

ORDINANCE NO. 049, 2008
OF THE COUNCIL OF THE CITY OF FORT COLLINS
AMENDING CHAPTER 5, ARTICLE II, DIVISION 2, OF THE CITY CODE
FOR THE PURPOSE OF ADOPTING THE *2006 INTERNATIONAL
BUILDING (IBC)®*, WITH AMENDMENTS

WHEREAS, the current general building code adopted by City is based on the last and final version of the defunct *UNIFORM BUILDING CODE, 1997 EDITION*, published by the former International Conference of Building Officials (ICBO), as enacted in May 1998; and

WHEREAS, since 2000, ICBO dissolved following its merger with the other two former nationally prominent building-code promulgating organizations, to emerge as the *International Code Council (ICC)®*; and

WHEREAS thousands of *ICC* member jurisdictions from across the country and around the world, following extensive and ongoing deliberations, convened to cast final ballots for the approval of the latest published triennial suite of the *ICC* model building codes, the *2006 INTERNATIONAL CODES®*, for the express purpose of inclusively regulating the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of every type of building; and

WHEREAS, a volunteer code-review task group (represented by code officials from the City of Fort Collins, Poudre Fire Authority, and Larimer County, the professional building and design industries in the Larimer County region, and various other contributors as needed) has completed an extensive review of the *2006 INTERNATIONAL BUILDING CODE®*, the companion *ICC* mid-triennial update in the form of the *2007 IBC SUPPLEMENT®*, in addition to the proposed local amendments thereto; and

WHEREAS, the Affordable Housing Board, the Air Quality Advisory Board, the Building Review Board, the Electric Board, the Health District of Northern Larimer County Board, the Natural Resources Advisory Board, the Planning and Zoning Board, and the Commission on Disability have made certain recommendations with respect to the adoption of the *2006 INTERNATIONAL BUILDING CODE®* and proposed amendments; and

WHEREAS, the Council of the City of Fort Collins has determined that it is in the best interest of the health, safety and welfare of the City and its citizens that the *2006 INTERNATIONAL BUILDING CODE®*, as amended be adopted.

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF FORT COLLINS that Chapter 5, Article II, Division 2 of the Code of the City of Fort Collins is hereby amended and revised in the following respects:

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

(a) There is hereby adopted by reference, as the building code of the City, the *2006 International Building Code (IBC)*[®], published by the *International Code Council (ICC)*[®], as if 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 associated accessory structures, for the purpose of protecting the public health, safety and general welfare.

Section 2. That Section 5-27 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 *2006 INTERNATIONAL BUILDING CODE*[®] adopted herein is hereby amended in the following respects:

(1) *Section 101*, is hereby amended in the following respects:

(a) *Section 101.1* is 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’.”

(b) *Section 101.4* is amended by adding the following new subsections at the end thereof reading as follows:

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

101.4.9 All references to the *International Plumbing Code* shall mean the plumbing code currently in effect in the City.

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

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

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

101.4.13 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 *Code of the City*, “*Chapter 10, Flood Prevention and Protection.*”

(2) *Section 103* is amended to read as follows:

“SECTION 103 – CODE ADMINISTRATION

103.1 Entity charged with code administration. The executive building-code 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 executive building-code official.”

(3) *Section 105.2* , under the heading of, *Building*, is amended to read as follows:

“Building:

1. Detached accessory buildings used for playhouses, lawn and garden equipment storage, tool storage and similar uses provided such buildings do not exceed one hundred twenty (120) square feet of floor area nor eight (8) feet in height, do not house flammable liquids in quantities exceeding ten (10) gallons per building and are constructed entirely of noncombustible materials when located less than three (3) feet from an adjoining property line
2. Fences not over 6 feet (1829 mm) high.
3. Oil derricks.
4. Retaining walls that are not over 4 feet (1219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge or impounding Class I, II or IIIA liquids.
5. Water tanks supported directly on grade if the capacity does not exceed 5,000 gallons (18 925 L) and the ratio of height to diameter or width does not exceed 2:1.

6. Platforms and decks intended for human occupancy or walking, sidewalks and driveways not more than 30 inches (762 mm) above adjacent grade, and not over any basement or story below and are not part of an accessible route.
7. Painting, wallpapering, tiling, carpeting, texturing, cabinetry and similar finish or cosmetic work.
8. Temporary motion picture, television and theater stage sets and scenery.
9. Prefabricated portable swimming or wading pools, hot tubs or spas accessory to a Group R-3 occupancy that are less than 24 inches (610 mm) deep, do not exceed 5,000 gallons (18 925 L) and are installed entirely above ground.
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.
12. Window awnings supported by an exterior wall on Group R, Division 3 and Group U Occupancies projecting not more than 54 inches (1372 mm), window replacement requiring no structural alteration and when such work is determined not to be historically significant, storm window, storm door and rain gutter installation.
13. Nonfixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches (1753 mm) in height.
14. Exterior walks, driveways, parking lots except as required for facility accessibility by Chapter 11.
15. Roofing repair or replacement work not exceeding one square of covering per building.
16. Minor work valued at less than five hundred dollars (\$500.) and not involving alteration of bearing walls, structural or fire-rated assemblies, plumbing, electrical or mechanical components or fire-extinguishing systems.”

(4) Section 105.5 is amended to read as follows:

“105.5 Permit expiration and incompleteness of authorized work. Every permit issued, both prior to and subsequent to the effective date of this code, shall become invalid if the work authorized by such permit has not been commenced within one hundred eighty (180) days after issuance of the permit, or if such work, once commenced, is suspended or abandoned for a period of one hundred eighty (180) days after the date the work was commenced. The building official is authorized to grant, in writing, extensions of time for periods of not more than one hundred eighty (180) days each. Each extension must be requested in writing and justifiable cause demonstrated. No more than two such extensions may be granted by the building official unless the additional extension(s) have first been approved by the Building Review Board.

Both prior to and subsequent to the effective date of this code, any work authorized by a permit regulated by this code, or under 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 completed for permanent outdoor exposure within twenty-four (24) months of the date of issuance of such permit, regardless of when the permit was issued. Failure to comply with the foregoing time period shall constitute a violation of this code, resulting in revocation of the permit, and shall subject the permit holder and property owner to all penalties provided by the Code of the city. No such revoked permit may be reinstated, nor shall a new permit be issued for work previously authorized by the revoked permit, unless such reinstatement or issuance of a new permit has first been approved by the Building Review Board.”

(5) *Section 106.3* is amended by adding a new subsection thereto as follows:

“**106.3.5 Time limitation of application.** Applications for which a permit has not been issued within one-hundred eighty (180) days following the date of application shall automatically expire and plans submitted for code-compliance review may thereafter be returned to the applicant or destroyed by the building official. The building official may extend the time for action by the applicant for a period not exceeding ninety (90) days upon written request by the applicant showing that circumstances beyond the control of the applicant have prevented action from being taken. In order to renew action on an application after expiration, the applicant shall resubmit plans and plan review fee as provided in this code.”

(6) *Section 108, Fees*, is amended in the following respects:

(a) *Section 108.1* is amended to read as follows:

“**108.1 Payment of fees.** No permit with any amendments and related construction plans therefor shall be valid until the fees prescribed by the city manager pursuant to Chapter 7.5, Articles I through VI of the Code of the city, entitled, 'ADMINISTRATIVE FEES,' have been paid.”

(b) *Section 108.6* is amended to read as follows:

“**108.6 Fee refunds.** Any fee paid hereunder that is erroneously paid or collected shall be refunded. The building official may authorize the refunding of ninety percent (90) percent of a plan review fee or building permit fee to the applicant who paid such fee pursuant to this Section, 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 provided further such plan review or permit is valid and not expired as set forth in this Section. Prior to authorizing the refunding of any fee paid to the original applicant or permittee, a written request from such party must be submitted to the City within one hundred eighty (180) days of the date of the fee payment.”

(7) *Section 112, Appeals*, is amended to read as follows:

“112.1 General. The Building Review Board (hereafter 'Board') as established in Section 2-117 of the Code of the city of Fort Collins is hereby empowered in accordance with the procedures set forth in this Section to hear and to decide appeals of orders, decisions, or determinations made by the building official relative to the application and interpretation of this code and to the suitability of alternate materials or alternate methods of construction. The building official shall be an ex officio member of the Board without vote and 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.

112.2 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 105.4, 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 alternate design, alternate materials and/or the alternate 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 alternate design, alternate materials and/or the alternate 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 alternate design, alternate materials and/or alternate methods of construction. A quorum of four (4) members shall be necessary for any meeting of the Board.”

112.3 Fees and notification. Persons desiring to appeal to the Board any decision of the building official as provided in this Section 112 shall, at the time of filing such appeal, pay to the city a filing fee in the amount of fifty dollars (\$50.). Written notice of hearings shall be given to the Appellant and, with respect to requests for exceptions or variances authorized pursuant to Section 1101.1 of this code, to the secretary to the Commission on Disability, at least three (3) days prior to the hearing by mailing the same to such party's last known address by regular U.S. mail.

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

1. The administration of this code;

2. Waiving requirements of this code, except as provided for pursuant to this Section 105;
3. Modifying the applicable provisions of, or granting variances to, this code, or approving the use of alternate designs, alternate materials and/or alternate methods of construction except as provided for in this Section 112 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.”

