Group I-2, *exterior exit ramps* and *stairways* shall be permitted as an element of a required *means of egress* for buildings not exceeding six stories above *grade plane* or having occupied floors more than 55 feet (16 764 mm) above the lowest level of fire department vehicle access.

## **Section 1028.6.2.3 Automatic sprinklers.**

*Revise Section 1028.6.2.3, as follows:*

**1028.6.2.3 Automatic sprinklers.** Enclosed areas with walls and ceilings in buildings or structures containing *smoke-protected assembly seating* shall be protected with an *approved automatic sprinkler system* in accordance with Section 903.3.1.1.

**Exception:** Outdoor seating facilities where seating and the *means of egress* in the seating area are essentially open to the outside.

## **Section 1102.1 Definitions.**

*Revise Section 1102.1, “Self-Service Storage Facility” definition, as follows:*

**SELF-SERVICE STORAGE FACILITY.** Real property designed and used for the purpose of renting or leasing individual storage spaces to customers for the purpose of storing and removing property on a self-service basis.

## **Section 1107.6.2.1 Apartment houses, condominiums, monasteries and convents.**

*Revise Section 1107.6.2.1, as follows:*

**1107.6.2.1 Apartment houses, condominiums, monasteries and convents.** *Type A units* and *Type B units* shall be provided in apartment houses, condominiums, monasteries and convents in accordance with Sections 1107.6.2.1.1 and 1107.6.2.1.2.

## **Section 1203.1 General.**

*Revise Section 1203.1, as follows:*

**1203.1 General.** Buildings shall be provided with natural ventilation in accordance with Section 1203.4, or mechanical ventilation in accordance with the *International Mechanical Code* or Section 1203.6.

## **Section 1203.2 Attic spaces.**

*Revise Section 1203.2, as follows:*



**1203.2 Attic spaces.** Where determined necessary by the *building official* due to atmospheric or climatic conditions, enclosed attics and enclosed rafter spaces formed where ceiling are applied directly to the underside of roof framing members shall have cross ventilation openings for each separate space by ventilating openings protected against the entrance of rain and snow. Blocking and bridging shall be arranged so as not to interfere with the movement of air. A minimum of 1 inch (25 mm) of airspace shall be provided between the insulation and the roof sheathing. The net free ventilating area shall not be less than  $\frac{1}{300}$  of the area of the space ventilated, with 50 percent of the required ventilating area provided by ventilators located in the upper portion of the space to be ventilated at least 3 feet (914 mm) above eave or cornice vents with the balance of the required ventilation provided by eave or cornice vents.

#### **Section 1203.4.1.3 Guest rooms and habitable rooms.**

*Add new Sections 1203.4.1.3, 1203.4.1.4, and 1203.4.1.5, as follows:*

**1203.4.1.3 Guest rooms and habitable rooms.** Guest rooms and habitable rooms within a dwelling unit or congregate residence in R occupancies, when provided with natural ventilation by means of openable exterior openings, shall be provided with a minimum ventilation area of 5 square feet (0.46 m<sup>2</sup>).

**1203.4.1.4 Bathrooms, water closets, laundry rooms and similar rooms in R occupancies.** Bathrooms, water closet compartments, laundry rooms and similar rooms in R occupancies, when provided with natural ventilation by means of openable exterior openings, shall be provided with a minimum ventilation area of 1.5 square feet (0.14 m<sup>2</sup>).

**1203.4.1.5 Toilet rooms.** Toilet rooms, when provided with natural ventilation by means of openable exterior openings, shall be provided with a minimum ventilation area of 3 square feet (0.28 m<sup>2</sup>), or a vertical duct not less than 100 square inches (64 516 mm<sup>2</sup>) in area for the first water closet plus 50 square inches (32 258 mm<sup>2</sup>) of additional area for each additional water closet.

#### **Section 1203.4.2.1 Bathrooms.**

*Delete Section 1203.4.2.1 in its entirety.*

#### **Section 1203.6 Mechanical ventilation.**

*Add new Section 1203.6 through 1203.6.5.2, as follows:*

**1203.6 Mechanical ventilation.** Mechanically operated ventilation systems shall be in accordance with the *International Mechanical Code* or Sections 1203.6.1 through 1203.6.5.

**1203.6.1 General.** In all enclosed portions of Groups A, B, E, F, H, I, M and S Occupancies customarily occupied by human beings, when mechanically operated ventilation systems are provided in lieu of required exterior openings for natural ventilation, such system shall be capable of supplying a minimum of 15 cubic feet per minute (7 L/s) of outside air per occupant in all portions of the building during such time as the building is occupied. If the velocity of the air at a register exceeds 10 feet per second (3 m/s), the register shall be placed more than 8 feet (2438 mm) above the floor directly beneath. Such exterior openings shall open directly onto a public way or a yard or court as set forth in Section 1206.

In toilet rooms, if mechanically operated systems are to be utilized for required ventilation, such systems shall be capable of providing a complete change of air every 15 minutes. Such mechanically operated exhaust systems shall be connected directly to the outside, and the point of discharge shall be at least 3 feet (914 mm) from any opening that allows air entry into occupied portions of the building.

**1203.6.2 Groups B, F, M and S Occupancies.** In all buildings classified as Groups B, F, M and S Occupancies or portions thereof where Class I, II or III-A liquids are used, a mechanically operated exhaust ventilation system shall be provided sufficient to produce a minimum of six air changes per hour. Such exhaust ventilation shall be taken from a point at or near the floor level.

**1203.6.3 Group H Occupancies.** All Group H Occupancies shall comply with the *International Fire Code*, *International Mechanical Code* and Section 415. In Group H, Division 5 Occupancies, mechanical exhaust ventilation shall be provided in accordance with 415.8.2.6, 415.8.4.3, 415.8.5.7, 415.8.10.2 and other appropriate Sections of this code. Rooms, areas or spaces of Group H Occupancies in which explosive, corrosive, combustible, flammable or highly toxic dusts, mists, fumes, vapors or gases are or may be emitted due to the processing, use, handling or storage of materials shall be mechanically ventilated as required by Section 414.3, the *International Fire Code*, and the *International Mechanical Code*.

**1203.6.4 Group R Occupancies.** In Group R Occupancies, in lieu of required exterior openings for natural ventilation, a mechanically operated ventilation system may be provided. Such system shall be capable of providing two air changes per hour in guest rooms, dormitories, habitable rooms and in public corridors with a minimum of 15 cubic feet per minute (7 L/s) of outside air per occupant during such time as the building is occupied.

In lieu of required exterior openings for natural ventilation in bathrooms containing a bathtub, shower or combination thereof, laundry rooms, and similar rooms, a mechanically operated ventilation system capable of providing a minimum of five air changes per hour shall be provided. Such systems shall be connected directly to the outside, and the point of discharge shall be at least 3 feet (914 mm) from any opening that allows air entry into occupied portions of the building. Bathrooms that contain only a water closet, lavatory or combination thereof and similar rooms may be ventilated with an approved mechanical re-circulating fan or similar device designed to remove odors from the air.

#### **1203.6.5 Motor Vehicle Related Occupancies.**

**1203.6.5.1 Repair garage.** Ventilation in repair garages shall be in accordance with Section 406.6.3.

**1203.6.5.2 Enclosed parking garages.** Ventilation in enclosed parking garages shall be in accordance with Section 406.4.2.

### **Section 1603.1 General.**

*Add new Exception #7 to Section 1603.1, as follows:*

(...)

7. Average dead loads for roofing and flooring materials.

**Table 1607.1 Minimum Uniformly Distributed Live Loads, and Minimum Concentrated Live Loads**

Add footnote “m” for item #27 in Table 1607.1, as follows:

(Remainder of Table and footnotes remain unchanged)

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (lbs)
27 Residential		
One- and two- family dwellings		
Uninhabitable attics without storage i, m	10	
Uninhabitable attics with limited storage i, j, k, m	20	
Habitable attics and sleeping areas	40	----
All other areas	40	
Hotels and multiple-family dwellings		
Private rooms and corridors serving them	40	
Public rooms and corridors serving them	100	

<sup>m</sup> Attics, designed per uniform loads described for uninhabitable attics, are not required to be designed for the additional concentrated load of Item 31

**Section 1609.1.1 Determination of wind loads.**

Add a new exception #7 to Subsection 1609.1.1, as follows:

**Exceptions:**

(...)

7. Solid and freestanding walls up to and including 10’ (3.05m) above the highest adjacent grade and designed using the provisions of ASCE 7 section 6.5.14 need only consider CASE A of Figure 6-20 with a  $C_f$  factor equal to 1.40 and the resultant applied at the mid-height of the wall.

**Section 1610.1 General.**

Revise Section 1610.1 and add a new Subsection 1610.1.1, as follows:

**1610.1 General.** Foundation walls and retaining walls shall be designed to resist lateral soil loads. When a geotechnical report is not required by the building official the design active pressure shall be 45 psf/ft and the at-rest pressure shall be 60 psf/ft. Foundation walls and other walls in which horizontal movement is restricted at the top shall be designed for at-rest pressure, unless specified otherwise in a soil investigation report approved by the building official. Retaining walls free to move and rotate at the top shall be permitted to be designed for active pressure. Design lateral pressure from surcharge loads shall be added to the lateral earth pressure load. Design lateral pressure shall be increased if soils at the site are expansive. Foundation walls shall be designed to support the weight of the full hydrostatic pressure of undrained backfill unless a drainage system is installed in accordance with Sections 1805.4.2 and 1805.4.3.

