

ARTICLE 5 – INTERNATIONAL MECHANICAL CODE

Sec. 5.A.010. - Board of appeals—Created; composition.

There shall be and is authorized a board of appeals of air conditioning, refrigeration and warm air heating, which shall consist of the Director of the Metropolitan Area Building and Construction Department ("MABCD") or his duly authorized representative, who shall serve as secretary of the board, and seven other members, as follows:

- (1) A refrigeration contractor (appointed by the City);
- (2) A journeyman heating and air conditioning mechanic (appointed by the County);
- (3) A boiler contractor (appointed by the City);
- (4) A master air conditioning and warm air heating contractor (appointed by the County);
- (5) A journeyman boiler (appointed by the City);
- (6) A public at large (appointed jointly);
- (7) A mechanical engineer (appointed by the County).

Sec. 5.A.020. - Board of appeals—Qualifications and appointment of members.

The contractor and Journeyman members of the Board shall, in the first instance, are those who have been established in their respective business so as to be qualified to obtain their certificates and licenses as provided in Sections 5.1.270 and 5.1.330 of this Code. The mechanical engineer and architect members shall be licensed by the state to engage in business in their respective fields.

Sec. 5.A.030. - Board of appeals— Acting as arbitration board.

The Board shall act as an arbitration board in deciding any question which may arise between an air conditioning, refrigeration, warm air heating and boiler contractors or Journeyman and the inspector. When conditions exist which are not covered by this Code, or where it would be impracticable to follow this Code, the Board may grant a variance from the strict application of this Code. Those individuals asking for any such concession must make their request in writing, and give a complete description of all items involved. If the request is granted, a copy of the whole transaction must be placed on file in the Office of the MABCD.

The Board shall pass upon materials or methods of installation not sufficiently provided for in this Code, and accept or reject the same as complying with the intent of the Code.

The Board is expressly given the responsibility of studying and making such rules as are required for new products being offered for use in air conditioning, refrigeration, warm air heating and boiler systems. All such rules shall be in writing and filed in the Office of the MABCD.

~~Sec. 5.A.040. - Mechanical inspectors—Appointment—Duties~~

~~Within the jurisdiction of the MABCD, all commercial mechanical inspectors shall have had a minimum of five (5) years of practical experience in this field as a Journeyman or Master and hold a current mechanical certificate and shall be duly appointed pursuant to the requirements set forth by the Director of the MABCD. Upon satisfaction of the minimum qualifications for a commercial mechanical inspector, the Director of the MABCD shall have the discretion to appoint the employee as a combination inspector.~~

Article 5, Section 1 – INTERNATIONAL MECHANICAL CODE

Sec. 5.1.010. - Adoption of the International Mechanical Code.

The International Mechanical Code, as published by the International Code Council, Inc. 2015~~2~~ Edition, excluding ~~appendix B, and~~ sections 301.2, 301.3, 507.14-3.1.1, 802.8, ~~and~~ 1101.10, ~~and 1102.3~~, is hereby adopted and incorporated herein by reference, subject to such amendments thereto as are set forth hereinafter. Section 101.1 of the International Mechanical Code, as adopted by reference herein, shall be amended to read as follows: Title. These regulations shall be known as the Wichita – Sedgwick County Unified Building and Trade Code ("UBTC"), Article 5 International Mechanical Code, hereinafter referred to as "this Code".

Sec. 5.1.020. - Scope.

Section 101.2 of the International Mechanical Code shall be amended to read as follows:

This Code shall regulate the design, installation, maintenance, alteration and inspection of mechanical systems that are permanently installed and utilized to provide control of environmental conditions and related processes within buildings. This Code shall ~~also regulate the design, installation, maintenance, alteration and inspection of those~~ mechanical systems, ~~system components, equipment and appliances specifically addressed herein that are permanently installed and utilized to provide control of environmental conditions and related processes within~~ buildings. This Code shall also regulate those mechanical systems, system components, equipment and appliances specifically addressed herein. The installation of fuel gas equipment, fuel gas fired appliances and gas-fired appliance venting systems shall be regulated by the 2015 International Fuel Gas Code to the extent it is incorporated by the 2015 International Mechanical Code. Exception: Detached one- and two- family dwellings (townhouses) not more than three stories high with separate means of egress and their accessory structures shall comply with ~~the 2006 International Residential Code Article 5, Section 4 of the Unified Building and Trade Code.~~

Sec. 5.1.030. - Building Code provisions.

Section 101.2.2 of the International Mechanical Code shall be created to read as follows:

The provisions of Article 2 of this Code shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures.

Sec. 5.1.040. - Electrical.

Section 101.2.3 of the International Mechanical Code shall be created to read as follows:

The provisions of Article 4 of this Code shall apply to the installation of electrical systems, including alterations, repairs, replacement equipment, appliances, fixtures, fittings and appurtenances thereto.

Sec. 5.1.050. - Gas.

Section 101.2.4 of the International Mechanical Code shall be created to read as follows:

The provisions of Article 3 of this Code shall apply to the installation of gas piping from the point of delivery, gas appliances and related accessories as covered in this Code. These requirements apply to gas piping systems extending from point of delivery to the inlet connections of appliances and the installation and operation of residential and commercial gas appliances and related accessories.

Sec. 5.1.060. - Plumbing.

Section 101.2.5 of the International Mechanical Code shall be created to read as follows:

The provisions of Article 3 of this Code shall apply to the installation, alterations, repairs and replacement of plumbing systems, including equipment, appliances, fixtures and appurtenances, and where connected to water or sewage systems and all aspects of a medical gas system.

Sec. 5.1.070. - Fire prevention.

Section 101.2.6 of the International Mechanical Code shall be created to read as follows:

The provisions of Title 15 of the Code of the City of Wichita shall apply within the city limits of the City of Wichita and Chapter 12 of the Sedgwick County Code within the Sedgwick County jurisdiction shall otherwise apply to matters affecting or relating to structures, processes and premises from the hazard of fire and explosion arising from storage, handling or use of structures, materials or devices; from conditions hazardous to life, property or public welfare in the occupancy of structures or premises; and from the construction, extension, repair, alteration or removal of alarm systems and fire hazards in the structure or on the premises.

Sec. 5.1.075. – Referenced Codes and Standards.

Section 102.8 of the International Mechanical Code shall be created to read as follows:

The codes and standards referenced herein shall be those that are listed in Chapter 15, excluding all references to the 2015 International Energy Conservation Code, and such referenced codes and standards shall be considered as 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.

Sec. 5.1.080. - Investigation fee. See Sec. 2.4.020 of this Code.

Sec. 5.1.090. – Permit fee. See Article 1.2 of this Code.

Sec. 5.1.100. - Corrections and re-inspections.

Section 107.3.32 of the International Mechanical Code is amended to read as follows:

Corrections shall be completed and work rescheduled for inspection within thirty (30) days from the date of the correction notice. Corrections not completed within the thirty (30) days shall be liable for the violation penalties set forth in Article 1.2 of this Code. Access shall be provided for re-inspection by the property owner.

Sec. 5.1.110. - Stop work orders.

Section 108.5 of the International Mechanical Code shall be amended to read as follows:

Upon notice from the code official that mechanical work is being done contrary to the provisions of this Code or in a dangerous or unsafe manner, such work shall immediately cease. Such notice shall be in writing and shall be given to the owner of the property, or to the owner's agent, or to the person doing the work, or shall be posted in writing at the site of the work. The notice shall state the conditions under which work is authorized to resume. Where an emergency exists, the code official shall not be required to give a written notice prior to stopping the work. Any person who shall continue any work on the system after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be liable for the violation penalties set forth in Article 1.2 of this Code.

Sec. 5.1.120. - Electrical controls.

Section 301.~~107~~ of the International Mechanical Code shall be amended to read as follows:

Electrical wiring, controls, and connection to equipment and appliances regulated by this Code shall be in accordance with Article 4 of this Code.

Sec. 5.1.130. - Plumbing connections.

Section 301.~~118~~ of the International Mechanical Code, as adopted by reference herein, shall be amended to read as follows:

Potable water supply, building drainage system connections to equipment, and appliances regulated by this Code shall be in accordance with Article 3 of this Code.

Sec. 5.1.140. - Prohibited locations.