(8) *Section 113— VIOLATIONS*, is amended in the following respects:

(a) *Section 113.4*, is amended to read as follows:

“**113.4 Penalties.** Persons who violate a provision of this code or fail to comply with any of the requirements thereof or who erect, **install within or on,** alter or repair a building or structure in violation of the approved construction documents or directive of the code official, or of a permit or certificate issued under the provisions of this code, shall be **guilty of a misdemeanor subject to the penalties and fines pursuant to Section 1-15 of the Code of the city.**”

(b) New, *Subsection 113.5*, is added at the end thereof to read as follows:

“**113.5 Work commencing before permit issuance.** In addition to penalties set forth in Subsection R113.4, 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 processing and penalty fee in addition to the standard prescribed permit fee. Such additional fee shall be equal to the permit fee, except that such fee shall not be less than fifty dollars (\$50) nor more than one thousand dollars (\$1,000) for the first such violation. A person or firm committing the same such violation repeatedly is subject to processing and penalty fees equal to double the amount of the permit fee or double the amount of the preceding violation, whichever is greater, for every same such subsequent violation committed thereafter within any 180-day period. The foregoing fees may be appealed to the city manager pursuant to Chapter 2, Article VI of the Code of the City.”

(9) *Section 202, Definitions*, is amended in the following respects:

(a) The definition of "BUILDING OFFICIAL" is amended to read as follows:

“**BUILDING-CODE OFFICIAL.** The executive building-code official designated by the City Manager charged with the overall administration and enforcement of this code as described in Section 103.1.”

(b) The definition of "FAMILY" is added to read as follows:

“**FAMILY** is defined as set forth in the Land Use Code of the city.”

(c) The definition of “ROOM, SLEEPING” is added to read as follows:

“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 is indicia for determining that such space or room qualifies as a sleeping room. The presence of closets and similar storage facilities are not considered as relevant factors in determining whether or not a room is a sleeping room.”

(d) The definition of “STORY ABOVE GRADE PLANE” is added to read as follows:

“STORY ABOVE GRADE PLANE. Any story having its finished floor surface entirely above grade plane, or in which the finished surface of the floor above is:

1. More than 6 feet (1829 mm) above grade plane; or
2. More than 12 feet (3658 mm) above the finished ground level at any point.”

(e) The definition of “TOWNHOUSE” is amended to read as follows:

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

(10) *Section 303.1* is amended by the addition of exceptions numbers 4 and 5 to read as follows:

- “4. Assembly areas that are accessory to Group E occupancies are not considered separate occupancies except when applying the assembly occupancy requirements of Chapter 11.
5. Accessory religious educational rooms and religious auditoriums with occupant loads of less than 100 are not considered separate occupancies.”

(11) *Section 419* is amended to read as follows:

“Section 419 – RESIDENCE/WORK UNITS

419.1 General. A residence/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 Section 419.

Exception: Dwelling or sleeping units that include an office that is less than 10 percent of the area of the dwelling unit shall not be classified as a residence/work unit.

419.1.1 Limitations. The following shall apply to all residence/work areas:

1. The residence/work unit is permitted to be a maximum of 3,000 square feet (279 m²);
2. The nonresidential area is permitted to be a maximum 50 percent of the area of each residence/work unit;

3. The nonresidential area function shall be limited to the first or main floor only of the residence/work unit; and
4. A maximum of five nonresidential workers or employees are allowed to occupy the non-residential area at any one time.

419.1.2 Occupancies. Residence/work units shall be classified as a Group R-2 occupancy. Separation requirements found in Section 508.3 shall not apply when the residence/work unit is in compliance with Section 419. High-hazard and storage occupancies shall not be permitted in a residence/work unit. The aggregate of storage in the residence/work unit shall be limited to 10 percent of the space dedicated to nonresidential activities.

419.1.3 Means of egress. Except as modified by this section, the provisions for Group R-2 occupancies in Chapter 10 shall apply to the entire residence/work unit.

419.1.3.1 Egress capacity. The egress capacity for each element of the residence/work unit shall be based on the occupancy load for the occupancy served in accordance with Table 1004.1.1.

419.1.3.2 Sliding doors. Where doors in a means of egress are of the horizontal-sliding type, the force to slide the door to its fully open position shall not exceed 50 pounds (220 N) with a perpendicular force against the door of 50 pounds (220 N).

419.1.3.3 Spiral stairs. Spiral stairs that conform to the requirements of Section 1009.8 shall be permitted.

419.1.3.4 Locks. Egress doors shall be permitted to be locked in accordance with Exception 4 of Section 1008.1.8.3.

419.1.4 Vertical openings. Floor openings between floor levels of a residence/work unit are permitted without enclosure.

419.1.5 Fire protection. The residence/work unit shall be provided with a monitored fire alarm system where required by Section 907.2.9 and a fire sprinkler system in accordance with Section 903.2.7.

419.1.6 Structural. Floor loading for the areas within a residence/work unit shall be designed to conform to Table 1607.1 based on the function within the space.

419.1.7 Accessibility. Accessibility shall be designed in accordance with Chapter 11.

419.1.8 Ventilation. The applicable requirements of the *International Mechanical Code* shall apply to each area within the residence/work unit for the function within that space.

419.2 Separation walls. Walls separating dwelling units in the same building and walls separating sleeping units in the same building shall be constructed as fire partitions in accordance with Section 708.

419.3 Horizontal separation. Floor assemblies separating dwelling units in the same buildings and floor assemblies separating sleeping units in the same building shall be constructed as horizontal assemblies in accordance with Section 711.”

(12) *Section 505.2* is amended by the addition of a new exception number 3 to read as follows:

“3. Within individual dwelling units of Group R occupancies, the maximum aggregate area of a mezzanine may be equal to one-half of the area of the room in which it is located, without being considered an additional story; and to allow the mezzanine to be closed to the room in which it is located, provided exits from the mezzanine are in conformance with Section 505.3.”

(13) *Section 506.4* is amended in the following respects:

(a) *Subsection 506.4.1, Mixed occupancies,* is amended by renumbering as, “506.4.1.1.”

(b) *Section 506.4* is amended to read as follows:

“506.4 Buildings with more than one story. The total allowable building area of a building with more than one story shall be determined in accordance with this section. The actual aggregate building area at all stories in the building shall not exceed the total allowable building area.

Exception: A single basement need not be included in the total allowable building area, provided such basement does not exceed the area permitted for a building with no more than one story above grade plane.

506.4.1 Area determination. The total allowable building area of a building with more than one story above grade plane shall be determined by multiplying the allowable area per story (A_a), as determined in Section 506.1, by the number of stories above grade plane as listed below:

1. For buildings with two stories above grade plane, multiply by 2;
2. For buildings with three or more stories above grade plane, multiply by 3; and
3. No story shall exceed the allowable area per story (A_a), as determined in Section 506.1, for the occupancies on that story.

Exceptions:

1. Unlimited area buildings in accordance with Section 507.
2. The maximum area of a building equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.2 shall be determined by multiplying the allowable area per story (A_a), as determined in Section 506.1, by the number of stories above grade plane.”

(14) *Section 509.5* is amended to read as follows:

“509.5 Group R-1 and R-2 buildings of Type IIIA construction. The height limitation for buildings of Type IIIA construction in **Groups R-1** and R-2 shall be increased to six stories and 75 feet (22 860 mm) where the first-floor construction above the basement has a fire-resistance rating of not less than 3 hours and the floor area is subdivided by 2-hour fire-resistance-rated fire walls into areas of not more than 3,000 square feet (279 m²).”

(15) *Section 509.6* is amended to read as follows:

“509.6 Group R-1 and R-2 buildings of Type IIA construction. The height limitation for buildings of Type IIA construction in **Groups R-1** and R-2 shall be increased to nine stories and 100 feet (30 480 mm) where the building is separated by not less than 50 feet (15 240 mm) from any other building on the lot and from lot lines, the exits are segregated in an area enclosed by a 2-hour fire-resistance-rated fire wall and the first-floor construction has a fire-resistance rating of not less than 1½ hours.”

(16) *Section 702* is amended by deleting the definition, **“FIRE AREA”**.

(17) *Section 704.3* 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 503.3 for assumed property lines between buildings located on the same property, are maintained.”

(18) Table 704.8 is amended to read :

TABLE 704.8
MAXIMUM AREA OF EXTERIOR WALL OPENINGS BASED ON FIRE
SEPARATION DISTANCE AND DEGREE OF OPENING PROTECTION

FIRE SEPARATION DISTANCE (ft)	DEGREE OF OPENING PROTECTION	ALLOWABLE AREA^a
0 to less than 3^{b, c}	Unprotected, Nonsprinklered (UP, NS)	Not Permitted
	Unprotected, sprinklered (UP, S) ⁱ	Not Permitted
	Protected (P)	Not Permitted
3 to less than 5^{d, e}	Unprotected, Nonsprinklered (UP, NS)	Not Permitted
	Unprotected, sprinklered (UP, S) ⁱ	15%
	Protected (P)	15%
5 to less than 10^{e, f}	Unprotected, Nonsprinklered (UP, NS)	10% ^h
	Unprotected, sprinklered (UP, S) ⁱ	25%
	Protected (P)	25%
10 to less than 15^{e, f, g}	Unprotected, Nonsprinklered (UP, NS)	15% ^h
	Unprotected, sprinklered (UP, S) ⁱ	45%
	Protected (P)	45%
15 to less than 20^{f, g}	Unprotected, Nonsprinklered (UP, NS)	25%
	Unprotected, sprinklered (UP, S) ⁱ	75%
	Protected (P)	75%
20 to less than 25^{f, g}	Unprotected, Nonsprinklered (UP, NS)	45%
	Unprotected, sprinklered (UP, S) ⁱ	No Limit
	Protected (P)	No Limit
25 to less than 30^{f, g}	Unprotected, Nonsprinklered (UP, NS)	70%
	Unprotected, sprinklered (UP, S) ⁱ	No Limit
	Protected (P)	No Limit
30 or greater	Unprotected, Nonsprinklered (UP, NS)	No Limit
	Unprotected, sprinklered (UP, S) ⁱ	Not Required
	Protected (P)	Not Required

For SI: 1 foot = 304.8 mm.