**1610.1.1 Seismic load due to lateral earth pressure.** All basement, foundation, and retaining walls in seismic design categories D, E, or F shall be designed to resist the seismic load due to the lateral earth pressure based on the following equations.

For yielding walls:  $\frac{3}{8} (k_H) (\text{backfill soil density}) (H)^2$  (Equation 16-35a)

For nonyielding walls:  $(k_H) (\text{backfill soil density}) (H)^2$  (Equation 16-35b)

Where  $k_H$  (peak ground acceleration) =  $S_{DS} / 2.5$

H = the height of the backfill behind the wall

These equations represent the dynamic (seismic) lateral thrust. The point of application of the resultant dynamic thrust is taken at a height of 0.6H above the base of the wall. This is represented as an inverted trapezoidal pressure distribution.

### **Section 1612.3 Establishment of flood hazard areas.**

*Revise Section 1612.3, as follows:*

**1612.3 Establishment of flood hazard areas.** To establish *flood hazard areas*, the applicable governing authority shall adopt a flood hazard map and supporting data. The flood hazard map shall include, at a minimum, areas of special flood hazard as identified by the Federal Emergency Management Agency in an engineering report entitled “The Flood Insurance Study for Clark County, Nevada and Incorporated Areas,” most current edition, as amended or revised with the accompanying Flood Insurance Rate Map (FIRM) and Flood Boundary and Floodway Map (FBFM) and related supporting data along with any revisions thereto. The adopted flood hazard map and supporting data are hereby adopted by reference and declared to be part of this section.

### **Section 1613.1. Scope.**

*Revise Exception #1 to Section 1613.1, as follows:*

**1613.1. Scope.** Every structure, and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, shall be designed and constructed to resist the effects of earthquake motions in accordance with ASCE 7, excluding Chapter 14 and Appendix 11A. The seismic design category for a structure is permitted to be determined in accordance with Section 1613 or ASCE 7.

#### **Exceptions:**

1. Detached one- and two-family dwellings, assigned to Seismic Design Category A or B
2. The seismic-force-resisting system of wood-framed buildings that conform to the provisions of Section 2308 are not required to be analyzed as specified in this section.
3. Agricultural storage structures intended only for incidental human occupancy.
4. Structures that require special consideration of their response characteristics and environment that are not addressed by this code or ASCE 7 and for which other regulations provide seismic criteria, such as vehicular bridges, electrical transmission towers, hydraulic structures, buried utility lines and their appurtenances and nuclear reactors.

### **Section 1613.5.1 Mapped acceleration parameters.**

*Revise Subsection 1613.5.1, as follows:*

**1613.5.1 Mapped acceleration parameters.** The parameters  $S_S$  and  $S_1$  shall be determined from the 0.2 and 1-second spectral response accelerations shown on Figures 1613.5(1) through 1613.5(14) or from the 0.2 and 1-second spectral response accelerations with 2% probability of exceedance in 50 years using the latest probabilistic maps or data made available by the United States Geological Survey. Where  $S_1$  is less than or equal to 0.04 and  $S_S$  is less than or equal to 0.15, the structure is permitted to be assigned to Seismic Design Category A.

#### **Section 1613.5.2 Site class definitions.**

*Add new paragraph at the end of Subsection 1613.5.2, as follows:*

Additionally, where allowed by the Building Official, the Registered Design Professional may determine the site class by utilizing values from the Clark County Shear Wave Velocity Profile Map (CCSWVPM). The CCSWVPM may not provide coverage in all areas and is not intended to preclude the use of other site specific testing methods to determine site class.

#### **Section 1613.5.5 Site classification for seismic design.**

*Revise the last paragraph in Subsection 1613.5.5, as follows:*

The rock categories, Site Classes A and B, shall not be used if there is more than 10 feet (3048 mm) of soil between the rock surface and the bottom of the spread footing or mat foundation. This provision shall be required when the average soil shear wave velocity,  $v_s$ , within 10 feet of the foundation bottoms is less than 2,500 fps.

#### **Section 1613.5.5.1 Steps for classifying a site.**

*Add a new item #4 to Subsection 1613.5.5.1, as follows:*

4. To classify a site as a site class A, B, or C per Table 1613.5.2 a minimum of one exploration to a depth of 100 feet is required per 40 acres or any portion thereof. The 100-foot exploration can be accomplished using any of the three methods outlined in Section 1613.5.5. A 100-foot exploration within 1,000 feet of the proposed site may be included in the total number of required explorations, but at least one 100-foot exploration must be located within the site boundaries. 100-foot exploration locations shall be determined by the registered design professional, but should be adequately spaced to classify the entire site. Additional 100-foot explorations may be required by the building official if soil conditions are variable across the site. Unless the soil shear wave velocity test is utilized, one test,  $N_i$  or  $s_{ui}$ , must be performed at ten foot intervals for the entire 100-foot exploration. Each distinctly different soil layer must also be tested. The same test used for a distinct soil layer may also be used for the ten foot interval provided the test interval does not exceed ten feet.

#### **Section 1704.1 General.**

*Revise Section 1704.1, Exception #3, as follows:*

3. Unless otherwise required by the building official, special inspections are not required for detached 1 & 2 family dwellings as applicable in Section 101.2 and occupancies in Group U that are accessory to a residential occupancy including, but not limited to, those listed in Section 312.1”

### **Section 1704.1.2 Report requirement.**

*Revise Subsection 1704.1.2, as follows:*

**1704.1.2 Report requirement.** Special inspectors shall keep records of required special inspections. The special inspector shall furnish inspection reports to the *building official*, and to the *registered design professional in responsible charge*. Reports shall indicate that work inspected was or was not completed in conformance to *approved construction documents*. Discrepancies shall be brought to the immediate attention of the contractor for correction. If they are not corrected, the discrepancies shall be brought to the attention of the *building official* and to the registered design professional in responsible charge in writing prior to the completion of that phase of the work. A final report documenting required *special inspections* and correction of any discrepancies noted in the inspections shall be submitted to the *building official* prior to the final inspection.

### **Section 1704.4 Concrete construction.**

*Revise the exceptions in Section 1704.4, as follows:*

**1704.4 Concrete construction.** The *special inspections* and verifications for concrete construction shall be as required by this section and Table 1704.4.

**Exception:** *Special inspections* shall not be required for:

1. Isolated spread and/or continuous concrete footings supporting walls of buildings three stories or less above *grade plane* that are fully supported on earth or rock where:
  - 1.1 The footings are designed in accordance with Table 1809.7; or
  - 1.2 The structural design of the footing is based on a specified compressive strength,  $f'c$ , no greater than 2,500 pounds per square inch (psi) (17.2 MPa), regardless of the compressive strength specified in the *construction documents* or used in the footing construction.
2. Nonstructural concrete slabs supported directly on the ground, including prestressed slabs on grade, where the effective prestress in the concrete is less than 150 pounds per square inch (1.03 MPa).
3. Concrete patios, driveways and sidewalks, on grade.

### **Section 1704.5 Masonry construction.**

*Revise the exceptions in Section 1704.5, as follows:*

**1704.5 Masonry construction.** Masonry construction shall be inspected and verified in accordance with the requirement of Section 1704.5.1 through 1704.5.3, depending on the *occupancy category* of the building or structure.

**Exception:** *Special inspections* shall not be required for:

1. Empirically designed masonry, glass unit masonry or masonry veneer designed by Section 2109, 2110, or Chapter 14, respectively, or by Chapter 5,6, or 7 of TMS 402/ACI 530/ASCE 5, respectively, when they are part of structures classified as *Occupancy Category* I, II, or III in accordance with Section 1604.5.
2. Masonry fireplaces, masonry heaters or masonry chimneys installed or constructed in accordance with Section 2111, 2112, or 2113, respectively.

3. Masonry fences less than or equal to 8'-0" in height, retaining walls less than or equal to 6'-0" in height or combined masonry fences and retaining walls less than or equal to 14'-0" in overall height with the retaining wall portion less than or equal to 6'-0" in height and the fence portion less than or equal to 8'-0" in height provided that the walls are designed in accordance with Chapter 2 of TMS 402/ACI 530/ASCE 5 with allowable stresses for masonry reduced by one half and  $f'_m$  does not exceed 1500 psi. Wall heights shall be measured from the top of footing to top of wall.

**Section 1704.7 Soils.**

*Revise the exception in Section 1704.7, as follows:*

**Exception:** Where Section 1803 does not require reporting of materials and procedures for fill placement, the in-place dry density of the compacted fill shall not be less than 90 percent of the maximum dry density at optimum moisture content determined in accordance with ASTM D 1557.

**Table 1704.7 Required Verification and Inspection of Soils.**

*Revise Table 1704.7, as follows:*

**Table 1704.7  
REQUIRED VERIFICATION AND INSPECTION OF SOILS**

Verification and Inspection Task	Continuous During Task Listed	Periodically During Task Listed
1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	—	X
2. Verify excavations are extended to proper depth and have reached proper material.	—	X
3. Perform classification and testing of compacted fill materials.	—	X
4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill and other grading activities requiring special inspection.	—	X
a. All soils not meeting the requirements of category b.	—	X
b. Moderately, highly or critically expansive soils, hydrocollapsible soils, soluble soils, and/or soils requiring chemical or mechanical (geosynthetics) stabilization are encountered. Construction or stabilization of cut or fill slopes exceeding 5 feet in height, or any site requiring that fill be placed on a natural slope, an existing cut slope, or an existing fill slope steeper than 5:1.	X	—
5. Prior to placement of compacted fill, observe subgrade and verify that site has been prepared properly.	—	X

**Section 1704.17 Amusement and transportation systems special cases.**

*Add a new Section 1704.17, as follows:*

**1704.17 Amusement and transportation systems special cases.** When testing or verification is required by the manufacturer or specified by the building official, the testing and verification shall occur during the initial installation, operational testing and annual renewal of the certificate of operation.