Section 303.3 of the International Mechanical Code, as adopted by reference herein, shall be amended to read as follows:

Fuel fired appliances shall not be located in, or obtain combustion air from, any of the following rooms or spaces: 1. Sleeping rooms, 2. Bathrooms, Storage closets, Surgical rooms. Exception:

This section shall not apply to the following appliances:

1. Direct-vent appliances that obtain all combustion air directly from the outdoors.
2. Solid fuel appliances, provided that the room is not a confined space and the building is not of unusually tight construction.

3. Appliances installed in a dedicated enclosure in which all combustion is taken directly from the outdoors or other approved areas.

Access to such enclosure shall be through a solid door, equipped with an approved self-closing device, and weather-stripped in accordance with the exterior door and leakage requirements of the International Energy Conservation Code.

Sec. 5.1.150. - Clearances from grade.

Section 304.10 of the International Mechanical Code, as adopted by reference herein, shall be amended to read as follows:

Equipment and appliances installed at grade level shall be supported on a level concrete slab or other approved material extending above adjoining grade or shall be suspended a minimum of 6 inches (152 mm) above adjoining grade. Supports for heat pumps shall be at least 3" and conform to the manufactures specifications.

Sec. 5.1.160. - Equipment and appliances on roofs or elevated structures.

Section 306.5 of the International Mechanical Code is amended to read as follows:

Where equipment and appliances requiring access are installed on roofs or elevated structures, at a height exceeding 16 feet (4877 mm), such access shall be provided by a permanent approved means of access, the extent of which shall be a minimum eight (8) feet above grade to the equipment and appliances' level service space. Such access shall not require climbing over obstructions greater than 30 inches (762 mm) high or walking on roofs having a slope greater than 4 units vertical in 12 units horizontal (33-percent slope).

Permanent ladders installed to provide the required access shall comply with the following minimum design criteria:

1. The side railing shall extend above the parapet or roof edge not less than 30 inches (762 mm).
2. Ladders shall have a rung spacing not to exceed 14 inches (356 mm) on center.
3. Ladders shall have a toe spacing not less than 6 inches (152 mm) deep.
4. There shall be a minimum of 18 inches (457 mm) between rails.
5. Rungs shall have a minimum 0.75-inch (19 mm) diameter and be capable of withstanding 300-pound (136.1 kg) load.
6. Ladders over 30 feet (9144 mm) in height shall be provided with offset sections and landings capable of withstanding 100 pounds (488.2 kg/m²) per square foot.
7. Ladders shall be protected against corrosion by approved means. Catwalks installed to provide the required access shall be not less than 24 inches (610 mm) wide and shall have railings as required for service platforms.

Exception: This section does not apply to Group R-3 occupancies.

Sec. 5.1.170. - Auxiliary and secondary drain systems.

Section 307.2.3 of the International Mechanical Code is amended to read as follows:

In addition to the requirements of Section 307.2.1, where damage to any building components could occur as a result of overflow from the equipment primary condensate removal system, one of the following methods shall be provided for each cooling coil or fuel fired appliance that produces condensate and is located above a finished ceiling or furred space:

1. An auxiliary drain pan with a separate drain shall be provided under the coils on which condensation will occur. The auxiliary drain pan shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The pan shall have a minimum depth of 1 ½ inches (38 mm), shall not be less than the unit or coil dimensions in width and length and shall be constructed of corrosion resistant material. Galvanized sheet steel pans shall have a minimum thickness of not less than 0.0236 inch (0.6010 mm) (No. 24 gage). Nonmetallic pans shall have a minimum thickness of not less than 0.0625 inch (1.6 mm).
2. A separate overflow drain line shall be connected to the drain pan provided with the equipment. Such overflow drain shall discharge to a conspicuous point of disposal to alert the occupants in the event of a stoppage in the primary drain. The overflow drain line shall connect to the drain pan at a higher level than the primary drain connection.
3. An auxiliary drain pan without a separate drain line shall be provided under coils on which condensate will occur. Such pan shall be equipped with a water-level detection device conforming to UL 508 that will shut off the equipment served prior to overflow of the pan. The auxiliary drain pan shall be constructed in accordance with Item 1 of this section.
4. A water-level detection device conforming to UL 508 shall be provided that will shut off the equipment served in the event that the primary drain is blocked. The device shall be installed in the primary drain, the overflow drain line, or in the equipment-supplied drain pan, located at a point higher than the primary drain line connection and below the overflow rim of such pan.

Exception: Fuel fired appliances that automatically shut down operation in the event of a stoppage in the condensate drainage system.

Sec. 5.1.175. – Ventilation Required.

Section 401.2 of the International Mechanical Code is amended to read as follows:

Every occupied space shall be ventilated by natural means in accordance with Section 402 or by mechanical means in accordance with Section 403.

Exception: ASHRAE Standard 62.1-1997 may be substituted for the ventilation requirements of chapter 4 of the 2015 International Mechanical Code.

Sec. 5.1.178. – Duct Installation.

Sec. 5.1.178 – Duct Installation is created to read as follows:

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Exhaust ducts shall be supported at intervals not to exceed 12 feet (3658 mm) vertically or 6 feet (1828.8 mm) horizontally and shall be secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Exhaust duct joints shall be sealed in accordance with Article 5.4.180 of the UBTC. Exhaust ducts shall not be connected with sheet-metal screws or fastening means which extend into the duct.

Sec. 5.1.179. – Specified Length.

Sec. 5.1.179 – Specified Length is created to read as follows:

The maximum length of the exhaust duct shall be 45 feet (13716mm) from the connection to the transition duct from the dryer to the outlet terminal. Where fittings are used, the maximum length of the exhaust duct shall be reduced in accordance with Table M1502.4.5.1 of the 2015 International Mechanical Code. The maximum length of the exhaust duct does not include the transition duct.

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Sec. 5.1.180. - Grease duct test.

Section 506.3.~~2.53.1~~ of the International Mechanical Code is amended to read as follows:

Prior to the use or concealment of any portion of a grease duct system, a leakage test shall be performed in the presence of the official. Ducts shall be considered to be concealed where installed in shafts or covered by coatings or wraps that prevent the ductwork from being visually inspected on all sides. The permit holder shall be responsible to provide the necessary equipment and perform the grease duct leakage test. A light test or an approved equivalent test method shall be performed to determine that all welded and brazed joints are liquid tight. A light test shall be performed by passing a halogen lamp having a power of not less than 100 watts through the entire section of the ductwork to be tested. The lamp shall be open so as to emit light equally in all directions perpendicular to the duct walls. A test shall be performed for the entire duct system, including the hood-to-duct connection. The ductwork shall be permitted to be tested in sections provided that every joint is tested. For listed factory-built grease ducts, this test shall be limited to duct joints assembled in the field and shall exclude factory welds.

Sec. 5.1.190. - Grease duct enclosure.

Section 506.3.~~10.1~~ of the International Mechanical Code is amended to read as follows:

Commercial kitchen grease ducts constructed in accordance with Section 506.3.1 shall be permitted to be enclosed in accordance with the International Building Code requirements for shaft construction. Such grease duct systems and type one hoods shall have a clearance to combustible construction of not less than 18 inches (457 mm), and shall have a clearance to noncombustible construction and gypsum wallboard attached to noncombustible structures of not less than 3 inches (76 mm). Duct enclosures shall be sealed around the duct at the point of penetration and vented to the outside of the building through the use of weather-protected openings.

Exceptions:

1. The shaft enclosure provisions of this section shall not be required where a duct penetration is protected with a through-penetration fire stop system classified in accordance with ASTM E 814 and having an "F" and "T" rating equal to the fire-resistance rating of the assembly being penetrated and where the surface of the duct is continuously covered on all sides from the point at which the duct

penetrates a ceiling, wall, or floor to the outlet terminal with a classified and labeled material, system, method of construction or product specifically evaluated for such purpose, in accordance with ASTM E 2336. Exposed duct wrap systems shall be protected where subject to physical damage.

2. The shaft enclosure provisions of this section shall not be required where a duct penetration is protected with a through-penetration fire stop system classified in accordance with ASTM E 814 and having an "F" and "T" rating equal to the fire resistance rating of the assembly being penetrated and where a prefabricated grease duct enclosure assembly is protected on all sides from the point at which the duct penetrates a ceiling, wall, or floor to the outlet terminal with a classified and labeled prefabricated system specifically evaluated for such purposes in accordance with UL 2221.

