ORDINANCE NO. 018, 2014
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 *2009 INTERNATIONAL BUILDING CODE (IBC)* AND
ADOPTING THE *2012 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 2012 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basic construction codes ought to be adopted and that their counterpart codes previously adopted should be repealed, both in order to align the publication years of the codes and also because the 2012 publications contain improvements in construction code regulation; and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the health, safety and welfare of the City and its citizens that the *2009 International Building Code*, as amended be repealed, and that in its place, the *2012 International Building Code* should be adopted, with amendments.

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

Section 1. That Section 5-26(a) of the Code of the City of Fort Collins is hereby amended to read as follows:

(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 *2006*9 *International Building Code (2006*9 *IBC)*, and adopts, as the building code of the City, the *2009*12 *International Building Code* (*2009*12 *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.

Section 2. That Section 5-27 of the Code of the City of Fort Collins is hereby repealed and reenacted to read as follows:

Sec. 5-27. Amendments and deletions to code.

The *2012 INTERNATIONAL BUILDING CODE* adopted herein is hereby amended in the following respects:

(1) Section 101. Title is hereby amended to read as follows:

"**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) *Section 101.4.1 through 101.4.9 Referenced codes,* is amended to read as follows:

~~**[A] 101.4.1 Gas.** The provisions of the *International Fuel Gas Code* shall apply to the installation of gas piping from the point of delivery, gas appliances and related accessories as covered in this code. These requirements apply to gas piping systems extending from the point of delivery to the inlet connections of appliances and the installation and operation of residential and commercial gas appliances and related accessories.~~

~~**[A] 101.4.2 Mechanical.** The provisions of the *International Mechanical Code* shall apply to the installation, alterations, repairs and replacement of mechanical systems, including equipment, appliances, fixtures, fittings and/or appurtenances, including ventilating, heating, cooling, air-conditioning and refrigeration systems, incinerators and other energy-related systems.~~

~~**[A] 101.4.3 Plumbing.** The provisions of the *International Plumbing Code* shall apply to the installation, *alteration*, repair and replacement of plumbing systems, including equipment, appliances, fixtures, fittings and appurtenances, and where connected to a water or sewage system and all aspects of a medical gas system. The provisions of the *International Private Sewage Disposal Code* shall apply to private sewage disposal systems.~~

~~**[A] 101.4.4 Property maintenance.** The provisions of the *International Property Maintenance Code* shall apply to existing structures and premises; equipment and facilities;~~

~~light, ventilation, space heating, sanitation, life and fire safety hazards; responsibilities of owners, operators and occupants; and occupancy of existing premises and structures.~~

~~**[A] 101.4.5 Fire prevention.** The provisions of the *International Fire Code* shall apply to matters affecting or~~

~~relating to structures, processes and premises from the hazard of fire and explosion arising from the storage, handling or use of structures, materials or devices; from conditions hazardous to life, property or public welfare in the occupancy of structures or premises; and from the construction, extension, *repair*, *alteration* or removal of fire suppression, *automatic sprinkler systems* and alarm systems or fire hazards in the structure or on the premises from occupancy or operation.~~

~~**[A] 101.4.6 Energy.** The provisions of the *International Energy Conservation Code* shall apply to all matters governing the design and construction of buildings for energy efficiency.~~

"101.4.1 Electrical. All references to the *Electrical Code* shall mean the electrical code currently in effect as enacted 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 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 shall be as specified in the City Code, "Chapter 10, Flood Prevention and Protection."

(3) Section 103 Department of Building Safety is amended in its entirety to read as follows:

~~**SECTION 103**~~
~~**DEPARTMENT OF BUILDING SAFETY**~~

~~**[A] 103.1 Creation of enforcement agency.** The Department of Building Safety is hereby created and the official in charge thereof shall be known as the *building official*.~~
~~**[A] 103.2 Appointment.** The *building official* shall be appointed by the chief appointing authority of the jurisdiction.~~
~~**[A] 103.3 Deputies.** In accordance with the prescribed procedures of this jurisdiction and with the concurrence of the appointing authority, the *building official* shall have the authority to appoint a deputy building official, the related technical officers, inspectors, plan examiners and other employees. Such employees shall have powers as delegated by the *building official*. For the maintenance of existing properties, see the *International Property Maintenance Code*.~~