### **Section 1710.2 Structural observations for seismic resistance.**

*Revise item #5 in Section 1710.2, as follows:*

**1710.2 Structural observations for seismic resistance.** Structural observations shall be provided for those structures assigned to Seismic Design category D, E, or F, as determined in Section 1613, where one or more of the following conditions exist:

1. The structure is classified as Occupancy Category III or IV in accordance with Table 1604.5.
2. The height of the structure is greater than 75 feet (22,860 mm) above the base.
3. The structure is assigned to Seismic Design Category E, is classified as Occupancy Category I or II in accordance with Table 1604.5, and is greater than two stories above grade plane.
4. When so designated by the registered design professional responsible for the structural design.

Additionally, structural observations shall be provided when such observation is specifically required by the building official, regardless of the seismic design category.

### **Section 1803.1 General.**

*Revise Section 1803.1, as follows:*

**1803.1 General.** Geotechnical investigations shall be conducted in accordance with Section 1803.2 and reported in accordance with Section 1803.6. Where required by the building official or where geotechnical investigations involve in-situ testing, laboratory testing or engineering calculations, such investigations shall be conducted by a registered design professional.

All projects exempt from a geotechnical report shall assume a maximum presumptive load bearing value of 1,000 psf for the vertical foundation pressure, 100 psf/ft for the lateral bearing pressure, 0.25 for the coefficient of friction for lateral sliding resistance, and an Exposure Class S2 (severe sulfate exposure level).

### **Section 1803.2 Investigations required.**

*Revise Section 1803.2, as follows:*

**1803.2 Investigations required.** Geotechnical investigations shall be conducted in accordance with Sections 1803.3 through 1803.5.

Geotechnical investigations shall be prepared by a registered design professional. Recommendations included in the report and approved by the building official shall be incorporated in the construction documents. Geotechnical investigations shall be required for all projects that require new foundations.

**Exemptions.** At the option of the building official, the following projects may be exempted from having a geotechnical investigation:

1. Single story structures, additions, or remodels with a footprint less than 600 square feet.
2. Fences.
3. Site retaining walls less than 4 feet in retained height.



4. Mobile homes, trailers, modular buildings that do not have concrete or masonry foundations.
5. Pre-engineered carports.
6. Signs, light poles, and communication towers less than 40 feet in height.

### **Section 1803.3.2 Minimum Exploration Requirements.**

*Add a new Subsection 1803.3.2, Minimum Exploration Requirements, as follows:*

**1803.3.2 Minimum Exploration Requirements.** The minimum exploration requirements are as follows:

1. For areas less than or equal to one acre, a minimum of two explorations.
2. For areas greater than one acre, but less than five acres, a minimum of one exploration for the first acre and one for each additional two acres, or portion thereof.
3. For areas greater than five acres, but less than twenty acres, a minimum of three explorations plus one additional exploration for each three acres or fraction thereof above five.
4. For areas greater than twenty acres, a minimum of eight explorations plus one additional exploration for each five acres or fraction thereof above twenty.
5. Building additions of less than 2,000 square feet shall require a minimum of one exploration.
6. For signs, light poles, and communication towers whose locations are known and only that area of the site is to be developed, a minimum of one exploration is required.
7. The minimum depth of the exploration shall be fifteen feet. Exploration depth shall be increased as necessary to evaluate the suitability of the material within the foundation's depth of influence as determined by the registered design professional. The explorations can be terminated should refusal be encountered. However, at least three-fourths of the required explorations shall be to the minimum depth. The geotechnical report shall clearly state the refusal criteria. When information regarding the proposed structure and the final grades is made available, the registered design professional shall determine if the explorations originally documented in the geotechnical report meet the depth requirements.

### **Section 1803.5.3 Expansive soil.**

*Revise Subsection 1803.5.3, and add two (2) new Subsections, 1803.5.3.1 and 1803.5.3.2, as follows:*

**1803.5.3 Expansive soil.** In areas likely to have expansive soil, the building official shall require soil tests to determine where such soils do exist.

Soils meeting all provisions of 1 through 4 shall be considered expansive, except that tests to show compliance with Items 1, 2, and 3 shall not be required if the test prescribed in Item 4 or 5 is conducted. All soils determined to be expansive by items 1 through 4 shall also conduct item 5 to determine the expansion classification level.

1. Plasticity index (PI) of 15 or greater, determined in accordance with ASTM D 4318.
2. More than 10 percent of the soil particles pass a No. 200 sieve (75  $\mu$ m), determined in accordance with ASTM D 422.
3. More than 10 percent of the soil particles are less than 5 micrometers in size, determined in accordance with ASTM D 422.
4. Expansion index greater than 20, determined in accordance with ASTM D 4829.
5. Soils may be determined to be expansive or non-expansive by the preceding methods or the standard 60 psf swell test.

**1803.5.3.1 Expansion classification level.** Expansive soils shall be classified in accordance with Table 1808.6.1.1. When soils are determined to be expansive special design consideration are required. In the event that expansive soil properties vary with depth the variation shall be included in the engineering analysis of the expansive soil's effect on the structure. The foundation design and special inspection for grading/foundations shall be based upon results obtained from the standard 60 pound swell test. Refer to Section 1808.6 for additional requirements.

**1803.5.3.2 Standard 60 pound swell test.** The swell test samples shall be remolded to the in-place density required for the particular soil type as called for in the geotechnical report. The test samples shall be one inch thick and laterally confined by placing them in a consolidometer retaining ring constructed in accordance with ASTM D 2435. The swell test sample shall be oven dried at 60° C, and the sample shall be dried a minimum of eight (8) hours. The test samples shall be inundated with water and kept in a saturated moisture condition until measurable swelling or vertical movement ceases. The swell test shall use a 60 pounds per square foot surcharge load. The balance of the swell test will be per ASTM D 2435. Swell test results shall be interpreted using Table 1808.6.1.1

### **Section 1803.5.8 Compacted fill material.**

*Add new items #8 and #9 to Subsection 1803.5.8, as follows:*

(...)

8. Flooding or jetting shall not be used to compact fill material that will support footings or foundation systems.
9. Placement procedure for oversized fill material. No rock or similar irreducible material with a maximum dimension greater than 12 inches shall be buried or placed in fills within five feet, measured vertically, from the bottom of the footing or lowest finished floor elevation, whichever is lower, within the building pad. Oversized fill material shall be placed so as to assure the filling of all voids with well-graded soil. Specific placement and inspection criteria shall be stated in the geotechnical investigation. Continuous special inspection will be required during placement of any oversized fill material.

### **Section 1803.6 Reporting.**

*Revise Section 1803.6 and add new items 5, 7, 13 through 28, as follows:*

**1803.6 Reporting.** Where geotechnical investigations are required, a written report of the investigation shall be submitted to the building official by the owner or authorized agent at the time of permit application. The geotechnical report shall include, but need not be limited to, the following information:

1. A plot showing the location of the test borings, excavations, and/or investigations. The plot shall be dimensioned and shall show the approximate location of all existing and proposed structures.
2. A complete record of the soil boring and penetration test logs and soil samples.
3. A record of the soil profile.
4. Depth to the water table, if encountered.
5. Anticipated approximate cut and fill depths.
6. Recommendations for foundation type and design criteria, including but not limited to: bearing capacity of natural or compacted soil; provisions to mitigate the effects of expansive soils; mitigation of the effects of liquefaction, differential settlement, and varying soil strength; and the effects of adjacent loads. Provide provisions to mitigate the effects of collapsible soils, soluble soils, uncontrolled fill, chemical heave, and corrosive soils. Provide supporting test data.
7. Caliche and cemented soils considerations, if encountered. Recommendations for the removal of caliche and cemented soils and/or the preparation and grading for foundations on caliche and cemented soils.

8. Expected total and differential settlement. Provide all test data and supporting calculations when the allowable foundation bearing pressure exceeds 4,000 psf.
9. Deep foundation information in accordance with Section 1803.5.5.
10. Special design and construction provisions for foundations of structures founded on expansive soils, as necessary.
11. Compacted fill material properties and testing in accordance with Section 1803.5.8. Provide provisions to mitigate the effects of collapsible soils, soluble soils, uncontrolled fill, chemical heave, and corrosive soils.
12. Controlled low-strength material properties and testing in accordance with Section 1803.5.9.
13. Soil classification by the Unified Soil Classification System (ASTM D 2487). As an alternative, classification may be performed on a visual-manual basis (ASTM D 2488) in the field by an individual with a degree in civil engineering, engineering geology, geologic engineering, or geology. Backup data shall be included for at least one sample for every two (2) excavations and/or borings distributed among the prominent horizons in the soil profile.
14. Classify the expansion level of the soil and specify the minimum embedment depth per Table 1808.6.1.1.
15. Address, if applicable, the possible impacts on adjoining properties and mitigating measures to be undertaken.
16. Suitability of onsite soils for use as fill material.
17. Provide grading requirements for onsite and import soils (where applicable) including, but not limited to, swell, solubility, and sulfates.
18. Geotechnical design considerations for drainage structures, as applicable.
19. Trenching or other special procedures for determining fault and fissure(s) locations. The potential for differential movement across a fault and fissuring should be evaluated.
20. Procedures for mitigation for geological hazards.
21. Erosion control requirements, as applicable.
22. Anticipated structural loads and type of proposed structure.
23. When a post-tensioned slab-on-ground is recommended the geotechnical report must specify all of the soil parameters as required by Section 1808.6.2.
24. All lateral earth pressures and seismic forces shall be reported in psf/ft and distributions expressed in graphical form. All resulting forces must have a recommendation on wall placement location. Call out the mapped spectral response accelerations,  $S_S$  and  $S_1$ , and spectral response coefficients,  $S_{DS}$  and  $S_{D1}$  assumed to calculate the distribution.
25. Site class per Table 1613.5.5, including all test data and supporting calculations.
26. Specify the soils category, and the level of special inspection required per Table 1704.7. The specified level of special inspection cannot be less than that required by Table 1704.7.
27. All geotechnical reports must be current within the last 12 months. Any report older than 12 months must be accompanied by a wet sealed update letter addressing the current site conditions based on a recent site visit.
28. At the option of the building official, a completed copy of a geotechnical report checklist shall be included with every submittal.

