ORDINANCE NO. 072, 2017
OF THE COUNCIL OF THE CITY OF FORT COLLINS
AMENDING CHAPTER 5, ARTICLE II, DIVISION 2, OF THE
CODE OF THE CITY OF FORT COLLINS FOR THE PURPOSE OF
REPEALING THE *2012 INTERNATIONAL BUILDING CODE (IBC)* AND
ADOPTING THE *2015 INTERNATIONAL BUILDING CODE*, WITH AMENDMENTS

WHEREAS, since 1924, the City has reviewed, amended and adopted the latest nationally recognized building standards available for the times; and

WHEREAS, upon recommendation of City staff, the City Council has determined that it is in the best interests of the City to align the five interconnected basic construction codes under one publication year; and

WHEREAS, the five interconnected basic construction codes are the *International Building Code, International Residential Code, International Mechanical Code, International Fuel Gas Code,* and *International Energy Conservation Code*; and

WHEREAS, the City Council has determined that the 2015 publication year of the five interconnected basic construction codes ought to be adopted and that their counterpart codes previously adopted should be repealed, both in order to align the publication years of the codes and also because the 2015 publications contain improvements in construction code regulation; and

WHEREAS, City staff has conducted a significant public outreach program, working with the regulated construction industry and building professionals; and

WHEREAS, the adoption of the five interconnected basic construction codes has been presented to and recommended by the Affordable Housing Board, the Commission on Disability, the Air Quality Advisory Board, the Natural Resources Advisory Board, the Building Review Board, the Electric Board, the Landmark Preservation Commission and the Water Board; and

WHEREAS, the City Council has determined that it is in the best interest of the health, safety and welfare of the City and its citizens that the *2012 International Building Code*, as previously adopted and amended by the City pursuant to Ordinance No. 020, 2014, be repealed and that in its place, the *2015 International Building Code* be adopted, with local amendments as set forth in this Ordinance; and

WHEREAS, pursuant to the City Charter II, Section 7, City Council may enact any ordinance which adopts a code by reference in whole or in part provided that before adoption of such ordinance the Council hold a public hearing thereon and that notice of the hearing is published twice in a newspaper of general circulation published in the City, with one of such publications occurring at least eight (8) days preceding the hearing and the other publication occurring at least fifteen (15) days preceding the hearing; and

WHEREAS, in compliance with Article II, Section 7, the City Clerk published in the Fort Collins *Coloradoan* such notice of hearing concerning adoption of the 2015 International Building Code on May 21, 2017, and May 28, 2017; and

WHEREAS, attached as Exhibit "A" and incorporated herein by reference is the Notice of Public Hearing dated May 14, 2107, that was so published and which the Council hereby finds meets the requirements of Article II, Section 7 of the City Charter.

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF FORT COLLINS as follows:

Section 1. That the City Council hereby makes and adopts the determinations and findings contained in the recitals set forth above.

Section 2. That Section 5-26(a) of the Code of the City of Fort Collins is hereby amended deleted in its entirety and the following is hereby added in lieu thereof:

(a) Pursuant to the power and authority conferred on the City Council by Section 31-16-202, C.R.S. and Article II, Section 7 of the Charter, the City Council hereby repeals the *2012 International Building Code (2012 IBC)*, and adopts, as the building code of the City, the *2015 International Building Code (2015 IBC)* published by the International Code Council, as amended by the City, which shall have the same force and effect as though set forth in full herein. The subject matter of the codes adopted herein includes comprehensive provisions and standards regulating the erection, construction, enlargement, alteration, repair, moving, removal, conversion, demolition, occupancy, equipment, use, height, area and maintenance of buildings and structures exclusive of detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three (3) stories above grade and their accessory structures, for the purpose of protecting the public health, safety and general welfare. As provided in the *2015 International Building Code,* Appendices are **not** adopted except as expressly set forth in Section 5-27.

Section 3. That Section 5-27 of the Code of the City of Fort Collins is hereby repealed in its entirety and reenacted to read as follows:

Sec. 5-27. Amendments and Deletions to 2015 International Building Code.

The 2015 *INTERNATIONAL BUILDING CODE* adopted in Section 5-26 is hereby amended in the following respects:

(1) ***Section 101. Title*** is hereby retained in its entirety with the following amendments:

101.1. Title. These regulations shall be known as the General Building Code of the City of Fort Collins, hereinafter referred to as 'this code'.

(2) ***Sections 101.4.1through 101.4.7 Referenced codes,*** are hereby deleted in their entirety and the following Sections 101.4.1 through 101.4.10 are hereby added in lieu thereof:

101.4.1 Electrical. All references to the *Electrical Code* shall mean the electrical code currently in effect as enacted and amended from time to time by the State of Colorado.

101.4.2 Gas. All references to the *International Fuel Gas Code* shall mean the fuel gas code currently in effect as enacted by the City.

101.4.3 Mechanical. All references to the *International Mechanical Code* shall mean the mechanical code currently in effect as enacted by the City.

101.4.4 Plumbing. All references to the *International Plumbing Code* shall mean the plumbing code currently in effect as enacted and amended form time to time by the State of Colorado.

101.4.5 Property Maintenance. All references to the *International Property Maintenance Code* shall mean the property maintenance code currently in effect as enacted by the City.

101.4.6 Fire Prevention. All references to the *International Fire Code* shall mean the fire code currently in effect as enacted by the City.

101.4.7 Energy. All references to the *International Energy Conservation Code* shall mean the energy code currently in effect as enacted by the City.

101.4.8 Residential. All references to the *International Residential Code* shall mean the residential code currently in effect as enacted by the City.

101.4.9 Areas prone to flooding. All references to 'flood hazard' and 'areas prone to flooding' in this code and appendices adopted therewith subject to applicable regulations and requirements set forth in the City Code, "Chapter 10, Flood Prevention and Protection."

101.4.10 Existing buildings. All references to existing buildings may be regulated pursuant to the adopted International Property Maintenance Code or the 2012 International Building Code Chapter 34 titled 'Existing Buildings and Structures' previously adopted by the City of Fort Collins and no longer a chapter in this code.

(3) ***Section 103 Department of Building Safety*** is hereby deleted in its entirety and the following is hereby added in lieu thereof:

SECTION 103 CODE ADMINISTRATION

103.1 Entity charged with code administration. The Community Development and Neighborhood Services Department (CDNS), as established by the City Code, is hereby charged with the administration and enforcement of this code.

The *building official*, appointed by the City Manager, is charged with the direct overall administration and enforcement of this code; and, in the performance of said duties, may delegate the necessary authority to the appropriate technical, administrative, and compliance staff under the supervision the *building official.*

(4) ***Section 105.2 Work exempt from permit,*** including provisions under the heading of "Building", is hereby retained with the following amendments:

105.2 Work exempt from permit.
Exemptions from *permit* requirements of this code 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. *Permits* shall not be required for the following:

Building:

1. One-story, detached, accessory structures used for lawn and garden equipment storage, tool storage and similar uses, as well as arbors, pergolas, and similar structures, provided the floor area is not greater than 120 square feet (11.15 m^2) or 8 feet (2.438 m) in height measured from grade, do not house flammable liquids in quantities exceeding 10 gallons (38 l) per building and are located at least 3 feet (0.914 m) from an adjoining property line.

2. Fences not over 6 feet (1829 mm) high.

3 Oil derricks

4. Retaining walls that are not over 4 feet (1219 mm) in height measured from the low side grade to the top of the wall unless supporting a surcharge or impounding Class I, II or IIIA liquids. The horizontal distance to the next uphill retaining wall shall be at least equal to the total height of the lower retaining wall.

5. Water tanks supported directly upon grade if the capacity does not exceed 5,000 gallons (18,927 L) and the ratio of height to diameter or width does not exceed 2 to 1.

6. Platforms intended for human occupancy or walking, sidewalks and driveways not more than 30 inches (762 mm) above adjacent grade, and not over any *basement* window and are not part of an *accessible route.*

7. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.

8. Temporary motion picture, television and theater stage sets and scenery.

9. Prefabricated and portable swimming or wading pools, hot tubs or spas if such structures are supported directly upon grade when the walls of such structure are entirely

above grade and if such structures cannot contain water more than 24 inches (610 mm) deep.

10. Shade cloth structures constructed for nursery or agricultural purposes, not including service systems. Hoop houses constructed with a flexible frame such as PVC tubing used for starting plants.

11. Swings and other playground equipment or play structures accessory to detached one- and two-family *dwellings* provided the floor area is not greater than 120 square feet (11.15 m^2) or 8 feet (2.438 m) in height measured from grade, including one elevated playhouse or play structure per lot designed, and used exclusively for play. Elevated play houses or play structures shall not exceed 64 square feet (5.9 m2) of floor area or 6 feet (1.82 m) in height as measured from the floor to the highest point of such structure.

12. Window awnings supported by an exterior wall which do not project more than 54 inches (1372 mm) from the exterior wall, do not require additional support, and do not extend over the public right of way. Window replacement requiring no structural alteration. Window replacement requiring no change in the window configuration which reduces the size of the window clear opening. Window replacement when such work is determined not to be historically significant. Storm window, storm door and rain gutter installation.

13. Non-fixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches (1753 mm) in height.

14. Decks not exceeding 200 square feet (18.58 m2) in area that are not more than 30 inches (762 mm) above *grade*, are not attached to a building, and do not serve an exit door required by Chapter 10.

15. Roofing repair or replacement work not exceeding one square (100 square feet) of covering per building.

16. Replacement of nonstructural siding when the removal of siding is performed in accordance with State laws regarding asbestos and lead paint.

17. Work valued at less than $500 when such work does not involve alteration of structural components, fire-rated assemblies, plumbing, electrical, mechanical or fire-extinguishing systems.

18. Decorative ponds, fountains and pools that cannot contain water more than 24 inches (610 mm) deep.

(5) ***Section 105.2 Work exempt from permit,*** is further amended by deleting all headings and references under Electrical, Gas, Mechanical, and Plumbing in their entirety.

(6) ***Section 105.3.2 Time limitation of application*** is hereby retained in its entirety with the following amendments:

105.3.2 Time limitation of application An application for a *permit* for any proposed work shall be deemed to have been abandoned 180 days after the date of filing, unless such application has been pursued in good faith or a *permit* has been issued; except that the *building official* is authorized to grant one or more extensions of time for additional periods not exceeding ~~90~~ 180 days each provided the application has not expired and is considered an active application. The extension shall be requested in writing and justifiable cause demonstrated. Applications that have expired for 30 days or more will be considered as null and void and all plans discarded.

(7) ***Section 105.5 Expiration*** is hereby retained in its entirety with the following amendments:

Every *permit* issued shall become invalid unless the work on the site authorized by such *permit* is commenced within 180 days after its issuance, or if the work authorized on the site by such *permit* is suspended or abandoned for a period of 180 days after the time the work is commenced. The *building official* is authorized to grant, in writing, one or more extensions of time, for periods not more than 180 days each, provided the *permit* has not expired for more than 30 days. The extension shall be requested in writing and justifiable cause demonstrated.

Both prior to and subsequent to the effective date of this code, any work authorized by a *permit* regulated by this code or any other building construction code administered by the *building official* that involves the construction or alteration of an exterior building component, assembly or finish material, such as the foundation, wall and roof framing, sheathing, siding, fenestration, and roof covering, shall be fully finished for permanent outdoor exposure within 24 months of the date of the issuance of such *permit.*

(8) ***Section 106 Floor and Roof Design Loads*** is hereby deleted in its entirety.

