

Mechanical and Fuel Gas Code

Section 150.030 Adopted.

(a) The *International Mechanical Code* 2015 ~~2012~~-edition including Appendix A, and the *International Fuel Gas Code* including Appendix B and C, 2015 ~~2012~~-edition, as amended, are hereby adopted for regulating the design, construction, quality of materials, erection, installation, alteration, repair, location, relocation, replacement, addition to, use, or maintenance of heating, ventilation, cooling, refrigeration, incinerators, or other miscellaneous heat producing appliances in the city, and for providing for performance of inspections and collection of fees therefor.

(b) The adoption of the *International Mechanical Code* and the *International Fuel Gas Code*, 2015 editions will become effective May 1, 2016. The minimum building standards in the 2015 edition of the *International Mechanical Code* and *International Fuel Gas Code* and amendments thereto shall be applied to any building permit issued after April 30, 2016.

(c) The city shall publish this ordinance, without attachments, after its passage. The attachments are on file and available for inspection in the office of the city clerk.

Section 150.031 Amendments, additions, and deletions to the 2015 *International Mechanical Code*.

The following sections and subsections of the 2015 *International Mechanical Code* adopted in this article shall be amended, added, or deleted as follows. All other sections or subsections of the 2015 *International Mechanical Code* shall remain the same.

[A] 101.1 Title. These regulations shall be known as the *Mechanical Code* of Sioux Falls, South Dakota, hereinafter referred to as “this code.”

Commentary: This simply inserts that these local modifications are applicable to the “City of Sioux Falls.”

[A] 101.2 Scope. 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 those mechanical systems, system components, *equipment*, and appliances specifically addressed herein. The installation of fuel gas distribution piping and *equipment*, fuel gas-fired appliances, and fuel gas-fired *appliance* venting systems shall be regulated by the *International Fuel Gas Code*.

Exceptions:

1. Detached one- and two-family dwellings and multiple single-family dwellings (town houses) not more than three stories high with separate means of egress and their accessory structures shall comply with the *International Residential Code*.

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2. Mechanical systems in existing buildings undergoing repair, alterations or additions, and change in occupancy shall be permitted to comply with the International Existing Building Code.

Commentary: *This section establishes when the provisions of the mechanical code apply, whether all or in part. The amendment is to clarify that instead of only using the provision of the IMC for repairs, remodels, alterations, changes of use, etc., that the designer or building owner has the ability to use the scoping provisions of the International Existing Building Code as an alternate.*

[A] 103.2 Appointment. Not adopted by the city. ~~The code official shall be appointed by the chief appointing authority of the jurisdiction.~~

Commentary: *This is eliminated because the code official is not an appointed position.*

[A] 103.4.1 Legal defense. Any suit or criminal complaint 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 afforded all the protection provided by the city's insurance pool and immunities and defenses provided by other applicable state and federal laws and be defended by the legal representatives 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.

Commentary: *This amendment inserts that an employee who enforces the code is protected from liability within the limitations of the City's insurance pool or any other applicable state or federal law. The second paragraph maintains language from the legacy codes as it relates to assuming liability in the enforcement of the minimum mechanical standards of the code.*

[A] 106.1 Where required. An owner, owner's authorized agent, or contractor who desires to erect, install, enlarge, alter, repair, remove, convert, or replace a mechanical system, the installation of which is regulated by this code, or to cause such work to be performed, shall first make application to the code official and obtain the required permit for the work. A permit is not required by a licensed mechanical contractor if an inspection as specified in Section 107 is requested and obtained for any mechanical work.

Exception: Where *equipment* and *appliance* replacements or repairs must be performed in an emergency situation, the inspection request permit application shall be submitted within replacement work is completed and before any portion of the appliance is concealed by any permanent portion of the structure ~~the next working business day of the department of~~

Commentary: *Currently, this maintains that an issued building permit is not required where the mechanical contractor is acting as a general contractor by the installation of only mechanical systems. It is the licensed contractor's responsibility to request an inspection*

which acts as the permit. Where work is installed such as the replacement of a furnace in the winter, such work is deemed as an emergency situation and requires that the mechanical contractor request an inspection within 48 hours of installation.

[A] **106.4.3 Expiration.** Every permit issued by the code official under the provisions of this code shall expire by limitation and become null and void if the work authorized by such permit is not commenced within 180 days from the date of such permit, or if the work authorized by such permit is suspended or abandoned at any time after the work is commenced for a period of 180 days. Before such work recommences, a new permit shall be first obtained and the fee, therefore, shall be one-half the amount required for a new permit for such work, provided no changes have been made or will be made in the original *construction documents* for such work, and provided further that such suspension or abandonment has not exceeded one year.