"SECTION 103 CODE ADMINISTRATION

103.1 Entity charged with code administration. The Community Development and Neighborhood Services Department, 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, under the heading of "Building" is amended or added to read as follows:

"Building:

1. One-story, detached, accessory structures used ~~as tool and storage sheds, playhouses and similar uses~~, for lawn and garden equipment storage, tool storage and similar uses, including 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, do not house flammable liquids in quantities exceeding 10 gallons (38 l) per building and are constructed entirely of noncombustible materials when located less than 3 feet (0.914 m) from an adjoining property line.

2. Fences not over ~~7 feet (2134 mm)~~6 feet (1829 mm) high.

3. Oil derricks

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

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 or story below 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 ~~pools accessory to a Group R-3 occupancy that are less than 24 inches (610 mm) deep, are not greater than 5,000 gallons (18 925 L) and are installed entirely above ground~~. 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.

11. Swings and other playground equipment ~~accessory to detached one- and two-family *dwellings*.,~~ including one elevated playhouse per lot designed and used exclusively for play, not exceeding 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 ~~in Group R-3 and U occupancies,~~ supported by an exterior wall which do not project more than 54 inches (1372 mm) from the exterior wall and do not require additional support. Window replacement requiring no structural alteration. Window replacement requiring no change in the window configuration which reduces the size of the window 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* at any point, 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. Minor work valued at less than $500 when such minor work does not involve alteration of structural components, fire-rated assemblies, plumbing, electrical, mechanical or fire-extinguishing systems.

18. Decorative ponds, fountains and pools no 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, and Mechanical.

~~**Electrical:**~~

~~1. *Listed* cord-and-plug connected temporary decorative lighting.~~
~~2. Reinstallation of attachment plug receptacles but not the outlets there for.~~
~~3. Replacement of branch circuit over-current devices of the required capacity in the same location.~~
~~4. Electrical wiring, devices, *appliances*, apparatus or *equipment* operating at less than 25 volts and not capable of supplying more than 50 watts of energy.~~
~~5. Minor repair work, including the replacement of lamps or the connection of *approved* portable electrical *equipment* to *approved* permanently installed receptacles.~~

~~**Gas:**~~

~~1. Portable heating, cooking or clothes drying *appliances*.~~
~~2. Replacement of any minor part that does not alter approval of *equipment* or make such *equipment* unsafe.~~
~~3. Portable fuel-cell *appliances* that are not connected to a fixed piping system and are not interconnected to a power grid.~~

~~**Mechanical:**~~

~~1. Portable heating *appliances*.~~
~~2. Portable ventilation *appliances*.~~
~~3. Portable cooling units.~~
~~4. Steam, hot- or chilled-water piping within any heating or cooling *equipment* regulated by this code.~~
~~5. Replacement of any minor part that does not alter approval of *equipment* or make such *equipment* unsafe.~~
~~6. Portable evaporative coolers.~~
~~7. Self-contained refrigeration systems containing 10 pounds (4.54 kg) or less of refrigerant or that are actuated by motors of 1 horsepower (746 W) or less.~~
~~8. Portable fuel-cell *appliances* that are not connected to a fixed piping system and are not interconnected to a power grid.~~

~~The stopping of leaks in drains, water, soil, waste or vent pipe; provided, however, that if any concealed trap, drainpipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a *permit* shall be obtained and inspection made as provided in this code. The clearing of stoppages or the repairing of leaks in pipes, valves or~~

~~fixtures, and the removal and reinstallation of water closets, provided such repairs do not involve or require the replacement or rearrangement of valves, pipes or fixtures.~~

(6) Section 105.5 Expiration is hereby amended by adding a second paragraph to read as follows:

"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, regardless of when the permit was issued. "

(7) Section 105.8 Transfer of permits, is added to read as follows:

"**105.8 Transfer of permits**. A current valid building permit may be transferred from one party to another upon written application to the *building official*. When any changes are made to the original plans and specifications that substantially differ from the plans submitted with the permit, as determined by the *building official*, a new plan review fee shall be paid as calculated in accordance with Section 109. A fee of $50 shall be paid to cover administrative costs for all building permit transfers. No change shall be made in the expiration date of the original permit."

