

ORDINANCE NO. 021, 2014
OF THE COUNCIL OF THE CITY OF FORT COLLINS
AMENDING CHAPTER 5, ARTICLE IV OF THE CODE OF THE CITY OF FORT
COLLINS FOR THE PURPOSE OF REPEALING THE 2009 *INTERNATIONAL
MECHANICAL CODE (IMC)*, AND ADOPTING THE 2012 *INTERNATIONAL
MECHANICAL CODE*, WITH AMENDMENTS

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

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

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

WHEREAS, the City Council has determined that the 2012 publication year of the five interconnected basic construction codes ought to be adopted and that their counterpart codes previously adopted should be repealed, both in order to align the publication years of the codes and also because the 2012 publications contain improvements in construction code regulation; and

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

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

WHEREAS, the City Council has determined that it is in the best interest of the health, safety and welfare of the City and its citizens that the 2009 *International Mechanical Code*, as amended be repealed and that in its place, the 2012 *International Mechanical Code* be adopted, with amendments.

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

Section 1. That Section 5-106 of the Code of the City of Fort Collins is hereby amended to read as follows:

Sec. 5-106. Adoption of standards.

Pursuant to the power and authority conferred on the City Council by Section 31-16-202, C.R.S., and Article II, Section 7 of the Charter, the City Council hereby repeals the 2003~~9~~

International Mechanical Code (2003⁹ IMC) and adopts, as the mechanical code of the City, the 2009¹² *International Mechanical Code*, (2009¹² IMC), published by the International Code Council, which shall have the same force and effect as though set forth in full herein. The subject matter of the 2009 *International Mechanical Code*, (2009 IMC), adopted herein includes comprehensive provisions and standards regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance of heating, ventilating, cooling and refrigeration systems, incinerators, miscellaneous heat-producing appliances for the purposes of protecting public health, safety and general welfare.

Section 2. That Section 5-107 Code of the City of Fort Collins is hereby repealed and reenacted to read in its entirety as follows:

Sec. 5-107. Amendments and deletions to code.

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

(1) *Section 101.1 Title* is hereby amended to read as follows:

“101.1 Title. These regulations shall be known as the *Mechanical Code* of the **City of Fort Collins**, hereinafter referred to as “this code.”

(2) *Section 102.8 Referenced codes and standards*, is amended to read as follows:

“Section 102.8 reference codes and standards The codes and standards referenced herein shall be those that are listed in ~~Chapter 15~~ **Section 101.4 of the adopted *International Building Code*, entitled ‘Referenced Codes’** and shall be considered part of the requirements of this code to the prescribed extent of each such reference ~~and as further regulated in Sections 102.8.1 and 102.8.2.”~~

Exception: Where enforcement of a code provision would violate the conditions of the listing of the *equipment* or *appliance*, the conditions of the listing and the manufacturer’s installation instructions shall apply.

(3) *Section 103 Department of Mechanical Inspection* is hereby amended in its entirety to read as follows:

SECTION 103

DEPARTMENT OF MECHANICAL INSPECTION

~~[A] 103.1 General. The department of mechanical inspection is hereby created and the executive official in charge thereof shall be known as the code official.~~

~~[A] 103.2 Appointment. The code official shall be appointed by the chief appointing authority of the jurisdiction.~~

~~[A] 103.3 Deputies. In accordance with the prescribed procedures of this jurisdiction and with the concurrence of the appointing authority, the code official shall have the authority to appoint a deputy code official, other related technical officers, inspectors and other employees. Such employees shall have powers as delegated by the code official.~~

~~[A] 103.4 Liability. The code official, member of the board of appeals or employee charged with the enforcement of this code, while acting for the jurisdiction in good faith and without malice in the discharge of the duties required by this code or other pertinent law or ordinance, shall not thereby be rendered liable personally, and is hereby relieved from personal liability for any damage accruing to persons or property as a result of an act or by reason of an act or omission in the discharge of official duties. Any suit instituted against any officer or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the provisions of this code shall be defended by the legal representative of the jurisdiction until the final termination of the proceedings. The code official or any subordinate shall not be liable for costs in an action, suit or proceeding that is instituted in pursuance of the provisions of this code.~~

"SECTION 103 – CODE ADMINISTRATION

103.1 Entity charged with code administration shall be as determined in accordance with Section 103 of the adopted *International Building Code*, entitled 'Code Administration'."