~~All homeowner mechanical permits shall expire in accordance with Section 11-45.~~

[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 a \$250 administrative ~~100 percent of the usual permit~~ fee in addition to the required permit fees.

Commentary: This maintains the penalty for the failure to request an inspection for the installation of mechanical systems.

106.5.2 Fee schedule. The fees for mechanical work shall be as indicated in the following schedule.

Table No. 1-A. Mechanical Permit Fees

Permit Issuance

Homeowner's permit (plus the unit fee costs for the work to be inspected)..... \$20.00

Unit Fee Schedule (Inspections)

1. Minimum inspection fee\$19.00
2. For the installation or relocation of each forced-air or gravity-type furnace or burner, including ducts and vents attached to such appliance\$12.00
3. For the installation or relocation of each floor furnace, including vent.....\$12.00
4. For the installation or relocation of each suspended heater, recessed wall heater, or floor-mounted unit heater\$12.00

- 5. For the installation, relocation, or replacement of each appliance vent installed and not included in an appliance permit.....\$6.00
- 6. For the repair of, alteration of, or addition to each heating appliance, refrigeration unit, cooling unit, absorption unit, or each heating, cooling, absorption, or evaporative cooling system, including installation of controls regulated by this code\$12.00
- 7. For the installation or relocation of each boiler or compressor or each absorption system.....\$12.00
- 8. For each air-handling unit to and including 10,000 cubic feet per minute (4,720 L/S), including ducts attached thereto\$12.00
- 9. For each air-handling unit over 10,000 cfm (4,720 L/S)\$15.00
- 10. For each evaporative cooler other than portable type\$10.00
- 11. For each ventilating fan connected to a single duct.....\$6.00
- 12. For each ventilation system which is not a portion of any heating or air-conditioning system authorized by a permit.....\$10.00
- 13. For the installation of each commercial hood which is served by mechanical exhaust, including the ducts for such hood\$15.00
- 14. For the installation or relocation of each commercial, industrial, or domestic-type incinerator\$20.00
- 15. For each appliance or piece of equipment regulated by this code, but not classed in other appliance categories, or for which no other fee is listed in this code\$12.00
- 16. For each fire damper, smoke damper, or combination fire/smoke damper\$1.00
- 17. Variable air volume (VAV) terminals\$1.00

Other Inspections and Fees

- 1. Inspections outside of normal business hours (minimum charge—one hour), per hour*\$70.00
- 2. Reinspection fees assessed under provisions of Section 107 (minimum charge—one hour), per hour*\$70.00
- 3. Inspections for which no fee is specifically indicated (minimum charge—one hour), per hour*\$70.00

4. Additional plan review required by changes, additions, or revisions to approved plans (minimum charge—one hour), per hour*\$70.00
5. Appeals. Before the board takes any action, the party or parties requesting such hearing shall deposit with the secretary of the board or his authorized agent, the sum of \$65.00 to cover the approximate cost of the procedure. Under no condition shall said sum or any portion thereof be refunded for failure of said request to be approved.
6. Examination Fee. All classes—per examination\$75.00
7. A mileage fee based on the current rate per mile authorized by the Internal Revenue Service shall be charged for any inspection occurring outside the city limits.
8. When a plan or other data is required to be submitted by SDCL 36-18 or when the building official requires submittal of plans, computations, or specifications in accordance with Section 106.3, a plan review fee shall be charged. Said plan review fee shall be 25 percent of the mechanical portion of the building permit fee as shown on Table 1-B, Commercial Building Permit Fees, of Section ~~11-20-150.017~~ of the ~~Revised Code of Ordinances of the City~~
9. Bond Claims. An administrative fee shall be charged to cover the administrative cost of filing a claim\$150.00
10. Delinquent accounts. The administrative authority may refuse inspections or may deny credit on accounts receivables that are delinquent.
11. Fee for late corrections. A \$100 administrative fee may be charged for failure to correct violations within the time specified on a contractor’s correction report.
12. Fee for failure to request a required inspection. Where mechanical work is completed without a request for an inspection, an administrative fee of \$250.00 may be charged.

*Or the total hourly cost to the city, whichever is greater. This cost shall include supervision, overhead, equipment, hourly wages, and fringe benefits of the employees involved.

Commentary: This inserts those fees to cover the costs of the work expended by the Mechanical Inspection Division of Building Services, which includes plan review, inspections, administering permit issuance, and department overhead. No fee increases are included for this code cycle.

[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 80 percent of the permit fee paid where work has not been done under a permit issued in accordance with this code.
3. Not more than 80 percent of the plan review fee paid where 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.