(8) Section 107.3.1 Approval of construction documents, is hereby amended to read as;

"**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 ~~which states "REVIEWED FOR CODE COMPLIANCE."~~. 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."

(9) Section 108 Temporary Structures and Uses is deleted in its entirety.

~~**SECTION 108 TEMPORARY STRUCTURES AND USES**~~

~~**[A] 108.1 General.** The *building official* is authorized to issue a *permit* for temporary structures and temporary uses. Such *permits* shall be limited as to time of service, but shall not be permitted for more than 180 days. The *building official* is authorized to grant extensions for demonstrated cause.~~

~~**[A] 108.2 Conformance.** Temporary structures and uses shall conform to the structural strength, fire safety, *means of egress*, accessibility, light, ventilation and sanitary requirements of this code as necessary to ensure public health, safety and general welfare.~~

~~**[A] 108.3 Temporary power.** The *building official* is authorized to give permission to temporarily supply and use power in part of an electric installation before such installation has been fully completed and the final certificate of completion has been issued. The part covered by the temporary certificate shall comply with the requirements specified for temporary lighting, heat or power in NFPA 70.~~

~~**[A] 108.4 Termination of approval.** The *building official* is authorized to terminate such *permit* for a temporary structure or use and to order the temporary structure or use to be discontinued.~~

(10) Section 109, FEES, is hereby amended in its entirety to read as follows:

~~**[A] 109.1 Payment of fees.** A *permit* shall not be valid until the fees prescribed by law have been paid, nor shall an amendment to a *permit* be released until the additional fee, if any, has been paid. **[A] 109.2 Schedule of permit fees.** On buildings, structures, electrical, gas, mechanical, and plumbing systems or *alterations* requiring a *permit*, a fee for each *permit* shall be paid as required, in accordance with the schedule as established by the applicable governing authority.~~

~~**[A] 109.3 Building permit valuations.** The applicant for a *permit* shall provide an estimated *permit* value at time of application. *Permit* valuations shall include total value of work, including materials and labor, for which the *permit* is being issued, such as electrical, gas, mechanical, plumbing equipment and permanent systems. If, in the opinion of the *building official*, the valuation is underestimated on the application, the *permit* shall be denied, unless the applicant can show detailed estimates to meet the approval of the *building official*. Final building *permit* valuation shall be set by the *building official*.~~

~~**[A] 109.4 Work commencing before permit issuance.** Any person who commences any work on a building, structure, electrical, gas, mechanical or plumbing system before obtaining the necessary *permits* shall be subject to a fee established by the *building official* that shall be in addition to the required *permit* fees.~~

~~**[A] 109.5 Related fees.** The payment of the fee for the construction, *alteration*, removal or demolition for work done in connection to or concurrently with the work authorized by a building *permit* shall not relieve the applicant or holder of the *permit* from the payment of other fees that are prescribed by law.~~

~~**[A] 109.6 Refunds.** The *building official* is authorized to establish a refund policy.~~

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 building 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 90 percent of a plan review fee or building 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."

(11) Section 113, Board of Appeals, is hereby amended in its entirety to read as follows:

~~**SECTION 113 BOARD OF APPEALS**~~

~~**[A] 113.1 General.** In order to hear and decide appeals of orders, decisions or determinations made by the *building official* relative to the application and interpretation of this code, there shall be and is hereby created a board of appeals. The board of appeals shall be appointed by the applicable governing governing authority and shall hold office at its pleasure. The board shall adopt rules of procedure for conducting its business.~~

~~**[A] 113.2 Limitations on authority.** An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted thereunder have been incorrectly interpreted, the provisions of this code do not fully apply or an equally good or better form of construction is proposed. The board shall have no authority to waive requirements of this code.~~

~~**[A] 113.3 Qualifications.** The board of appeals shall consist of members who are qualified by experience and training to pass on matters pertaining to building construction and are not employees of the jurisdiction.~~

"**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."