(4) *Section 106.5 Fees* is hereby amended in its entirety to read as follows:

~~A] 106.5 Fees. A permit shall not be issued until the fees prescribed in Section 106.5.2 have been paid, nor shall an amendment to a permit be released until the additional fee, if any, due to an increase of the mechanical system, has been paid.~~

~~[A] 106.5.1 Work commencing before permit issuance. Any person who commences work on a mechanical system before obtaining the necessary permits shall be subject to 100 percent of the usual permit fee in addition to the required permit fees.~~

~~[A] 106.5.2 Fee schedule. The fees for mechanical work shall be as indicated in the following schedule. [JURISDICTION TO INSERT APPROPRIATE SCHEDULE]~~

~~[A] 106.5.3 Fee refunds. The code official shall authorize the refunding of fees as follows:~~

- ~~1. The full amount of any fee paid hereunder which was erroneously paid or collected.~~
- ~~2. Not more than [SPECIFY PERCENTAGE] percent of the permit fee paid when no work has been done under a permit issued in accordance with this code.~~
- ~~3. Not more than [SPECIFY PERCENTAGE] percent of the plan review fee paid when an application for a permit for which a plan review fee has been paid is withdrawn or canceled before any plan review effort has been expended. The code official shall not authorize the refunding of any fee paid, except upon written application filed by the original permittee not later than 180 days after the date of fee payment.~~

"SECTION 106.5 FEES

106.5 Payment of fees. All items relating to fees shall be as specified in Section 109 of the adopted *International Building Code*," entitled 'Fees'."

(5) *Section 107.3 Testing and verification* is hereby amended to read as follows:

~~[A] 107.3 Testing.~~ Mechanical systems shall be tested as required in this code and in accordance with Sections 107.3.1 through 107.3.3. Tests shall be made by the permit holder and observed by the code official.

“107.3 Testing and verification. Installed heating, cooling and *ventilation systems* shall be performance-tested by an approved agency and adjusted to operate within design specifications, in accordance with ANSI/ACCA QI 5-2010 *HVAC Quality Installation Specification*. Documentation of results shall be submitted to the *building official* prior to approval

Exception: *Buildings* subject to *commissioning* requirements in Section 3604.1 of the 2012 *International Building Code* as amended.”

(6) *Section 108.4 Violation Penalties*, is hereby amended to read as follows:

“108.4 Violation penalties. Persons who ~~shall~~ violate a provision of this code or ~~shall~~ fail to comply with any of the requirements thereof or who ~~shall~~ erect, install, alter or repair a mechanical work 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 ~~{SPECIFY OFFENSE}~~, punishable by a fine of not more than ~~[AMOUNT]~~ dollars or by imprisonment not exceeding ~~[NUMBER OF DAYS]~~, or both such fine and imprisonment. Each day that a violation continues after due notice has been served shall be deemed a separate offense. **misdemeanor and shall be subject to the penalties and fines specified in Section 1-15 of the City Code.”**

“108.4.1 Work commencing before permit issuance. In addition to the penalties set forth in 108.4, any person or firm who, before obtaining the necessary permit(s), commences any construction of, or work on, a building, structure, electrical, gas, mechanical or plumbing system that is not otherwise exempted from obtaining a permit, shall be subject to a fine in addition to the standard prescribed permit fee. Said fine shall be equal in amount to the permit fee, except that it shall not be less than \$50 nor more than \$1,000 for the first such violation. A person or firm committing the same such violation repeatedly shall be subject to a fine equal to double the amount of the permit fee or double the amount of the fee imposed for the preceding violation, whichever is greater, for every such subsequent violation committed within 180 days of a previous violation. Said fines may be appealed to the City Manager pursuant to Chapter 2, Article VI of the City Code.”

(7) *Section 109 Means of Appeal* is hereby amended in its entirety to read as follows:

SECTION 109

MEANS OF APPEAL

~~[A] 109.1 Application for appeal.~~ A person shall have the right to appeal a decision of the code official to the board of appeals. An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted thereunder have been incorrectly interpreted, the provisions of this code do not fully apply, or an equally good

~~or better form of construction is proposed. The application shall be filed on a form obtained from the code official within 20 days after the notice was served.~~

~~[A] 109.1.1 Limitation of authority. The board of appeals shall have no authority relative to interpretation of the administration of this code nor shall such board be empowered to waive requirements of this code.~~

~~[A] 109.2 Membership of board. The board of appeals shall consist of five members appointed by the chief appointing authority as follows: one for five years; one for four years; one for three years; one for two years; and one for one year. Thereafter, each new member shall serve for five years or until a successor has been appointed.~~

~~[A] 109.2.1 Qualifications. The board of appeals shall consist of five individuals, one from each of the following professions or disciplines.~~