### **Section 1804.3 Site Grading.**

*Revise Section 1804.3, as follows:*

**1804.3 Site Grading.** The ground immediately adjacent to the foundation shall be sloped away from the building at a slope of not less than one unit vertical in 20 units horizontal (5-percent slope) for a minimum distance of 10 feet (3048 mm) measured perpendicular to the face of the wall. If physical obstructions or lot lines prohibit 10 feet (3048mm) of horizontal distance, a 5-percent slope shall be provided to an approved alternative method of diverting water away from the foundation. Swales used for this purpose shall be sloped a minimum of 1 percent along the flow line where located within 10 feet (3048mm) of the building foundation. Impervious surfaces within 10 feet (3048mm) of the building foundation shall be sloped a minimum of 2 percent away from the building.

**Exception:** Where low expansive, low collapsible, low soluble soil conditions occur or where an exterior asphalt or concrete surface abuts a building, the slope of the ground away from the building foundation is permitted to be reduced to not less than one unit vertical in 48 units horizontal (2-percent slope).

The procedure used to establish the final ground level adjacent to the foundation shall account for additional settlement of the backfill.

### **Section 1804.3.1 Low collapsible and low soluble soil.**

*Add a new Subsection 1804.3.1 and a new Table 1804.3.1, as follows:*

**1804.3.1 Low collapsible and low soluble soil.** Soils, after grading, shall be classified as low collapsible and low soluble in accordance with the table below. Soils shall be classified as low expansive in accordance with Table 1808.6.1.1.

**Table 1804.3.1**

<b>Soil Condition</b>	<b>Criteria</b>	<b>Applicable Test Method</b>
Low Collapsible	0 to < 3%	ASTM D 2435-04
Low Soluble	0 to < 2%	AWWA Standard Method 2540

If, after the grading is completed, the anticipated total settlement (collapse, consolidation, and/or compression) exceeds 1 inch, then the soil cannot be classified as low collapsible.

### **Section 1804.5 Compacted fill material.**

*Revise the exception in Section 1804.5, as follows:*

**Exception:** When a geotechnical investigation is not required by the building official the in-place dry density within the building pad shall not be less than 90 percent of the maximum dry density at near optimum moisture content determined in accordance with ASTM D 1557.

### **Section 1805.2.1 Floors.**

*Revise Subsection 1805.2.1, as follows:*

**1805.2.1 Floors.** Dampproofing materials for floors shall be installed between the floor and the base course required by Section 1805.4.1, except where a separate floor is provided above a concrete slab.

Where installed beneath the slab, dampproofing shall consist of not less than 10-mil (.010 inch; 0.254 mm) polyethylene with joints lapped not less than 6 inches (152 mm) or other approved methods or materials. Where permitted to be installed on top of the slab, dampproofing shall consist of mopped-on bitumen, not less than 4-mil (.004 inch; 0.012 mm) polyethylene, or other approved methods or materials. Joints in the membrane shall be lapped and sealed in accordance with the manufacturer's installation instructions.

### **Section 1807.2.3 Safety factor.**

*Revise the exception in Subsection 1807.2.3, as follows:*

**Exception:** Where earthquake loads are included, the minimum safety factor for retaining wall sliding and overturning shall be 1.1. Where wind loads are included, the minimum safety factor for retaining wall sliding and overturning shall be 1.3.

**Section 1807.2.4 Slope Stability Analysis.**

*Add a new Subsection 1807.2.4 Slope Stability Analysis, as follows:*

**1807.2.4 Slope Stability Analysis.** Retaining walls greater than ten (10) feet (3.05m) in height shall be required to submit a slope stability analysis performed by a registered design professional. Multiple terraced (also sometimes referred to as stacked or tiered) retaining walls with a total height of sixteen feet or more shall require a slope stability analysis. Total height shall be measured from the bottom of the foundation to the top of the retaining wall(s). The minimum factor of safety of 1.5 is required for all failure modes under static loading conditions.

**Section 1808.6.1.1 Minimum Foundation Depth in Expansive Soils.**

*Add a new Subsection 1808.6.1.1 and a new Table 1808.6.1.1, as follows:*

**1808.6.1.1 Minimum Foundation Depth in Expansive Soils.** The minimum foundation depth requirements when placing foundations in expansive soil shall be per Table 1808.6.1.1.

**Table 1808.6.1.1  
Minimum Thickened Edge or Foundation Depth<sup>1</sup>**

<b>Expansion</b>	<b>Percent Swell under 60 psf Surcharge</b>	<b>Minimum Thickened Edge or Foundation Depth (inches)</b>
Low	> 0 to <4	12
Moderate	≥ 4 to < 8	15
High	≥ 8 to < 12	18
Critical 12	≥ 12 to < 16	24
Critical 16	≥ 16 to < 20	30
Critical 20+	20 or greater	36

Footnote:

<sup>1</sup>. Thickened edge embedment depth shall be measured from the top of the lowest adjacent final compacted subgrade to the bottom of the footing.

**Section 1808.6.2 Slab-On-Ground Foundations.**

*Revise Subsection 1808.6.2 and add a new Table 1808.6.2, as follows:*

**1808.6.2 Slab-On-Ground Foundations.** Moments, shears, and deflections for use in structural design of slab-on-ground, mat or raft foundations on expansive soils shall be determined in accordance with *WRI/CRSI Design of Slab-on-Ground Foundations* or *PTI Standard Requirements of Analysis of Shallow Concrete Foundation on Expansive Soils*. Using the moments, shears and deflections determined above, nonprestressed slabs-on-ground, mat or raft foundations on expansive soils shall be designed in accordance with *WRI/CRSI Design of Slab-on-Ground Foundations* and post-tensioned slab-on-ground, mat or raft foundations on expansive soils shall be in accordance with *PTI Standard Requirements of Analysis of Shallow Concrete Foundation on Expansive Soils*. The criteria for determining the expansive nature of soils are given in section 1803.5.3. The minimum design criteria for post-tensioned slabs are defined in Table 1808.6.2. It shall be permitted to analyze and design such slabs by other methods that

account for soil-structure interaction, the deformed shape of the soil support, the plate or stiffened plate action of the slab as well as both center lift and edge lift conditions. Such alternate methods shall be rational and the basis for all aspects and parameters of the method shall be available for peer review.

**Table 1808.6.2 Post Tensioned Slab Criteria**

Expansion	Percent Swell under 60 psf Surcharge	Design Values Ym (inches) for PT slabs	
		Edge Lift	Center Lift
Low	> 0 to <4	1/8 to 1/4	-----
Moderate	≥ 4 to < 8	1/4 to 1/2	1/8 to 3/8
High	≥ 8 to < 12	½ to 1	3/8 to 1
Critical 12	≥ 12 to < 16	See Note No. 11	
Critical 16	≥ 16 to < 20	See Note No. 11	
Critical 20+	20 or greater	See Note No. 11	

**Notes:**

1. This chart is intended to address expansive soil. The presence of collapsible soil or other geologic conditions may require different design criteria.
2. Foundations shall be designed to meet design criteria of the Post-Tensioning Institute manual “Design and Construction of Post-Tensioned Slabs-on-Ground, Third Edition.” Both edge lift and center lift conditions need to be evaluated.
3. Edge moisture variation distance (Em) shall be a minimum of 2.5 feet for edge lift and 4.75 feet for center lift.
4. CΔ for prefabricated roof truss clear spans shall be 360 for center lift and 800 for edge lift.
5. Typical systems using stiffener beams may be equated to a flat slab of equivalent stiffness. Stiffening beams in ribbed foundations shall be as required by the Post-Tensioning Institute manual “Design and Construction of Post-Tensioned Slabs-on-Ground, Third Edition.” Conventionally reinforced designs may also be used.
6. Modulus of elasticity of the soil (Es) shall be taken as 1000 psi unless tests indicate otherwise.
7. All concrete in the foundation system must be a minimum of 2500 psi and shall comply with ACI 318-08 Table 4.2.1. Lean concrete shall not be permitted in slabs or beams.
8. The calculated differential deflection of the foundation slab shall not exceed the limitations of “Design and Construction of Post-Tensioned Slabs-on-Ground, Third Edition” nor 1/2 inch for edge lift.
9. Perimeter loading of slab (P) shall be limited to dead load.
10. Expansion (swell) test shall be performed in accordance with Section 1803.5.3.
11. Specific recommendations from geotechnical engineer required. Design value (Ym) shall be a minimum of 1 inch.
12. For soil conditions where a low swell potential is determined, a BRAB Type II may be used if specifically recommended by the geotechnical engineer.