(12) Section 114.4, Violation penalties is amended to read as follows:

"**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 subject to penalties as prescribed by law.~~ shall be guilty of a misdemeanor and shall be subject to the penalties and fines specified in Section 1-15 of the City Code."

***(13) Section 114.5* Work commencing before permit issuance**, is added to read as follows:

"**114.5 Work commencing before permit issuance.** In addition to the penalties set forth in 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 exempted 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 fee imposed for the preceding violation, whichever is greater, for every 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."

(14) Section 202, DEFINITIONS, terms are hereby amended or added in alphabetical sequence in the following respects:

"**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 which contains: (a) a minimum of 800 square feet of floor area, or (b) in the case of a dwelling to be constructed on the rear portion of a lot in the L-M-N, M-M-N, N-C-L, N-C-M, N-C-B, C-C-N, C-C-R, H-C or E zone districts, a minimum of 400 square feet of floor area, so long as a dwelling already exists on the front portion of such lot. The term *dwelling* shall not include hotels, motels, tents or other structures designed or used primarily for temporary occupancy. 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.

FIRE CONTAINMENT AREA. A portion of a story or *basement* which is totally enclosed by not less than one-hour fire-resistive construction and, as prescribed in Section 709, entitled Fire Partitions and in Section 710, entitled Smoke Barriers. Openings other than doors and ducts shall be protected as specified in Section 715.5 and shall be limited to a maximum of 25 percent of any one wall. Self-closing devices may be used in place of automatic closing devices on doors unlikely to be fixed open during normal conditions. Examples are doors at toilet rooms, closets and small storage rooms and similar areas.

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 ~~three~~ two or more attached individual dwelling units, ~~in which each unit extends from the foundation to roof and with open space on at least two sides.~~ 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."

(15) Section 419.1General is amended to read as follows:

"**419.1 General.** A live/work unit is a dwelling unit or sleeping unit in which a significant portion of the space includes a nonresidential use that is operated by the tenant and shall comply with Sections 419.1 through 419.8.

Exception:

Dwelling or sleeping units that include an office that is less than ~~10 percent~~ 20 percent of the area of the dwelling unit shall not be classified as a live/work unit."

(16) 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."

(17) Section 505.2.1 Area Limitation is amended by adding 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 exits from the mezzanine are in conformance with Section 505.2.2."

(18) Section 705.3 Buildings on the same lot is amended by adding a third paragraph to read as follows:

"Lines or walls which 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."

(19) Table 903.1 Maximum Allowable Fire-Containment Area is **added** as follows:

"TABLE 903.1
MAXIMUM ALLOWABLE FIRE-CONTAINMENT AREA
(IN SQUARE FEET)

Types of Construction

Occupancy	***I A***	***I B***	***II A***	***II B***	***III A***	***III B***	***IV-HT***	***VA***	***VB***
A1	10,000	10,000	NP	NP	NP	NP	NP	NP	NP
A2,	10,000	10,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
A3, 4	10,000	10,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
B, F1, S1, S2 M, U	10,000	10,000	7,000	5,000	7,000	5,000	7,000	7,000	5,000
F2	20,000	20,000	10,000	7,000	10,000	7,000	10,000	10,000	5,000
E	10,000	10,000	7,000	5,000	7,000	5,000	7,000	7,000	5,000

NP = Not Permitted

Exception:

S2 Open parking garages in accordance with Section 406.5"

(20) Section 903.2 Where required, is amended by adding an exception number *2* to read as follows:

"2. Except for Group R Occupancies, an automatic sprinkler system shall be installed in all buildings which are not divided into fire containment areas as specified in Table 903.1."

(21) Section 903.2.11.1.3 Basements is amended by deleting potions of the sentence to read as follows:

"**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, ~~or where walls, partitions or other obstructions are installed that restrict the application of water from hose streams,~~ the *basement* shall be equipped throughout with an *approved automatic sprinkler system*."