~~1. Registered design professional who is a registered architect; or a builder or superintendent of building construction with at least 10 years' experience, five of which shall have been in responsible charge of work.~~

~~2. Registered design professional with structural engineering or architectural experience.~~

~~3. Registered design professional with mechanical and plumbing engineering experience; or a mechanical contractor with at least 10 years' experience, five of which shall have been in responsible charge of work.~~

~~4. Registered design professional with electrical engineering experience; or an electrical contractor with at least 10 years' experience, five of which shall have been in responsible charge of work.~~

~~5. Registered design professional with fire protection engineering experience; or a fire protection contractor with at least 10 years' experience, five of which shall have been in responsible charge of work.~~

~~[A] 109.2.2 Alternate members. The chief appointing authority shall appoint two alternate members who shall be called by the board chairman to hear appeals during the absence or disqualification of a member. Alternate members shall possess the qualifications required for board membership and shall be appointed for five years, or until a successor has been appointed.~~

~~[A] 109.2.3 Chairman. The board shall annually select one of its members to serve as chairman.~~

~~[A] 109.2.4 Disqualification of member. A member shall not hear an appeal in which that member has a personal, professional or financial interest.~~

~~[A] 109.2.5 Secretary. The chief administrative officer shall designate a qualified clerk to serve as secretary to the board. The secretary shall file a detailed record of all proceedings in the office of the chief administrative officer.~~

~~[A] 109.2.6 Compensation of members. Compensation of members shall be determined by law.~~

"109.1 General. Appeals of decisions, determinations and interpretations of this code shall be made pursuant to the applicable provisions of Section 113 of the adopted International Building Code, entitled 'Board of Appeals'."

(8) **Section 202 GENERAL DEFINITIONS**, is hereby amended to add the following definitions in alphabetical sequence as follows:

"Multifamily. Any building housing group R-1, R-2 or R-4 occupancies."

Whole-dwelling unit mechanical ventilation system. An exhaust system, supply system, or combination thereof that is designed to mechanically exchange indoor air for outdoor air when operating continuously or through a programmed intermittent schedule to satisfy the whole-dwelling ventilation rate."

- (9) *Section 304.3 Elevation of ignition source* is hereby amended to read as follows and by deleting the exception:

"304.3 Elevation of ignition source. **Electrical devices,** equipment and appliances having an *ignition source* and located in hazardous locations and public garages, private garages, repair garages, automotive motor fuel-dispensing facilities and parking garages shall be elevated such that the source of ignition is not less than 18 inches (457 mm) above the floor surface on which the *equipment* or *appliance* rests. For the purpose of this section, rooms or spaces that are not part of the living space of a *dwelling unit* and that communicate directly with a private garage through openings shall be considered to be part of the private garage.

~~**Exception:** Elevation of the ignition source is not required for appliances that are listed as flammable vapor ignition resistant."~~

- (10) *Section 312 Heating and Cooling load calculations* is hereby amended to read as follows:

"312.1 Heating and cooling load calculations. Heating and cooling system design loads for the purpose of sizing systems, appliances and *equipment* shall be determined in accordance with the ~~procedures described in the ASHRAE/ACCA Standard 183. Alternatively, design loads shall be determined by an approved equivalent computation procedure, using the design parameters specified in Chapter 3 of the *International Energy Conservation Code*.~~ **adopted *International Energy Conservation Code*.**"

- (11) *Section 407 Whole-dwelling unit ventilation* is hereby added to read as follows:

"407.1 Whole-dwelling unit mechanical ventilation system. For new *buildings*, a mechanical exhaust system, supply system, or combination thereof shall be installed for each *dwelling unit* to provide whole-dwelling unit ventilation. Such system shall comply with Sections 407.1.1 through 407.5.

407.1.1 Whole-dwelling unit ventilation rate, The dwelling unit mechanical *ventilation system* shall provide outdoor air at a continuous rate of not less than that determined in accordance with Table M1507.3.3(1).

Exception:

The whole-dwelling unit mechanical *ventilation system* is permitted to operate intermittently where the system has controls that enable operation for not less than 25-percent of each 4-hour segment and the ventilation rate prescribed in IRC Table M1507.3.3(1) is multiplied by the factor determined in accordance with IRC Table M1507.3.3(2).