**Section 1809.4 Depth and width of footings.**

*Revise Section 1809.4, as follows:*

**1809.4 Depth and width of footings.** The minimum depth of footings below the undisturbed ground surface shall be 12 inches (305 mm). Where applicable, the requirements of Section 1809.5 shall also be satisfied. All excavations and the depth of any footing must be made below the lowest adjacent compacted subgrade to facilitate full embedment of the footing into the compacted subgrade prior to concrete placement unless otherwise recommended in the approved geotechnical investigation. The minimum width of footings shall be 12 inches (305 mm).

### **Section 1904.3 Concrete properties.**

*Delete the Exception in Section 1904.3, as follows:*

**1904.3 Concrete properties.** Concrete mixtures shall conform to the most restrictive maximum water-cementitious materials ratios and minimum specified concrete compressive strength requirements of ACI 318, Section 4.3, based on the exposure classes assigned in Section 1904.2.

### **Section 1910.1 General.**

*Revise Section 1910.1, as follows:*

**1910.1 General.** The thickness of concrete floor slabs supported directly on the ground shall not be less than 3-1/2 inches (89mm). A 10-mil (.010 inch;0.254 mm) polyethylene vapor retarder with joints lapped not less than 6 inches (152 mm) shall be placed between the base course or subgrade and the concrete floor slab, or other approved equivalent methods shall be used to retard vapor transmission through the floor slab.

**Exception:** The vapor retarder is not required:

1. For detached structures accessory to occupancies in Group R-3, such as garages, utility buildings or other unheated facilities.
2. For unheated storage rooms having an area of less than 70 square feet (6.5m<sup>2</sup>) and carports attached to occupancies in Group R-3.
3. For buildings of other occupancies where migration of moisture through the slab from below will not be detrimental to the intended occupancy of the building.
4. From driveways, walks, patios and other flatwork which will not be enclosed at a later date.
5. Where approved based on local site conditions.

### **Section 2304.9.5.2 Fastenings for wood foundations.**

*Revise Subsection 2304.9.5.2, as follows:*

**2304.9.5.2 Fastenings for wood foundations.** Fastenings for wood foundations shall be as required in AF&PA PWF. Where field conditions preclude the placement of the minimum sill plate anchors, a registered design professional may provide a design for the attachment in accordance with accepted engineering practice.

### **Section 2308.9.8 Pipes in walls.**

*Revise Subsection 2308.9.8, as follows:*

**2308.9.8 Pipes in walls.** Stud partitions containing plumbing, heating or other pipes shall be so framed and the joists underneath so spaced as to give proper clearance for the piping. Where a partition containing such piping runs parallel to the floor joists, the joists underneath such partitions shall be doubled and spaced to permit the passage of such pipes and shall be bridged. Where plumbing, heating or other pipes are placed in or partly in a partition, necessitating the cutting of the soles or plates, a metal tie not less than 0.058 inch (1.47mm) (16 galvanized gage) and 1 1/2 inches (38mm) wide shall be fastened to each plate across and to each side of the opening with not less than six 1 1/2" x 0.148" minimum nails.

## **Section 2606.7.4 Fire suppression system.**

*Revise Section 2606.7.4, as follows:*

**2606.7.4 Fire suppression system.** In buildings that are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, plastic light-diffusing systems shall be protected both above and below unless the sprinkler system has been specifically approved for installation only above the light-diffusing system. Areas of light-diffusing systems that are protected in accordance with this section shall be limited to a maximum panel size of 10 feet by 10 feet. Adjacent panels shall be separated by at least 8 feet vertical and 4 feet horizontal.

## **Section 2606.7.5 Electrical luminaires.**

*Revise Section 2606.7.5, as follows:*

**2606.7.5 Electrical luminaires.** Light-transmitting plastic panels and light-diffuser panels that are installed in approved electrical luminaires shall comply with the requirements of Chapter 8 unless the light-transmitting plastic panels conform to the requirements of Section 2606.7.2. The area of approved light-transmitting plastic materials that are used in required exits or corridors shall not exceed the limitations listed in Sections 2606.7.3 and 2606.7.4 as applicable.

## **Section 2611 Light-Transmitting Plastic Interior Signs.**

*Revise Section 2611, as follows:*

**2611.1 General.** Light-transmitting plastic interior signs shall be limited as specified in Sections 2611.2 through 2611.5. Light-transmitting plastic interior signs shall also comply with Section 2606.

**Exception:** Light-transmitting plastic interior wall signs in covered mall buildings shall comply with Section 402.16.

**2611.2 Aggregate area.** The aggregate area of signs shall not exceed 20 percent of the wall area.

**Exception:** Hanging or base supported signs.

**2611.3 Separation.** Signs shall be separated from each other by at least 4 feet horizontally or 8 feet vertically.

**2611.4 Maximum area.** The aggregate area of all light-transmitting plastics in each individual sign shall not exceed 24 square feet (2.23 m<sup>2</sup>).

### **Exceptions:**

1. Signs are permitted to exceed an aggregate area of 24 square feet of light-transmitting plastics, provided the light-transmitting plastic meets all the following:
  - a. does not exceed 100 square feet,
  - b. is a minimum CC1 material,
  - c. is installed in a building fully protected by automatic sprinklers in accordance with Section 903.3.1.1, and
  - d. is installed in a sign that is listed and labeled in accordance with nationally recognized standards.
2. Signs exceeding the 100 square foot limitation of Exception 1 are permitted provided the sign meets all the following:



- a. the height does not exceed 10 feet,
- b. the length does not exceed 60 feet,
- c. the area does not exceed 500 square feet,
- d. the light-transmitting plastic is a minimum CC1 material,
- e. is listed and labeled in accordance with nationally recognized standards,
- f. the space in which the sign is installed is protected with an automatic sprinkler system of at least Ordinary Hazard Group 2, and
- g. a Fire Protection Report is provided to substantiate the preceding requirements are met.

**2611.5 Encasement.** Backs of wall mounted signs and non-illuminated portions of all signs regulated by this section shall be fully encased in metal.

**Section 2612.6 Exterior use.**

*Delete Exceptions No. 1 and No. 2 from Section 2612.6, as follows:*

**2612.6 Exterior use.** Fiber reinforced polymer or fiberglass reinforced polymer shall be permitted to be installed on the exterior walls of buildings of any type of construction when such polymers meet the requirements of Sections 2603.5 and is fireblocked in accordance with Section 717. The fiber reinforced polymer or the fiberglass reinforced polymer shall be designed for uniform live loads as required in Table 1607.1 as well as for snow loads, wind loads and earthquake loads as specified in Sections 1608, 1609 and 1613 respectively.

**Table 2902.1 Minimum Number of Required Plumbing Fixtures.**

*Revise Table 2902.1, by adding A-2 Casinos, revising the column titles and footnote “f”, and by adding new footnotes “g” and “h”, as follows:*

[P] Table 2902.1  
**MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup>**  
 (See Sections 2902.2 and 2902.3)

No.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS <sup>h</sup> )		LAVATORIES		BATHUBS/ SHOWERS	DRINKING FOUNTAINS <sup>e,f,g</sup>	OTHER <sup>f</sup>
				MALE	FEMALE	MALE	FEMALE			
1	Assembly	A-2 <sup>d</sup>	Casinos	1:1-100	3:1-50	1:1-200		--	--	1 service sink
				----	4:51-100	2:201-400				
				2:101-200	6:101-200	3:401-750				
				3:201-400	8:201-400	Over 750, add one fixture for each additional 500 persons				
				Over 400, add one fixture each additional 250 males, and one for each 150 females.						

*Remainder of rows 1 through 8 to remain unchanged.*

- a. The fixtures are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by this code.
- b. Toilet facilities for employees shall be separate from facilities for inmates or patients.
- c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted where such room is provided with direct access from each patient sleeping unit and with provisions for privacy.

- d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.
- e. The minimum number of required drinking fountains shall comply with Table 2902.1 and Chapter 11.
- f. Drinking fountains and service sinks are not required for an occupant load of 30 or fewer.
- g. Where water is served in restaurants and similar occupancies, drinking fountains shall not be required. In other occupancies, where drinking fountains are required, water coolers or bottled water dispensers that provide water to occupants free of charge shall be permitted to be substituted for not more than 50 percent of the required drinking fountains.
- h. In each bathroom or toilet room, urinals shall not be substituted for more than 67 percent of the required water closets in assembly and educational occupancies. Urinals shall not be substituted for more than 50 percent of the required water closets in all other occupancies.

**Section 3002.4 Elevator car to accommodate ambulance stretcher.**

*Revise Section 3002.4 and add a new Table 3002.4, as follows:*

**3002.4 Elevator car to accommodate ambulance stretcher.** Where elevators are provided in buildings four or more stories above grade or four or more stories below grade plane, at least one elevator, and no less than the minimum number specified in Table 3002.4, shall be provided for fire department emergency access to all floors. The elevator car shall be of such a size and arrangement to accommodate an ambulance stretcher 24 inches by 84 inches (610 mm by 2134 mm) with not less than 5-inch (127 mm) radius corners, in the horizontal, open position and shall be identified by the international symbol for emergency medical services (star of life). The symbol shall not be less than 3 inches (76 mm) high and shall be placed inside on both sides of the hoistway door frame. Such elevators shall open into a lobby providing sufficient area to accommodate transport of a 24-inch by 84-inch (610mm by 1930 mm) ambulance stretcher.