Commentary: This maintains the policy of refunds for permits that are issued where work is either canceled or is not commenced.

[A] 107.2 Required inspections and testing. It shall be the duty of the licensed mechanical contractor, or his designated mechanic doing the work authorized by a permit, or the homeowner holding the homeowner's mechanical permit to notify the mechanical inspector that such work is ready for inspection. The building official may require that every request for inspection be filed at least one working day before such inspection is desired.

The code official, upon notification from the permit holder or the permit holder's agent, shall make the following inspections and other such inspections as necessary, and shall either release that portion of the construction or shall notify the permit holder or the permit holder's agent of violations that must be corrected. The holder of the permit shall be responsible for the scheduling of such inspections.

1. Underground inspection shall be made after trenches or ditches are excavated and bedded, piping installed, and before backfill is put in place. Where excavated soil contains rocks, broken concrete, frozen chunks, and other rubble that would damage or break the piping or cause corrosive action, clean backfill shall be on the job site.
2. Rough-in inspection shall be made after the roof, framing, fireblocking, and bracing are in place and all ducting and other components to be concealed are complete, and prior to the installation of wall or ceiling membranes.
3. Final inspection shall be made upon completion of the mechanical system.

Exception: Ground-source heat pump loop systems tested in accordance with Section 1210.10 shall be permitted to be backfilled prior to inspection.

The requirements of this section shall not be considered to prohibit the operation of any heating *equipment* or appliances installed to replace existing heating *equipment* or appliances serving an occupied portion of a structure provided that a request for inspection of such heating *equipment* or appliances has been filed with the department not more than 48 hours after such replacement work is placed into operation or substantially completed, and before any portion of such *equipment* or appliances is concealed by any permanent portion of the structure.

Commentary: This clarifies that it is the responsibility of the licensed mechanical contractor or his/her designated installer or the homeowner holding the homeowner's mechanical permit to notify the Mechanical Inspector when an inspection is required for the installation of mechanical equipment. To accommodate the scheduling for an inspection, one day's notice is referenced. The replacement of a heating appliance requires that an inspection be requested within 48 hours of the equipment being placed into operation or is substantially completed.

[A] **108.3 Prosecution of violation.** If the notice of violation is not complied with promptly, the code official shall request the legal counsel of the jurisdiction to [deem the violation as a strict liability offense and](#) institute the appropriate proceeding at law or in equity to restrain, correct or abate such violation, or to require the removal or termination of the unlawful *occupancy* of the structure in violation of the provisions of this code or of the order or direction made pursuant thereto.

Commentary: The reference to strict liability offense is referenced in only one of the I-Codes but is legally applicable to any violation of a building or mechanical code provision.

[A] **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 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 [an ordinance violation-punishable and be subject to administrative citations through the code enforcement process. under Chapter 1 and/or 2 of the Revised Ordinances of Sioux Falls, SD 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.](#)

Commentary: This references that a violation of a mechanical provision of this code is subject to the citations through the administrative code enforcement process.

[A] **108.5 Stop work orders.** Upon notice from the code official that mechanical work is being performed 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 authorized agent, or to the person doing 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 [guilty of an ordinance violation and be subject to administrative citations through the code enforcement process.](#) ~~liable for a fine of not less than [AMOUNT] dollars or more than [AMOUNT] dollars.~~

Commentary: This references that a violation of a mechanical provision of this code is subject to the citations through the administrative code enforcement process.

[A] 109.1 **Mechanical board of appeals and examiners.** There is hereby created a mechanical board of appeals and examiners to hear and decide appeals of orders, decisions, or determinations made by the building official relative to the application and interpretation of the International Mechanical Code, International Fuel Gas Code, including Part V—Mechanical and Part VI—Fuel Gas of the International Residential Code, to determine that the provisions of these codes do not fully apply, to determine if an equally or better construction is proposed as an alternative, to review all prospective changes to the mechanical and fuel gas codes and to submit recommendations to the responsible official and the city council, to review licensing and test application determinations and to examine applicants for licensing, and to investigate matters brought to the board. It shall consist of five members qualified by experience and training to pass upon matters pertaining to mechanical design, construction, and maintenance and the public health aspects of mechanical systems referenced in the International Mechanical Code and the International Fuel Gas Code. Members shall be appointed by the mayor with the advice and consent of the council and shall hold office for a term of three years. The board shall adopt rules and procedures for conducting its business. All decisions and findings shall be provided in writing to the appellant with a duplicate copy provided to the building services department.