3. A duct enclosure shall not be required for a grease duct that penetrates only a nonfire-resistance-rated roof/ceiling assembly.

Sec. 5.1.200. - Operation.

Section 507.1.1 of the International Mechanical Code, as adopted by reference herein, shall be amended to read as follows:

Type 1 hood systems shall be designed and installed to automatically activate the exhaust fan whenever cooking operations occur. The activation of the exhaust fan shall occur through an interlock with the cooking appliances, by means of heat sensors or by means of other approved methods. The system shall be designed by a registered design professional and submitted for plan review with the complete construction document package.

Sec. 5.1.210. - Corridors.

Section [B] 601.2.1 of the International Mechanical Code, as adopted by reference herein, shall be created to read as follows:

A corridor shall not be used as a plenum or integral part of a duct system to convey air to or from one part of a building to another if the corridor is required to be of fire-resistive construction by the Code. However, air may be supplied to such a corridor for the purpose of comfort conditioning, ventilation, exhausting or other reasons and may be returned or exhausted provided all such supply, return or exhaust openings be protected as required by other parts of this Code and not be in violation of this provision.

Exception: Make up air for exhaust from rest rooms and janitors closets opening on to and adjacent to a corridor of fire resistant construction, may be transferred from the corridor provided such transfer means are protected in the manner prescribed by other parts of this Code and such corridor is supplied directly, or through the system supplying the corridor, with outdoor air at a rate greater than the rate of makeup air taken from the corridor.

Sec. 5.1.215. – Metallic Ducts.

Section 603.4 of the International Mechanical Code is amended to read as follows:

All metallic ducts shall be constructed as specified in the SMACNA HVAC Duct Construction Standards - Metal and Flexible.

Sec. 5.1.220. - Return air systems.

Section 606.2.1 of the International Mechanical Code, as adopted by reference herein, shall be amended to read as follows:

Smoke detectors shall be installed in the return or the supply of air systems with a design capacity greater than 2,000 cfm (0.9 m³/s). On the return side it shall be located in the return air duct or plenum upstream of any filters, exhaust air connections, outdoor air connections, or decontamination equipment and appliances. On the supply side the smoke detector shall be located before the first branch or take off.

Exception: Smoke detectors are not required in the return or supply systems where all portions of the building served by the air distribution system are protected by area smoke detectors connected to a fire alarm system, approved by fire department, and the area smoke detection system shall comply with Section 606.4.

Sec. 5.1.230. - Hydronic piping—Scope.

Section 1201.1 of the International Mechanical Code, as adopted by reference herein, shall be amended to read as follows:

The provisions of this chapter shall govern the construction, installation, alteration and repair of hydronic piping systems. This chapter shall apply to hydronic piping systems that are part of heating, ventilation and air-conditioning systems. Such piping systems shall include steam, hot water, chilled water, steam condensate and ground source heat pump loop systems. Potable cold and hot water distribution systems shall be installed in accordance with Article 3 of this Code.

Sec. 5.1.240. - Classifications.

Class "A-C" (air conditioning and warm air heating) This class includes air handling equipment and air distributions, chilled water systems, warm air heating systems whereby heating is accomplished by distributing heated air by forced or gravity circulation or by radiation, including controls and other items pertaining thereto.

Class "RF" (refrigeration) - This class includes refrigeration systems and refrigeration equipment of all types.

Class "Journeyman sheet metal installer" is a classification for any individual working for a licensed contractor as defined in Sec. 1.250 and who is duly certified as herein set forth to engage in such occupation.

Journeyman sheet metal installer is limited to perform the following types of installations

- (1) The placement and installation of the furnace, air conditioning, or other air handling equipment, this does not include any connections of line voltage electricity, fuel gas piping or refrigeration piping;
- (2) The installation of the complete air distribution system as defined in this code;
- (3) The installation of the products of combustion venting systems as defined in this Code.

Exception 1: "Journeyman residential mechanic" is a limited classification for an individual working for a contractor of a class as set forth in Sec. 1.250 and who is duly certified as herein set forth to engage in such occupation.

Journeyman residential mechanic is limited to perform the following types of installations:

1. One and two family residential new construction only;
2. The placement and installation of the furnace, air conditioning or other air handling equipment that pertains to residential use. This does not include gas piping or line voltage electricity.

Sec. 5.1.250. - Definitions.

Unless otherwise specified, the following terms, as used in this chapter, mean as follows:

'Apprentice' means an individual who works as an employee in training under the direct supervision of a Journeyman or Master. An Apprentice is not a certified individual.

'Board' means the board of appeals appointed for air conditioning, refrigeration, warm air heating, and boilers. Their purpose is reviewing code interpretations taken by the building code enforcement division, granting or denying variances requested from the code, other matters pertaining to mechanical, reviewing license applications and license suspensions and revocation.

'Code' means the International Mechanical Code as adopted by the MABCD, as the context of this Article may require.

'Direct supervision' means that the apprentice is limited to the same structure and/or building site as the Journeyman or Master, except in the case of one- and two-family residential development, where the apprentice may be on the job site within 100 feet of where the Journeyman or Master is working.

'Field Experience' means working under the direct supervision of a person having a valid Journeyman or Master certificate or attending trade related schooling. No more than one year of the requirement may be satisfied by trade related schooling. Schooling shall consist of a minimum of 240 hours classroom training.

'Journeyman' means an individual working for a licensed contractor as defined in Sec. 1.250 and engaged principally in the occupation of erecting, installing, altering, repairing, servicing or maintaining in any or all of the following classifications and who is duly certified as herein set forth to engage in such occupation: A Journeyman is responsible for the supervision of any apprentice assigned to work with him.

'Licensed contractor' means a person, firm, partnership, corporation, limited liability company, association or combination thereof, who undertakes or offers to undertake for another, for hire, the planning, laying out, supervising and installing or making additions, alterations, and repairs in the installation of mechanical heating, ventilation, refrigeration and air conditioning systems.

'Licensed trade' or *'trade'* means the mechanical, electrical, plumbing or gas fitting trade, as the context of this article may require.

'Master' means an individual that holds a Master certificate issued pursuant to this article evidencing such person to be qualified to lay out, install, maintain and repair work in his area of expertise. A Master is responsible for the supervision of any apprentice assigned to work with him.

'Qualified Master' means an individual who holds a Master certificate issued pursuant to this article evidencing such person to be qualified to control and have authority of all technical work performed under the authority of the licensed contractor's enterprise, and assures quality control and is responsible for complying with all applicable laws, codes and regulations. An individual shall not be the Qualified Master for more than one licensed contractors enterprise unless such individual receives approval from the Director of the MABCD or an authorized representative thereof.

Sec. 5.1.260. - Apprentice limitations.

(a) Apprentices shall be permitted to work when accompanied by and under the direct supervision of a Master or Journeyman, who shall be responsible for the mechanical work performed by the Apprentice. At any given time, there shall be a maximum of two Apprentices per one Master or one Journeyman for all one or two-family dwelling residential job sites. There shall be a maximum of three Apprentices per one Master or one Journeyman for all triplex or greater density residential job sites or commercial job sites. The on-site Master or Journeyman shall be responsible for maintaining the ratio of Master/Journeyman to Apprentices as required by this section. If an Apprentice works without the required supervision, both the Qualified Master, and the Apprentice may be held responsible for violation of this section.

(b) It shall be unlawful for any Qualified Master, to allow or permit an uncertified individual to engage in the business of erecting, installing, altering, repairing, servicing or maintaining air conditioning, warm air heating or refrigeration.

Sec. 5.1.270. - Applicant requirements, examinations; issuance of certificates.