(9) ***Section 107.3.1 Approval of construction documents***, is hereby retained in its entirety with the following amendments:

107.3.1 Approval of construction documents. When the *building official* issues a *permit*, the *construction documents* shall be *approved* in writing or by a stamp indicating the approved *permit* number. One set of *construction documents* so reviewed shall be retained by the *building official*. The other set shall be returned to the applicant, shall be kept at the site of work and shall be open to inspection by the *building official* or his or her authorized representative.

(10) ***Section 108 Temporary Structures and Uses*** is hereby deleted in its entirety.

(11) ***Section 109, FEES***, is hereby deleted in its entirety and the following is hereby added in lieu thereof:

SECTION 109 FEES

109.1 Payment of fees. No *permit* shall be valid until the fees prescribed by the City Manager pursuant to Chapter 7.5, Article I of the City Code, entitled, 'Administrative Fees', have been paid.

109.2 Related fees. The payment of the fee for the construction, alteration, removal or demolition for work done in connection with or concurrently with the work authorized by a *permit* shall not relieve the applicant or holder of the *permit* from the payment of other fees that are prescribed by law.

109.3 Fee refunds. Any fee paid hereunder that is erroneously paid or collected shall be refunded. The *building official* may authorize the refunding of 100 percent of a plan review fee or *permit* fee to the applicant who paid such fee provided the plan review is withdrawn or cancelled and the plan review and/or work authorized under a *permit* issued in accordance with this code has not commenced; and further provided that such plan review or *permit* is valid and not expired as set forth in Section 105.5. Prior to authorizing the refunding of any fee paid to the original applicant or permitee, a written request from such party must be submitted to the City within 180 days of the date of the fee payment.

(12) ***Section 110.3 Required inspections*** is hereby retained in its entirety with the following amendments:

110.3 Required inspections The *building official*, upon notification, shall make or shall cause to be made the inspections set forth in Sections 110.3.1 through 110.3.10.

. . .

(13) ***Section 111.2 Certificate issued*** is hereby retained in its entirety with the following amendments:

111.2 Certificate issued. After the *building official* inspects the building or structure and does not find violations of the provisions of this code or other laws that are enforced by the department of building safety, the *building official* shall issue a certificate of occupancy that contains the following:

1. The building *permit* number.
2. The address of the structure.
3. The name and address of the *owner* or the owner's authorized agent.
4. A description of that portion of the structure for which the certificate is issued.

5. A statement that the described portion of the structure has been inspected for compliance with the requirements of this code for the occupancy and division of occupancy and the use for which the proposed occupancy is classified.
6. The name of the *building official.*
7. The edition of the code under which the *permit* was issued.
8. The use and occupancy, in accordance with the provisions of Chapter 3.
9. The type of construction as defined in Chapter 6.
10. If an *automatic sprinkler system* is provided, whether the sprinkler system is required.

(14) ***Section 113, Board of Appeals***, is hereby deleted in its entirety and the following is hereby added in lieu thereof:

SECTION 113 BOARD OF APPEALS

113.1 General. The Building Review Board (hereafter "Board") established in Section 2-117 of the City Code is hereby empowered in accordance with the procedures set forth in this Section and as authorized under Section 2-119 of the City Code to hear and decide appeals of orders, decisions, or determinations made by the *building official* relative to the application and interpretation of this code; to determine the suitability of alternative materials or alternative methods of construction; and to grant *permit* extensions and reinstatements as prescribed by Section 105.5. The *building official* shall serve as the Secretary of the Board. The Board shall adopt rules of procedure for conducting its business and shall render all decisions and findings in writing.

113.2 Applications/Hearings. When a building *permit* applicant or a holder of a building *permit* desires relief from any decision of the *building official* related to the enforcement of this code, except as is otherwise limited in Section 113.4, such building *permit* applicant, building *permit* holder, or representative thereof may appeal the decision of the *building official* to the Board, stating that such decision by the *building official* was based on an erroneous interpretation of the building regulations or that an alternative design, alternative materials and/or the alternative methods of construction proposed by the appellant are equivalent to those prescribed by this code, considering structural strength, effectiveness, fire resistance, durability, safety and any other pertinent factors.

The Board shall hear and decide all appeals made to it and shall have the authority to rule in favor of the appellant when the Board determines that the interpretation of the building regulations of the City by the *building official* was erroneous, or when the Board determines an alternative design, alternative materials and/or the alternative methods proposed by the appellant are equivalent to those prescribed by this code, considering structural strength, effectiveness, fire resistance, durability, safety and any other pertinent factors. The Board shall require that sufficient evidence be submitted to substantiate any claims made regarding the proposed alternative design, alternative materials and/or

alternative methods of construction. A quorum of 4 members shall be necessary for any meeting of the Board.

113.3 Fees and Notification. Persons desiring to appeal to the Board any decision of the *building official* as provided in this Section shall, at the time of filing such appeal, pay to the City a filing fee in the amount of $50. Written notice of hearings shall be given to the Appellant and, with respect to requests for exceptions or variances to Section 1101.1 of this code, to the secretary to the Commission on Disability, at least 4 days prior to the hearing by mailing the same to such party's last known address by regular U.S. mail.

113.4 Limitations. The Building Review Board shall have no authority with respect to any of the following functions:

1. The administration of this code except as expressly provided otherwise;
2. Waiving requirements of this code, except as provided in this Section;
3. Modifying the applicable provisions of, or granting variances to, this code, or approving the use of alternative designs, alternative materials and/or alternative methods of construction except as provided for in this Section and based upon a specific appeal from a determination or decision of the *building official* on an individual case basis; and
4. Modifying, interpreting, or ruling on the applicability or intent of the zoning and land use regulations or other laws of the City except as expressly empowered otherwise.

(15) ***Section 114.4, Violation penalties*** is retained in its entirety with the following amendments:

114.4 Violation penalties. Any person who violates a provision of this code or fails to comply with any of the requirements thereof or who erects, constructs, alters or repairs a building or structure in violation of the *approved construction documents* or directive of the *building official*, or of a *permit* or certificate issued under the provisions of this code, shall be guilty of a misdemeanor and shall be subject to the penalties and fines specified in Section 1-15 of the City Code.

(16) A new ***Section 114.5 Work commencing before permit issuance,*** is hereby added to read as follows:

114.5 Work commencing before *permit* issuance. In addition to the penalties set forth in Section 114.4, any person or firm who, before obtaining the necessary *permit(s)*, commences any construction of, or work on, a building, structure, electrical, gas, mechanical or plumbing system that is not otherwise exempt from obtaining a *permit*, shall be subject to a fine in addition to the standard prescribed *permit* fee. Said fine shall be equal in amount to the *permit* fee, except that it shall not be less than $50 nor more than $1,000 for the first such violation. A person or firm committing the same such violation repeatedly shall be subject to a fine equal to double the amount of the *permit* fee or double the amount of the fine imposed for the preceding violation, whichever is

greater, for each such subsequent violation committed within 180 days of a previous violation. Said fines may be appealed to the City Manager pursuant to Chapter 2, Article VI of the City Code.

(17) ***Section 202, DEFINITIONS***, is hereby amended to modify, or add, in alphabetical order, the following definitions:

. . .

COMMISSIONING. A process to verify and document that the selected *building* and systems have been designed, installed, and function in accordance with the *construction documents*, manufacturers' specifications, and minimum code requirements.

. . .

DWELLING. A building used exclusively for residential occupancy and for permitted accessory uses, including single-family dwellings, two-family dwellings and multi-family dwellings, and short term primary and non-primary rentals. The term *dwelling* shall not include hotels, motels, homeless shelters, seasonal overflow shelters, tents or other structures designed or used primarily for temporary occupancy with the exception of short term primary and non-primary rentals. Any dwelling shall be deemed to be a principal building.

DWELLING UNIT. One or more rooms and a single kitchen and at least 1 bathroom, designed, occupied or intended for occupancy as separate quarters for the exclusive use of a single family for living, cooking and sanitary purposes, located in a single-family, two-family or multi-family dwelling or mixed-use building.

. . .

FAMILY. Any number of persons who are all related by blood, marriage, adoption, guardianship or other duly authorized custodial relationship, and who live together as a single housekeeping unit and share common living, sleeping, cooking and eating facilities.

. . .

GRADE (ADJACENT GROUND ELEVATION). The lowest point of elevation of the finished surface of the ground, paving or sidewalk between the building and the property line or, when the property line is more than 5 feet (1.524 m) from the building, between the building and a line 5 feet (1.524 m) from the building.

. . .

ROOM, SLEEPING (BEDROOM). A habitable room within a *dwelling* or other housing unit designed primarily for the purpose of sleeping. The presence of a bed, cot, mattress, convertible sofa or other similar furnishing used for sleeping purposes shall be

prima facie evidence that such space or room is a sleeping room. The presence of closets or similar storage facilities shall not be considered relevant factors in determining whether or not a room is a sleeping room.

. . .

TOWNHOUSE. A single-family *dwelling unit* constructed as part of a group of two or more attached individual *dwelling units*, each of which is separated from the other from the foundation to the roof and is located entirely on a separately recorded and platted parcel of land (site) bounded by property lines, which parcel is deeded exclusively for such single-family dwelling.

. . .

VOLATILE ORGANIC COMPOUND (VOC): Any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions. VOCs include a variety of chemicals, some of which may have short-and long-term adverse health effects emitted as gases from certain solids or liquids.

. . . .

(18) ***Section 419.1 General*** is hereby retained in its entirety with the following amendments:

419.1 General.

A *live/work unit* shall comply with Sections 419.1 through 419.9.

Exception: Dwelling or sleeping units that include an office that is less than 20 percent of the area of the *dwelling unit* are permitted to be classified as *dwelling units* with accessory occupancies in accordance with Section 508.2.

(19) A new ***Section 501.3 Premises Identification*** is hereby added to read as follows:

501.3 Premises Identification During Construction. The approved *permit* number and street address number shall be displayed and be plainly visible and legible from the public street or road fronting the property on which any building is being constructed or remodeled.

(20) ***Section 505.2.1 Area Limitation*** is hereby retained in its entirety with the addition of a new exception number 3 to read as follows:

. . .

3. Within individual dwelling units of Group R occupancies, the maximum aggregate area of a *mezzanine* may be equal to one-half of the area of the room in

which it is located, without being considered an additional story. The *mezzanine* may be closed to the room in which it is located as long as *means of egress* from the *mezzanine* are in conformance with Section 505.2.2.

(21) ***Section 505.2.2 Means of Egress*** is hereby retained in its entirety with the following amendments:

505.2.2 Means of egress. The *means of egress* for *mezzanines* shall comply with the applicable provisions of Chapter 10. Habitable *mezzanines* within dwelling units shall be provided with *emergency escape and rescue openings* in accordance with Section 1030.

(22) ***Section 705.3 Buildings on the same lot*** is hereby retained in its entirety with the following amendment adding a third paragraph after the numbered ***Exceptions,*** to read as follows:

. . .

Lines or walls that are established solely to delineate individual portions of a building or of a planned unit development (PUD) need not be considered as property lines for the purposes of this code, provided that such building is entirely located on property which is under common ownership and further provided that required distances, set forth in Section 503.1.2 for assumed property lines between buildings located on the same property, are maintained.