(22) Section 903.3.1.2 NFPA 13R sprinkler systems

"**903.3.1.2 ~~NFPA 13~~ Group R sprinkler systems.** Effective August 1, 2014, *Automatic sprinkler systems* in Group R occupancies up to and including four stories in height shall be ~~permitted to be~~ installed throughout in accordance with ~~NFPA 13R~~ Section 903.3.1.1."

(23) Section 907.2.11 Single- and multiple-station smoke alarms is amended by adding a 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."

(24) Section 908.7 Carbon monoxide alarms is amended by deleting the exception:

~~**Exception:** *Sleeping units* or *dwelling units* which do not themselves contain a fuel-burning appliance or have an attached garage, but which are located in a building with a fuel-burning appliance or an attached garage, need not be equipped with single-station carbon monoxide alarms provided that:~~

~~1. The *sleeping unit* or *dwelling unit* is located more than one story above or below any story which contains a fuel-burning appliance or an attached garage;~~

~~2. The *sleeping unit* or *dwelling unit* is not connected by duct work or ventilation shafts to any room containing a fuel-burning appliance or to an attached garage; and~~

~~3. The building is equipped with a common area carbon monoxide alarm system.~~

(25) Section 1007.3 Stairways, Exceptions 1, 2 are amended to read as follows:

"**Exceptions:**

1. 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.

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

(26) Section 1007.4 Elevators is amended by adding a new exception #5 to read as:

"5. 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."

(27) Section 1007.8 Two-way communication exception #1 is amended to read as follows:

Exception:
"1. Two-way communication systems are not required at the elevator landing ~~where the two-way communication system is provided within~~ of buildings not required to provide areas of refuge in accordance with Section 1007.4."

(28) Section 1008.1.5 Floor elevation is amended by adding a second paragraph to read as follows:

"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."

(29) Section 1008.1.5 Floor elevation is further amended by adding a new, *Exception 6,* to read as follows:

"6. 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 (7.75"), and a minimum width equal to the door width, and further provided that the door does not swing over the step."

(30) Section 1009.15 Handrails is amended to read as follows:

"1009.15 Handrails. Stairways of more than 1 riser shall have handrails on each side and shall comply with Section 1012. Where glass is used to provide the handrail, the handrail shall also comply with Section 2407."

(31) Section 1013.8 Window Sills is amended to read as follows:

"**1013.8 Window sills.** In Occupancy Groups R-2 and R-3, one- and two-family and multiple-family dwellings, where the opening of the sill portion of an operable window is located more than 72 inches (1829 mm) above the finished grade or other surface below, the lowest part of the clear opening of the window shall be at a height not less than ~~36 inches (915 mm)~~ 24 inches (304.8 mm) above the finished floor surface of the room in which the window is located. Operable sections of windows shall not permit openings that

allow passage of a 4-inch-diameter (102 mm) sphere where such openings are located within ~~36 inches (915 mm)~~ 24 inches (304.8 mm) of the finished floor.

Exceptions:

1. Operable windows where the sill portion of the opening is located more than 75 feet (22 860 mm) above the finished grade or other surface below and that are provided with window fall prevention devices that comply with ASTM F 2006.

2. Windows whose openings will not allow a 4 inch diameter (102 mm) sphere to pass through the opening when the window is in its largest opened position.

3. Openings that are provided with non-removable window fall prevention devices that comply with ASTM F 2090.

4. Windows that are provided with non-removable window opening control devices that comply with Section 1013.8.1.

5. Emergency escape and rescue windows shall be installed per Section 1029."

(32) Section 1013.9 Below grade openings is amended by adding a new section read as follows:

"**1013.9 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."

(33) Section 1029.1 General Exceptions 1 is hereby amended to read as follows:

Exceptions:

"1. *Basements* with a ceiling height of less than ~~80 inches (2032 mm)~~ 72 inches (1828.8 mm) shall not be required to have *emergency escape and rescue openings*."

(34) Section 1029.3.1 Minimum height from floor is added to read as follows:

"1029.3.1 Minimum height from floor. *Emergency escape and rescue openings* shall have the bottom of the clear opening not less than 24 inches (609.6 mm) measured from the floor."

(35) Section 1029.5 Window Wells is amended by adding a new exception 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 door or window, 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."