Any person desiring to engage in or work at the business of air conditioning, refrigeration or warm air heating either as a Master or as a Journeyman, as defined in Sec. 5.1.250 of this Code, or to do such work shall submit the prescribed application form to the Office of the MABCD for a certificate, and if the applicant meets the following requirements or is approved by the Board, shall at such time and place as directed be subjected to an examination as to their qualifications

The qualifications are as follows:

- a. A minimum score of seventy-five percent on the "Block Examination" Master/Journeyman Mechanical Certificate, which is administered by Prometric, or
- b. A minimum score of seventy-five percent on the International Code Council Examination for a Master/Journeyman Mechanical Certificate, which is administered by International Code Council, or
- c. A satisfactory score on any other standard examination to determine the qualification of a Master/Journeyman Mechanical that is approved and adopted by the state of Kansas, pursuant to state law, following the effective date of this Code.

Applicant requirements:

Journeyman Mechanical: One year Field Experience and completion of a technical heating and air conditioning school, or two years Field Experience. Schooling shall consist of a minimum of 240 hours.

Master Mechanical: Two years as Journeyman or a minimum of four years Field Experience."

Sec. 5.1.280. - Fees for examination, certificates, etc.; renewing and expiration of certificates.

(a) The fee for the original certificate of a master mechanical, journeyman mechanical, or sheet metal installer shall be established by the Director of the MABCD to cover the administrative costs of issuing such certificates. This fee shall be paid to the Office of the MABCD when the application for a certificate is made. Individuals not holding a certificate at the beginning of the certificate cycle, who obtain a certificate during such certificate cycle by the standardized test required by K.S.A. 12-1542 and any amendments thereto, will be issued the initial certificate without documentation of continuing education. Such certificate will be issued noting the test provider, specific test type and grade. Such test shall be completed during the certificate cycle. All such certificates shall expire on the thirty-first of December of each odd numbered year. The biennial fee for all certificates shall be established by the Director of the MABCD to cover the administrative cost of issuing such certificates. All such certificates shall be renewed bi-annually upon payment established by the Director of the MABCD to cover the administrative costs of issuing such certificates. All certificates shall expire on the thirty-first day of December of each odd-numbered year and no reduction shall be made for part of the year being elapsed. Any holder of a certificate who fails to renew the same by March 1st after their expiration shall be required to submit one of the following: (1) Proof of passing a new examination in accordance with K.S.A. 12-1541 or; (2) Proof completing an additional 11/2 hours of continuing education for each 3 month period the renewal is late and only when the original certificate was issued pursuant to K.S.A. 12-1542. It is the total responsibility of the certificate holder to assure that his/her certificate has been renewed and is valid.

(b) Individuals passing the examination in the first year of a renewal cycle will need to provide documentation of 12 hours of approved continuing education when renewing their certificate. Not less than 6 hours shall consist of mechanical code education. The continuing education shall be attended during the certificate cycle. Individuals passing the examination in the second year of a renewal cycle will need to provide documentation of 6 hours approved continuing education when renewing their certificate. Not less than 3 hours shall consist of mechanical code education. The continuing education shall be attended during the second year of the certificate cycle. Individuals with an active certificate that passed the examination prior to the first year of the renewal cycle must provide written proof of having completed biennially not less than 12 hours of continuing education approved by the Office of the MABCD. Not less than 6 hours shall consist of mechanical code education. Continuing education shall be provided by the Office of the MABCD or a nationally recognized trade association, community college, technical school, technical college or other provider approved by the Office of the MABCD. All 12 hours of education shall comply with the Office of the MABCD's continuing education guidelines for mechanical.

Sec. 5.1.290. - Owner occupants—Minor repairs.

Regardless of the requirements of other sections of this title, the owner-occupant of a single-family dwelling may obtain permits to repair, replace, or maintain the existing air conditioning, refrigeration, or warm air heating systems in such single-family dwelling and the usual accessory buildings in connection with such dwelling; provided, however, that the owner-occupant shall perform all such work and that the work so performed is in accordance with the Code as verified by an inspection requested by such owner-occupant and performed by the Office of the MABCD. No permit shall be required for minor repairs or alterations which do not exceed two hundred dollars as the price charged for such work, but such work shall comply with all requirements of this Code.

Sec. 5.1.300. - Owner-occupants permit, fee, examination, and requirements.

The owner-occupant of a detached single-family dwelling occupied or to be occupied by the owner-occupant applying for the permit may be permitted to install air-conditioning, refrigeration, and warm air heating systems in the main structure and accessory structures thereto provided all materials are purchased and all labor is performed by the applicant.

Owner-occupants applying for permits for installations as outlined above shall first qualify themselves by successfully passing a simplified open book examination dealing with relevant provisions of this Code. Successful passage of the examination shall qualify the applicant for future permits until the time of adoption of another edition of this Code.

Prior to permit approval, the applicant shall also submit a plan of the installation drawn in a format acceptable to and drawn in sufficient detail as to satisfy the Director of the MABCD of the overall code compliance of the anticipated installation.

Permit fees shall be as set forth elsewhere in this Code and in Article 2 of this Code provided, however, that each additional inspection owing to detected code deficiencies requiring correction shall be billed at the rate of forty dollars each.

Permits for installations in completely new residences and/or total remodel permits shall be limited to one in three years to each applicant unless a waiver is obtained, upon written application, from the Board.

Sec. 5.1.310. - Revocation of certificates and licenses.

The Board is authorized to cancel and recall the certificate of any air-conditioning, refrigeration, warm air heating or boiler contractor or Journeyman for any or all of the following reasons:

1. Committing of any act in violation of any provision of this Code or any other ordinance of the city or the refusal or failure to comply with any lawful and reasonable order of the Director of the MABCD or inspector.
2. Misrepresentation of a material fact by the applicant in obtaining a certificate.
3. Carelessness or negligence in providing reasonable safety measures for the protection of the public.

The Board is hereby authorized to cancel and recall the license of any air conditioning, refrigeration, warm air heating or boiler contractor for any or all of the following reasons:

1. Abandonment of any contract without legal cause.
2. Diversion of funds or property received for performance or completion of a specific contract or a specific purpose in the performance or completion of any contract, obligation or purpose, or the failure, neglect, or refusal to use such funds or property for the performance or completion of the contract.
3. Committing any act in violation of any provision of this Code or any other ordinance of the city or resolution of the county, or the refusal or failure to comply with any lawful and reasonable order of the Director of the MABCD or inspector.
4. Misrepresentation of a material fact by the applicant in obtaining a license.

5. Failure of any contractor to fully certify all claims for labor and materials used in the performance of any work for which he has been engaged or for which he has been paid.

6. Fraudulent use of the license to obtain a permit for another.

7. Carelessness or negligence in providing reasonable safety measures for the protection of workmen and the public.

8. Failure to obtain permits as required in Sec. 5.1.300 of this Code.

9. Unreasonable delay in the performance and carrying out of any contract.

10. Failure by the licensee to have at least one active member or officer deemed as the Qualified Master, as defined in Sec. 5.1.250 of this Code.

Upon presentation by the Director of the MABCD to the Board charges against any holder of any certificate as set forth in this section, the Board shall fix a time and a place for a meeting to consider such charges and shall notify the holder of such license to be present at such meeting. Such notification shall be in writing and shall be presented to the holder at least five days in advance of the meeting. If upon full hearing of all evidence by the Board, it shall be decided that such holder of a certificate has been guilty of the actions as herein before set forth in this section, then the board shall revoke or suspend the license or certificate of the holder thereof.

When a certificate of a person has been revoked, a new certificate shall not be granted until he or she has corrected the violation in accordance with this Code and shall have made application and shall have passed an examination as required for the original certificate.

Sec. 5.1.320. - Certain persons exempt from license and bond requirements.

Any person, corporation, limited liability company, partnership or similar entity not engaged in the business of heating and/or air conditioning within the scope of this Code who has in his/her regular and permanent employment a person or persons who possess current and valid Journeyman or Master certificates shall be permitted to have such person or persons perform maintenance and repair work on buildings and premises that are owned, leased, operated or managed by him shall be exempt from this Code, as pertains to license or bond, but shall be subject to all other requirements pertaining thereto.

Sec. 5.1.330. - Licenses.

Any authorized individual or entity seeking to engage in the business of mechanical heating, air conditioning or refrigeration shall first designate an individual to be the Qualified Master for their license and then acquire a license from the Office of the MABCD. Each such license shall expire on the thirty-first (31st) day of December of each odd-numbered year, such that the maximum term of any such license may be two (2) years.

Sec. 5.1.340. – Insurance required. See Article 1.4(c) of this Code.