(23) ***Section 903.2.1.1 Group A-1*** is hereby retained in its entirety with the following amendments:

903.2.1.1 Group A-1. An *automatic sprinkler system* shall be provided for *fire areas* containing Group A-1 occupancies and intervening floors of the building where one of the following conditions exists:

1. The *fire area* exceeds 5000 square feet (464.5 m^2).

2. The *fire area* has an *occupant load* of 300 or more.

3. The *fire area* is located on a floor other than a *level of exit discharge* serving such occupancies.

4. The *fire area* contains a multitheater complex.

(24) ***Section 903.2.1.3 Group A-3*** is hereby retained in its entirety with the following amendments:

903.2.1.3 Group A-3. An *automatic sprinkler system* shall be provided for *fire areas* containing Group A-3 occupancies and intervening floors of the building where one of the following conditions exists:

1. The *fire area* exceeds 5000 square feet (464.5 m^2).

2. The *fire area* has an *occupant load* of 300 or more.

3. The *fire area* is located on a floor other than a *level of exit discharge* serving such occupancies.

(25) ***Section 903.2.1.4 Group A-4*** is hereby retained in its entirety with the following amendments:

903.2.1.4 Group A-4. An *automatic sprinkler system* shall be provided for *fire areas* containing Group A-4 occupancies and intervening floors of the building where one of the following conditions exists:

1. The *fire area* exceeds 5000 square feet (464.5 m^2).

2. The *fire area* has an occupant load of 300 or more.

3. The *fire area* is located on a floor other than a *level of exit discharge* serving such occupancies.

(26) A new ***Section 903.2.1.8 Group B*** is hereby added to read as follows:

903.2.1.8 Group B. An *automatic sprinkler system* shall be provided for *fire areas* containing Group B occupancies when the *fire area* exceeds 5000 square feet (464.5 m^2).

(27) ***Section 903.2.3 Group E*** is hereby retained in its entirety with the following amendments:

903.2.3 Group E. An *automatic sprinkler system* shall be provided for Group E occupancies as follows:

1. Throughout all Group E *fire areas* greater than 5000 square feet (464.5 m^2) in area.

2. Throughout every portion of educational buildings below the lowest *level of exit discharge* serving that portion of the building.

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 not fewer than one exterior exit door at ground level.

(28) ***Section 903.2.4 Group F-1*** is hereby retained in its entirety with the following amendments:

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

1. A Group F-1 *fire area* exceeds 5000 square feet (464.5 m^2).

2. A Group F-1 *fire area* is located more than three stories above *grade plane.*

3. A Group F-1 occupancy used for the manufacture of upholstered furniture or mattresses exceeds 2500 square feet (232 m^2).

. . .

(29) A new ***Section 903.2.4.2 Group F-2*** is hereby added to read as follows:

903.2.4.2 Group F-2. An *automatic sprinkler system* shall be provided throughout all buildings containing a Group F-2 occupancy where one of the following conditions exists:

1. A Group F-2 *fire area* exceeds 5000 square feet (464.5 m^2).

2. A Group F-2 *fire area* is located more than three stories above *grade plane.*

(30) ***Section 903.2.6 Group I*** is hereby retained in its entirety with the following amendments:

903.2.6 Group I. An *automatic sprinkler system* shall be provided throughout buildings with a Group I *fire area.*

Exceptions:

1. An *automatic sprinkler system* is not required where group I-4 day care facilities are at the *level of exit discharge* and where every room where care is provided has not fewer than one exterior exit door and the *fire area* does not exceed 5000 square feet (464.5 m^2).

2. In buildings where Group I-4 day care is provided on levels other than the *level of exit discharge*, an *automatic sprinkler system* in accordance with Section 903.3.1.1 shall be installed on the entire floor where care is provided, all floors between the level of care and the *level of exit discharge*, and all floors below the *level of exit discharge* other than areas classified as an open parking garage.

(31) ***Section 903.2.7 Group M*** is hereby retained in its entirety with the following amendments:

903.2.7 Group M. An *automatic sprinkler system* shall be provided throughout buildings containing a Group M occupancy where one of the following conditions exists:

1. A Group M *fire area* exceeds 5000 square feet (464.5 m^2).

2. A Group M *fire area* is located more than three stories above *grade plane.*

3. A Group M occupancy used for the display and sale of upholstered furniture or mattresses exceeds 5000 square feet (464 m^2).

. . .

(32) ***Section 903.2.9 Group S-1*** is hereby retained in its entirety with the following amendments:

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 5000 square feet (464.5 m^2).

2. A Group S-1 *fire area* is located more than three stories above *grade plane.*

3. A Group S-1 *fire area* used for the storage of commercial motor vehicle where the *fire area* exceeds 5000 square feet (464 m^2).

4. A Group S-1 occupancy used for the storage of upholstered furniture or mattresses exceeds 2500 square (232m^2).

(33) ***Section 903.2.9.1 Repair Garages*** is hereby retained in its entirety with the following amendments:

903.2.9.1 Repair garages.
An *automatic sprinkler system* shall be provided throughout all buildings used as repair garages in accordance with Section 406, as shown:

1. Buildings having two or more *stories above grade plane*, including basements, with a *fire area* containing a repair garage exceeding 5000 square feet (464.5 m^2).

2. Buildings not more than one *story above grade plane*, with a *fire area* containing a repair garage exceeding 5000 square feet (464.5 m^2).

3. Buildings with repair garages servicing vehicles parked in basements.

4. A Group S-1 *fire area* used for the repair of commercial motor vehicles where the *fire area* exceeds 5000 square feet (464 m^2).

. . .

(34) ***Section 903.2.10 Group S-2 enclosed parking garages*** is hereby retained in its entirety with the following amendments:

903.2.10 Group S-2 enclosed parking garages. An *automatic sprinkler system* shall be provided throughout all buildings containing a Group S-2 occupancy where one of the following conditions exists:

1. A Group S-2 *fire area* exceeds 5000 square feet (464.5 m^2).

2. A Group S-2 *fire area* is located more than three stories above *grade plane.*

Exception: *Open Parking Garages*

(35) ***Section 903.2.11.1.3 Basements*** is hereby retained in its entirety with the following amendments:

903.2.11.1.3 ***Basements.*** Where any portion of a *basement* is located more than 75 feet (22 860 mm) from openings required by Section 903.2.11.1, the *basement* shall be equipped throughout with an *approved automatic sprinkler system.*

(36) ***Section 903.3.1.2 NFPA 13R sprinkler systems*** is hereby amended to read as follows

903.3.1.2 NFPA 13R sprinkler systems. *Automatic Sprinkler systems* in Group R occupancies shall be installed throughout in accordance with NFPA 13 Section 903.3.1.1.

Exception: NFPA 13R is allowed when the following conditions exist:

1. The building does not contain more than 6 individual *dwelling units* and the units are separated from each other with a 1 hour *fire partition.*

2. The building does not contain more than 12 individual *dwelling units* and is divided into no more than 6 individual dwellings units (complying with number 1 above) by a minimum 2 hour *fire partition*

The number of stories of Group R occupancies constructed in accordance with Sections 510.2 and 510.4 shall be measured from the horizontal assembly creating separate buildings.

(37) ***Section 907.2.11 Single- and multiple-station smoke alarms*** is hereby retained in its entirety with the following amendment to add a new second paragraph thereto to read as follows:

. . .

When one or more sleeping rooms are added or created in existing Group R Occupancies, the entire building shall be provided with smoke detectors located and installed as required for new Group R Occupancies as described herein.

. . .

(38) ***Section 1009.3 Stairways,*** is hereby preserved in its entirety with the following amendments to the ***Exceptions*** listed therein:

Exceptions:

1. *Exist access stairways* providing *means of egress* from *mezzanines* are permitted as part of an *accessible means of egress*.

2. The clear width of 48 inches (1219 mm) between *handrails* is not required in buildings not more than 4 stories above *grade plane* equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.

3. The clear width of 48 inches (1219 mm) between *handrails* is not required for *stairways* accessed from a refuge area in conjunction with a *horizontal exit*.

4. *Areas of refuge* are not required at *exit access stairways* in buildings not more than 4 stories above *grade plane* equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.

~~6~~5. *Areas of refuge* are not required at *stairways* serving *open parking garages*.

6. *Areas of refuge* are not required for *smoke protected assembly seating* areas complying with Section 1029.6.2.

7. *Areas of refuge* are not required at *stairways* in Group R-2 occupancies.

8. *Areas of refuge* are not required for *stairways* accessed from a refuge area in conjunction with a *horizontal exit*.

(39) ***Section 1009.4 Elevators*** is hereby preserved in its entirety with the following amendments:

1009.4 Elevators. In order to be considered part of an *accessible means of egress*, an elevator shall comply with the emergency operation and signaling device requirements of Section 2.27 of ASME A17.1. Standby power shall be provided in accordance with Chapter 27 and Section 3003.

. . .

(40) ***Section 1009.4 Elevators*** is further amended by the addition of a new Exception 6 to read as follows:

. . .

6. Elevators in buildings not more than 4 stories above *grade plane* are not required to be considered an *accessible means of egress* when the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.

(41) ***Section 1009.6 Areas of refuge*** is hereby retained in its entirety with the following amendments:

1009.6 Areas of refuge *Areas of refuge* are not required in buildings not more than 4 stories above *grade plane*. Every required *area of refuge* shall be accessible from the space it serves by an *accessible means of egress*.

. . .

(42) ***Section 1009.8 Two-way communication*** is hereby retained in its entirety with the following amendments to ***Exception #1***:

. . .

Exception:

1. Two-way communication systems are not required at the landing serving each elevator or bank of elevators of buildings not required to provide areas of refuge in accordance with section 1009.6.

. . .

(43) ***Section 1010.1.5 Floor elevation*** is hereby retained in its entirety with the addition of a new Exception 7 to read as follows:

. . .

7. Exterior doors serving individual *dwelling units*, other than the main entrance door to a *dwelling unit*, may open at one intervening exterior step that is equally spaced between the interior floor level above and exterior landing below, provided that the step has a minimum tread depth of 12 inches, a maximum riser height of 7 ¾ inches (19.68cm), and a minimum width equal to the door width, and further provided that the door does not swing over the step.

(44) ***Section 1010.1.5 Floor elevation*** is further amended by the addition of the following paragraph after the Exceptions:

. . .

All exterior steps, slabs, walks, decks and patios serving as exterior door landings or exterior stairs shall be adequately and permanently secured in place by *approved* methods to prevent such landings or stairs from being undermined or subject to significant displacement due to improper placement of supporting backfill or due to inadequate anchoring methods.

(45) ***Section 1011.11 Handrails*** is hereby retained in its entirety with the following amendments:

1011.11 Handrails. Stairways of more than 1 riser shall have *handrails* on each side and shall comply with Section 1014. Where glass is used to provide the *handrail*, the *handrail* shall also comply with Section 2407.

Exceptions:

1. *Stairways* within dwelling units and *spiral stairways* are permitted to have a *handrail* on one side only.
2. Decks, patios and walkways that have a single change in elevation where the landing depth on each side of the change of elevation is greater than what is required for a landing do not require *handrails*.
3. In Group R-3 occupancies, a change in elevation consisting of a single riser at an entrance or egress door does not require *handrails*.
4. Changes in room elevations of three or fewer risers within dwelling units and sleeping units in Group R-2 and R-3 do not require *handrails*.