TABLE M1507.3.3(1)
CONTINUOUS WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM AIRFLOW RATE REQUIREMENTS

DWELLING UNIT FLOOR AREA (square feet)	NUMBER OF BEDROOMS				
	0 – 1	2 – 3	4 – 5	6 – 7	> 7
	Airflow in CFM				
< 1,500	30	45	60	75	90
1,501 – 3,000	45	60	75	90	105
3,001 – 4,500	60	75	90	105	120
4,501 – 6,000	75	90	105	120	135
6,001 – 7,500	90	105	120	135	150
> 7,500	105	120	135	150	165

For SI: 1 square foot = 0.0929 m², 1 cubic foot per minute = 0.0004719 m³/s.

TABLE M1507.3.3(2)
INTERMITTENT WHOLE-HOUSE MECHANICAL VENTILATION RATE FACTORS^{a, b}

RUN-TIME PERCENTAGE IN EACH 4-HOUR SEGMENT	25%	33%	50%	66%	75%	100%
Factor ^a	4	3	2	1.5	1.3	1.0

a. For ventilation system run time values between those given, the factors are permitted to be determined by interpolation.

b. Extrapolation beyond the table is prohibited.

407.2 System design. The design of the required whole *dwelling unit ventilation system* shall comply with the requirements of this Section. System design documents shall be submitted, as required by the *building official*, at the time of application for a building permit.

407.2.1 System type. The system shall consist of one or more supply or exhaust fans, or a combination thereof, and associated ducts and controls. Exhaust fans shall be permitted to be part of a mechanical exhaust system. Outdoor air ducts connected to the return duct of a forced air furnace shall be considered to provide supply ventilation and shall be sized to provide adequate mechanical *ventilation* in accordance with ASHRAE 62.2 and shall meet the manufacturer's requirements for minimum return air temperature to the furnace heat exchange.

407.2.2 Outdoor air intakes. Outdoor air intakes shall have automatic dampers that close when the *ventilation system* is not operating.

407.2.3. Exhausts. Exhausts shall have gravity dampers that close when the *ventilation system* is not operating.

407.2.4 Air Circulation fan motors. Motors for air circulation fans used in the *ventilation system*, rated at one-quarter horsepower or greater, shall meet at least one of the following criteria:

1. Where the furnace serves as an air handler for the *ventilation system*, the furnace shall be certified as an "Electrically Efficient Furnace" by the Air-conditioning, Heating and Refrigeration Institute (AHRI).
2. The blower motor shall be specified as a "Brushless DC" (BL or BLDC) motor by the manufacturer.

3. The blower motor shall be specified as “Brushless Permanent Magnet” (BPM) motor.

4. The blower motor shall be specified as “Electronically Commutated Motor (ECM)”.

5. The blower shall meet equivalent criteria acceptable to the *building official*.

407.2.5 System controls. The mechanical *ventilation system* shall be provided with readily accessible and labeled controls that enable occupant override.

407.2.6 Sound ratings for fans. Whole-dwelling unit *ventilation* fans shall be rated for sound at a maximum of 1.5 sones, in accordance with the procedures of the Home Ventilating Institute (HVI 915, *Procedure for Loudness Rating of Residential Fan Products*).

Exception:

Heating, ventilating and air conditioning air handlers and remote-mounted fans need not meet sound requirements. To be considered for this exception, a remote-mounted fan must be mounted outside the habitable spaces, bathrooms, toilets and hallways, and there must be at least 4 ft (1 m) of ductwork between the fan and the intake grille.

407.3 System installation. The installation of the whole-*dwelling unit ventilation system* and equipment shall be carried out in accordance with the manufacturers’ design requirements and installation instructions.

407.4 Performance verification. Performance of installed mechanical *ventilation systems* shall be verified in accordance with Section 107.3.

407.5 Multifamily buildings. In *multifamily buildings*, all doors between *dwelling units* and common hallways shall be gasketed or otherwise substantially airtight with weather stripping, except when the *ventilation system* explicitly requires transfer of air from corridors into units.”

(12) **Section 504.1 Installation** is hereby amended to read as follows and by deleting the exception:

“504.1 Installation. Clothes dryers shall be exhausted in accordance with the manufacturer's instructions. Dryer exhaust systems shall be independent of all other systems and shall convey the moisture and any products of combustion to the outside of the building. **Dryer exhaust duct terminations shall not be located within 36 inches (914 mm) of exterior openings into conditioned spaces, crawl spaces, and attic spaces.”**

~~**Exception:** This section shall not apply to listed and labeled condensing (ductless) clothes dryers.~~

(13) **Section 504.6.4.2 Manufacturer’s instructions**, is amended by deleting in its entirety:

~~**504.6.4.2 Manufacturer’s instructions.** The maximum length of the exhaust duct shall be determined by the dryer manufacturer’s installation instructions. The code official~~

shall be provided with a copy of the installation instructions for the make and model of the dryer. Where the exhaust duct is to be concealed, the installation instructions shall be provided to the code official prior to the concealment inspection. In the absence of fitting equivalent length calculations from the clothes dryer manufacturer, Table 504.6.4.1 shall be used.