Sec. 5.1.350. - Contractors—Established place of business required. See Article 1.4(a) of this Code.

Sec. 5.1.360. - Contractors—Marking of vehicles. See Article 1.4(b) of this Code.

Sec. 5.1.370. - Truth in advertising requirements. See Article 1.4(d) of this Code.

Sec. 5.1.380. - Compliance with titles, ordinances, laws.

All air conditioning, refrigeration or warm air heating installations shall comply with existing laws and ordinances covering the construction and installation of cooling towers, the use of city water, sanitary and storm sewers, the requirements for recirculation of condenser water, as contained in the following parts of this Code, and any other that may apply:

Water conservation—Title 17 of the Code of the City of Wichita;

Connection to sanitary sewer—Title 16 of the Code of the City of Wichita;

Towers, spires and tanks—Article 2 of this Code;

Gas burning warm air furnaces—Article 2 of this Code;

Ducts and appurtenances—Article 2 of this Code;

Cooling units over public property—Article 2 of this Code;

Gas fittings—Article 3 of this Code.

Sec. 5.1.390. - Electrical and plumbing work.

All electrical work, plumbing and gas fitting done in connection with any work covered by this Code shall be in conformance with Article 3 and Article 4 of this Code, respectively. It is also unlawful for a person holding a license, as set forth in this Code, to operate as a contractor or as a journeyman mechanic to do or otherwise perform any electrical, plumbing or gas fitting work except as provided in this section. Such contractor or mechanic shall be permitted to do all water piping within the system, and make indirect connections to the city sewer, but shall not make direct connections to either the city water system or to city sewers.

It shall be permissible for a holder of a Class A-C or RF certificate to make original installations of package units of a capacity of seven and one-half horsepower or less on the load side of the disconnect means when such is not over five feet from the unit and is within sight thereof. It shall also be permissible for such a person to do all electrical work in connection with maintenance, repairs or replacement on any system from the load side of the disconnect means of the unit. All such electrical work shall conform in all respects to the requirements of Article 4.

Article 5, Section 2 - SOLID FUEL-BURNING EQUIPMENT

Sec. 5.2.010. - Definitions.

The following words, terms and phrases, when used in this chapter, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

(1) *Solid fuel-burning equipment* for the purpose of this chapter, means any factory-built fireplace, including chimney liners, vents and connectors, fireplace inserts (non-gas) and free-standing fireplace stoves which use wood, pellets or coal for fuel.

(2) *Gas fireplace equipment* shall mean gas fireplaces, including chimney liners, vents and connectors, fireplaces with gas starters, and direct or natural vent fireplaces.

(3) *Gas fireplace contractor* shall mean any individual who has been duly qualified by the Office of the MABCD to engage in or work in the trade of installing, repairing or replacing gas fireplace equipment.

(4) *Solid fuel contractor* for the purpose of this chapter, means any individual who has been duly qualified by the Office of the MABCD to engage in or work at the trade of installing, repairing or replacing solid fuel-burning equipment.

Sec. 5.2.020. - Certificate—Examination required.

(a) It is unlawful for any person in the business of installing, repairing or altering solid fuel-burning or gas fireplace equipment in the City or County, as applicable, unless and until a certificate has been obtained therefore, and a license has been issued for such business and a permit has been issued for such work, all in accordance with the provisions of this code. Apprentices shall be permitted to work when accompanied by and under the direct supervision of a master or journeyman solid fuel or gas fireplace contractor, who shall be responsible for the work done by the apprentice. There shall be a maximum of three apprentices per one master or journeyman.

(b) Any person desiring to engage in or work at the business of installing, repairing or altering solid fuel-burning equipment or gas fireplace equipment shall make application to the Office of the MABCD for a certificate.

(c) No certificate shall be issued to any individual who is not certified by the National Fire Institute in one or more of the following areas:

(1) NFI Gas Specialist;

(2) NFI Wood-burning Specialist;

(3) NFI Pellet Specialist.

(d) A journeyman's certificate shall not be issued to any individual with less than one year's experience as an apprentice.

Individuals wanting a master's certificate for gas fireplace and solid fuel shall be required to be certified by the National Fire Institute as both a gas and wood-burning specialist.

(e) Individuals holding a journeyman or master's mechanical (A-C) certificate are not required to obtain a SF-P, SF-W or GF certificate to install solid fuel or gas fireplace equipment.

Sec. 5.2.030. - Certificate—Classification.

(a) The certificate issued to an individual wishing to engage in the business of installing, repairing or replacing solid fuel wood-burning equipment shall be known as a class 'SF-W' certificate and shall authorize such individual, upon his complying with Section A.2.060, to engage in such business.

(b) The certificate issued to an individual wishing to engage in the business of installing, repairing or replacing solid fuel pellet-burning equipment shall be known as a class 'SF-P' certificate and shall authorize such individual, upon his complying with Section A.2.060, to engage in such business.

(c) The certificate issued to an individual wishing to engage in the business of installing, repairing or replacing gas fireplace equipment shall be known as a class 'GF' certificate and shall authorize such individual, upon his complying with Section A.2.060, to engage in such business.

(d) It shall be unlawful for any individual or contractor to engage in the business of installing, repairing or replacing solid fuel-burning equipment in the city or county, as applicable, unless and until a certificate has been obtained therefor and a license has been issued for such business and a permit has been issued for such work, all in accordance with the provisions of the Code.

(e) It shall be unlawful for any individual or contractor to engage in the business of installing, repairing or replacing gas fireplace equipment, unless and until a certificate has been obtained therefor and a license has been issued for such business and a permit has been issued for such work, all in accordance with the provisions of the Code.

Sec. 5.2.040. - Certificates—Fees—Expiration—Duration.

(a) The fee for each examination and original certificate of class 'SF-W', 'SF-P' or 'GF' shall be established by the Director of the MABCD to cover the administrative costs of issuing such certificates. All such certificates shall be renewed bi-annually upon payment of a fee established by the Director of the MABCD to cover the administrative costs of issuing such certificates. All certificates shall expire on the thirty-first day of December of each odd-number year and no reduction shall be made for part of the year being elapsed. Certificates which have not been renewed by March 1st after their expiration may be subject to reexamination and/or board appearance prior to reissuance of a certificate.

(b) All applicants for renewal must provide their current NFI certificate as required in Section 5.2.20 of this Code.

Sec. 5.2.050. - Application of related provisions of this code and additional codes adopted by reference.

All solid fuel-burning equipment and gas fireplace equipment installations, repairs or replacements shall comply with existing laws and ordinances as contained in the following parts of this Code and any other that may apply:

Mechanical Code - Article 5 of this Code;

Plumbing Code – Article 3 of this Code;

Electrical Code - Article 4 of this Code;

Building Code – Article 2 of this Code.

Sec. 5.2.060. - License requirement. See Article 1.2 of this Code

| Sec. 5.2.070. – Insurance required. See Article 1.4(c) of this Code.

Sec. 5.2.080. - Truth in advertising requirements. See Article 1.4(d) of this Code.

Article 5, Section 3 - PREFABRICATED ASSEMBLIES

Sec. 5.3.010. - Definitions.

The following definitions shall apply in the interpretation of this chapter:

- (1) "Prefabricated assembly" means a structural unit, the integral parts of which have been built up or assembled prior to incorporation in the building or to being erected as a building unit.
- (2) "Approved agency" means an established and recognized agency regularly engaged in conducting tests or furnishing inspection services, when such agency has been approved by the Director of the MABCD.

Sec. 5.3.020. - Certificate of approval.

A certificate of approval by an approved agency shall be furnished with every prefabricated assembly, except where the assembly is readily accessible to inspection at the site. The certificate of approval shall certify that the assembly in question has been inspected and meets all the requirements of Article 5 of this Code.

Sec. 5.3.030. - Field erection.

Placement of prefabricated assemblies at the building site shall be inspected by the mechanical inspector to determine compliance herewith.

Sec. 5.3.040. - Master mechanic's certificate or approved agency certification.

The installation of air conditioning and warm air heating equipment within or on any prefabricated assembly to be erected within the City or County, if applicable, shall be performed under the supervision of a person who has secured a master mechanic's certificate as set forth in Sec. 1.330, or shall have been factory installed and inspected by an agency approved by the building official.