**Table 3002.4  
Ambulance Stretcher Sized Elevator Cars**

Highest floor level served above lowest level of fire department access in feet (meters)	Number of elevator cars sized to accommodate an ambulance stretcher
Less than 120 (36.6m)	1
120-599 (36.6m-182.6m )	2 <sup>a</sup> .
600-899 (182.9m-274.0m)	3 <sup>a</sup> .
900 and greater (≥274.3m)	4 <sup>a</sup> .

<sup>a</sup> An elevator installed in accordance with Section 403.6.1 shall be permitted to substitute for one of these elevators.

**Section 3003.1.3 Two or more elevators.**

*Revise Section 3003.1.3, as follows:*

**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, and all elevators installed in accordance with Section 3002.4, shall remain operable from standby power source.

**Section 3006.4 Machine rooms and machinery spaces.**

*Revise Section 3006.4, as follows:*

**3006.4 Machine rooms and machinery spaces.** Elevator machine rooms and machinery spaces shall be enclosed with *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 712, or both. The *fire-resistance rating* shall not be less than the required rating of the hoistway enclosure served by the machinery. Openings in the *fire barriers* shall be protected with assemblies having a *fire protection rating* not less than that required for the hoistway enclosure doors.

**Exceptions:**

1. *Unchanged.*
2. In buildings four *stories* or less above *grade plane* when machine room and machinery spaces have no openings to the hoistway enclosure they serve, the machine room and machinery spaces are not required to be fire-resistance rated.

**Section 3111 CABANAS**

*Add a new Section 3111, as follows:*

**SECTION 3111  
CABANAS**

**3111.1 General.** This section shall apply to cabanas on, or in close proximity to, buildings where the predominant building construction type would not otherwise allow cabanas to be constructed as membrane structures in accordance with Section 3102.3. Cabanas that are erected for a period of less than 180 days shall comply with the *International Fire Code*.

**3111.2 Definitions.** The following words and terms shall, for the purposes of this section, have the meanings shown herein:

**CABANA.** A structure used for temporary shelter, comfort and privacy of occupants located on, or in close proximity to, a building. Cabanas shall not be used for retail sales, bar service, food preparation, storage, or overnight sleeping.

**CABANA GROUP.** A group of individual cabanas that are not separated from each other as required within this section. The total area of the cabana group shall be used to determine code requirements for all cabanas contained within the cabana group.

**3111.3 Design and Construction.** Cabanas 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.

**3111.3.1 Frame.** Cabanas shall be constructed of a rigid, noncombustible frame that is permanently mounted to the roof or deck on which it is located.

**3111.3.2 Membrane Covering.** The membrane covering of the cabana shall either be noncombustible in accordance with Section 703.4 or be tested by an approved agency and pass Test 2 of NFPA 701.

**3111.3.3 Openness.** Each cabana shall be provided with a minimum of one opening to an exterior egress route. Such opening shall provide a minimum unobstructed opening of 5 feet (1524 mm) wide by 7 feet (2134 mm) high.

**3111.3.4 Height.** The highest point of a cabana shall not exceed 20 feet (4572 mm).

**3111.3.5 Area.** The area of any single cabana or cabana group shall not exceed 1,000 square feet (46.45 m<sup>2</sup>).

**Exception:** The area of cabanas that are constructed entirely of noncombustible materials shall not exceed 2,000 square feet (92.90 m<sup>2</sup>).

**3111.3.5.1 Subdivision.** Subdivision of a cabana is permitted where subdivision of the cabana is provided by any material that is tested by an approved agency and passes Test 2 of NFPA 701.

**3111.4 Location.** Cabanas shall be located to minimize the hazard to the building, other cabanas, and the means of egress.

**3111.4.1 Separation between cabanas.** Cabanas shall be separated from all other cabanas by a minimum distance of 10 feet (3048 mm), as measured at the nearest horizontal projection. Where cabanas do not meet this spacing, the cabanas shall be considered a cabana group, and the cabana group shall meet the requirements set forth herein.

**3111.4.2 Separation between cabana groups.** Cabana groups shall be separated from all other cabanas by a minimum distance of 10 feet (3048 mm), as measured at the nearest horizontal projection.

**3111.4.3 Separation to building.** Cabanas shall be a minimum of 10 feet (3048 mm) from any wall or building opening, and shall not be located beneath any horizontal projection of the main building.

**3111.4.4 Obstruction to means of egress.** Cabanas shall be located and spaced such that the required means of egress is not obstructed by the cabanas for the entire height of the cabanas.

**3111.5 Automatic sprinkler system.** Cabanas and cabana groups shall be protected throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

**Exception:** An automatic sprinkler system shall not be required in cabanas or cabana groups that do not exceed 120 square feet (11.148 m<sup>2</sup>) in area.

**3111.6 Cooking facilities.** Cooking shall not be permitted within 20 feet (6096 mm) of a cabana or inside a cabana.

**3111.7 Fuel-fired equipment.** Fuel-fired equipment shall not be permitted within 20 feet (6096 mm) of a cabana or inside a cabana.

**3111.8 Lighting.** All lighting within or attached to cabanas shall be electric. Open flames for any purpose are prohibited within 20 feet (6096 mm) of a cabana or inside a cabana.

**3111.9 Fire protection report.** A fire protection report shall be submitted and shall address the type of construction of the main structure and the cabana(s), the size of the cabana(s), fire protection systems for the cabana(s), and the impact of the cabana(s) on the means of egress.

### **Section 3306.2 Walkways.**

*Revise Section 3306.2, as follows:*

**3306.2 Walkways.** A walkway shall be provided for pedestrian travel in front of every construction and demolition site unless the applicable governing authority authorizes the sidewalk to be fenced or closed. Walkways shall be of sufficient width to accommodate the pedestrian traffic, but in no case shall they be less than 4 feet (1219 mm) in width. Walkways shall be provided with a durable walking surface. Walkways shall be *accessible* in accordance with Chapter 11 and shall be designed to support all imposed loads and in no case shall the design live load be less than 150 pounds per square foot (psf) (7.2 kN/m<sup>2</sup>). Sidewalks or walkways that lead from the public sidewalk to a building entrance where the general public may be at risk due to falling construction debris shall be similarly protected.

### **Section 3310.3 Stairway floor number markings.**

*Add new Section 3310.3, as follows:*

**3310.3 Stairway floor number markings.** Temporary stairway floor number markings shall be provided in accordance with the following requirements. The markings shall be provided at each floor landing in interior stair enclosures connecting more than three stories designating the floor level, the terminus of the top and bottom of the stair enclosure and identification of the stair. The markings shall also state the story of, and the direction to the exit discharge and the availability of roof access from the stairway for the fire department. The markings shall be located 5 feet (1524 mm) above the floor landing in a position that is readily visible when the doors are in the open and closed positions.

### **Section 3401.5 Alternative compliance.**

*Revise Section 3401.5, as follows:*

**3401.5 Alternative compliance.** When approved by the *building official*, work performed in accordance with the *International Existing Building Code* shall be deemed to comply with the provisions of this chapter.

### **Section 3403.1 General.**

*Revise Section 3403.1, as follows:*

**3403.1 General.** Additions to any building or structure shall comply with the requirements of this code for new construction. Alterations to the existing building or structure shall be made to ensure that the existing building or structure together with the *addition* are no less conforming with the provisions of this code than the existing building or structure was prior to the *addition*. An existing building together with its additions shall comply with the height and area provisions of Chapter 5. The portions of the building or structure not altered and not affected by the alterations are not required to comply with the height provisions for a new structure.

## **Section 3404.1 General.**

*Revise Section 3404.1, as follows:*

**3404.1 General.** Except as provided by Section 3401.4 or this section, alterations to any building or structure shall comply with the requirements of the code for new construction. Alterations shall be such that the existing building or structure is no less complying with the provisions of this code than the existing building or structure was prior to the *alteration*.

### **Exceptions:**

1. (remains unchanged)
2. (remains unchanged)
3. The building or structure shall not be required to comply with the height and area provisions of Chapter 5 for a new structure.

## **Section 3411.8.15 Check-out aisles.**

*Add new Section 3411.8.15, as follows:*

**3411.8.15 Check-out aisles.** Where check-out aisles are altered, at least one of each check-out aisle serving each function shall be made accessible until the number of accessible check-out aisles complies with Section 1109.11.2.

*Delete Appendices A, B, D, F, G, and K, in their entirety.*

*Adopt Appendices C, E, H and I in their entirety.*

## **Appendix E Supplementary Accessibility Requirements**

*Revise Section E104.3.1, as follows:*

**E104.3.1 Transient lodging.** In *transient* lodging facilities, *sleeping units* with *accessible* communication features shall be provided in accordance with Table E104.3.1. Units required to comply with Table E104.3.1 shall be dispersed among the various classes of units. Not more than 10 percent of dwelling or sleeping units required to provide mobility features under ICC A117.1, Section 1003 shall be used to satisfy the minimum number of dwelling or sleeping units required to provide communication features under Table E104.3.1.

## **Appendix H - Outdoor Signs**

*Revise Title of Appendix H, as follows:*

**“Appendix H - Outdoor Signs”**

### **Section H101.2 Signs exempt from permits.**

*Add item #6 to Section H101.2, as follows:*

**H101.2 Signs exempt from permits.** The following signs are exempt from the requirements to obtain a permit before erection:

1. Painted nonilluminated signs.
2. Temporary signs announcing the sale or rent of property.
3. Signs erected by transportation authorities.
4. Projecting signs not exceeding 2.5 square feet (0.23 m<sup>2</sup>).
5. The changing of moveable parts of an approved sign that is designed for such changes, or the repainting or repositioning of display matter shall not be deemed an alteration.
6. Other signs listed by the applicable Administrative Code.