UP, NS = Unprotected openings in buildings not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

UP, S = Unprotected openings in buildings equipped throughout with an automatic sprinkler system in accordance

with Section 903.3.1.1.

P = Openings protected with an opening protective assembly in accordance with Section 704.8.2.

- a. Values indicated are the percentage of the area of the exterior wall, per story.
- b. For the requirements for fire walls of buildings with differing heights, see Section 705.6.1.
- c. For openings in a fire wall for buildings on the same lot, see Section 705.8.
- d. The maximum percentage of unprotected and protected openings shall be 25 percent for Group R occupancies.
- e. Unprotected openings shall not be permitted for openings with a fire separation distance of less than 15 feet for Group H-2 and H-3 occupancies.
- f. The area of unprotected and protected openings shall not be limited for Group R-3 occupancies, with a fire separation distance of 5 feet or greater.
- g. The area of openings in an open parking structure with a fire separation distance of 10 feet or greater shall not be limited.
- h. Includes buildings accessory to Group R-3.
- i. Not applicable to Group H-1, H-2 and H-3 occupancies.

(19) *Section 714* is amended in the following respects:

(a) *Section 714.1* is amended by adding two new subsections to read as follows:

“714.1.1 Primary structural frame. The primary structural frame shall be the columns and other structural members including the girders, beams, trusses and spandrels having direct connections to the columns and bracing members designed to carry gravity loads.

714.1.2 Secondary members. The members of floor or roof construction that are not connected to the columns shall be considered secondary members and not part of the primary structural frame.”

(b) A new, *Subsection 714.8*, is added to read as follows:

“714.8 Sprayed fire-resistant materials (SFRM). Sprayed fire-resistant materials (SFRM) shall comply with Sections 714.8.1 through 714.8.4.

714.8.1 Fire-resistance rating. The application of SFRM shall be consistent with the fire resistance rating and the listing, including, but not limited to, minimum thickness and dry density of the applied SFRM, method of application, substrate surface conditions; and the use of bonding adhesives, sealants, reinforcing or other materials.

714.8.2 Manufacturer's installation instructions. The application of SFRM shall be in accordance with the manufacturer's installation instructions. The instructions shall include, but are not limited to, substrate temperatures and surface conditions and SFRM handling, storage, mixing, conveyance, method of application, curing and ventilation.

714.8.3 Substrate condition. The SFRM shall be applied to a substrate in compliance with Sections 714.8.3.1 through 714.8.3.2.

714.8.3.1 Surface conditions. Substrates to receive SFRM shall be free of dirt, oil, grease, release agents, loose scale and any other condition that prevents adhesion. The substrates shall also be free of primers, paints and encapsulants other than those fire tested and listed by a nationally recognized testing agency. Primed, painted or encapsulated steel shall be allowed, provided that testing has demonstrated that required adhesion is maintained.

714.8.3.2 Primers, paints and encapsulants. Where the SFRM is to be applied over primers, paints or encapsulants other than those specified in the listing, the material shall be field tested in accordance with ASTM E 736. Where testing of the SFRM with primers, paints or encapsulants demonstrates that required adhesion is maintained, SFRM shall be permitted to be applied to primed, painted or encapsulated wide flange steel shapes in accordance with the following conditions:

1. The beam flange width does not exceed 12 inches (305 mm); or
2. The column flange width does not exceed 16 inches (400 mm); or
3. The beam or column web depth does not exceed 16 inches (400 mm).
4. The average and minimum bond strength values shall be determined based on a minimum of five bond tests conducted in accordance with ASTM E 736. Bond tests conducted in accordance with ASTM E 736 shall indicate a minimum average bond strength of 80 percent and a minimum individual bond strength of 50 percent, when compared to the bond strength of the SFRM as applied to clean uncoated 1/8-inch-thick (3-mm) steel plate.

714.8.4 Temperature. A minimum ambient and substrate temperature of 40°F (4.44°C) shall be maintained during and for a minimum of 24 hours after the application of the SFRM, unless the manufacturer's installation instructions allow otherwise.

714.8.5 Finished condition. The finished condition of SFRM applied to structural members or assemblies shall not, upon complete drying or curing, exhibit cracks, voids, spalls, delamination or any exposure of the substrate. Surface irregularities of SFRM shall be deemed acceptable.”

(20) Table 715.5 is amended to read as follows:

**TABLE 715.5
FIRE WINDOW ASSEMBLY FIRE PROTECTION RATINGS**

TYPE OF ASSEMBLY		REQUIRED ASSEMBLY RATING (hours)	MINIMUM FIRE WINDOW ASSEMBLY RATING(hours)
Interior walls:	Fire walls	All	NP ^a
	Fire barriers	> 1	NP ^a
		1	3/4
	Smoke barriers	1	3/4
Fire partitions	1	3/4	
	1/2	1/3	
Exterior walls		> 1	1 1/2
		1	3/4
Party wall		All	NP

NP = Not Permitted.

a. Not permitted except as specified in Section 715.2.

(21) Section 716.5 is amended in the following respects:

(a) Section 716.5.1 is amended by adding a new Subsection 716.5.1.1, to read as follows:

“716.5.1.1 Horizontal Exits. A listed smoke damper designed to resist the passage of smoke shall be provided at each point a duct or air transfer opening penetrates a fire wall that serves as a horizontal exit.”

(b) Section 716.5.3, *Shaft enclosures*, is amended by adding a new exception number 5 to read as follows:

(c) “5. Fire dampers and combination fire/smoke dampers are not required in kitchen and clothes dryer exhaust system when installed in accordance with the *International Mechanical Code*.”

(d) Two new subsections are added in numerical sequence to read as follows:

“716.5.6 Exterior walls. Ducts and air transfer openings in fire-resistance rated exterior walls required to have protected openings in accordance with Section 704.14 shall be protected with listed fire dampers installed in accordance with their listing.

716.5.7 Smoke partitions. A listed smoke damper designed to resist the passage of smoke

shall be provided at each point that an air transfer opening penetrates a smoke partition. Smoke dampers and smoke damper actuation methods shall comply with Section 716.3.2.1.

Exception: Where the installation of a smoke damper will interfere with the operation of a required smoke control system in accordance with Section 909, approved alternate protection shall be utilized.”

(22) Section 717.2.1 is amended to read as follows:

“717.2.1 Fireblocking materials. Fireblocking shall consist of the following materials:

1. Two-inch (51 mm) nominal lumber.
2. Two thicknesses of 1-inch (25 mm) nominal lumber with broken lap joints.
3. One thickness of 0.719-inch (18.3 mm) wood structural panels with joints backed by 0.719- inch (18.3 mm) wood structural panels.
4. One thickness of 0.75-inch (19.1 mm) particleboard with joints backed by 0.75-inch (19 mm) particleboard.
5. One half-inch (12.7 mm) Gypsum board.
6. One fourth-inch (6.4 mm) Cement-based millboard.
7. Batts or blankets of mineral wool, mineral fiber or other approved materials installed in such a manner as to be securely retained in place.

717.2.1.1 Batts or blankets of mineral wool or mineral fiber. Batts or blankets of mineral wool or mineral fiber or other approved nonrigid materials shall be permitted for compliance with the 10-foot (3048 mm) horizontal fireblocking in walls constructed using parallel rows of studs or staggered studs.

717.2.1.2 Unfaced fiberglass. Unfaced fiberglass batt insulation used as fireblocking shall fill the entire cross section of the wall cavity to a minimum height of 16 inches (406 mm) measured vertically. When piping, conduit or similar obstructions are encountered, the insulation shall be packed tightly around the obstruction.

717.2.1.3 Loose-fill insulation material. Loose-fill insulation material, insulating foam sealants and caulk materials shall not be used as a fireblock unless specifically tested in the form and manner intended for use to demonstrate its ability to remain in place and to retard the spread of fire and hot gases.

717.2.1.4 Fireblocking integrity. The integrity of fireblocks shall be maintained.

717.2.1.5 Double stud walls. Batts or blankets of mineral or glass fiber or other approved nonrigid materials shall be allowed as fireblocking in walls constructed using parallel rows of studs or staggered studs.

(23) Section 902.1 is amended by adding two new definitions in alphabetical order to read as follows:

“FIRE AREA. The aggregate floor area enclosed and bounded by fire walls, fire barriers, exterior walls or fire-resistance-rated horizontal assemblies of a building. Areas of the building not provided with surrounding walls shall be included in the fire area if such areas are included within the horizontal projection of the roof or floor above.”