Sec. 5.3.050. - Permits and fees.

Permits are to be obtained under Article 1.2 of this Code.

Sec. 5.4.010. – Scope.

Section M1201.1 of the International Residential Code is amended to read as follows:

The provisions of Chapters 12 through 24 of ~~the 2015~~²⁰¹⁹ International Residential Code excluding sections M1308.2.1, M1308.2.2, M1308.2.3, M1411.8, M1506.2, and Chapter 20, shall regulate the design, installation, maintenance, alteration and inspection of mechanical systems that are permanently installed and used to control environmental conditions within buildings. These Chapters shall also regulate those mechanical systems, system components, equipment and appliances specifically addressed in this Code.

Sec. 5.4.020 – Ground Clearance.

Section M1305.1.4.1 of the International Residential Code is amended to read as follows:

Equipment and appliances installed at grade level shall be supported on a level concrete slab or other approved material extending above adjoining grade or shall be suspended a minimum of six (6) inches (152 mm) above adjoining grade. Supports for heat pumps shall be at least three (3) inches and conform to the manufacturer's specifications.

Sec. 5.4.030 – Appliances Clearance.

Section M1306.1 of the International Residential Code is amended to read as follows:

Appliances shall be installed with the clearances from unprotected combustible materials as indicated on the appliance label and in the manufacturer's installation instructions. Standard Installation Clearances for Unlisted Heat-Producing Appliances shall be in accordance with Table 3-1 as follows:

Table 3-1 shall be created as follows:

TABLE 3-1 - Standard Installation Clearances in Inches for Unlisted Heat-Producing Appliances
See Section 304.0.

In × 25.4 = mm

RESIDENTIAL-TYPE APPLIANCES		APPLIANCE				
	FUEL	ABOVE TOP OF CASING OR APPLIANCE	FROM TOP AND SIDES OF WARM-AIR BONNET OR PLENUM	FROM FRONT	FROM BACK	FROM SIDES
BOILERS AND WATER HEATERS¹¹						
Steam Boilers – 15psi (103.4 kPa)	Automatic oil or comb. gas-oil	6		24	6	6
Water Boilers - 250°F (121°C)	Automatic Gas	6		18	6	6
Water Heaters - 200°F (93°C) All water walled or jacketed	Solid	6		24	6	6
FURNACES – CENTRAL OR HEATERS¹¹						
Electric Central Warm-Air Furnaces	Automatic oil or comb. gas-oil	6 ²	6 ²	24	6	6
Gravity, Upflow, Downflow, Horizontal and	Automatic gas	6 ²	6 ²	18	6	6

Duct Warm Air - 250°F (121°C) max.	Solid	18 ²	18 ²	48	18	18
	Electric	6 ²	6 ²	18	6	6
FURNACES – FLOOR						
For Mounting in Combustible Floors	Automatic oil or comb. gas-oil	36		12	12	12
	Automatic gas	36		12	12	12
HEAT EXCHANGERS						
Steam-15 psi (103.4 kPa) max. Hot Water - 250° (121°C) max.	1	1	1	1	1	1
ROOM HEATERS ⁴						
Circulating Type, Radiant or Other Type	Oil or Solid	36		24	12	12
	Gas	36		24	12	12
	Oil or Solid	36		36	36	36
	Gas	36		36	18	18
	Gas with double metal or ceramic back	36		36	12	18
Fireplace Stove	Solid	48 ⁵		54	48 ⁵	48 ⁵
RADIATORS						
Steam or Hot Water ⁶		36		6	6	6
RANGES -COOKING STOVES					Firing Side	Opp. Side
	Oil	30 ⁷		9	24	18
	Gas	30 ⁷		6	6	6
	Solid Clay- Lined	30 ⁷		24	24	18
	Firepot	30 ⁷		36	36	18
	Electric	30 ⁷		6	6	6
INCINERATORS						
Domestic Types		36 ⁸		48	36	36
COMMERCIAL INDUSTRIAL-TYPE APPLIANCES ANY AND ALL PHYSICAL SIZES EXCEPT AS NOTED ¹¹		APPLIANCE				
	FUEL	ABOVE TOP OF CASING OR	FROM TOP AND SIDES OF WARM-AIR BONNET OR	FROM FRONT	FROM BACK ⁹	FROM SIDES ⁹

		APPLIAN CE	PLENUM			
BOILERS AND WATER HEATERS						
100 cu. ft. (2.832 m ³) or less	All fuels	18		48	18	18
Steam, any pressure of 50 psi (345 kPa) or less Any size	All fuels	18		48	18	18
UNIT HEATERS						
Floor Mounted or Suspended – any size	Steam or hot Water	1			1	1
	Oil or comb. gas- oil	6		24	18	18
Suspended – 100 cu. ft. (2.832 m ³) or less	Gas	6		18	18	18
Suspended – 100 cu. ft. (2.832 m ³)	All fuels	18		48	18	18
Floor Mounted – any size	All fuels	18		48	18	18
RANGES – RESTAURANT –TYPE						
Floor Mounted	All fuels	18		48	18	18
OTHER LOW-HEAT INDUSTRIAL APPLIANCES						
Floor Mounted or Suspended	All fuels	18	18	48	18	18
Boilers and Water Heaters						
Over 50 psi (345 KPa)	All fuels	48		96	36	36
Over 100 cu. ft. (2832 m ³)						
OTHER MEDIUM-HEAT INDUSTRIAL APPLIANCES						
All sizes	All fuels	48	36	96	36	36
INCINERATORS						
All sizes		48		96	36	36
HIGH-HEAT INDUSTRIAL APPLIANCES						
All sizes	All fuels	180		360	120	120

Footnotes for Table 3-1

1. The minimum dimension shall be that necessary for servicing the appliance, including access for cleaning and normal care, tube removal, etc.
 2. For a listed oil, combination gas-oil, gas, or electric furnace, this dimension may be two (2) inches (51 mm) if the furnace limit control cannot be set higher than 250°F (121°C), or this dimension may be one (1) inch (25.4 mm) if the limit control cannot be set higher than 200°F (93°C), or the appliance shall be marked to indicate that the outlet air temperature cannot exceed 200°F (93°C).
 3. The dimension may be six (6) inches (152 mm) for an automatically stoker-fired forced-warm-air furnace equipped with 250°F (121°C) limit control and with barometric draft control operated by draft intensity and permanently set to limit draft to a maximum intensity of 0.13 inch (3.3mm) water gauge.
 4. Unlisted appliances shall be installed on noncombustible floors and may be installed on protected combustible floors. Heating appliances approved for installation on protected combustible flooring shall be so constructed that flame and hot gases do not come in contact with the appliance base. Protection for combustible floors shall consist of four (4) inch (102 mm) hollow masonry covered with sheet metal at least 0.021 inch (0.53 mm) thick (No. 24 manufacturer's standard gauge). Masonry shall be permanently fastened in place in an approved manner with the ends unsealed and joints matched so as to provide free circulation of air through the masonry. Floor protection shall extend twelve (12) inches (305 mm) at the sides and rear of the appliance, except that at least eighteen (18) inches (457 mm) shall be required on the appliance-opening side or sides measured horizontally from the edges of the opening.
 5. The forty-eight (48) inch (1219 mm) clearance may be reduced to thirty-six (36) inches (915 mm) when protection equivalent to that provided by (a)—(g) of Table 3-2 is applied to the combustible construction.
 6. Steam pipes and hot water heating pipes shall be installed with a clearance of at least one (1) inch (25 mm) to all combustible construction or material, except that at the points where pipes carrying steam at not over fifteen (15) pounds gauge pressure (103.4 kPa) or hot water that emerges from a floor, wall, or ceiling, the clearance at the opening through the finished floorboards or wall-ceiling boards may be reduced to not less than one-half (½) inch (12.7 mm). Each such opening shall be covered with a plate of noncombustible material. Such pipes passing through stock shelving shall be covered with not less than one (1) inch (25.4 mm) of approved insulation. Wood boxes or casing enclosing uninsulated steam or hot water heating pipes or wooden covers to recesses in walls in which such uninsulated pipes are placed shall be lined with metal or insulating millboard. Where the temperature of the boiler piping does not exceed 160°F (71°C), the provisions of this table shall not apply. Coverings or insulation used on steam or hot water pipes shall be of material suitable for the operating temperature of the system. The insulation or jackets shall be of noncombustible materials, or the insulation or jackets and lap-seal adhesives shall be tested as a composite product. Such composite product shall have a flame-spread rating of not more than twenty-five (25) and a smoke-developed rating not to exceed fifty (50) when tested in accordance with UBC Standard No. 42-1.
 7. Thirty (30) inches to combustible material or metal cabinets, or if the underside of such combustible material or metal cabinet is protected with insulating millboard at least one-quarter (¼) inch (6.4 mm) thick covered with sheet metal of not less than 0.013 inch (0.33 mm) (No. 28 gauge), the distance may be reduced to twenty-four (24) inches (610 mm).
 8. Clearance above charging door shall be at least forty-eight (48) inches (1.219 mm).
 9. If the appliance is encased in brick, the eighteen (18) inch (457 mm) clearance above and at the sides and rear may be reduced to twelve (12) inches (305 mm).
 10. If the appliance is encased in brick, the clearance above may be reduced to thirty-six (36) inches (914 mm) and at the sides and rear may be reduced to eighteen (18) inches (457 mm).
 11. A central heating boiler or furnace shall be installed in accordance with the manufacturer's instructions and shall be installed on a floor of noncombustible construction with noncombustible flooring and surface finish and with no combustible material against the underside thereof, or on fire-resistive slabs or arches having no combustible material against the underside thereof.
- Exception No. 1: Appliances listed for installation on a combustible floor.