(14) *Section 505.2 Makeup air required* is hereby amended to read as follows:

“505.2 Makeup air required. Exhaust hood systems capable of exhausting in excess of 400 cfm (0.19 m³/s) shall be provided with *makeup air* at a rate approximately equal to the *exhaust air* rate. Such *makeup air* systems shall be equipped with a means of closure and shall be automatically controlled to start and operate simultaneously with the exhaust system. Exhaust air rate required shall be calculated based on the total BTU's of the gas appliance beneath the hood at a ratio of 100 BTU's to 1 CFM.”

(15) *Section 512.1 General* is hereby amended to read as follows:

“512.1 General. When a subslab soil exhaust system is provided, the duct for such system shall conform to the requirements of ~~this section~~ Section 1211 of the adopted International Building Code, entitled ‘Radon-Resistant Construction’.”

(16) *Section 602.3 Stud cavity and joist space plenums*, is hereby deleted in its entirety:

~~**602.3 Stud cavity and joist space plenums.** Stud wall cavities and the spaces between solid floor joists to be utilized as air plenums shall comply with the following conditions:~~

- ~~1. Such cavities or spaces shall not be utilized as a *plenum* for supply air.~~
- ~~2. Such cavities or spaces shall not be part of a required fire resistance rated assembly.~~
- ~~3. Stud wall cavities shall not convey air from more than one floor level.~~
- ~~4. Stud wall cavities and joist space plenums shall comply with the floor penetration protection requirements of the *International Building Code*.~~
- ~~5. Stud wall cavities and joist space plenums shall be isolated from adjacent concealed spaces by *approved* fireblocking as required in the *International Building Code*.~~
- ~~6. Studwall cavities in the outside walls of building envelope assemblies shall not be utilized as air plenums.~~

(17) *Section 602.3 Building cavities (Mandatory)* is hereby added to read as follows:

“Section 602.3 Building cavities (Mandatory) Building framing cavities shall not be used as ducts or plenums.”

(18) *Section 602.3.1 Return air* is hereby added to read as follows:

“Section 602.3.1 Return air. Return air shall be taken from inside the *dwelling*. Dilution of return air with outdoor air shall be permitted. A return air path shall be provided in all *habitable rooms* by means of ducts or transfer grills.”

(19) *Section 603.18.3 Construction debris and contamination* is hereby added to read as follows:

“603.18.3 Construction debris and contamination. Mechanical air-handling systems and their related ducts shall be protected from the entrance of dirt, debris, and dust during the construction and installation process. Prior to passing final inspection or issuance of a Certificate of Occupancy, such systems shall be substantially free of construction-related contaminants.”

(20) *Section 607.4 Access and identification* is hereby amended to read as follows:

“607.4. Access and identification Fire and smoke dampers shall be provided with an approved means of access, large enough to permit inspection and maintenance of the damper and its operating parts. The access shall not affect the integrity of fire-resistance-rated assemblies. The access openings shall not reduce the fire-resistance-rating of the assembly. Access points shall be permanently identified on the exterior **and readable without the removal of finish ceiling works** by a label having letters not less than 0.5 inch (12.7 mm) in height reading: SMOKE DAMPER or FIRE DAMPER. Access doors in ducts shall be tight-fitting and suitable for the required duct construction.”

(21) *Section 801.19 Multi-story prohibited* is hereby amended to read as follows:

“801.19 Multi-story prohibited. Common venting systems for appliances located on more than one floor level shall be prohibited, except **engineered systems** where all of the appliances served by the common vent are located in rooms or spaces that are accessed only from the outdoors. The appliance enclosures shall not communicate with the occupiable areas of the building.”

(22) *Section 903.1.1 Solid fuel fireplaces and appliances* is added to read as follows:

“903.1.1 Solid fuel fireplaces and appliances. Solid fuel fireplaces, fireplace stoves and solid-fuel-type room heaters shall also comply with Section 5-110 of the City Code.”

(23) *Section 903.3 Unvented gas logs heaters*, is deleted in its entirety:

~~**903.3 Unvented gas log heaters.** An unvented gas log heater shall not be installed in a factory built fireplace unless the fireplace system has been specifically tested, listed and labeled for such use in accordance with UL 127.~~

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

Mayor

ATTEST:

City Clerk

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

Mayor

ATTEST:

City Clerk