FIRE CONTAINMENT AREA is a portion of a story or basement which is totally enclosed by a smoke and draft barrier of not less than 1-hour fire-resistive construction and as prescribed herein. All door openings penetrating such fire-containment areas shall be protected by tight-fitting smoke and draft control assemblies as specified in Section 715.4.3 except that such doors shall be automatic closing by actuation of a smoke detector in accordance with Section 715.4.7.3. All duct penetrations shall be protected by dampers complying with Section 716.5.4.1 with a minimum leakage classification of III, except that such dampers shall be automatic closing by actuation of a smoke detector. Openings other than doors and ducts shall be protected as specified in Section 715.5 and shall be limited to a maximum of twenty-five (25) percent of any one (1) wall. Self-closing devices may be used in lieu of automatic closing devices on doors unlikely to be fixed open during normal conditions. Examples are doors at toilet room, vertical stairways, closets and small storage rooms and similar areas.”

(24) Section 903 is amended in the following respects:

(a) A new Table 903.1, is added as follows:

Table 903.1, Maximum Allowable Fire-Containment Area, is added to read as follows:

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

Types of Construction

<i>Occupancy</i>	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, M, S1, U	10,000	10,000	7,000	5,000	7,000	5,000	7,000	7,000	5,000
F2, S2	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”

(b) Section 903.2 is amended by adding an exception number 2 to read as follows:

“2. Except for Occupancies with a Group R fire area in accordance with Section 903.2.7, an automatic sprinkler system shall be installed in all buildings which are not divided into fire containment areas as specified in Table 903.1.”

(25) Section 907.2.10.1.1 is amended by adding a new item, 4, to read as follows:

“4. **Additions, alterations or repairs to Group R Occupancies.** When one (1) or more sleeping rooms are added or created in existing Group R Occupancies, the entire dwelling unit shall be provided with smoke detectors located and installed as required for new Group R Occupancies described herein.”

(26) Section 912.3 is amended by adding two new subsections in numerical order to read as follows:

“**912.3.2 Clear space around connections.** A working space of not less than 36 inches (762 mm) in width, 36 inches (914 mm) in depth and 78 inches (1981 mm) in height shall be provided and maintained in front of and to the sides of wall-mounted fire department connections and around the circumference of free-standing fire department connections, except as otherwise required or approved by the fire chief.

912.3.3 Physical protection. Where fire department connections are subject to impact by a motor vehicle, vehicle impact protection shall be provided in accordance with Section 312 of the *International Fire Code*.”

(27) Chapter 9, *FIRE PROTECTION SYSTEMS*, is amended by adding new Sections, 913 and 914, at the end of the chapter to read in numerical sequence as follows:

“SECTION 913 FIRE PUMPS

913.1 General. Where provided, fire pumps shall be installed in accordance with this section and NFPA 20.

913.2 Protection against interruption of service. The fire pump, driver and controller shall be protected in accordance with NFPA 20 against possible interruption of service through damage caused by explosion, fire, flood, earthquake, rodents, insects, windstorm, freezing, vandalism and other adverse conditions.

913.3 Temperature of pump room. Suitable means shall be provided for maintaining the temperature of a pump room or pump house, where required, above 40°F (5°C).

913.3.1 Engine manufacturer’s recommendation. Temperature of the pump room, pump house or area where engines are installed shall never be less than the minimum recommended by the engine manufacturer. The engine manufacturer’s recommendations for oil heaters shall be followed.

913.4 Valve supervision. Where provided, the fire pump suction, discharge and bypass valves, and the isolation valves on the backflow prevention device or assembly shall be supervised open by one of the following methods.

1. Central-station, proprietary or remote-station signaling service.
2. Local signaling service that will cause the sounding of an audible signal at a constantly attended location.
3. Locking valves open.
4. Sealing of valves and approved weekly recorded inspection where valves are located within fenced enclosures under the control of the owner.

913.4.1 Test outlet valve supervision. Fire pump test outlet valves shall be supervised in the closed position.

913.5 Acceptance test. Acceptance testing shall be done in accordance with the requirements of NFPA 20.

SECTION 914 EMERGENCY RESPONDER SAFETY FEATURES

914.1 Shaftway markings. Vertical shafts shall be identified as required by this section.

914.1.1 Exterior access to shaftways. Outside openings accessible to the fire department and that open directly on a hoistway or shaftway communicating between two or more floors in a building shall be plainly marked with the word SHAFTWAY in red letters at least 6 inches (152 mm) high on a white background. Such warning signs shall be placed so as to be readily discernible from the outside of the building.

914.1.2 Interior access to shaftways. Door or window openings to a hoistway or shaftway from the interior of the building shall be plainly marked with the word "SHAFTWAY" in red letters at least 6 inches (152 mm) high on a white background. Such warning signs shall be placed so as to be readily discernible.

Exception: Markings shall not be required on shaftway openings that are readily discernible as openings onto a shaftway by the construction or arrangement.

914.2 Equipment room identification. Fire protection equipment shall be identified in an approved manner. Rooms containing controls for air-conditioning systems, sprinkler risers and valves or other fire detection, suppression or control elements shall be identified for the use of the fire department. Approved signs required to identify fire protection equipment and equipment location shall be constructed of durable materials, permanently installed and readily visible.

(28) *Section 1002.1* is amended by adding a new definition, *FLIGHT*, to read as follows:

“FLIGHT. A continuous run of rectangular treads, winders or combination thereof from one landing to another consisting of more than one riser.”

(29) *Section 1007.3* is amended to read as follows:

“1007.3 Exit stairways. In order to be considered part of an accessible means of egress, an exit stairway shall have a clear width of 48 inches (1219 mm) minimum between handrails and shall either incorporate an area of refuge within an enlarged floor-level landing or shall be accessed from either an area of refuge complying with Section 1007.6 or a horizontal exit.

Exceptions:

1. The area of refuge is not required at unenclosed interior exit stairways as permitted by Section 1020.1 in buildings or facilities **not more than 4 stories above grade plane**, that are equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
2. The clear width of 48 inches (1219 mm) between handrails is not required at exit stairways in buildings or facilities **not more than 4 stories above grade plane**, equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
3. Areas of refuge are not required at exit stairways in buildings or facilities **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.
4. The clear width of 48 inches (1219 mm) between handrails is not required for exit stairways accessed from a horizontal exit.
5. Areas of refuge are not required at exit stairways serving open parking garages.
6. Areas of refuge are not required for smoke protected seating areas complying with Section 1025.6.2.
7. The areas of refuge are not required in Group R-2 occupancies.”

(30) *Section 1007.4* is amended in its entirety to read as follows:

1007.4 Elevators. In order to be considered part of an accessible means of egress, an elevator shall comply with the emergency operation and signaling device requirements of Section 2.27 of ASME A17.1. Standby power shall be provided in accordance with Sections 2702 and 3003. The elevator shall be accessed from either an area of refuge complying with Section 1007.6 or a horizontal exit.

Exceptions:

1. Elevators are not required to be accessed from an area of refuge or horizontal exit in open parking garages.
2. Elevators are not required to be accessed from an area of refuge or horizontal exit in buildings and facilities equipped throughout by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
3. Elevators not required to be located in a shaft in accordance with Section 707.2 are not required to be accessed from an area of refuge or horizontal exit.

4. Elevators are not required to be accessed from an area of refuge or horizontal exit for smoke protected seating areas complying with Section 1025.6.2.
5. Elevators in buildings or facilities **not more than 4 stories above grade plane** are not required to be accessible **when equipped throughout by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.**

(31) *Section 1008.1* is amended by adding a third paragraph thereto to read as follows:

“Other doors which are neither required nor used for exit purposes need not conform to this Chapter, provided such doors cannot be readily construed as exits by building occupants. Such doors shall be rendered inoperable, provided such doors do not have grasping hardware, closers or exit signs installed thereon and are made to appear inconspicuous or resemble the adjacent wall construction or are provided with an obvious barricade.”

(32) *Section 1008.1.4* is amended in the following respects:

a) A new, *Exception 6*, is added thereto to read as follows:

“6. Exterior doors, 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 the step has a minimum tread depth of twelve (12) inches, a maximum riser height of seven $\frac{3}{4}$ inches (7.75”), and a minimum width equal to the door width; and provided the door does not swing over the step.”

b) A second paragraph is added at the end thereto 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.”

(33) *Section 1008.1.8* is amended by adding a new subsection at the end thereof in numerical sequence to read as follows:

“1008.1.8.8 Electromagnetically locked egress doors. Doors in the means of egress that are not otherwise required to have panic hardware in buildings with an occupancy in Group A, B, E, M, R-1 or R-2 and doors to tenant spaces in Group A, B, E, M, R-1 or R-2 shall be permitted to be electromagnetically locked if equipped with listed hardware that incorporates a built-in switch and meet the following requirements:

1. The listed hardware that is affixed to the door leaf has an obvious method of operation that is readily operated under all lighting conditions.
2. The listed hardware is capable of being operated with one hand.
3. Operation of the listed hardware releases to the electromagnetic lock and unlocks the door immediately.

4. Loss of power to the listed hardware automatically unlocks the door.”

(34) *Section 1009.10* is amended by replacing in its entirety to read as follows:

“**1009.10 Handrails.** Stairways **of more than one 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.