Exception No. 2: Installation on a floor protected in an approved manner. [NFPA 54:9.3.3]”

Sec. 5.4.035 – Protection Against Physical Damage.

Section M1308.2 of the International Residential Code is amended to read as follows:

In concealed locations where piping, other than cast-iron or galvanized steel, is installed through holes or notches in studs, joists, rafters, or similar members less than 1.5 inches (38mm) from the nearest edge of the member, the pipe shall be protected by shield plates. Protective steel shield plates having a minimum thickness of 0.0575-inch (1.463 mm) (No. 16 Gage), shall cover the area of the pipe where the member is notched or bored and shall extend a minimum of 2 inches (51 mm) above sole plates and below top plates.

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Sec. 5.4.040 – Location.

Section M1408.3 of the International Residential Code is amended to read as follows:

Vented Floor Furnaces. Location of floor furnaces shall conform to the following requirements:

1. Floor registers of floor furnaces shall be installed not less than six (6) inches (152 mm) from a wall.
2. Wall registers of floor furnaces shall be installed not less than six (6) inches (152 mm) from the adjoining wall at inside corners.
3. The furnace register shall be located not less than twelve (12) inches (305 mm) from doors in any position, draperies or similar combustible objects.
4. The furnace register shall be located at least five (5) feet (1524 mm) below any projecting combustible materials.
5. The floor furnace burner assembly shall not project into an occupied under-floor area.
6. The floor furnace shall not be installed in concrete floor construction built on grade.
7. The floor furnace shall not be installed where a door can swing within twelve (12) inches (305 mm) of the grille opening.
8. Replacement of floor furnaces with the same or lesser B.T.U. rating may be installed in the same location with prior approval by the building official.”

Sec. 5.4.050 – Installation.

Section M1409.3 of the International Residential Code is amended to read as follows:

Vented wall furnace installations shall conform to the following requirements:

1. Required wall thicknesses shall be in accordance with the manufacturer's installation instructions.
2. Ducts shall not be attached to a wall furnace. Casing extensions or boots shall be installed only when listed as part of a listed and labeled appliance.
3. A manual shut off valve shall be installed ahead of all controls.
4. The wall cavity directly above the wall furnace shall be ventilated by a twenty-six (26) gauge (0.016 inch) (0.4 mm) metal thimble into attic; or, an eight (8) inch (203 mm) by fourteen (14) (356 mm) inch metal grill a minimum of twelve (12) inches (305 mm) below the ceiling.”

Sec. 5.4.060 – Auxiliary and Secondary Drain Systems.

Section M1411.3.1 of the International Residential Code is amended to read as follows:

In addition to the requirements of Section M1411.3, a secondary drain or auxiliary drain pan shall be

required for each cooling or evaporator coil when located above finished ceilings or furred spaces. Such piping shall maintain a minimum horizontal slope in the direction of discharge of not less than 1/8 vertical in twelve (12) units horizontal (1-percent slope). Drain piping shall be a minimum of 3/4-inch (19 mm) nominal pipe size. One of the following methods shall be used:

1. An auxiliary drain pan with a separate drain shall be installed under the coils on which condensation will occur. The auxiliary pan drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The pan shall have a minimum depth of 1.5 inches (38 mm), shall not be less than three (3) inches (76 mm) larger than the unit or the coil dimensions in width and length and shall be constructed of corrosion-resistant material. Metallic pans shall have a minimum thickness of not less than 0.0276-inch (0.7 mm) galvanized sheet metal. Nonmetallic pans shall have a minimum thickness of not less than 0.0625 inch (1.6 mm).
2. A separate overflow drain line shall be connected to the drain pan provided with the equipment. This overflow drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The overflow drain line shall connect to the drain pan at a higher level than the primary drain connection.
3. An auxiliary drain pan without a separate drain line shall be installed under the coils on which condensate will occur. This pan shall be equipped with a water level detection device conforming to UL 508 that will shut off the equipment served prior to overflow of the pan. The auxiliary drain pan shall be constructed in accordance with Item 1 of this section.
4. A water level detection device conforming to UL 508 shall be provided that will shut off the equipment served in the event that the primary drain is blocked. The device shall be installed in the primary drain line, the overflow drain line or the equipment-supplied drain pan, located at a point higher than the primary drain line connection and below the overflow rim of such pan.”

| **Sec. 5.4.070. – Auxiliary Drain Pan.**

Section M1411.4 of the International Residential Code is amended to read as follows:

Category IV condensing appliances shall have an auxiliary drain pan when located above finished ceilings or furred spaces. These pans shall be installed in accordance with the applicable provisions of Section M1411.3.1.

Exception: Fuel-fired appliances that automatically shut down operation in the event of a stoppage in the condensate drainage system.

| **Sec. 5.4.0890. – Bathroom Exhaust.**

| Section M-1501.1 of the International Residential Code is amended to read as follows:

Outdoor Discharge. The air removed by mechanical exhaust systems shall be discharged to the outdoors in accordance with Section M1506.2.

Exceptions:

- (1) Whole house ventilation-type attic fans that discharge into the attic space of dwelling units having private attics shall be permitted.
- (2) Ventilation air from residential bathrooms or toilet rooms may be exhausted into a properly ventilated attic when all of the following are met:

1. The duct(s) conveying exhaust into the attic shall terminate a minimum of thirty-six (36) inches above the top of the ceiling framing members, and shall not discharge upon any building element.
2. Attics into which bath and/or toilet room exhausts are discharged must be properly ventilated, in accordance with Section R806, and shall not discharge into an unvented attic assembly.
3. The exhaust duct(s) shall terminate above the top of the attic insulation with a "goose-neck" installed to prevent infiltration of insulating material into the duct.
4. Exhaust duct(s) run above the insulation inside of attics, with a developed length greater than five (5) feet, shall be insulated.

Sec. 5.4.090. – Duct Installation.

Section M1502.4.2 of the International Residential Code is amended to read as follows:

Exhaust ducts shall be supported at intervals not to exceed 12 feet (3658 mm) vertically or 6 feet (1828.8 mm) horizontally and shall be secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Exhaust duct joints shall be sealed in accordance with Sec. 5.4.180 of the Unified Building and Trade Code. Exhaust ducts shall not be connected with sheet-metal screws or fastening means which extend into the duct.

Sec. 5.4.100. – Specified Length.

Section M1502.4.5.1 of the International Residential Code is amended to read as follows:

The maximum length of the exhaust duct shall be 45 feet (13716mm) from the connection to the transition duct from the dryer to the outlet terminal. Where fittings are used, the maximum length of the exhaust duct shall be reduced in accordance with Table M1502.4.5.1 of the 2015 International Residential Code. The maximum length of the exhaust duct does not include the transition duct.”