(36) Section 1029.5.3 Drainage is hereby added to read as:

"1029.5.3 Drainage. 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."

(37) Section 1101.2 Design is amended to read as follows:

"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 ANSI A117.1 as referenced by the *building official*."

(38) Section 1103.1 Where required is amended by adding a second and third paragraphs 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 which is the direct result of unique physical site conditions such as terrain, topography or geology, or which is the direct result of other unique or special conditions encountered on the subject property, but which 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."

(39) Section 1107.2 Design is amended by adding a second and 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, 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."

(40) Section 1203.3 Under-floor ventilation is hereby amended in its entirety to read as follows:

~~**1203.3 Under-floor ventilation.** The space between the bottom of the floor joists and the earth under any building except spaces occupied by basements or cellars shall be provided with ventilation openings through foundation walls or *exterior walls*. Such openings shall be placed so as to provide cross ventilation of the under-floor space.~~
~~**1203.3.1 Openings for under-floor ventilation.** The net area of ventilation openings shall not be less than 1 square foot for each 150 square feet (0.67 m2 for each 100 m2) of crawl-space area. 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 be not greater than 1/4 inch (6 mm):~~
~~1. Perforated sheet metal plates not less than 0.070 inch (1.8 mm) thick.~~
~~2. Expanded sheet metal plates not less than 0.047 inch (1.2 mm) thick.~~
~~3. Cast-iron grilles or gratings.~~
~~4. Extruded load-bearing vents.~~
~~5. Hardware cloth of 0.035 inch (0.89 mm) wire or heavier.~~
~~6. Corrosion-resistant wire mesh, with the least dimension not greater than 1/8 inch (3.2 mm).~~
~~**1203.3.2 Exceptions.** The following are exceptions to Sections 1203.3 and 1203.3.1:~~
~~1. Where warranted by climatic conditions, ventilation openings to the outdoors are not required if ventilation openings to the interior are provided. 2. The total area of ventilation openings is permitted to be reduced to 1/1,500 of the under-floor area where the ground surface is covered with a Class I vapor retarder material and the required openings are placed so as to provide cross ventilation of the space. The installation of operable louvers shall not be prohibited.~~
~~3. Ventilation openings are not required where continuously operated mechanical ventilation is provided at a rate of 1.0 cubic foot per minute (cfm) for each 50 square feet (1.02 L/s for each 10 m2) of crawl space floor area and the ground surface is covered with a Class I vapor retarder.~~
~~4. Ventilation openings are not required where the ground surface is covered with a Class I vapor retarder, the perimeter walls are insulated and the space is conditioned in accordance with the *International Energy Conservation Code*.~~
~~5. For buildings in flood hazard areas as established in Section 1612.3, the openings for under-floor ventilation~~
~~shall be deemed as meeting the flood opening requirements of ASCE 24 provided that the ventilation openings are designed and installed in accordance with ASCE 24.~~

"**1203.3 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.

1203.3.1 *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.

1203.3.2 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."

(41) Section 1211 Radon-Resistant Construction is hereby added to read as follows:

"1211 – Radon-resistant construction

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

1211.1.1 Purpose. The purpose of this code 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 these requirements, 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 alterantive, 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."

(42) Section 1404.9 Vinyl siding is hereby amended in its entirety to read as:

~~**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 Vinyl siding** shall not be installed on new buildings within the limits of the City of Fort Collins."

(43) Section 1404.12 Polypropylene siding is hereby amended in its entirety to read as:

~~**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).~~

"**Section 1404.12 Polypropylene siding** shall not be installed on new buildings within the City limits."

(44) Section 1405.*13.2 Fenestration installation* is amended by adding a new section 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."

(45) Section 1503.4 Roof drainage is hereby amended to read as follows:

"**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*."

(46) Section 1503.6 Crickets and saddles is amended by adding a new exception number two to read as follows:

"**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 per section 1510."

(47) Section 1505.1 General is amended to read as follows.