(46) ***Section 1015.8 Window openings*** is hereby retained in its entirety with the following amendments to the first paragraph to read as follows:

1015.8 Window openings. Windows in Group R-2 and R-3 buildings including *dwelling units*, where the top of the sill of an operable window opening is located less than 24 inches (610 mm) above the finished floor and more than 72 inches (1829 mm) above the finished grade or other surface below on the exterior of the building, shall comply with one of the following:

. . .

(47) A new ***Section 1015.9 Below grade openings*** is hereby added to read as follows:

1015.9 Below grade openings. All area wells, stair wells and light wells attached to any building that are located less than 36 inches from the nearest intended walking surface and deeper than 36 inches below the surrounding ground level, creating an opening with a horizontal dimension greater than 24 inches measured perpendicularly from the building, with the side walls of such well having a slope steeper than 2 horizontal to 1

vertical, shall be protected with guardrails conforming to this Section around the entire opening, or be provided with an equivalent barrier.

Exceptions:

1. The access side of *stairways* need not be barricaded.

2. Area wells provided for emergency escape and rescue windows may be protected with approved grates or covers that comply with Section 1029.4 of this code.

3. Covers and grates may be used over *stairways* and other openings used exclusively for service access or for admitting light or ventilation.

(48) ***Section 1030.1 General*** is hereby retained in its entirety with the following amendments to ***Exceptions*** 1:

. . .

Exceptions:

1. *Basements* with a ceiling height of less than 72 inches (1828.8 mm) shall not be required to have *emergency escape and rescue openings.*

. . .

(49) A new ***Section 1030.3.1 Minimum height from floor*** is hereby added to read as follows:

1030.3.1 Minimum height from floor. Emergency escape and rescue windows that are located more than 72 inches (1829 mm) above the finished grade shall have a sill height of not less than 24 inches (609 mm) measured from the finished interior side floor.

Exception:

Emergency escape and rescue openings located over a roof surface with a slope of 4:12 or less and extending a minimum of 5 feet horizontally outward from the window.

(50) ***Section 1030.5 Window Wells*** is hereby retained in its entirety with amendments adding new exceptions to read as follows:

. . .

Exception:

With the window in the full open position, the bottom window well step may encroach a maximum of 12 inches (304 mm) into the minimum horizontal projection, provided the well meets the criteria of 1 and 2 below:

1. The bottom of the well is not less than 36 inches wide (914 mm), centered horizontally on the openable portion of the *emergency escape and rescue opening*, and

2. An unobstructed clear horizontal projection of 36 inches (914 mm) is maintained at the centerline of the openable portion of the emergency escape and rescue door or window.

(51) A new ***Section 1030.5.3 Drainage*** is hereby added to read as follows:

1030.5.3 Drainage. All window wells shall be designed for proper drainage by connecting to the building's foundation drainage system required by Section 1805.4.2 or by an approved alternative method. The inlet to the drainage system shall be a minimum of 4 inches (101 mm) below the window sill. Where no drains are required, the window well surface shall be a minimum of 4 inches (101 mm) below the window sill.

Exceptions:

1. A drainage system for window wells is not required when the foundation is on well-drained soil or sand-gravel mixture soils as determined by the foundation engineer of record.

2. A drainage system is not required for new window wells on additions to existing dwellings.

(52) ***Section 1101.2 Design*** is hereby retained in its entirety with the following amendments:

1101.2 Design. Buildings and facilities shall be designed and constructed to be *accessible* in accordance with this code and the most recently published edition of ICC A117.1 as referenced by the *building official.*

(53) ***Section 1103.1 Where required*** is hereby retained in its entirety with the following amendment to add a new second paragraph to read as follows:

. . .

When the Building Review Board considers granting exceptions or variances either to this chapter pursuant to Section 113 of this code or to Colorado Statutes pursuant to Section 9-5-102, C.R.S., it shall require the applicant requesting the exception or variance to demonstrate that the application of a particular standard or specification relating to access for persons with disabilities would impose an extraordinary hardship on the subject property. For the purposes of this Section, an extraordinary hardship shall mean a substantial and unusual hardship that is the direct result of unique physical site conditions such as terrain, topography or geology, or that is the direct result of other unique or special conditions encountered on the subject property, but that are not typically

encountered elsewhere in the City. Constraints, complications or difficulties that may arise by complying with this chapter and/or with the statutory standards for *accessibility* but that do not constitute an extraordinary hardship shall not serve to justify the granting of an exception or variance.

(54) ***Section 1107.2 Design*** is hereby retained in its entirety with the following amendment to add a new second and a new third paragraph to read as follows:

. . .

When any building or buildings, classified as Group R, Division 1 or Group R, Division 2 Occupancy, are constructed as a single building project (or any phase thereof) on any one site, and such building project (or phase) contains one or more *accessible* dwelling units as required by this chapter or Colorado law, said building project (or phase) shall be constructed such that all such required *accessible* dwelling units in such building project (or phase) provide the same functional features as are provided in the nonaccessible units in such building project (or phase). Furthermore, all such functional features except dwelling unit bedroom-types shall be provided in the same proportion as in the nonaccessible units. Not less than 50 percent of the required *accessible* dwelling units shall be constructed with the distribution of *accessible* dwelling unit bedroom-types being proportionally the same as the distribution of nonaccessible dwelling unit bedroom-types, provided that at least one of each dwelling unit bedroom-type constructed in the building project (or phase) shall be an *accessible* dwelling unit.

For purposes of this Section 1107.2, the following definitions shall apply. *Dwelling unit bedroom-type* shall mean the number of bedrooms within the dwelling unit. *Functional feature* shall mean a closet, garage, carport, patio, deck, additional room (such as a bedroom, bathroom, den, storeroom, laundry or similar room) or any other significant feature built at the time of original construction that offers occupants improved convenience or comfort. Aesthetic or decorative features such as colors, architectural design elements, trim and finish materials, decorative heating appliances not providing the primary comfort heat source, lighting fixture style, cabinet and hardware style, plumbing fixture style, the type and location of windows and glazed lights, or any similar miscellaneous features shall not be construed as functional features.

(55) ***Table 1107.6.1.1 Accessible Dwelling Units and Sleeping Units*** is hereby deleted in its entirety and the following ***Table 1107.6.1.1*** is hereby added in lieu thereof:

TABLE 1107.6.1.1
ACCESSIBLE DWELLING UNITS AND SLEEPING UNITS

Total number of units provided	Minimum required number of accessible units without roll-in showers	Minimum required number of accessible units with roll-in showers	Total number of required accessible units
1 - 25	1	0	1
26 - 50	1	1	2

51 - 75	2	2	4
76 - 100	3	2	5
101 - 150	5	2	7
151 - 200	6	2	8
201 - 300	7	3	10
301 - 400	8	4	12
401 - 500	9	4	13
501 - 1000	2% of total	1% of total	3% of total
Over 1000	20, plus 1 for each 100, or fraction thereof, over 1000	10, plus 1 for each 100, or fraction thereof, over 1000	30, plus 1 for each 100, or fraction thereof, over 1000

(56) ***Section 1203.4 Under-floor ventilation*** is hereby deleted in its entirety and the following is hereby added in lieu thereof:

1203.4 Under-floor ventilation All exposed earth in a *crawl space* shall be covered with a continuous Class I vapor retarder. Joints of the vapor retarder shall overlap by 6 inches (152 mm) and shall be sealed or taped. The edges of the vapor retarder shall extend at least 6 inches (152 mm) up the perimeter stem wall and any footing pads on grade, and be permanently attached and sealed to the stem wall or footing pads.

1203.4.1 Crawl space. *Crawl spaces* shall be designed and constructed to be inside the *building thermal envelope*, in accordance with the insulation and air sealing requirements for *crawl space* walls and rim joists of Section N1102 of the *International Residential Code* as amended or the *International Energy Conservation Code* as amended. *Crawl spaces* shall not be vented to the exterior. They shall be conditioned using one of the following approaches:

1. Continuously operated mechanical exhaust ventilation at a rate equal to 1 cubic foot per minute (0.47 L/s) for each 50 square feet (4.7m2) of *crawl space* floor area, including an air pathway to the common area (such as a duct or transfer grille);

2. *Conditioned air* supply sized to deliver at a rate equal to 1 cubic foot per minute (0.47 L/s) for each 50 square feet (4.7 m2) of under-floor area, including a return air pathway to the common area (such as a duct or transfer grille);

3. Plenum in existing structures complying with Section M1601.5, if under-floor space is used as a plenum.

Exception:

Crawl spaces shall be permitted to be designed and constructed as unconditioned spaces, outside the *building thermal envelope*, provided the following requirements are met:

1. The floor above the *crawl space* is part of the *building thermal envelope*. It shall meet the insulation requirements of Table N1102.1.1 of this code and shall be air-sealed in accordance with Section N1102.4.1 of this code.

2. Ventilation openings shall be placed through foundation walls or *exterior walls*. The minimum net area of ventilation openings shall not be less than 1 square foot (0.0929 m2) for each 1,500 square feet (140 m2) of under-floor space area. One such ventilating opening shall be within 3 feet (914 mm) of each corner of the building.

3. Ventilation openings shall be covered for their height and width with any of the following materials provided that the least dimension of the covering shall not exceed 1/4 inch (6.4 mm):

   a. Perforated sheet metal plates not less than 0.070 inch (1.8 mm) thick.
   b. Expanded sheet metal plates not less than 0.047 inch (1.2 mm) thick.
   c. Cast-iron grill or grating.
   d. Extruded load-bearing brick vents.
   e. Hardware cloth of 0.035 inch (0.89 mm) wire or heavier.
   f. Corrosion-resistant wire mesh, with the least dimension being one-eighth (1/8) inch (3.2 mm) thick.

4. The installation of operable louvers is allowed.

Mechanical *ventilation systems* for spaces under below grade floors shall be designed by a professional engineer, addressing moisture controls and by *approved* methods considering the impact of negative pressures created by exhaust fans, clothes dryers and similar appliances.

1203.4.2 Ventilated under-floor spaces. Floor systems above ventilated under-floor spaces, or floors open to the exterior with no enclosed space below shall be insulated to R-30 in accordance with the adopted *International Energy Conservation Code* Table 402.1.1. The floor system shall be sealed to prevent heat loss and air infiltration.

(57) A new ***Section 1211 Radon-Resistant Construction*** is hereby added to read as follows:

1211 – Radon-resistant construction

1211.1 Scope. The provisions of this Section shall apply to new R-2, R-3, R-4 Occupancies, new I-1 occupancies, and new I-2 *nursing homes*.

1211.1.1 Purpose. The purpose of this Section is to provide minimum requirements to enhance the public safety, health and general welfare, through construction methods designed and installed to resist entry of radon gas into the occupied spaces of buildings regulated by this code.

1211.2 - Definitions

1211.2.1 General. For the purpose of this Section, the terms used shall be defined as follows:

FOUNDATION DRAIN SYSTEM. A continuous length of drain tile, perforated pipe, or filter mat extending around all or part of the internal or external perimeter of a *basement* or *crawl space* footing designed to collect and drain away excess subsurface water.