Sec. 5.4.130. – Vertical Clearance.

Section M1505.5 of the International Residential Code is ~~amended-created~~ to read as follows:

Domestic cooking appliances either built-in or freestanding shall have a vertical clearance above the cooking top of not less than thirty (30) inches (760 mm) to combustible material or metal cabinets. A minimum clearance of twenty-four (24) inches (610 mm) is permitted when one of the following is installed:

1. The underside of the combustible material or metal cabinet above the cooking top is protected with not less than ¼ inch (6.4 mm) insulating millboard covered with sheet metal not less than 0.0122 inch (0.3 mm) thick.
2. A metal ventilating hood of sheet metal not less than 0.0122 inch (0.3 mm) thick is installed above the cooking top with a clearance of not less than ¼ inch (6.4 mm) between the hood and the underside of the combustible material or metal cabinet, and the hood is at least as wide as the appliance and is centered over the appliance.
3. A listed cooking appliance or microwave oven is installed over a listed cooking appliance and will conform to the terms of the upper appliance's listing and the manufacturers' instructions.”

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| **Sec. 5.4.1~~240~~ – Overhead Exhaust Hoods.**

Section M1505.1 of the International Residential Code is amended to read as follows:

Domestic open-top broiler units shall be provided with a metal exhaust hood, not less than twenty-eight (28) gauge, with ¼ inch (6 mm) between the hood and the underside of combustible material or cabinets. A clearance of at least thirty (30) inches (760 mm) shall be maintained between the cooking surface and the combustible material or cabinet. The hood shall be at least as wide as the broiler unit and shall extend over the entire unit. Such exhaust hood shall discharge to the outdoors and shall be equipped with a backdraft damper or other means to control infiltration/exfiltration when not in operation. Broiler units incorporating an integral exhaust system, and listed and labeled for use without an exhaust hood, need not be provided with an exhaust hood.

| **Sec. 5.4.1~~350~~ – Recirculation of Air.**

Section M1507.2 of the International Residential code is amended to read as follows:

Exhaust air from bathrooms and toilet rooms shall not be recirculated within a residence or to another dwelling unit and shall be exhausted directly to the outdoors. Exhaust air from bathrooms and toilet rooms may discharge into an attic when the following are met:

1. The duct(s) conveying exhaust into the attic shall terminate a minimum of thirty-six (36) inches above the top of the ceiling framing members, and shall not discharge upon any building element.
2. Attics into which bath and/or toilet room exhausts are discharged must be properly ventilated, in accordance with Section R806, and shall not discharge into an unvented attic assembly.
3. The exhaust duct(s) shall terminate above the top of the attic insulation with a "goose-neck" installed to prevent infiltration of insulating material into the duct.

Exhaust duct(s) run above the insulation inside of attics, with a developed length greater than five (5) feet, shall be insulated.

| **Sec. 5.4.1~~3560~~ – Table 1601.1.1(2).**

| Sec. 5.4.1~~3560~~ is hereby created to read as follows:

Section M1601.1.1(2). Table 1601.1.1(2). Gauges for metal ducts and plenums used for heating or cooling shall meet current SMACNA HVAC Duct Construction Standards.

| **Sec. 5.4.1~~470~~ – Duct Insulation Materials.**

Sec. M1601.3 of the International Residential Code is amended to read as follows:

Duct insulation materials shall conform to the following requirements:

1. Duct coverings and linings, including adhesives where used, shall have a flame spread index not higher than twenty-five (25), and a smoke-developed index not over fifty (50) when tested in accordance with ASTM E 84, using the specimen preparation and mounting procedures of ASTM E 2231.

2. Duct coverings and linings shall not flame, glow, smolder or smoke when tested in accordance with ASTM C 411 at the temperature to which they are exposed in service. The test temperature shall not fall below 250°F (121°C).
3. External duct insulation and factory-insulated flexible ducts shall be legibly printed or identified at intervals not longer than thirty-six (36) inches (914 mm) with the name of the manufacturer; the thermal resistance *R*-value at the specified installed thickness; and the flame spread and smoke-developed indexes of the composite materials. All duct insulation product *R*-values shall be based on insulation only, excluding air films, vapor retarders or other duct components, and shall be based on tested *C*-values at 75°F (24°C) mean temperature at the installed thickness, in accordance with recognized industry procedures. The installed thickness of duct insulation used to determine its *R*-value shall be determined as follows:
 - 3.1. For duct board, duct liner and factory-made rigid ducts not normally subjected to compression, the nominal insulation thickness shall be used.
 - 3.2. For duct wrap, the installed thickness shall be assumed to be seventy-five (75) percent (25-percent compression) of nominal thickness.
 - 3.3. For factory-made flexible air ducts, the installed thickness shall be determined by dividing the difference between the actual outside diameter and nominal inside diameter by two.
 - 3.4. Duct insulation shall conform to the requirements of the Table of *R*-Values of Duct Insulation.

R-Values of Duct Insulation

Location of Duct*	R-Value
Inside of conditioned space	None
Inside of building envelope but outside of conditioned space	R-4.2
Outside of building envelope	R-6

* In addition, insulation shall be applied to all ductwork located in an environment that may result in the formation of condensation when operating within the normal design limits of the system, including exhaust and outside air intake ductwork.

Sec. 5.4.1~~580~~ – Joints and Seams.

Sec. M1601.4.1 of the International Residential Code is amended to read as follows:

All joints and seams of that portion of supply and/or return ductwork installed outside of the conditioned envelope shall be made substantially airtight by means of tapes, mastics, gaskets, and other approved closure systems, commercially available and specially designed for sealing. "Duct Tape" shall not be an

acceptable method. Closure systems used with rigid fibrous glass ducts shall comply with UL 181A and shall be marked "181A-P" for pressure-sensitive tape, "181 A-M" for mastic or "181 A-H" for heat-sensitive tape. Closure systems used with flexible air ducts and flexible air connectors shall comply with UL 181B and shall be marked "181B-FX" for pressure-sensitive tape or "181B-M" for mastic. Duct connections to flanges of air distribution system equipment or sheet metal fittings shall be mechanically fastened. Mechanical fasteners for use with flexible nonmetallic air ducts shall comply with UL 181B and shall be marked 181B-C. Crimp joints for round metal ducts shall have a contact lap of at least 1½ inches (38 mm) and shall be mechanically fastened by means of at least three (3) sheet-metal screws or rivets equally spaced around the joint.

Exception: Low pressure systems.

Sec. 5.4.1~~690~~ – Return Air.

Section M1602.1 of the International Residential Code is amended to read as follows:

Return air shall be taken from inside the dwelling. Dilution of return air with outdoor air shall be permitted. In new dwellings and additions to existing one and two family dwellings where a new separate heating and/or cooling system is being added to serve, but not necessarily limited to only serve the new addition, an outside air duct shall be connected to the main return air duct, prior to the filter, of each heating and/or cooling system for the habitable space served. Duct size shall be based on the square footage of habitable space served as follows:

1. 1500 sq. ft. or less: 4 inch diameter or 12.6 square inches.
2. 1501 sq. ft. to 2000 sq. ft.: 5 inch diameter or 19.6 square inches.
3. 2001 sq. ft. and larger: 6 inch diameter or 28.3 square inches.

All areas listed exclude finished basement area. The outside air duct shall be provided with a ¼ inch wire mesh inlet screen. The outside air duct shall not draw air from contaminated sources.

SECTION 5.4.1~~70200~~ – Prohibited Sources.

Section M1701.5 of the International Residential Code is created to read as follows:

Combustion air ducts and openings shall not connect appliance enclosures with space in which the operation of a fan may adversely affect the flow of combustion air. Combustion air shall not be obtained from an area in which flammable vapors present a hazard. Fuel-fired appliances shall not obtain combustion air from any of the following rooms or spaces:

1. Sleeping rooms.
2. Bathrooms.
3. Toilet rooms.

Exceptions: The following appliances shall be permitted to obtain combustion air from sleeping rooms, bathrooms and toilet rooms:

1. Solid fuel-fired appliances provided that the room is not a confined space and the building is not of unusually tight construction.
2. Replacement of fuel-fired appliances installed in toilet rooms if approved by the building official."