Exceptions:

1. Handrails for aisle stairs are not required where permitted by Section 1025.13.
2. Stairways within dwelling units, spiral stairways and aisle stairs serving seating only on one side are permitted to have a handrail on one side only.
3. Decks, patios and walkways that have a single change in elevation where the landing depth on each side of the change of elevation is greater than what is required for a landing do not require handrails.
4. In Group R-3 occupancies, a change in elevation consisting of a single riser at an entrance or egress door does not require handrails.
5. Changes in room elevations **of three or fewer risers** within dwelling units and sleeping units in Group R-2 and R-3 do not require handrails.”

(35) *Section 1012.3* is amended by replacing in its entirety to read as follows:

1012.3 Handrail graspability. All required handrails shall meet Type I criteria as follows or shall provide equivalent graspability.

Type I. Handrails with a circular cross-section shall have an outside diameter of at least 1.25 inches (32 mm) and not greater than 2 inches (51 mm). If the handrail is not circular, it shall have a perimeter dimension of at least 4 inches (102 mm) and not greater than 6.25 inches (160 mm) with a maximum cross-section dimension of 2.25 inches (57 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

Exception: In Group R-3 occupancies; within dwelling units in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual dwelling units in Group R-2 occupancies; handrails shall be Type I, Type II as follows or shall provide equivalent graspability.

Type II. Handrails with a perimeter greater than 6.25 inches (160 mm) shall provide a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of 0.75 inch (19 mm) measured vertically from the tallest portion of the profile and achieve a depth of at least .3125 inch (8 mm) within 0.875 inch (22 mm) below the widest portion of the profile. This required depth shall continue for at least 0.375 inch (10mm) to a level that is not less than 1.75 inches (45 mm) below the tallest portion of the profile. The minimum width of the handrail above the recess shall be 1.25 inches (32 mm) to a maximum of 2.75 inches (70 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

(36) *Section 1013* is amended by adding a new subsection at the end thereof in numerical sequence to read as follows:

“1013.7 "All area wells, stair wells and light wells attached to any building that are located less than thirty-six (36) inches from the nearest intended walking surface and deeper than thirty-six (36) inches below the surrounding ground level, creating an opening with a horizontal dimension greater than twenty-four (24) inches measured perpendicular 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 1026.4 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.”

(37) *Subsection 1014.2*. is amended in the following respects:

(a) *Subsection 1014.2.2* is amended to read as follows:

“1014.2.2 Group I-2. Habitable rooms or suites in Group I-2 occupancies shall have an exit access door leading directly to a corridor.

Exception: Rooms with exit doors opening directly to the outside at ground level.”

(b) New *Subsections 1014.2.3* and *1014.2.4* are added at the end thereof to read as follows:

“1014.2.3 Suites in patient sleeping areas. Patient sleeping areas in Group I-2 Occupancies shall be permitted to be divided into suites with one intervening room if one of the following conditions is met:

1. The intervening room within the suite is not used as an exit access for more than eight patient beds.
2. The arrangement of the suite allows for direct and constant visual supervision by nursing personnel.

1014.2.3.1 Area. Suites of sleeping rooms shall not exceed 5,000 square feet (465 m²).

1014.2.3.2 Exit access. Any patient sleeping room, or any suite that includes patient sleeping rooms, of more than 1,000 square feet (93 m²) shall have at least two exit

access doors remotely located from each other.

1014.2.3.3 Travel distance. The travel distance between any point in a suite of sleeping rooms and an exit access door of that suite shall not exceed 100 feet (30 480 mm).

1014.2.4 Suites in areas other than patient sleeping areas. Areas other than patient sleeping areas in Group I-2 occupancies shall be permitted to be divided into suites.

1014.2.4.1 Area. Suites of rooms, other than patient sleeping rooms, shall not exceed 10,000 square feet (929 m²).

1014.2.4.2 Exit access. Any room or suite of rooms, other than patient sleeping rooms, of more than 2,500 square feet (232 m²) shall have at least two exit access doors remotely located from each other.

1014.2.4.3 One intervening room. For rooms other than patient sleeping rooms, suites of rooms are permitted to have one intervening room if the travel distance within the suite to the exit access door is not greater than 100 feet (30480 mm).

1014.2.4.4 Two intervening rooms. For rooms other than patient sleeping rooms located within a suite, exit access travel from within the suite shall be permitted through two intervening rooms where the travel distance to the exit access door is not greater than 50 feet (15 240 mm).

1014.2.5 Travel distance. The travel distance between any point in a Group I-2 occupancy patient sleeping room and an exit access door in that room shall not exceed 50 feet (15 240 mm).

1014.2.6 Separation. Suites in Group I-2 occupancies shall be separated from other portions of the building by a smoke partition complying with Section 710.”

(38) *Section 1020.1.6* is amended by adding a new subsection to read as follows:

“1020.1.6.1 Signage requirements. Stairway identification signs shall comply with all of the following requirements:

1. The signs shall be a minimum size of 18 inches (457 mm) by 12 inches (305 mm).
2. The letters designating the identification of the stair enclosure shall be a minimum of 1 ½ inches (38 mm) in height.
3. The number designating the floor level shall be a minimum of 5 inches (127 mm) in height and located in the center of the sign.
4. All other lettering and numbers shall be a minimum of 1 inch (22 mm) in height.
5. Characters and their background shall have a non-glare finish. Characters shall contrast with their background, with either light characters on a dark background or dark

characters on a light background.”

(39) *Section 1026.1 Exceptions*, is amended to read as follows:

- “1. The emergency escape and rescue opening is permitted to open onto a balcony within an atrium in accordance with the requirements of Section 404, provided the balcony provides access to an exit and the dwelling unit or sleeping unit has a means of egress that is not open to the atrium.
2. Basements with a ceiling height of less than **72 inches (1829 mm)** shall not be required to have emergency escape and rescue windows.
3. High-rise buildings in accordance with Section 403.
4. Emergency escape and rescue openings are not required from basements or sleeping rooms that have an exit door or exit access door that opens directly into a public way or to a yard, court or exterior exit balcony that opens to a public way.
5. Basements without habitable spaces and having no more than 200 square feet (18.6m²) in floor area shall not be required to have emergency escape windows.”

(40) *CHAPTER 10* is amended by adding a new section at the end thereof to read as follows:

“SECTION 1027 – EXIT PATH MARKINGS (High Rise)

1027.1 General. Approved luminous markings delineating the exit path shall be provided in exit enclosures, including vertical exit enclosures and exit passageways, of buildings of Group A, B, E, I, M, and R-1 having occupied floors located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access and shall comply with Sections 1027.1.1 through 1027.1.7.

Exception: Exit path markings shall not be required in lobbies or areas of open parking garages, where such lobby or area is located on the level of exit discharge and complies with the exception to Section 1023.1.

1027.1.1 Steps. A stripe shall be applied to the horizontal leading edge of each step and shall extend for the full length of the step. Outlining stripes shall have a minimum horizontal width of 1 inch (25 mm) and a maximum width of 2 inches (51 mm). The leading edge of the stripe shall be placed at a maximum of ½ inch (13 mm) from the leading edge of the step and the stripe shall not overlap the leading edge of the step by not more than ½ inch (13 mm) down the vertical face of the step.

1027.1.2 Landings: The leading edge of landings shall be marked with a stripe consistent with the dimensional requirements for steps.

1027.1.3 Handrails: All handrails and handrail extensions shall be marked with a stripe having a minimum width of 1 inch (25 mm). The stripe shall be placed on the top surface of the handrail for the entire length of the handrail, including extensions and newel post caps. Where handrails or handrail extensions bend or turn corners, the stripe shall not have a gap of more than 4 inches (102 mm).

1027.1.4 Perimeter demarcation lines: Stair landings and other floor areas within exit enclosures, with the exception of the sides of steps, shall be provided with demarcation lines on the floor or on the walls or a combination of both. The stripes shall be 1 (25 mm) to 2 inches (51 mm) wide with interruptions not exceeding 4 inches (102 mm).

1027.1.4.1 Floor mounted demarcation lines: Perimeter demarcation lines shall be placed within 4 inches of the wall and shall extend to within 2 inches (51 mm) of the markings on the leading edge of landings. The demarcation lines shall continue across the floor in front of all doors.

Exception: Demarcation lines shall not extend in front of exit doors that lead out of an exit enclosure and through which occupants must travel to complete the exit path.

1027.1.4.2 Wall mounted demarcation lines: Perimeter demarcation lines shall be placed on the wall with the bottom edge of the stripe no more than 4 inches (102 mm) above the finished floor. At the top or bottom of the stairs, demarcation lines shall drop vertically to the floor within 2 inches (51 mm) of the step or landing edge. Demarcation lines on walls shall transition vertically to the floor and then extend across the floor where a line on the floor is the only practical method of outlining the path. Where the wall line is broken by a door, demarcation lines on walls shall continue across the face of the door or transition to the floor and extend across the floor in front of such doors.

Exception: Demarcation lines shall not extend in front of exit doors that lead out of an exit enclosure and through which occupants must travel to complete the exit path.

1027.1.4.3 Transition. Where a wall mounted demarcation line transitions to a floor mounted demarcation line, or vice-versa, the wall mounted demarcation line shall drop vertically to the floor to meet a complimentary extension of the floor mounted demarcation line, thus forming a continuous marking.

1027.1.5 Uniformity. Placement and dimensions of markings shall be consistent and uniform throughout the same exit enclosure.