RADON. A naturally occurring, chemically inert, radioactive gas that is not detectable by human senses, that can move readily through particles of soil and rock, and that can accumulate under the slabs and foundations of homes where it can easily enter the living space through construction cracks and openings.

SOIL-GAS-RETARDER. A continuous membrane of 3-mil (0.075 mm) cross-linked polyethylene or other equivalent material used to retard the flow of soil gases into a building.

SUBFLOOR. A concrete slab or other *approved* permanent floor system that directly contacts the ground and is within the walls of the living spaces of the building.

SUB-MEMBRANE DEPRESSURIZATION SYSTEM. A system designed to achieve lower sub-membrane air pressure relative to *crawl space* air pressure by use of a vent drawing air from beneath the soil-gas-retarder membrane.

SUB-SLAB DEPRESSURIZATION SYSTEM (Passive). A system designed to achieve lower sub-slab air pressure relative to indoor air pressure by use of a vent pipe routed through the *conditioned space* of a building and connecting the sub-slab area with outdoor air, thereby relying on the convective flow of air upward in the vent to draw air from beneath the slab.

1211.3 - Requirements

1211.3.1 General. The following required construction methods are intended to resist radon entry and prepare the building for post-construction radon mitigation.

1211.3.2 Subfloor preparation. A layer of gas-permeable material shall be placed under all subfloors. The gas-permeable layer shall consist of one of the following methods except that where fills of aggregate size less than that described in Method 1 are used beneath a slab, Method 2,3, 4, or 5 must be used.

1. A uniform layer of clean aggregate, a minimum of 4 inches (102 mm) thick. The aggregate shall consist of material that will pass through a 2 inch (51 mm) sieve and be retained by a 1/4 inch (6.4 mm) sieve. In buildings where interior footings or other barriers separate sub-grade areas, penetrations through the interior

footing or barrier equal to a minimum of 12 square inches (0.094 m^2) per 10 feet (3.048 m) of barrier length shall be provided. A minimum of 2 penetrations shall be provided per separation and be evenly spaced along the separation.

Exception:

In buildings where interior footings or other barriers separate the sub-grade area, separate radon vent pipes may be installed for each sub-grade area as specified in Section 1211.5.2 in place of penetrations through the barrier.

2. A foundation drain pipe system installed under concrete floor slab areas less than 2,000 square feet (186 m^2), consisting of a continuous loop of minimum 3 inch (76 mm) diameter perforated pipe shall be laid in the sub-grade with the top of the pipe located 1-inch (25.4 mm) below the concrete slab. The pipe may be rigid or flexible but shall have perforations fully around the circumference with a free air space equal to 1.83 square inches per square foot (127 cm^2/m^2) of exterior pipe surface area. Such pipe shall be wrapped with approved filter material to prevent blocking of pipe perforations. The pipe loop shall be located inside of the exterior perimeter foundation walls not more than 12 inches (305 mm) from the perimeter foundation walls. In buildings where interior footings or other barriers separate the sub-grade area, the loop of pipe shall penetrate or pass beneath such interior footings or barriers. For slab areas greater than 2,000 square feet (186 m^2) but less than 4,000 square feet (372 m^2), the preceding configuration may be used, provided a minimum of 4 inch diameter (102 mm) pipe is installed. Slabs in excess of 4,000 square feet (372 m^2) shall have under them separate loops for every additional 2,000 square feet (186 m^2) of slab area when 3 inch (76 mm) diameter pipe is used, or slabs may have separate loops provided for each additional increment in area between 2,000 square feet (186 m^2) and 4,000 square feet (372 m^2) when 4-inch (102 mm) diameter pipe is used.

3. A foundation drain soil gas collection mat system installed under concrete floor slab areas of 2,000 square feet (186 m^2) or less, consisting of a continuous rectilinear loop of soil gas collection mat or drainage mat having minimum dimensions of 1 inch in height by 12 inches in width (25.4 mm in height x 305 mm in width) and a nominal cross-sectional air flow area of 12 square inches (0.0078 m^2) may be laid on top of the sub-grade. The mat shall be constructed of a matrix that allows for the movement of air through it and be capable of supporting the concrete placed upon it. The matrix shall be covered by approved filter material on all four sides to prevent dirt or concrete from entering the matrix. All breaches and joints in the filter material shall be repaired prior to the placement of the slab. The loop shall be located inside the exterior perimeter foundation walls and within 12 inches (305 mm) from the perimeter foundation walls. In buildings where interior footings or other barriers separate the sub-grade area, the mat shall penetrate these interior footings or barriers to form a continuous loop around the exterior perimeter.

Slabs larger than 2,000 square feet (186 m^2) but less than 4,000 square feet (372 m^2) shall have under them an additional strip of mat that bisects the loop forming two areas approximately equally divided by the two halves of the rectilinear loop. Slabs larger than 4,000 square feet (372 m^2) shall have separate loops for each 2,000 (186 m^2) square feet, or for each 4,000 square feet (372 m2) if a loop is bisected as specified in the preceding configuration.

4. A uniform layer of sand (native or fill), a minimum of 4 inches (102 mm) thick, overlain by a layer or strips of geo-textile drainage matting designed to allow the lateral flow of soil gases.

5. Other materials, systems or floor designs with demonstrated capability to permit depressurization across the entire sub-floor area.

1211.3.3 Entry routes. Potential radon entry routes shall be closed in accordance with Sections 1211.3.4.1 through 1211.3.4.8

1211.3.3.1 Floor openings. Openings around bathtubs, showers, water closets, pipes, wires or other objects that penetrate concrete slabs or other floor assemblies shall be filled with a polyurethane caulk or equivalent sealant applied in accordance with the manufacturer's recommendations.

1211.3.3.2 Concrete joints. All control joints, isolation joints, construction joints and any other joints in concrete slabs or between slabs and foundation walls shall be sealed with a caulk or sealant. Gaps and joints shall be cleared of loose material and filled with polyurethane caulk or other elastomeric sealant applied in accordance with the manufacturer's recommendations.

1211.3.3.3 Condensate drains. Condensate drains shall be trapped or routed through non-perforated pipe to daylight.

1211.3.3.4 Sumps. Sump pits open to soil or serving as the termination point for sub-slab or exterior drain tile loops shall be covered with a gasketed or otherwise sealed lid. Sumps used as the suction point in a sub-slab depressurization system shall have a lid designed to accommodate the vent pipe. Sumps used as a floor drain shall have a lid equipped with a trapped inlet and view port.

1211.3.3.5 Foundation walls. Hollow block masonry foundation walls shall be constructed with either a continuous course of solid masonry, one course of masonry grouted solid, or a solid concrete beam at or above finished ground surface to prevent passage of air from the interior of the wall into the living space. Where a brick veneer or other masonry ledge is installed, the course immediately below that ledge shall be sealed. Joints, cracks or other openings around all penetrations of both exterior and interior surfaces of masonry block or wood foundation walls below the ground surface shall be filled with polyurethane caulk or equivalent sealant. Penetrations of concrete walls shall be filled.

1211.3.3.6 Dampproofing. The exterior surfaces of portions of concrete and masonry block walls below the ground surface shall be damp-proofed in accordance with Section 1805.

1211.3.3.7 Air-handling units. Air-handling units in *crawl spaces* shall be sealed to prevent air from being drawn into the unit.

Exception: Units with gasketed seams or units that are otherwise sealed by the manufacturer to prevent leakage.

1211.3.3.8 Ducts. Ductwork passing through or beneath a slab shall be of seamless material unless the air-handling system is designed to maintain continuous positive pressure within such ducting. Joints in such ductwork shall be sealed to prevent air leakage. Ductwork located in *crawl spaces* shall have all seams and joints sealed by closure systems in accordance with the *International Mechanical Code.*

1211.3.4 Sub-membrane depressurization system. In buildings with interior structural floors directly above under-floor spaces containing exposed soil surfaces that are not protected by a sub-slab depressurization system, the following components of sub-membrane depressurization system shall be installed during construction.

Exception: Buildings in which an approved mechanical *ventilation system* complying with Section 1203 or such other equivalent system that provides equivalent depressurization across the entire sub-membrane area as determined by the *building official* is installed in the under-floor spaces.

1211.3.4.1 Ventilation. *Crawl spaces* and similar under-floor spaces shall be provided with ventilation complying with Section 1203.

1211.3.4.2 Soil-gas-retarder. The exposed soil in under-floor spaces shall be covered with a continuous layer of soil-gas-retarder. Such groundcover joints shall overlap 6 inches (152 mm) and be sealed or taped. The edges of the groundcover shall extend a minimum of 6 inches (152 mm) up onto all foundation walls enclosing the under-floor space and shall be attached and sealed to foundation walls in an approved manner.

1211.3.4.3 Vent pipe riser. A plumbing tee or other approved connection shall be inserted horizontally beneath the sheeting and connected to a 3- or 4-inch-diameter (76 mm or 102 mm) fitting with a vertical vent pipe installed through the sheeting. The vent pipe shall be extended up through the building floors, and shall terminate at least 12 inches (305 mm) above the roof in a location at least 10 feet (3.048 m) away from any window or other opening into the *conditioned spaces* of the building at a point that is less than 2 feet (0.610 m) below the exhaust point and 10 feet (3.048 m) from any window or other opening in adjoining or adjacent buildings.

1211.3.5 Sub-slab depressurization system. The following components of a sub-slab depressurization system shall be installed during construction under *basement* or slab-on-grade floors.

1211.3.5.1 Vent pipe riser. A minimum 3-inch-diameter (76 mm) ABS, PVC or equivalent gas-tight pipe shall be embedded vertically into the sub-slab aggregate or other permeable material before the slab is cast. A 'T' fitting or equivalent method shall be used to ensure that the pipe opening remains within the sub-slab permeable material. Alternatively, the 3-inch (76 mm) pipe shall be inserted directly into an interior perimeter drain tile loop or through a sealed sump cover where the sump is exposed to the sub-slab aggregate or connected to it through a drainage system.

All vent pipes shall be extended up through the building floors and shall terminate at least 12 inches (305 mm) above the surface of the roof in a location at least 10 feet (3.048 m) away from any window, air intake, or other opening into the *conditioned spaces* of the building at a point that is less than 2 feet (0.610 m) below the exhaust point, and 10 feet (3.048 m) from any window or other opening in adjoining or adjacent buildings. The discharge end of vent pipe terminations shall be unobstructed and protected from small animal entry with a corrosion-resistant screen having openings between ¼ inch (6.4 mm) and ½ inch (12.7 mm).

1211.3.5.2 Multiple vent pipes. In buildings where interior footings or other barriers separate the sub-slab aggregate or other gas-permeable material, each area shall be fitted with an individual vent pipe. Vent pipes shall connect to a single vent that terminates above the roof or, in the alternative, each individual vent pipe shall terminate separately above the roof.

1211.3.6 Vent pipe drainage. All components of the radon vent pipe system shall be installed to provide positive drainage to the ground beneath the slab or soil-gas retarder.

1211.3.7 Vent pipe accessibility. Radon vent pipes shall be accessible for fan installation through an attic or other area outside the *habitable space.*

Exception: The radon vent pipe need not be accessible in an attic space where an approved roof-top electrical supply is provided.