## **Appendix J Grading**

### **Section J102.1 Definitions.**

*Revise the definition of GRADING in J102.1, as follows:*

**GRADING.** An excavation, clearing and grubbing of vegetation, or fill or combination thereof.

*Add new definitions in Section J102.1 for Building Pad, Certify, Fault, Holocene Active Fault, Quaternary Active Fault, Inactive Fault, Final Grading Report, Geotechnical Report (Soils Report), Pad Certification Report, Pad Recertification Report, Refusal, and Special Geotechnical Consideration Area, as follows:*

**BUILDING PAD.** The soil, cut or fill site, outlined by the area of the footprint of the building plus a minimum of 5 additional feet (1529 mm) to the exterior. This includes any type of foundation system for the structure.

**CERTIFY.** Use of the word “certify” or “certification” constitutes an expression of professional opinion regarding those facts or findings which are the subject of the certification.

**FAULT.** A fracture or zone of fracturing in geologic materials (soil or rock) along which there has been displacement of the sides relative to one another parallel to the fracture.

**FAULT, HOLOCENE ACTIVE.** A fault with recognized activity within Holocene time (within the past 11,000 years).

**FAULT, QUATERNARY ACTIVE.** A fault with recognized activity within Quaternary time (within the past 1.6 million years).

**FAULT INACTIVE.** A fault without recognized activity within Quaternary time (within the past 1.6 million years).

**FINAL GRADING REPORT.** A grading report stamped and signed by a registered design professional certifying that the building pad was constructed in conformance with the recommendations set forth in the geotechnical report. This report contains explicit information and data that verifies compliance with the geotechnical report of record including any approved supplements or addendums.

**GEOTECHNICAL REPORT (SOILS REPORT).** Data and engineering recommendations resulting from site exploration which evaluates the soil conditions and general site characteristics and suitability of the site for the proposed construction. A registered design professional shall prepare and seal the report.

**PAD CERTIFICATION REPORT.** An interim grading report stamped and signed by a registered design professional certifying that the building pad currently is in conformance with the recommendations set forth in the geotechnical report of record.

**PAD RECERTIFICATION REPORT.** A report stamped and signed by a registered design professional certifying that the building pad currently is in conformance with the recommendations set forth in the geotechnical report of record. This report contains explicit information and data that verifies compliance to the geotechnical report of record including any approved supplements or addendums.

**REFUSAL.** Refusal while advancing an exploration is recognized as defined by ASTM D 1586-08a.

**SPECIAL GEOTECHNICAL CONSIDERATION AREA.** A portion of Clark County where additional geotechnical investigation requirements may apply. These areas are identified on the most recent edition of the “Clark County Soil Guidelines Reference Map(s)” as published by Clark County.

### **Section J103.2 Exemptions.**

*Revise Exemption #1 in Section J103.2, as follows:*

**J103.2 Exemptions.** A grading permit shall not be required for the following:

1. Grading in an area deemed by the Building Official as isolated, self-contained, presenting no danger to the public, and not adversely affects adjoining properties; and the drainage study for the proposed site has been waived, or determined to be unnecessary, by the planning and/or civil review process.
2. Excavation for construction of a structure permitted under this code.
3. Cemetery graves.
4. Refuse disposal sites controlled by other regulations.
5. Excavations for wells or trenches for utilities.
6. Mining, quarrying, excavating, processing or stockpiling rock, sand, gravel, aggregate or clay controlled by other regulations, provided such operations do not affect the lateral support of, or significantly increase stresses in, soil on adjoining properties.
7. Exploratory excavations performed under the direction of a registered design professional.

Exemption from the permit requirements of this appendix shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this jurisdiction.

### **Section J103.3 Hazards.**

*Add a new Section J103.3 Hazards, as follows:*

**J103.3 Hazards.** Whenever the building official determines that any existing excavation or embankment or fill on private property has become a hazard to life and limb, or endangers property, or adversely affects the safety, use or stability of a public way, easement, storm sewer system, or drainage channel, the owner of the property upon which the excavation or fill is located, or other person or agent in control of said property, upon receipt of notice in writing from the building official, shall within the period specified therein repair or eliminate such excavation or embankment to eliminate the hazard and to be in conformance with the requirements of this code.

### **Section J104.1 Submittal requirements.**

*Revise Section J104.1, as follows:*



**J104.1 Submittal requirements.** In addition to the provisions of Section 105.3, the applicant shall state the estimated quantities of excavation and fill. All projects that require grading shall have a grading plan prepared, stamped, and signed by a registered design professional.

**Exception:** At the option of the building official, if the structure is located outside of a flood hazard area the following projects may be exempted from having a grading plan. Projects exempted from a grading plan must still comply with the grading and drainage requirements in the IBC.

1. Single story structures or additions with a footprint less than 600 square feet.
2. Patio covers, decks, and canopies associated with a single family residence.
3. Mobile homes, trailers, modular buildings that do not have concrete or masonry foundations.
4. Pre-engineered carports.
5. Signs, light poles, and communication towers.

### **Section J104.2 Grading plan requirements.**

*Revise Section J104.2 in its entirety, as follows:*

**J104.2 Grading plan requirements.** All grading plans shall be prepared, stamped, and signed by a registered design professional. The following items must be included on all grading plan submittals.

1. General vicinity of the proposed site.
2. Property limits and accurate contours of existing ground and details of terrain and area drainage.
3. Limiting dimensions, elevations or finish contours to be achieved by the grading, proposed drainage channels and related construction.
4. Location of any buildings or structures on the property where the work is to be performed and the location of any buildings or structures on land of adjacent owners that are within 100 feet of the property or that may be affected by the proposed grading operations.
5. Recommendations included in the geotechnical report shall be incorporated in the grading plans or specifications as follows:
  - a. Locations and dimensions of all cut and fill slopes,
  - b. Locations of all cross sections presented in the geotechnical report,
  - c. Locations and sizes of all recommended remedial measures such as buttress fills, stability fills, deep foundation systems, reinforced earth, retaining walls, etc.,
  - d. Location and layout of proposed subdrainage system.
6. A statement that the site shall be graded in accordance with the approved geotechnical report. This statement shall include the firm name that prepared the geotechnical report, the report number, and the date of the geotechnical report.
7. Locations of other existing topographic features either natural or man-made such as streets, drainage structures, pavements, walls, mining pits, etc.
8. The cut to fill transition line.
9. Positive drainage away from the foundation per Section 1804.3.
10. Details and cross sections at property lines, fence walls, retaining walls, berms, etc.
11. Elevation datum and benchmarks (NAVD 88).
12. Existing contours at least 100 feet beyond the property lines.

13. Proposed finish contours or spot elevations at the property corners, building pad, and at swale flow lines.
14. Elevations of curbs or centerlines of roads or streets.
15. Earthwork quantities in cubic yards.
16. Finish floor elevations.
17. Details and cross sections of typical fill slopes and cut slopes.
18. Typical details of fill-over-natural slopes and fill-over-cut slopes where fill is to be placed on natural or cut slopes steeper than 5H:1V in accordance with Section J107.
19. Setback dimensions of cut and fill slopes from site boundaries per Section J108.
20. The placement of buildings and structures on and or adjacent to slopes steeper than 3H:1V (33.3% slope) shall be in accordance with Section 1808.7.
21. Provide terracing in accordance with Section J109 for slopes steeper than 3H:1V (33.3% slope).
22. Provide the locations and dimensions of all terrace drains for all slopes steeper than 3H:1V in accordance with Section J109.
23. The standard notes specified in the Las Vegas Valley Construction Site Best Management Practice Guidance Manual (most current edition).
24. Registered design professional original seal (wet seal), signature and date or a Records stamp and signature stating, *“This is a true and exact copy of the original document on file in this office.”*

### **Section J104.3 Geotechnical Report.**

*Revise Section J104.3, as follows:*

**J104.3 Geotechnical Report.** A geotechnical report prepared by a registered design professional shall be provided. The report shall comply with Section 1803.6.

### **Section J105.1 General.**

*Revise Section J105 in its entirety, as follows:*

**J105.1 General.** Inspection of grading operations shall comply with the provisions of this section. The permittee shall be responsible for the work to be performed in accordance with the approved plans and specifications and in conformance with the provisions of this code. The permittee shall engage an approved agency, if required by the Building Official.

**J105.1.1 Completion of work and final reports.** Report submittal shall be in compliance with Section 1704.1.2.

**J105.1.2 Final Grading report.** Upon completion of pad grading (or foundation excavation) and prior to a footing or foundation inspection, a Final Grading report shall be provided by an approved agency. Grading (or foundation excavation) shall be observed and tested by an approved agency. The approved agency shall prepare the report, signed by a registered design professional certifying that the grading and earthwork are complete and substantially comply with the requirements of the geotechnical report of record including any approved supplements or addenda. At the option of the Building Official, a Pad Certification report submitted in accordance with Section J105.1.3 may be accepted as an interim report prior to a footing or foundation inspection. A Final Grading report will then be required prior to receiving a Final Inspection.