1027.1.6 Materials. Luminescent exit path markings shall be permitted to be made of any material, including paint, provided that an electrical charge is not required to maintain the required luminance. Such materials shall include, but not limited to, self-luminous materials and photoluminescent materials. Materials shall comply with either:

1. UL 1994, or
2. ASTM E 2072, except that the charging source shall be 1 fc (10 lux) of fluorescent

illumination for 60 minutes, and the minimum luminance shall be 5 milicandelas per square meter after 90 minutes.

1027.1.7 Illumination. Exit enclosures where photoluminescent exit path markings are installed shall be provided with the minimum means of egress illumination required by Section 1006 for at least 60 minutes prior to periods when the building is occupied.

- (41) *Section 1103.1* is amended by adding second and third paragraphs respectively thereto to read as follows:

“Nothing in this code shall be construed as relieving or waiving compliance with Colorado law as set forth in Section 9-5-101 et seq., C.R.S.

When the Building Review Board considers granting exceptions or variances either to this chapter pursuant to Section 112 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.”

- (42) *Section 1107.2* is amended by adding second and third paragraphs respectively thereto 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, such functional features except for dwelling unit bedroom-types shall be provided in the same proportion as in the nonaccessible units. Not less than 50% 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, a garage, a carport, a patio, a deck, additional rooms (such as a bedroom,

bathroom, den, storeroom, laundry or similar room) and 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”

(43) *Section 1108.4.1* is amended to read as follows:

“1108.4.1 Courtrooms. Each courtroom shall be accessible and comply with Sections 1108.4.1.1 through 1108.4.1.5.

1108.4.1.1 Jury box. A wheelchair space complying with ICC A117.1 shall be provided within the jury box.

Exception: Adjacent companion seating is not required.

1108.4.1.2 Gallery seating. Wheelchair spaces complying with ICC A117.1 shall be provided in accordance with Table 1108.2.2.1. Designated aisle seats shall be provided in accordance with Section 1108.2.4.

1108.4.1.3 Assistive listening systems. An assistive listening system must be provided. Receivers shall be provided for the assistive listening system in accordance with Section 1108.2.6.1.

1108.4.1.4 Employee work stations. The judge’s bench, clerk’s station, bailiff’s station, deputy clerk’s station and court reporter’s station shall be located on an accessible route. The vertical access to elevated employee work stations within a courtroom is not required at the time of initial construction, provided a ramp, lift or elevator complying with ICC A117.1 can be installed without requiring reconfiguration or extension of the courtroom or extension of the electrical system.

1108.4.1.5 Other work stations. The litigant’s and counsel stations, including the lectern, shall be accessible in accordance with ICC A117.1.”

(44) *Section 1203.3* is amended to read as follows:

“1203.3 Ventilation and moisture control. The under-floor space between the bottom of the structural floor sheathing and the earth under any portion of a building with living or conditioned space above shall be provided with ventilation using the methods and materials as prescribed hereunder.

1203.3.1 Ventilation. Under-floor spaces shall be ventilated as prescribed in 1203.3. Where such spaces are ventilated by a dedicated continuously operated fan-powered

ventilation system, such fans shall be of the type required by Section 1211.11.1.1 for radon-resistant construction methods. Sufficient make-up air shall be provided from the conditioned spaces in the building by outside-air inlets in the HVAC return-air system, heat recovery ventilators or by approved methods considering the impact of negative pressures created by exhaust fans, clothes dryers and similar appliances.

1203.3.2 Under-floor spaces beneath above-grade floors. Under-floor spaces directly below floors that are located entirely above grade shall be ventilated by one of the methods as set forth in 1203.3.2. Exposed ground surface in such spaces shall be covered with an approved vapor and soil-gas retarder material. All joints in the retarder shall be overlapped by 6 inches (153 mm) and sealed or taped, with the retarder edges extending a minimum of 6 inches (153 mm) up the foundation wall and attached and sealed thereto in an approved manner.

1203.3.2.1. Non-conditioned under-floor spaces. Where thermally-isolated above-grade floor systems are insulated and sealed to reduce heat loss and air infiltration from non-conditioned under-floor spaces below, as prescribed by the *2006 INTERNATIONAL ENERGY CONSERVATION CODE*, exterior ventilation openings may be used provided that such spaces do not contain HVAC appliances and the ventilation can be provided directly through openings in an exterior wall. The minimum total net free area of exterior ventilation openings shall not be less than 1/1,500 of the floor area of the under-floor space. Openings shall be placed so as to provide cross-ventilation of the space and 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).

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 grills or grating.
4. Extruded load-bearing brick vents.
5. Hardware cloth of 0.035 inch (0.89 mm) wire or heavier.
6. Corrosion-resistant wire mesh, with the least dimension being 1/8 inch (3.2 mm).

1203.3.2.2. Conditioned under-floor spaces. Where the perimeter walls enclosing conditioned under-floor spaces regulated under 1203.3.2 are thermally insulated and sealed to reduce air infiltration as prescribed by the *2006 INTERNATIONAL ENERGY CONSERVATION CODE*, ventilation of the under-floor space shall be accomplished by approved methods including a continuously operated mechanical ventilation at the rate of 1.0 cfm (1.02 L/s) for each 50 square feet (10 m²) of under floor space floor area, or by conditioned air supplied from the building HVAC system either indirectly through air-transfer openings or directly through supply-air ducts.

1203.3.3 Under-floor spaces beneath below-grade floors. Under-floor spaces that are

located partially or entirely below grade, and directly above which in the conditioned space on the floor above fuel-burning environmental or service-water heating equipment is installed, such equipment shall be power vented or direct vented (closed combustion chamber) appliances as defined in the City Mechanical Code. Such under-floor spaces and under-floor spaces located such that ventilation cannot be provided directly through exterior wall openings, shall be provided with ventilation and space conditioning by a continuously operated fan-powered ventilation system that provides ventilation at a rate of 7.5 cfm per person plus 0.01 cfm per square foot of total conditioned floor area in the home computed on the basis of two occupants for the first bedroom and one occupant for each additional bedroom.

The vent pipe served by the ventilation fan shall be constructed in accordance with Section 1211.5.1 for radon-resistant construction methods except that the intake inlet for such vent riser pipe may be located above the gas-retarder membrane and at least 60 inches (1525 mm) from the nearest transfer floor opening. The intake inlet shall be covered with corrosion-resistant wire mesh having openings with the least dimension being 1/8 inch (3.2 mm).

A minimum of one transfer floor opening shall be provided above the ventilated space for every 250 square feet of under-floor space or portion thereof. The openings shall be sized by dividing the fan ventilation rate by the total number of openings and determining the opening size based on Table 1203.3. See Figure 1203.3 (1) for transfer floor detail.

Exceptions:

1. Engineered systems that maintain the relative humidity so that all surfaces in such under-floor spaces have a surface humidity level no greater than 70%.

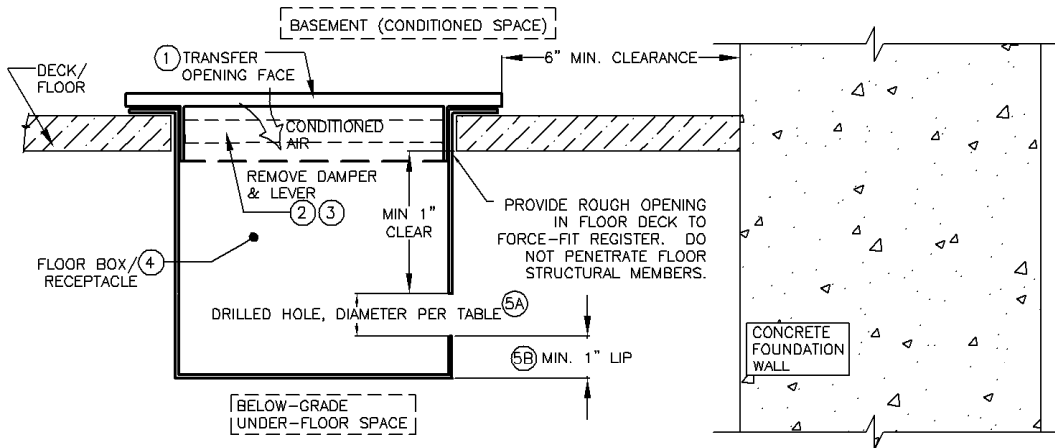
2. Engineered non-cellulose and other approved inorganic floor systems designed to be a sealed system shall not require ventilation when corrosion of the system components has been considered and mitigated, assuming that the minimum required structural integrity of such components is to be maintained for the life of the building.

The ground surface of the under floor space shall be covered with a vapor retarder material. The vapor retarder shall be a minimum 10-mil non-reinforced polyethylene sheet when tested in accordance with ASTM E154-99. The sheet shall be continuously sealed in an approved manner to the foundation walls, to the interior caissons or footing pads, plumbing lines and at all laps of multiple sheets. See Figure 1203.3 (2).