~~**1505.1 General.** Roof assemblies shall be divided into the classes defined below. Class A, B and C roof assemblies and roof coverings required to be listed by this section shall be tested in accordance with ASTM E 108 or UL 790. In addition, *fire-retardant-treated wood* roof coverings shall be tested in accordance with ASTM D 2898. The minimum roof coverings installed on buildings shall comply with Table 1505.1 based on the type of construction of the building.~~

"**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."

(48) Table 1505.1, Minimum Roof Covering Classifications for Types of Construction, is hereby deleted.

(49) Section 1507.2.9.4 Sidewall flashing is amended by adding a new section 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."

(50) Section 1507.2.9.5 Other flashing is amended by adding a new section 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."

(51) Section 1510.1 General is amended *by adding* two paragraphs at the end 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."

(52) Section 1608.2 Ground snow load, the first sentence is hereby amended to read as follows:

"**1608.2 Ground Snow Loads**. The ground snow loads to be used in determining the design snow loads for roofs shall be shall be ~~determined in accordance with ASCE 7 or Figure 1608.2 for the contiguous United States and Table 1608.2 for Alaska.~~ 30 psf."

(53) Section 1609.3 Basic wind speed, the first sentence is hereby amended to read as follows:

"**1609.3 Basic wind speed.** ~~The ultimate design wind speed, *Vult*, in mph,~~ The basic wind speed, in mph, for the determination of the wind loads shall be 100 miles per hour (161 kph) as determined by Figures 1609A, 1609B, and 1609C."

(54) Section 1804.3.1 Final Grading is amended by adding a new section to read as follows:

"**1804.3.1 Final Grading.** Final grading adjacent to the foundation 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."

(55) Section 2406.4.7 Glazing adjacent to the bottom stair landing is hereby amended to read as follows:

"**2406.4.7 Glazing adjacent to ~~the bottom~~ stair landings.** Glazing adjacent to the stair landings ~~at the bottom of a stairway~~ 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 Section 1013 and 1607.8 where the plane of the glass is more than 18 inches (457 mm) from the guard."

(56) Section 2902.1.3 Touch-free toilet facilities is amended by adding a new section 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."

(57) 2902.2 Separate facilities is amended to read as follows:

"**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 ~~15~~ 30 or less.

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 total fixture count as calculated per 2902.1 is satisfied."

(58) Section 3109.6 Barriers around decorative pools, fountains, and ponds is hereby added to read as follows:

"**3109.6 Barriers around decorative pools, fountains, and ponds**. Decorative pools, fountains, and ponds which can contain water deeper than 24 inches (610 mm), shall be protected by barriers installed in accordance with section 3109.4".

(60) Chapter 36 Sustainable Building Construction Practices is amended by adding a new chapter 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 which are removed shall be processed in such a way as to safely remove all asbestos and lead paint contaminants. Where possible, all remaining materials, such as doors, windows, cabinets, and fixtures, concrete and masonry, wood, metals, and cardboard, shall be recycled. Compliance shall be certified by the hauler through receipts and signed affidavits.

3602.2 Certified tropical hardwood. All tropical hardwoods used in new construction, additions and alterations requiring a building permit, shall be certified by the Forest Stewardship Council or other *approved agency*. Certification demonstrating compliance shall be required with delivery of such materials and shall be available for inspection.

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* pollutant flush-out. After all interior finishes are installed, the *building* 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 Chapter 4 of 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* 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*. Flush-out reports shall be provided to the *building official* prior to approval.

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 thereto, 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 during the commissioning process.

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

3604 Commissioning, Operations & Maintenance

3604.1 Building commissioning. For new *buildings* with a gross floor of greater than 15,000 ft^2 (1,395 m^2) and *additions* with a gross floor 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. An electronic formatted copy of the final commissioning report shall be provided to the *building official*.

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.

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."

(61) Chapter 35 Referenced Standards is hereby amended by adding the following additional referenced standard in alphabetical sequence:

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

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

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

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

Introduced, considered favorably on first reading, and ordered published this 21st day of January, A.D. 2014, and to be presented for final passage on the 4th day of February, A.D. 2014.

_____
Mayor

ATTEST:

_____
City Clerk

Passed and adopted on final reading on the 4th day of February, A.D. 2014.

_____
Mayor

ATTEST:

_____
City Clerk