The Final Grading report itself will contain all applicable test data and analysis of the data. Specific project information is also required if there were any changes to the geotechnical report of record or unusual circumstances encountered during grading. The report shall also include the following information:

1. Compaction test results, requirements, locations, depth of backfill at test locations and names of technicians conducting the tests.
2. Moisture Density values and curves that include classifications for all soils used in the grading operation.
3. Description of structure or pad including the proposed use.
4. Grading plan showing approximate locations of tests, dates and depths of over-excavation observations, original contours and finish pad elevations.
5. Swell and solubility test requirements and results. This information shall be provided if required by the geotechnical report of record, elsewhere in the code, or if imported soils were utilized.
6. Type of foundation system applicable to work being certified (i.e. spread footings, strip footings, combination footings, drilled shafts etc.).
7. Import material used, source of import, and tests indicating compliance with the geotechnical report of record recommendations, and classification in relation to ACI 318-08 Section 4.3.
8. A statement describing the process of pad grading. Where applicable, this shall include, but not be limited to the minimum depth of over-excavation, blending operations, the use of import soils, nested aggregate, organics encountered, and removal of unsuitable soils.
9. The preceding requirements shall be presented for each pad or structure being certified.

The Final Grading report remains valid for a maximum of six months after the completion of grading. The six month period begins at the first test date of the final test of the final lift of the structural pad. Once expired, a Pad Recertification report is required.

**J105.1.3 Pad Certification report.** This letter/report is used as an interim document until a Final Grading report is completed (i.e., a Final Grading report for the entire project or a particular phase(s) of a project). The approved agency shall prepare this report signed by a registered design professional and certifying that the grading and earthwork are complete and substantially comply with the requirements of the geotechnical report of record including any approved supplements or addenda. Specific project information is also required if there were any changes to the geotechnical report of record or unusual circumstances encountered during grading.

This report shall include the following information for each pad or structure:

1. The first test date of the final test of the final lift.
2. Permit number and pad or structure description.
3. Classification of foundation soils in relation to ACI 318-08 Section 4.3.
4. Classification of foundation soil for expansive properties (i.e. non-expansive or results from standard 60 pounds per square foot swell test).
5. The name(s) of the approved special inspector(s) and any technicians that observed grading or foundation improvements.

This report remains valid for no longer than six months after the completion of grading. The six month period begins at the first test date of the final test of the final lift of the structural pad. Upon expiration, a Final Grading report and Pad Recertification report will be required.

**J105.1.4 Pad Re-certification report.** This report is required when a Final Grading report or Pad Certification report has expired or if required by the Building Official. The approved agency shall prepare this report signed by a registered design professional certifying the current suitability of the pad(s). The condition of the pad(s) is discussed, tests performed and their results are presented and discussed, and any additional grading or reworking is discussed. The conclusions are stated and based upon the current condition of the pad(s) compared to completion at original grading and a statement that the current condition of the pad(s) substantially complies with the requirements of the geotechnical report of record including any approved supplements or addenda.

As a minimum, pad moisture data and standard sixty pounds per square foot swell test results, if applicable, are included in this report. The tests shall be conducted on a representative number of pads.

The report remains valid for no longer than six months after the latest test date. Once expired, the pad(s) recertification will require an evaluation by a registered design professional to confirm the applicability of current site conditions.

**J105.1.5 Finished Floor Elevation Certificate.** A registered design professional shall certify the lowest habitable finished floor elevation to the elevation on the approved plans upon completion of the slab inspection and placement or the placement of the final construction form for the finished floor. All certifications required by this section shall be provided to and accepted by the Building Official prior to performance of any additional inspections. The minimum finished floor elevation shall comply with the approved plans and the allowable tolerance shall be minus (-) 0.0 feet to plus (+) 0.3 feet of the finished floor elevation detailed on the approved plans.

**J105.1.6 Drainage Compliance Report.** Upon completion of final grading, and prior to the final building inspection, a statement of compliance for drainage shall be provided by the registered design professional of record or the developer when approved by the building official.

This report shall state that site conditions at the time of final construction provide positive drainage in compliance with the approved drainage plan or the plot and grading plan.

When engineered drainage features, facilities, or structures are required by the approved plans, the registered design professional of record shall verify that installed and constructed elements are in compliance with the approved plans. This includes site detention, lot to lot drainage, and drainage conveyance devices.

**J105.1.7 Notification of Noncompliance.** If in the course of fulfilling their respective duties under this appendix, the registered design professional or the approved agency finds that the work is not being done in conformance with this appendix or the approved plans the discrepancies shall be immediately reported in writing to the contractor, the permittee, and to the Building Official.

**J105.2 Special Inspections.** The special inspection requirements of Section 1704 shall apply to work performed under a grading permit where required by the Building Official.

## **Appendix L Fences**

*Add a new Appendix L Fences, walls and retaining walls, as follows:*

## APPENDIX L FENCES, WALLS AND RETAINING WALLS

### L101 General

**L101.1 General.** It shall be unlawful for any person, contractor, firm or corporation to erect, install, construct or replace any fence, wall or retaining wall contrary to the provisions of this code.

**L101.2 Applicable regulations.** All regulations and requirements of the Building Code and any amendments, deletions and additions thereto shall apply to the erection, installation or construction of any fence, wall and/or retaining wall except that which may be inconsistent with this chapter.

### L102.0 DEFINITIONS

**L102.1 Definitions.** For the purpose of this chapter, certain terms are defined as follows:

**CUT.** See Excavation.

**EXCAVATION.** The removal of earth material by artificial means, also referred to as a cut.

**FENCE.** A structure of temporary or semi-permanent material such as wrought iron, wire, wood, screen, vinyl, plastic, etc... erected for purposes of enclosure, division of property or decoration.

**FILL.** The placement of earth materials by artificial means.

**RETAINING WALL.** Any wall that is used to resist the lateral displacement of earth or any other material with a difference in elevation of the material from one side to the other exceeding 24 inches (610 mm) in height.

**ROCKERY WALL.** A system of stacked rocks constructed to retain soil. See the Southern Nevada Building Officials Rockery Wall Construction Standards.

**WALL.** A structure of stone, brick, masonry, concrete or other similar permanent material, raised to some height and erected for purposes of enclosure, division of property or decoration.

### L103.0 PERMITS

**L103.1 Permits required.** No fence, wall or retaining wall regulated by this code shall be erected, constructed, enlarged, altered, repaired, moved, improved, removed, converted or demolished unless a permit for each fence, wall or retaining wall is obtained from the Building Official.

**L103.2 Separate permits required.** A separate permit is required for each parcel of land upon which a fence, wall or retaining wall is to be located.

**EXCEPTION:** Only one permit is required for multiple fence(s), wall(s) and/or retaining wall(s) constructed along property lines in connection with the development of a subdivision, provided that a legal description of the property is submitted together with a dimensioned plot plan showing the exact location of the fence, wall and/or retaining wall and all other recorded lot and easement lines.

**L103.3 Application for a fence, wall or retaining wall permit.** To obtain a permit, the applicant shall first file an application on a form furnished by the jurisdiction for that purpose. The application shall include the following:

1. The name and address of the owner of the real property upon which the fence, wall and/or retaining wall is to be located.
2. The type of material to be used for construction of the fence, wall, and/or retaining wall.

3. The total length, height and square footage of each fence, wall and/or retaining wall.
4. The authorized agent to perform construction.
5. A dimensioned drawing that identifies the location of each fence, wall and/or retaining wall with respect to the property or lot lines, easements, streets, other rights-of-way. Existing construction and drainage features shall be clearly identified on the drawings.
6. The location of all light standards, gas and water meters, and fire hydrants.
7. Other information deemed pertinent by the Building Official.

**L103.4 Drawings and specifications.** Drawings and specifications required for retaining walls shall be prepared by a registered design professional. The design shall be in accordance with the applicable chapters of the IBC. Rockery walls shall be designed in accordance with the IBC and the Southern Nevada Building Officials Rockery Wall Construction Standards.

Drawings or specifications for fences and walls need not be submitted unless required by the Building Official. Drawings and specifications shall be submitted for retaining walls showing that the retaining wall is designed in accordance with this code.

## **L104.0 GENERAL REQUIREMENTS AND LIMITATIONS**

**L104.1 General.** General requirements and limitations shall be as follows:

1. No fence, wall and/or retaining wall shall be placed within a right-of-way unless granted permission by the authority having jurisdiction.
2. The height and location of a fence, wall and/or retaining wall shall comply with all zoning ordinances and regulations of the authority having jurisdiction.
3. Fences, walls and/or retaining walls shall be constructed in accordance with published standards of the department or agency having authority of utility easements, when located within a utility easement for any light standard, gas meter, water meter, or fire hydrant.
4. Special inspection, if required, shall be in accordance with the IBC. Rockery walls shall require special inspection in accordance with the IBC and the Southern Nevada Building Officials Rockery Wall Construction Guidelines.

### **L104.2 Required inspections**

1. All footings shall be inspected to verify location to property line, structures, and compliance to the approved plans and permit. Footings shall be excavated and cast against the earth.
2. Concrete foundations shall not be placed until footings have been inspected and approved by the Building Official.
3. No wall and/or retaining wall shall be grouted until the reinforcing required has been inspected and approved by the Building Official.
4. No retaining wall shall be backfilled until verification of the dampproofing, when required, and drainage has been inspected and approved by the Building Official.

**L104.3 Natural drainage.** No permits shall be issued for fences, walls and/or retaining walls, which would block any natural flow path.

**L104.4 Prohibited materials.** Walls, fences and retaining walls shall not be constructed of materials which impose a direct safety hazard, such as pointed posts, stakes or pickets, components intended for electrocution, embedded glass, nails, barbed or razor type wire, or other sharp, cutting objects.

**EXCEPTION:** Manufactured barbed or razor wire may be used when its detailed use, location, and construction requirements are approved by the authority having jurisdiction.

## **L105.0 IMPLEMENTATION**

**L105.1 Implementation.** The Building Official is empowered to formulate procedural guidelines to be used in implementing this chapter.