Table 1203.3

Exhaust Rate/Transfer Opening (cfm)	Opening Size, net free area
0-10	1.5 to 2.4 sq. in. (1-3/8" to 1-3/4" dia. hole)
11-15	2.4 to 3.6 sq. in. (1-3/4" to 2-1/8" dia. hole)
16-20	3.6 to 4.4 sq. in. (2-1/8" to 2-3/8" dia. hole)

Figure 1203.3 (1)
Floor Transfer Detail



NOTES:

- ① FLOOR AIR TRANSFER ASSEMBLY:
STANDARD FLOOR REGISTER OR GRILLE. MODIFY AS FOLLOWS:
- ② DAMPER LEVER: REMOVE DAMPER ACTUATION LEVER (IF PRESENT).
- ③ DAMPER: REMOVE DAMPER IF PRESENT.
- ④ PROVIDE SHEET METAL "BOX", SAME SIZE AS GRILLE OR REGISTER FLANGE.
- ⑤ PROVIDE CUT OR DRILLED SHARP EDGE HOLE IN SIDE OF BOX CLOSEST TO FOUNDATION WALL AS FOLLOWS:
 - 5A NET OPENING THROUGH TRANSFER: IN ACCORDANCE WITH TABLE IV.J.
 - 5B "BOX" SHALL PROVIDE CODE INTENT FOR NON-COMBUSTIBLE RECEPTACLE IN ACCORDANCE WITH UMC 607 & IRC M1601.4.3. RECEPTACLE SHALL HAVE MINIMUM 1" VERTICAL LIP.

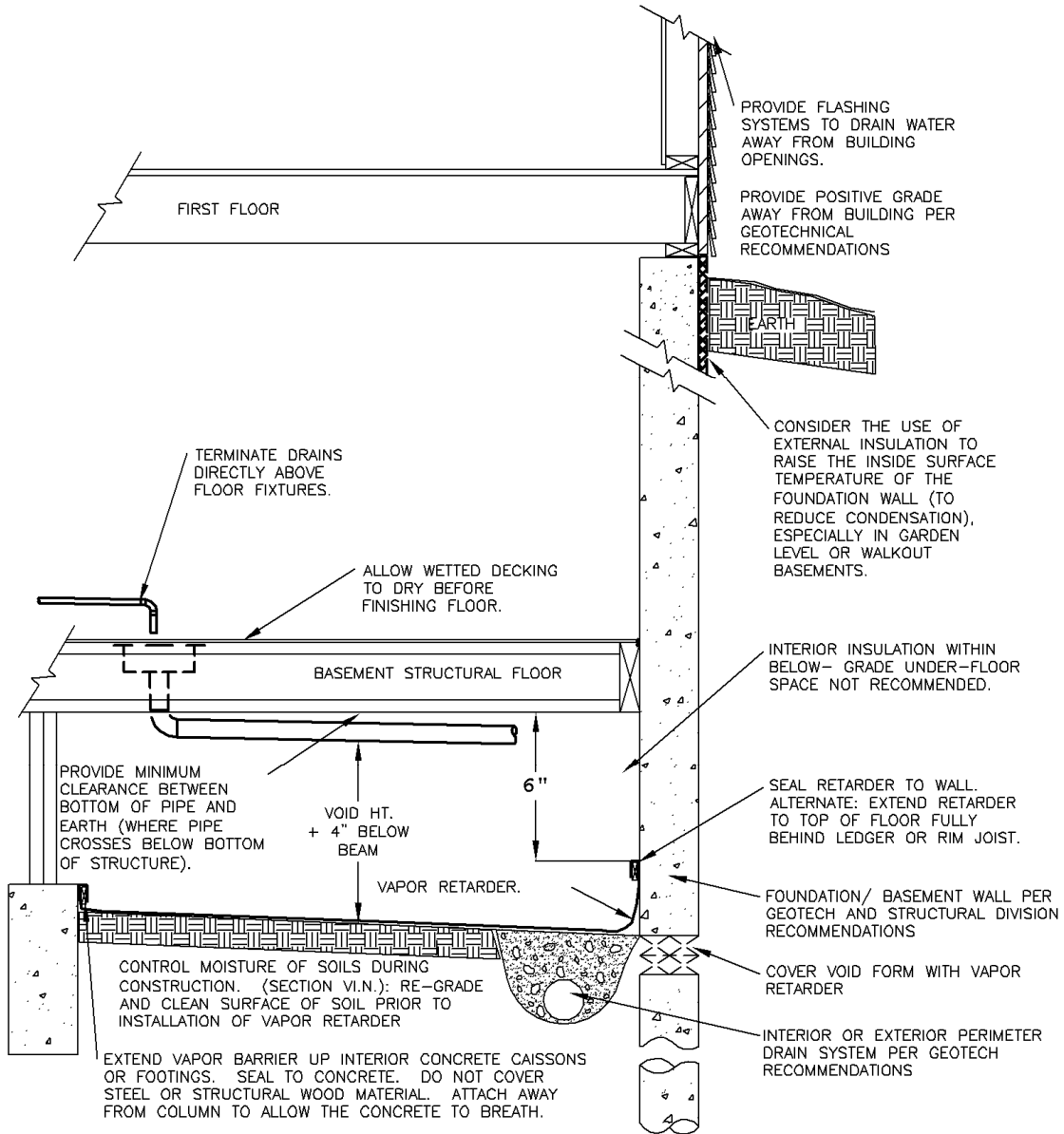
ALL TRANSFER OPENINGS SHALL BE THE SAME CROSS-SECTIONAL AREA +/- 10%.

DETAIL SHOWN IS SUGGESTED MEANS OF ACHIEVING SPECIFIED NET TRANSFER OPENING AREA AND RECEPTACLE. ALTERNATE MEANS OF ACHIEVING THESE GOALS MAY BE USED AT DESIGNER'S OPTION.

TABLE IV.J: FREE AREA OF OPENING IN FLOOR BOX

EXHAUST RATE PER TRANSFER OPENING	NET FREE AREA/HOLE DIAMETER
0-9 CFM	NOT APPLICABLE - TRANSFER AT LEAST 10 CFM THROUGH EACH OPENING
10-15 CFM	1.7 TO 2.6 SQ.IN. FREE AREA / (1-5/8" Ø drilled hole)
16-20 CFM	2.6 TO 3.7 SQ.IN. FREE AREA / (2" Ø drilled hole)
21-25 CFM	3.7 TO 4.7 SQ.IN. FREE AREA / (2-1/4" Ø drilled hole)
26-30 CFM	4.7 TO 5.8 SQ.IN. FREE AREA / (2-1/2" Ø drilled hole)

Figure 1203.3 (2)



1203.3.4 Access. Access shall be provided to all under-floor spaces. Access openings through the floor shall be a minimum of 18 inches by 24 inches (457 mm by 610 mm). Openings through a perimeter wall shall be 16 inches by 24 inches (407 mm by 610 mm). When any portion of the through-wall access is below grade, an areaway of not less than 16 inches by 24 inches (407 mm by 610 mm) shall be provided. The bottom of the areaway shall be below the threshold of the access opening. Through-wall access openings shall not be located under a door to the building. See Section 1209.3 for access requirements where mechanical equipment is located under floors.

Exception: Engineered non-cellulose and other approved inorganic floor systems designed to be a sealed system shall not require ventilation when corrosion of the system components has been considered and adequately mitigated, assuming that the minimum required structural integrity of such components is to be maintained for the life of the building.

1203.3.5 Vapor retarders. Class I or II vapor retarders are required on the interior side of frame walls.

Exceptions:

1. Basement walls.
2. Below grade portion of any wall.
3. Construction where moisture or its freezing will not damage the materials.

1203.3.5.1 Class III vapor retarders. Class III vapor retarders shall be permitted where any one of the conditions are met:

1. Vented cladding over OSB
2. Vented cladding over Plywood
3. Vented cladding over Fiberboard
4. Vented cladding over Gypsum
5. Insulated sheathing with R-value \geq R5 over 2x4 wall
6. Insulated sheathing with R-value \geq R7.5 over 2x6 wall

1203.3.5.2 Material vapor retarder class. The vapor retarder class shall be based on the manufacturer's testing or a tested assembly. The following shall be deemed to meet the class specified:

1. Class I: Sheet polyethylene, non-perforated aluminum foil
2. Class II: Kraft faced fiberglass batts or low perm paint (paint with $0.1 < \text{perm} \leq 1.0$)
3. Class III: Latex or enamel paint

1203.3.5.3 Minimum clear air spaces and vented openings for vented cladding. For the purposes of this section vented cladding shall include the following minimum clear air spaces. Other openings with the equivalent vent area permitted.

1. Vinyl lap or horizontal aluminum siding applied over a weather-resistive barrier as specified in Table R703.4 of the *International Residential Code*.
2. Brick veneer with a clear airspace as specified in Section R703.7.4.2 of the *International Residential Code*.
3. Other approved vented claddings.”

(45) *CHAPTER 12 – INTERIOR ENVIRONMENT*, is amended by adding a new section at the end thereof to read as follows:

“SECTION 1211 – RADON-RESISTANT CONSTRUCTION

1211.1.1 Title. These provisions shall be known as *the Fort Collins Radon-Resistant Construction Code For Group R Division 2 Buildings,* and shall be cited as such and will be referred to herein as 'this code.'

1211.1.2 Scope. The provisions of this code shall apply to new multi-family dwellings.

1211.1.3 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.

SECTION 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. As a gas, it can move readily through particles of soil and rock and 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 and 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.

SECTION 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 ¼ -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 m²) per 10 feet (3.048 m) of barrier length shall be provided. A minimum of two 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 lieu of penetrations through the barrier.