1211.3.8 Vent pipe identification and notification. All exposed and visible interior radon vent pipes shall be conspicuously identified with at least one label on each floor and in attics provided with access openings. The label shall read substantially as follows: Radon Reduction System. In addition to the preceding label, a notice shall be placed in a conspicuous area near the vent pipe that includes the following statement:

"This radon reduction system is not required to be tested and is a 'passive' system, relying entirely on natural ventilation. Occupants are advised to test for radon and take remedial action as necessary by installing a continuously operating fan located in the

vent pipe (access typically provided in the attic) and connected to the nearby provided electrical outlet. Call 1-800-767-radon for more information."

1211.3.9 Combination foundations. Combination *basement/crawl space* or slab-on-grade/*crawl space* foundations shall have separate radon vent pipes installed in each type of foundation area. Each radon vent pipe shall terminate above the roof or shall be connected to a single vent that terminates above the roof.

1211.3.10 Building depressurization. Joints in air ducts and plenums in unconditioned spaces shall be substantially air tight and permanently sealed with an approved sealant, mastic, or other approved methods. Thermal envelope air infiltration requirements shall comply with the energy conservation provisions in the energy conservation code currently enacted by the City. Firestopping shall be in conformance with the most recent general building code enacted by the City.

1211.3.11 Provisions for future depressurization fan installation. Permanent provisions shall be made for the future installation of an in-line fan to be connected to every radon vent pipe. Such designated fan locations shall be outside of the conditioned envelope of the building, such as in the attic, garage and similar locations, excluding *crawl spaces* and other interior under-floor spaces. Designated locations shall accommodate an unobstructed permanent cylindrical space with the following minimum dimensions: 12 inches (305 mm) measured radially around the radon vent pipe along a vertical distance of 30 inches (760 mm). Designated fan locations shall be permanently accessible for servicing and maintenance. An electrical circuit shall be provided within 4 feet (1.219 m) of and within sight from designated fan locations. Such circuit shall have a means of positive disconnection and be terminated in an approved electrical outlet in accordance with the applicable current electric code.

1211.3.11.1 Depressurization fan system activation. When a passive system constructed in accordance with this code is to be converted to an active system, an approved in-line fan shall be installed in a designated fan location as specified in Section 1211.11.1. Additionally, an approved permanent electric light fixture and in-line pipe couplings that facilitate fan replacement shall be provided. The in-line fan shall be designed to operate continuously for a period of not less than 5 years and have a minimum air-flow rating as established by the *building official.* A readily accessible manometer or other approved warning device that notifies occupants of a fan malfunction by a visible or audible signal shall be installed within the dwelling unit.

(58) A new ***Section 1404.9.1 Vinyl siding on new buildings*** is hereby added to read as follows:

1404.9 Vinyl siding. Vinyl siding shall be certified and labeled as conforming to the requirements of ASTM D 3679 by an *approved* quality control agency.

Section 1404.9.1 Vinyl siding on new buildings. Vinyl sidings on new buildings shall be installed over one-hour fire-rated assemblies listed for exterior fire exposure, in both the vertical and horizontal plane.

(59) **A new *Section 1404.12.3 Polypropylene siding on new buildings*** is hereby added to read as follows:

1404.12 Polypropylene siding. Polypropylene siding shall be certified and labeled as conforming to the requirements of ASTM D 7254 and those of Section 1404.12.1 or 1404.12.2 by an approved quality control agency. Polypropylene siding shall be installed in accordance with the requirements of Section 1405.18 and in accordance with the manufacturer's installation instructions. Polypropylene siding shall be secured to the building so as to provide weather protection for the exterior walls of the building.

1404.12.1 Flame spread index. The certification of the flame spread index shall be accompanied by a test report stating that all portions of the test specimen ahead of the flame front remained in position during the test in accordance with ASTM E 84 or UL 723.

1404.12.2 Fire separation distance. The fire separation distance between a building with polypropylene siding and the adjacent building shall be no less than 10 feet (3048 mm).

1404.12.3 Polypropylene siding on new buildings. Polypropylene on new buildings shall be installed over one-hour fire-rated assemblies listed for exterior fire exposure, in both the vertical and horizontal plane.

(60) A new ***Section 1405.13.2 Fenestration installation*** is added to read as follows:

. . .

1405.13.2 Fenestration installation. For all new construction and additions, all new fenestration installations shall be in accordance with American Architectural Manufacturers Association (AAMA) Standards/Specifications for Windows, Doors and Skylights and shall be supervised and inspected by an individual certified as an Installation Master by Architectural Testing, Inc. (ATI), or other nationally recognized agency.

(61) ***Section 1503.4 Roof drainage*** is hereby retained in its entirety with the following amendments:

1503.4 Roof drainage. All buildings shall have a controlled method of water disposal from roofs that will collect and discharge roof drainage to the ground surface at least 5 feet (1524 mm) from foundation walls or to an *approved* drainage system. Design and installation of roof drainage systems shall comply with Section 1503 of this code and Sections 1106 and 1108, as applicable, of and the *International Plumbing Code*.

. . .

(62) ***Section 1503.6 Crickets and saddles*** is hereby retained in its entirety with the following amendment to add a new exception number two:

1503.6 Crickets and saddles. A cricket or saddle shall be installed on the ridge side of any chimney or penetration greater than 30 inches (762 mm) wide as measured perpendicular to the slope. Cricket or saddle coverings shall be sheet metal or of the same material as the roof covering.

Exceptions:

1. Unit skylights installed in accordance with Section 2405.5 and flashed in accordance with the manufacturer's instructions shall be permitted to be installed without a cricket or saddle.

2. Re-roofing.

(63) ***Section 1505.1 General*** is hereby deleted in its entirety and the following is hereby added in lieu thereof:

1505.1 New Construction. The *roof-covering* classification on any new structure regulated by this code shall be Class A.

Exceptions:

1. Noncombustible *roof coverings* as defined in Section 1507.3, 1507.4, 1507.5 may be applied in accordance with the manufacturer's specifications in place of a fire-retardant roofing assembly.

2. Any Class B or Class C *roof covering* may be applied on any new construction that is added to an existing building classified as a Group R, Division 3 Occupancy, provided the roof extremities of such existing building and new construction are located a minimum distance of 5 feet from the nearest adjacent property line and are a minimum distance of 10 feet from any other building.

3. Skylights and sloped glazing that comply with Chapter 24 or Section 2610.

(64) ***Table 1505.1, Minimum Roof Covering Classifications for Types of Construction***, is hereby deleted in its entirety.

(65) ***Section 1507.2.1 Deck requirements*** is hereby retained in its entirety with the following amendments :

1507.2.1 Deck Requirements. Asphalt shingles shall be fastened to solidly sheathed decks. Gaps in the solidly sheathed or plank decking shall not exceed 1/8 inch.

(66) A new ***Section 1507.2.9.4 Sidewall flashing*** is hereby added to read as follows:

1507.2.9.4 Sidewall flashing. Flashing against a vertical sidewall shall be by the step-flashing method. The flashing shall be a minimum of 4 inches (102 mm) high and 4 inches (102 mm) wide. At the end of the vertical sidewall the step flashing shall be turned out in a manner that directs water away from the wall and onto the roof and/or gutter.

Exception: Re-roofing where step flashing would require removal of siding material, provided adequate flashing is installed.

(67) A new ***Section 1507.2.9.5 Other flashing*** is hereby added to read as follows:

1507.2.9.5 Other flashing. Flashing against a vertical front wall, as well as soil stack, vent pipe and chimney flashing shall be applied according to the asphalt shingle manufacturer's printed instructions.

(68) ***Section 1511.1 General*** is hereby retained in its entirety with the following amendment adding two paragraphs at the end after the Exceptions, to read as follows:

. . .

No portion of an existing nonrated *roof covering* may be permanently replaced or covered with more than one square of nonrated *roof covering*.

Any existing *roof covering* system may be replaced with a *roof covering* of the same materials and classification, provided the replacement *roof covering* has a minimum rating of Class C.

(69) A new ***Section 1608.2.1 Roof snow load,*** is hereby added to read as follows;

1608.2.1 Roof Snow Loads. Roof snow loads shall be a minimum of 30 psf.

(70) ***Section 1609.3 Ultimate design wind speed*** is hereby deleted in its entirety and the following is hereby added in lieu thereof:

1609.3 Basic wind speed. The basic wind speed, in mph, for the determination of the wind loads shall be 100 miles per hour (161 kph) Vasd or 129 miles per hour (208 kph) Vult.

(71) A new ***Section 1804.3.1 Final Grading*** is hereby added to read as follows:

1804.3.1 Final Grading. Final grading adjacent to the foundation and above utility trenches shall be compacted sufficiently and in such a manner that it is not undermined or subject to significant settlement or displacement due to improper placement of backfill.

(72) ***Section 2406.4.7 Glazing adjacent to the bottom stair landing*** is hereby retained in its entirety with the following amendments:

2406.4.7 Glazing adjacent to stair landings. Glazing adjacent to the stair landings where the glazing is less than 36 inches (914 mm) above the landing and within 60 inches (1524 mm) horizontally of the top or bottom tread shall be considered a hazardous location.

Exception: The glazing is protected by a guard complying with Sections 1013 and 1607.8 where the plane of the glass is more than 18 inches (457 mm) from the guard.

(73) A new ***Section 2902.1.3 Touch-free toilet facilities*** is hereby added to read as follows:

2902.1.3 Touch-free toilet facilities. Toilet facilities installed for occupancies associated with food preparation or food service to the public shall be provided with:

1. Automatic touch-free water control valves on lavatories.

2. Automatic touch-free paper towel dispensers.

3. Toilet facilities exit doors that allow exiting without requiring touching by hand of any door hardware such as knobs, levers, sliding bolts, latches and similar devices.

Exception: Toilet facilities designed as a single occupant use may be provided with exit door locking hardware to afford privacy, doors may swing inward or outward.

(74) ***Section 2902.2 Separate facilities*** is hereby retained in its entirety with the following amendments:

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

Exceptions:

1. Separate facilities shall not be required for *dwelling units* and *sleeping units*.

2. Separate facilities shall not be required in structures or tenant spaces with a total *occupant load*, including both employees and customers, of 30 or fewer.

3. Separate facilities shall not be required in mercantile occupancies in which the maximum occupant load is 100 or less.

4. Multiple single-user Unisex facilities may be used provided that the total fixture count as calculated per 2902.1 is satisfied.

(75) ***Section 2902.3.1 Access*** is hereby retained in its entirety with the following amendments:

2902.3.1 Access. The route to the public toilet facilities required by Section 2902.3 shall not pass through kitchens, storage rooms, closets, or spaces used for similar purposes. A clearly signed unobstructed access path shall be provided, leading directly from the public customer area to the toilet facilities. Access to the required facilities shall be from within the building or from the exterior of the building. Routes shall comply with the accessibility section of this code. The public shall have access to the required toilet facilities at all times that the building is occupied and without the need to ask for permission to use the toilet facilities.

(76) ***Section 3109 Swimming pool enclosures and safety devices*** is hereby deleted in its entirety and the following is hereby added in lieu thereof:

SECTION 3109
BARRIER REQUIREMENTS

3109.1 General.

The provisions of this Section shall apply to the design of barriers for pools and spas. These design controls are intended to provide protection against the potential drowning and near drowning by restricting access to such pools or spas. These requirements provide an integrated level of protection against potential drowning through the use of physical barriers and warning devices.

Exceptions:

1. Spas and hot tubs with a lockable safety cover that complies with ASTM F 1346.

2. Swimming pools with a powered safety cover that complies with ASTM F 1346.

3109.2 Outdoor swimming pools and spas.
Outdoor pools and spas and indoor swimming pools shall be surrounded by a barrier that complies with Sections 3109.2.1 through 3109.7.

3109.2.1 Barrier height and clearances.
Barrier heights and clearances shall be in accordance with all of the following:

1. The top of the barrier shall be not less than 48 inches (1219 mm) above grade where measured on the side of the barrier that faces away from the pool or spa. Such height shall exist around the entire perimeter of the barrier and for a distance of 3 feet (914 mm) measured horizontally from the outside of the required barrier.

2. The vertical clearance between grade and the bottom of the barrier shall not exceed 2 inches (51 mm) for grade surfaces that are not solid, such as grass or

gravel, where measured on the side of the barrier that faces away from the pool or spa.

3. The vertical clearance between a surface below the barrier to a solid surface, such as concrete, and the bottom of the required barrier shall not exceed 4 inches (102 mm) where measured on the side of the required barrier that faces away from the pool or spa.

4. Where the top of the pool or spa structure is above grade, the barrier shall be installed on grade or shall be mounted on top of the pool or spa structure. Where the barrier is mounted on the top of the pool or spa, the vertical clearance between the top of the pool or spa and the bottom of the barrier shall not exceed 4 inches (102 mm).

3109.2.2 Openings.
Openings in the barrier shall not allow passage of a 4-inch-diameter (102 mm) sphere.

3109.2.3 Solid barrier surfaces.
Solid barriers that do not have openings shall not contain indentations or protrusions that form handholds and footholds, except for normal construction tolerances and tooled masonry joints.

3109.2.4 Mesh fence as a barrier.
Mesh fences, other than chain link fences in accordance with Section 3109.2.7, shall be installed in accordance with the manufacturer's instructions and shall comply with the following:

1. The bottom of the mesh fence shall be not more than 1 inch (25 mm) above the deck or installed surface or grade.

2. The maximum vertical clearance from the bottom of the mesh fence and the solid surface shall not permit the fence to be lifted more than 4 inches (102 mm) from grade or decking.

3. The fence shall be designed and constructed so that it does not allow passage of a 4-inch (102 mm) sphere under any mesh panel. The maximum vertical clearance from the bottom of the mesh fence and the solid surface shall not be more than 4 inches (102 mm) from grade or decking.

4. An attachment device shall attach each barrier section at a height not lower than 45 inches (1143 mm) above grade. Common attachment devices include, but are not limited to, devices that provide the security equal to or greater than that of a hook-and-eye type latch incorporating a spring-actuated retaining lever such as a safety gate hook.

5. Where a hinged gate is used with a mesh fence, the gate shall comply with Section 3109.3.

6. Patio deck sleeves such as vertical post receptacles that are placed inside the patio surface shall be of a nonconductive material.

7. Mesh fences shall not be installed on top of on ground residential pools.

3109.2.5 Closely spaced horizontal members.
Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is less than 45 inches (1143 mm), the horizontal members shall be located on the pool or spa side of the fence. Spacing between vertical members shall not exceed 1 3/4 inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1 3/4 inches (44 mm) in width.

3109.2.6 Widely spaced horizontal members.
Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is 45 inches (1143 mm) or more, spacing between vertical members shall not exceed 4 inches (102 mm). Where there are decorative cutouts within vertical members, the interior width of the cutouts shall not exceed 13/4 inches (44 mm).

3109.2.7 Chain link dimensions.
The maximum opening formed by a chain link fence shall be not more than 1 3/4 inches (44 mm). Where the fence is provided with slats fastened at the top and bottom which reduce the openings, such openings shall be not more than 1 3/4 inches (44 mm).

3109.2.8 Diagonal members.
Where the barrier is composed of diagonal members, the maximum opening formed by the diagonal members shall be not more than1 3/4 inches (44 mm). The angle of diagonal members shall be not greater than 45 degrees (0.79 rad) from vertical.

3109.2.9 Clear zone.
There shall be a clear zone of not less than 36 inches (914 mm) between the exterior of the barrier and any permanent structures or equipment such as pumps, filters and heaters that can be used to climb the barrier.

3109.2.10 Poolside barrier setbacks.
The pool or spa side of the required barrier shall be not less than 20 inches (508 mm) from the water's edge.

3109.3 Gates.
Access gates shall comply with the requirements of Sections 3109.3.1 through 3109.3.3 and shall be equipped to accommodate a locking device. Pedestrian access gates shall

open outward away from the pool or spa, shall be self-closing and shall have a self-latching device.

3109.3.1 Utility or service gates.
Gates not intended for pedestrian use, such as utility or service gates, shall remain locked when not in use.

3109.3.2 Double or multiple gates.
Double gates or multiple gates shall have at least one leaf secured in place and the adjacent leaf shall be secured with a self-latching device. The gate and barrier shall not have openings larger than 1/2 inch (12.7 mm) within 18 inches (457 mm) of the latch release mechanism. The self-latching device shall comply with the requirements of Section 305.3.3.

3109.3.3 Latches.
Where the release mechanism of the self-latching device is located less than 54 inches (1372 mm) from grade, the release mechanism shall be located on the pool or spa side of the gate not less than 3 inches (76 mm) below the top of the gate, and the gate and barrier shall not have openings greater than 1/2 inch (12.7 mm) within 18 inches (457 mm) of the release mechanism.

3109.4 Structure wall as a barrier.
Where a wall of a dwelling or structure serves as part of the barrier and where doors or windows provide direct access to the pool or spa through that wall, one of the following shall be required:

1. Operable windows having a sill height of less than 48 inches (1219 mm) above the indoor finished floor and doors shall have an alarm that produces an audible warning when the window, door or their screens are opened. The alarm shall be listed and labeled as a water hazard entrance alarm in accordance with UL 2017. In dwellings or structures not required to be Accessible units, Type A units or Type B units, the operable parts of the alarm deactivation switches shall be located 54 inches (1372 mm) or more above the finished floor. In dwellings or structures required to be Accessible units, Type A units or Type B units, the operable parts of the alarm deactivation switches shall be located not greater than 54 inches (1372 mm) and not less than 48 inches (1219 mm) above the finished floor.

2. A safety cover that is listed and labeled in accordance with ASTM F 1346 is installed for the pools and spas.

3. An approved means of protection, such as self-closing doors with self-latching devices, is provided. Such means of protection shall provide a degree of protection that is not less than the protection afforded by Item 1 or 2.

3109.5 On ground residential pool structure as a barrier.
An on ground residential pool wall structure or a barrier mounted on top of an on ground residential pool wall structure shall serve as a barrier where all of the following conditions are present:

1. Where only the pool wall serves as the barrier, the bottom of the wall is on grade, the top of the wall is not less than 48 inches (1219 mm) above grade for the entire perimeter of the pool, the wall complies with the requirements of Section 3109.2 and the pool manufacturer allows the wall to serve as a barrier.

2. Where a barrier is mounted on top of the pool wall, the top of the barrier is not less than 48 inches (1219 mm) above grade for the entire perimeter of the pool, and the wall and the barrier on top of the wall comply with the requirements of Section 3109.2.

3. Ladders or steps used as means of access to the pool are capable of being secured, locked or removed to prevent access except where the ladder or steps are surrounded by a barrier that meets the requirements of Section 3109.5.

4. Openings created by the securing, locking or removal of ladders and steps do not allow the passage of a 4inch (102 mm) diameter sphere.

5. Barriers that are mounted on top of on ground residential pool walls are installed in accordance with the pool manufacturer's instructions.

3109.6 Natural barriers.
In the case where the pool or spa area abuts the edge of a lake or other natural body of water, public access is not permitted or allowed along the shoreline, and required barriers extend to and beyond the water's edge not less than 18 inches (457 mm), a barrier is not required between the natural body of water shoreline and the pool or spa.

3109.7 Natural topography.
Natural topography that prevents direct access to the pool or spa area shall include but not be limited to mountains and natural rock formations. A natural barrier as approved by the *building official* shall be acceptable provided that the degree of protection is not less than the protection afforded by the requirements of Sections 3109.2 through 3109.5.

3109.8 Entrapment avoidance.
Suction outlets shall be designed and installed in accordance with ANSI/APSP-7.

3109.9 Barriers around decorative pools, fountains, and ponds.
Decorative pools, fountains, and ponds that can contain water deeper than 24 inches (610 mm), shall be protected by barriers installed in accordance with Section 3109.

(77) ***Chapter 35 Referenced Standards*** is hereby amended to add, in alphabetical order, the following additional referenced standards:

. . .

CDPH California Department of Public Health
1615 Capitol Avenue
Sacramento, CA 95814

CDPH 01350

Standard Method for Testing VOC emissions from indoor sources
Referenced in Amended 12 IBC Section 3603.2 Low-volatile organic compound (VOC) materials

. . .

FSC Forest Stewardship Council U.S. (FSC-US)
212 Third Avenue North, Suite 504
Minneapolis, MN 55401

. . .

GEI GREENGUARD Environmental Institute
2211 Newmarket Parkway, Suite 110
Marietta, GA 30067

GGPS.001.GREENGUARD IAQ Standard for *Building* Materials, Finishes and Furnishings

Referenced in Amended 12 IBC Section 3603.2 Low-volatile organic compound (VOC) materials

Green Seal®
1001 Connecticut Avenue, NW
Suite 827
Washington, DC 20036-5525

GS-11 Paintings and Coatings
GS-43 Recycled Content Latex Paints

Referenced in Amended 12 IBC Section 3603.2
Low-volatile organic compound (VOC) materials

. . .

(78) A new ***Chapter 36 Sustainable Building Construction Practices*** is hereby added to read as follows:

Chapter 36 Sustainable *Building* Construction Practices

3601 General

3601.1 Scope. The provisions of this chapter shall govern sustainable building construction practices for new construction and additions and remodels over 5,000 square feet that require a building permit, unless otherwise noted.

3602 Resource Efficiency

3602.1 Construction waste management. For new *buildings* and *additions* over 2,500 square feet or remodels over 2,500 square feet, a construction waste management plan acceptable to the *building official* that includes recycling of concrete and masonry, wood, metals and cardboard, is required at the time of application for a building permit. The construction waste management plan shall be implemented and conspicuously posted on the construction site. Compliance shall be certified by the hauler through receipts and signed affidavits. Substantive changes to the plan shall be subject to prior approval by the *building official.*

3602.1.1 Building demolitions. *Buildings* or portions of *buildings* that are removed shall be processed in such a way as to safely remove all asbestos and lead paint contaminants. All metals, asphalt, concrete and masonry that are free of asbestos and lead paint shall be recycled, and where possible, all remaining materials, such as doors, windows, cabinets, fixtures, and wood, shall be recycled. A construction waste management plan shall be submitted at time of demolition *permit*. Compliance shall be certified by the hauler through receipts and signed affidavits.

3603 Indoor Environmental Quality (IEQ)

3603.1 Indoor Air Quality (IAQ)

3603.1.1 Heating, Ventilating, and Air Conditioning Design. Prior to and during construction, reasonable efforts shall be made to minimize the release of particulates and accumulation of debris, and the specific requirements of this Section shall apply.