2. A foundation drain pipe system installed under concrete floor slab areas less than 2,000 square feet (186 m²), 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 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 cm²/m²) 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 m²) but less than 4,000 square feet (372 m²), 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 m²) shall have under them separate loops for every additional 2,000 square feet (186 m²) 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 m²) and 4,000 square feet (372 m²) 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 m²) 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 m²) 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 m²) but less than 4,000 square feet (372 m²) 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 m²) shall have separate loops for each 2,000 (186 m²) square feet; or, increased to 4,000 square feet (372 m²) when 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.

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 1807.

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, 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 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.

1211.5.1 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, 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 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 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 as 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 five 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.”

(46) *CHAPTER 13 — ENERGY EFFICIENCY*, is renamed, “ENERGY-EFFICIENT DESIGN AND CONSTRUCTION”, and is further amended to read as follows:

“SECTION 1301 – GENERAL

1301.1 Scope and purpose. For the purpose of establishing minimum requirements concerning the minimum energy-efficiency of every building regulated by this code, including its systems; new portions of such existing building and their related systems; and to new systems and equipment in such existing building, every building shall be designed and constructed according to *2006 International Energy Conservation Code* as amended by the city.

1301.2. Exterior and interior local design parameters. The following local design parameters shall be used:

Winter Outdoor, Design Dry-bulb (°F)	= 4
Winter Indoor, Design Dry-bulb (°F)	= 72
Summer, Outdoor Design Dry-bulb (°F)	= 89
Summer, Indoor Design Dry-bulb (°F)	= 75
Summer, Design Wet-bulb (°F)	= 62
Degree days heating	= 6368
Degree days cooling	= 479
{For SI: °C = [(°F)-32]/1.8.}	

(47) *Section 1503.4* is amended to read as follows:

“1503.4 Roof drainage. Design and installation of roof drainage systems shall comply with *Section 1503* and the *International Plumbing Code*.

1503.4.1 Secondary drainage required. Secondary (emergency) roof drains or scuppers shall be provided where the roof perimeter construction extends above the roof in such a manner that water may be entrapped if the primary drains allow buildup for any reason.

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

(48) *Section 1505 – FIRE CLASSIFICATION* is amended in the following respects:

(a) *Section 1505.1* is amended to read as follows:

“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 lieu 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 five (5) feet to the nearest adjacent property line and are a minimum distance of ten (10) feet to another building.”

(b) *Table No. 1505.1, Minimum Roof Covering Classifications For Types of Construction,* is deleted.

(49) *Section 1507 REQUIREMENTS FOR ROOF COVERINGS* is amended in the following respects:

(a) *Section 1507.2.7* is amended by adding a new subsection thereto to read as follows:

“1507.2.7.1 Wind resistance. Asphalt shingles shall be tested in accordance with either ASTM D 3161 or ASTM D 7158 for wind resistance. Asphalt shingles shall meet the classification requirements of ASTM D 3161 D or F; or ASTM D 7158 G or H. Asphalt shingle packaging shall indicate compliance with the required classification in Table 1507.2.7.”

(b) A new, *Subsection 1507.16*, is added at the end thereof to read as follows:

“1507.16 Roof gardens and landscaped roofs. Roof gardens and landscaped roofs shall comply with the requirements of this chapter and Sections 1607.11.2.2 and 1607.11.2.3.”

(50) *Section 1510 – REROOFING*, is amended to read as follows:

“1510.1 General Reroofing. Except as otherwise provided hereunder, reroofing shall be applied in accordance with this chapter and subject to the following conditions:

1. No portion of an existing nonrated roof covering may be permanently replaced or covered with more than one square of nonrated roof covering.
2. 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.”

(51) Table 1607.1 is amended to read as follows:

Table 1607.1 Change table rows 4, 5 and 28 to read as shown and delete row 9 “Decks”: (S9-06/07 Part I)

TABLE 1607.1 MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS AND MINIMUM CONCENTRATED LIVE LOADS OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (lbs.)
4. Assembly areas and theaters Fixed seats (fastened to floor) Follow spot, projections, and control rooms Lobbies Movable seats Stages and platforms Other assembly areas	60 50 100 100 125 100	NA
5. Balconies (exterior) and decks ^h	Same as occupancy served	NA
28. Residential One- and two-family dwellings: Uninhabitable attics without storage ⁱ Uninhabitable attics with storage ^{i, j, k} Habitable attics and sleeping areas All other areas Hotels and multifamily dwellings: Private rooms and corridors serving them Public rooms and corridors serving them	10 20 30 40 40 100	NA

NA – Not Applicable

h. See Section 1604.8.3 for decks attached to exterior walls. (Portions of table and footnotes not shown remain unchanged)

(52) Section 1608.2, the first sentence is amended to read in its entirety as follows:

“1608.2 Ground Snow Loads. Buildings and other structures and all portions thereof that are subject to snow loading shall be designed to resist such snow loads in accordance with Appendix Chapter 16, Division I, wherein the 'ground snow load' P_g shall be 30 psf.”

(53) Section 1609.3 is amended to read in its entirety as follows:

“1609.3 "Basic wind speed. The minimum basic wind speed for determining design wind pressure shall be one hundred (100) miles per hour (161 kph).”

(54) Section 1803.2 is amended by adding a new subsection thereto to read as follows:

“1803.2.1 Final Grading. Final grading adjacent to the foundation shall be compacted sufficiently and in such a manner such that is not undermined or subject to significant settlement or displacement due to improper placement of backfill.”

(55) *Section 2302.1*, the definition of *TREATED WOOD* is amended to read as follows:

“TREATED WOOD. Wood and wood based materials that use vacuum-pressure impregnation processes to enhance fire retardant or preservative properties and shall include:

- 1. Fire-retardant-treated wood.** Pressure-treated lumber and plywood that exhibit reduced surface burning characteristics and resist propagation of fire.
- 2. Preservative-treated wood.** Pressure-treated wood products that exhibit reduced susceptibility to damage by fungi, insects or marine borers.”

(56) *Section 2304.9.5* is amended by adding *Subsections 2304.9.5.1* through *2304.9.5.4* thereto to read as follows:

“2304.9.5.1 Fasteners for preservative-treated wood. Fasteners for preservative-treated wood shall be of hot-dipped zinc-coated galvanized steel, stainless steel, silicon bronze or copper. Fasteners other than nails, timber rivets, wood screws and lag screws shall be permitted to be of mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B 695, Class 55 minimum.

2304.9.5.2 Fastenings for wood foundations. Fastenings for wood foundations shall be as required in AF&PA Technical Report No. 7.

2304.9.5.3 Fasteners for fire-retardant-treated wood used in exterior applications or wet or damp locations. Fasteners for fire-retardant-treated wood used in exterior applications or wet or damp locations shall be of hot-dipped zinc-coated galvanized steel, stainless steel, silicon bronze or copper. Fasteners other than nails, timber rivets, wood screws and lag screws shall be permitted to be of mechanically deposited zinc coated steel with coating weights in accordance with ASTM B 695, Class 55 minimum.

2304.9.5.4 Fasteners for fire-retardant-treated wood used in interior applications. Fasteners for fire-retardant treated wood used in interior locations shall be in accordance with the manufacturer’s recommendations. In the absence of manufacturer’s recommendations, Section 2304.9.5.3 shall apply.”

(57) *Section 2406.3 Item 5* is amended to read as follows:

“5. Glazing in doors and enclosures for hot tubs, whirlpools, saunas, steam rooms, bathtubs and showers. Glazing in any portion of a building wall enclosing these compartments where the bottom exposed edge of the glazing is less than 60 inches (1524 mm) above a standing surface and where any portion of such glazing is within forty-eight (48) inches of an interior surface of a tub.”

(58) *Section 2902.1* is amended by adding a new subsection thereto to read as follows:

“2902.1.2 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. Automatic flush controls on urinals and toilet stools.
4. Toilet facilities exit doors that allow exiting without requiring touching by hand, 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.”

(59) *Sections 3108.1 and 3108.2* are amended to read as follows:

“3108.1 General. Towers shall be designed and constructed in accordance with the provisions of TIA-222.

3108.2 Location and access. Towers shall be located such that guy wires and other accessories shall not cross or encroach upon any street or other public space, or over above-ground electric utility lines, or encroach upon any privately owned property without the written consent of the owner of the encroached-upon property, space or aboveground electric utility lines. Towers shall be equipped with climbing and working facilities in compliance with TIA-222. Access to the tower sites shall be limited as required by applicable OSHA, FCC and EPA regulations.”

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

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

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

Section 3. That Section 5-28 of the Code of the City of Fort Collins is hereby amended to read as follows:

Sec. 5-28. Defintions.

The following words, terms and phrases, when used in Article II of this chapter and in any code adopted by reference therein, shall have the meanings ascribed to them in this Section:

Whenever the word *municipality, jurisdiction or city* is used, it shall mean the City of Fort Collins.

Whenever the ~~word~~ **term** *Building-code Official or Code Official* is used, the term shall be synonymous with “Director of ~~Building and Zoning~~ **Neighborhood and Building Services**” or authorized representative.

Section 4. That all of the foregoing changes enacted by this Ordinance shall become effective for implementation commencing July 1, 2008.

Introduced, considered favorably on first reading, and ordered published in summary form this 6th day of May A.D. 2008, and to be presented for final passage on the 20th day of May A.D. 2008.

Mayor

ATTEST:

City Clerk

Passed and adopted on final reading this 20th day of May, A.D. 2004.

Mayor

ATTEST:

City Clerk