3603.1.1.1 Air handling system access. The arrangement and location of air handling system components including, but not limited to, air handler units, fans, coils and condensate pans, shall allow access for cleaning and *repair* of the air handling surfaces of such components. Piping, conduits, and other *building* components shall not be located so as to obstruct the required access.

3603.1.1.2 Durability of air handling surfaces. Surfaces exposed to airflow within air handling systems shall be constructed of materials that are resistant to deterioration and

will not break away, crack, peel, flake off, or show evidence of delamination or continued erosion when tested in accordance with the erosion test in UL 181.

3603.1.1.3 Airstream surfaces. Materials exposed to airflow within ducts, within air plenums, or on top of suspended ceilings, shall not break away, crack, peel, flake off, or show evidence of delamination or continued erosion when tested in accordance with the erosion test in UL 181.

3603.1.2 New *Building* and first time completed tenant finish spaces pollutant flush-out. After all interior finishes are installed, the *building* or space shall be flushed out by ventilating at a minimum rate of 0.30 cfm per ft^2 of outside air or the design outdoor airflow rate determined from the IMC, whichever is greater, for at least 14 days while maintaining an internal temperature of at least 60°F, and relative humidity not higher than 60 percent. Occupancy shall be permitted to start 1 day after start of the flush-out, provided that flush-out continues for the full 14 days. The *building* or space shall not be "baked out" by increasing the temperature of the space above the occupied set point. Where continuous *ventilation* is not possible, the aggregate of flush-out periods shall be equivalent to 14 days of continuous *ventilation.*

Exception: All residential *buildings.*

3603.2 Low-volatile organic compound (VOC) materials. All construction materials, including but not limited to floor coverings and site-applied finishes, including sealants and adhesives, resilient flooring, carpeting and pad, site-applied paints, stains and varnishes, structural wood panels, hardwood veneer, plywood, particle board and fiber board building products, and insulation shall meet specified *volatile organic compound (VOC)* emissions limits in accordance with relevant standards California Department of Public Health (CDPH) 01350; GREENGUARD Environmental Institute GGPS.001 standard for *building* materials and finishes, and Green Seal® standards. Documentation demonstrating compliance shall be required with delivery of such materials and shall be available for inspection.

Exception: For *alterations* to *existing buildings*, carpeting and pad, structural wood panels, hardwood; veneer plywood, particle board and fiber board building products and insulation are not subject to this requirement.

3603.3 Acoustical control. Minimum requirements for exterior-to-interior sound transmission, interior sound transmission, and background sound levels in new construction and additions, except as noted hereunder, shall be provided as specified herein.

3603.3.1 Sound transmission. *Buildings* and tenant spaces shall comply with the following sound transmission requirements:

Exceptions:

1. Portions of *buildings* or *structures* that have the interior environment open to the exterior environment.

2. Concession stands and toilet facilities in Group A-4 and A-5 occupancies.

3603.3.1.1 Exterior sound transmission. Where a Group A1, A3, E and I occupancy *building*, a Group B occupancy *building* used for educational purposes, or a Group R occupancy *building* is constructed at a location listed herein, the wall assemblies making up the *building thermal envelope* shall have a composite sound transmission class (STC_c) rating of 39 or greater in the following locations:

1. within 500 feet (152 m) of a multi-lane highway designed for high-speed travel by large numbers of vehicles, and having no traffic lights, stop signs, or other regulations requiring vehicles to stop; fire stations; heavy industrial or manufacturing areas or facilities; commercial storage facilities with back-up alarms; outdoor music amphitheaters; or sports arena or stadium;

2. within 250 feet (76 m) of a roadway containing 4 or more traffic lanes; or

3. within 1,000 feet (305 m) of an active railway.

3603.3.1.2 Interior sound transmission. Interior wall and floor/ceiling assemblies, separating interior rooms and spaces shall be designed in accordance with the following requirements:

1. Wall and floor-ceiling assemblies separating adjacent tenant spaces, tenant spaces and public places, hotel rooms, motel rooms, patient rooms in nursing homes and hospitals, and adjoining classrooms shall have a composite STC rating of 50 or greater.

2. Wall and floor-ceiling assemblies separating classrooms from rest rooms and showers shall have a composite STC rating of 53 or greater.

3. Wall and floor-ceiling assemblies separating classrooms from music rooms, mechanical rooms, cafeterias, gymnasiums, and indoor swimming pools shall have a composite STC rating of 60 or greater.

   Exception: Residential Group R occupancies addressed in Section 1207 of this code.

3603.3.1.3 Background Sound. The average background sound levels within unoccupied rooms (from heating, ventilating and air conditioning and other *building* systems) shall be below the maximum A-weighted sound level for specific occupancies from Table 3603 below. This shall be confirmed by spot checks.

Table 3603 Maximum Allowable Background Sound in Rooms

Occupancy	Maximum A-weighted sound level (dB_a)
Small auditoriums (≤500 seats)	39
Large auditoriums, large live indoor theaters, and large churches (for very good speech articulation) (≥500 seats)	35
TV and broadcast studios (close microphone pickup only)	35
Small live indoor theaters (≤ 500 seats)	35
Private residences:	
Bedrooms	39
Apartments	48
Family rooms and living rooms	48
Schools:	
Lecture and classrooms	
Core learning space with enclosed volume ≤ 20,000 cu ft (≤566 cu m)	35
Core learning space with enclosed volume ≥ 20,000 cu ft (≥566 cu m)	40
Open-plan classrooms	35
Hotels/motels:	
Individual rooms or suites	44
Meeting/banquet rooms	44
Service support areas	57
Office *buildings*:	
Offices	
executive	44
small, private	48
large, with conference tables	44
Conference rooms	
Large	39
Small	44
Open-plan areas	48
Business machines, computers	53
Public circulation	57
Hospitals and clinics	
Private rooms	39
Wards	44
Operating rooms	44
Laboratories	53
Corridors	53
Public areas	52
Movie theaters ≤ 500 seats	48
Churches, small (≤500 seats)	44
Courtrooms	44
Libraries	48
Restaurants	52
Light maintenance shops, industrial plant control rooms, kitchens, and laundries	62
Shops and garages	67

3603.3.1.4 Outdoor Environmental Quality (OEQ)

3603.3.1.4 Exterior lighting. All building mounted exterior lighting fixtures associated with new buildings shall have the "Fixture Seal of Approval" from the International Dark-Sky Association (IDA) or, meet equivalent criteria approved by the Building Official. Lighting placement shall conform to IDA Model Lighting Ordinance for Lighting Zone LZ-1. Light shall be shielded such that the lamp itself or the lamp image is not directly visible outside the property perimeter. Exterior lighting associated with existing buildings shall comply with the Land Use Code as adopted.

3604 Commissioning, Operations & Maintenance

3604.1 Building commissioning. For new completed and fully occupied buildings or first time completed tenant finish spaces both with a gross floor area of greater than 15,000 ft^2 (1,395 m^2) and *additions* with a gross floor area of greater than 15,000 ft^2 (1,395 m^2), *commissioning* shall be performed in accordance with this Section. A commissioning process shall be incorporated into the design and construction of the *building* project that verifies that the delivered *building* and its components, assemblies, and systems comply with the documented *owner project requirements* (OPR). Procedures, documentation, tools and training shall be provided to the *building* operating staff to sustain features of the *building* assemblies and systems for the service life of the *building*. This material shall be assembled and organized into a systems manual that provides necessary information to the *building* operating staff to operate and maintain all *commissioned* systems identified with the *building* project. The owner shall retain the system manual and final commissioning report described below. The final commissioning report shall be made available to the building official upon request.

The following commissioning activities shall be completed prior to approval:

1. The owner shall designate an approved project *commissioning authority* (CxA) to lead, review, and oversee completion of the *commissioning* process activities.

2. The owner, in conjunction with the design team as necessary, shall develop the *owner's project requirements* (OPR) to guide the CxA. The OPR shall be distributed to all parties participating in the project programming, design, construction, and operations, and the *commissioning* team members.

3. The design team shall develop the *basis of design* (BOD).

4. The CxA shall:

    a. review the both the *OPR* and *BOD* for clarity and completeness,
    b. incorporate construction phase *commissioning* requirements into project specifications and other construction documents developed by the design team,

c. develop and implement a *commissioning plan* containing all required forms and procedures for the complete testing of all equipment, systems, and controls included in Section 3604.1.1,
d. verify the installation and performance of the systems to be *commissioned*,
e. complete a final *commissioning* report satisfactory to the *building official*,
f. verify the owner requirements for training operating personnel and *building* occupants are completed, and
g. verify that a system manual in a form satisfactory to the *building official* has been prepared. At a minimum, the system manual shall include operations and maintenance documentation and full warranty information, and shall provide operating staff the information needed to understand and operate the *commissioned* systems as designed.

Core and shell buildings or spaces not completed shall be commissioned to the extent possible but not less than completing items 1, 2, and 3 in Section 3604.1.1 below.

3604.1.1 Systems. The following systems, if included in the *building* project, shall be *commissioned*:

1. heating, ventilating, air-conditioning, indoor-air-quality, and refrigeration systems and associated controls;

2. *building thermal envelope* systems, components, and assemblies to verify thermal, air, and moisture integrity;

3. all lighting controls and shading controls;

4. service water heating systems;

5. renewable energy systems;

6. background sound levels;

7. cooling towers water use.

(79) ***Appendix C GROUP U AGRICULTURAL BUILDINGS*** is adopted in its entirety.

(80) ***Appendix E SUPPLEMENTARY ACCESSIBILITY REQUIREMENTS,*** is adopted in its entirety.

(81) ***Appendix I PATIO COVERS*** is adopted in its entirety.

Introduced, considered favorably on first reading, and ordered published this 6th day of June, A.D. 2017, and to be presented for final passage on the 5th day of July, A.D. 2017.

Mayor

ATTEST:

City Clerk

Passed and adopted on final reading on this 5th day of July, A.D. 2017.

Mayor

ATTEST:

City Clerk

NOTICE OF PUBLIC HEARING

NOTICE is hereby given of a public hearing to be held before the City Council of the City of Fort Collins, Colorado, on the 6th day of June, A.D., 2017 at 6:00 p.m., or as soon thereafter as the matter may come on for hearing, in the Council Chambers at the City Hall, 300 LaPorte Avenue, Fort Collins, Colorado for the purpose of considering the adoption of ordinances adopting by reference the *2015 International Building Code, 2015 International Residential Code, 2015 International Energy Conservation Code, 2015 International Mechanical Code,* and the *2015 International Fuel Gas Code* together with local amendments, promulgated by the International Code Council.

Not less than one (1) copy of said Codes has been, and now is on file in the Office of the City Clerk of the City of Fort Collins and is available for public inspection.

The purpose of the International Building Code, International Residential Code, International Energy Conservation Code, International Mechanical Code, and the International Fuel Gas Code adopted by said ordinance is to provide for protection of public health and safety and general welfare.

The City of Fort Collins will make reasonable accommodations for access to City services, programs and activities and will make special communication arrangements for persons with disabilities. Please call 221-6515 (V/TDD: Dial 711 for Relay Colorado) for assistance.

This notice is given and published by order of the City of Fort Collins, Colorado.

Dated at Fort Collins, Colorado this 14th day of May, A.D. 2017.

Wanda Winkelmann
City Clerk