[A] 109.2 **Membership of board.** Not adopted by the city. The board of appeals shall consist

[A] 109.2.1 **Qualifications.** Not adopted by the city. The board of appeals shall consist of five

[A] 109.2.2 **Alternate members.** Not adopted by the city. The chief appointing authority shall

[A] 109.2.3 **Chairman.** Not adopted by the city. The board shall annually select one of its

[A] 109.2.5 **Secretary.** Not adopted by the city. The chief administrative officer shall

[A] 109.2.6 **Compensation of members.** Not adopted by the city. Compensation of members

[A] 109.3 **Notice of meeting.** Not adopted by the city. The board shall meet upon notice from

[A] 109.4 **Open hearing.** Not adopted by the city. Hearings before the board shall be open to

[A] 109.4.1 **Procedure.** Not adopted by the city. The board shall adopt and make available to

[A] 109.5 **Postponed hearing.** Not adopted by the city. When five members are not present to

Commentary: Whereas the primary purpose of the Mechanical Board of Appeals and Examiners is to review interpretations of the Mechanical Code Official, these modifications include the additional responsibilities of the Board, which relates to review of ordinances and review of mechanical licensure. The purpose of the Board is to review technical

determinations by the Mechanical Code Official, not administrative provisions. This also clarifies that the members are appointed by the Mayor with the advice and consent of the Council and that any findings are referred to the appellant in writing. Those sections that are not adopted are defined in the rules and procedures approved by the Board.

201.3 Terms defined in other codes. Where terms are not defined in this code and are defined in the *International Building Code*, *International Residential Code*, *International Existing Building Code*, *NFPA 80*, *International Fire Code*, *International Fuel Gas Code*, or the *International Uniform Plumbing Code*, such terms shall have meanings ascribed to them as in those codes.

Commentary: This section references those codes that are adopted accessory to the mechanical code, including the International Residential Code and the International Existing Building Code. Because the City does not utilize the International Plumbing Code or the International Private Sewage Disposal Code, the references are eliminated and instead simply refer to the plumbing ordinance, which adopts the Uniform Plumbing Code mandated by the State Plumbing Commission.

Section 202—General Definitions. Add the following definition:

STRICT LIABILITY OFFENSE. An offense in which the prosecution in a legal proceeding is not required to prove criminal intent as a part of its case. It is enough to prove that the defendant either did an act which was prohibited or failed to do an act which the defendant was legally required to do.

Commentary: This term brings the code in line with the current legal terminology used in other codes with regard to the prosecution of violations. With this term, the prosecutor is not required to prove that code violations were intended by a defendant or were even due to negligence. It is difficult to prove such intentions or negligence in a court of law. This provision is located only in the Property Maintenance Code but is inserted into all of the adopted Building Services codes.

301.2 Energy utilization. Heating, ventilating, and air-conditioning systems of all structures ~~may shall~~ be designed and installed for efficient utilization of energy in accordance with the *International Energy Conservation Code*.

Commentary: This takes away the mandatory requirements of total compliance with all of the technical requirements of the International Energy Conservation Code.

301.11 Plumbing connections. Potable water supply and building drainage system connections to equipment and appliances regulated by this code shall be in accordance with the *International Plumbing Code*.

Commentary: *The State Plumbing Commission mandates the use of the Uniform Plumbing Code which the City adopts in lieu of the International Plumbing Code the IMC references.*

304.10 Clearances from grade. Equipment and *appliances* installed at grade level shall be supported on a level concrete slab or other *approved* material extending not less than 1 1/2 inches (~~38 76~~-mm) above adjoining grade or shall be suspended not less than 6 inches (152 mm) above adjoining grade. Such support shall be in accordance with the manufacturer's installation instructions.

Equipment and appliances including the service areas shall be provided with a minimum 80-inch (2032 mm) headroom clearance.

Commentary: *This carries over an appliance support slab at 1 1/2 inches in height to be consistent with pre-manufactured products that are available locally. The 80-inch headroom clearance allows service personnel to have adequate room to service equipment.*

304.11 Guards. Guards shall be provided where various components that require service and roof hatch openings are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof, or grade below. The guard shall extend not less than 30 inches (762 mm) beyond each end of components that require service. The top of the guard shall be located not less than 42 inches (1067 mm) above the elevated surface adjacent to the guard. The guard shall be constructed so as to prevent the passage of a 21-inch-diameter (533 mm) sphere and shall comply with the loading requirements for guards specified in the *International Building Code*.

~~**Exception:** Guards are not required where permanent fall arrest/restraint anchorage connector devices that comply with ANSI/ASSE Z 359.1 are affixed for use during the entire lifetime of the roof covering. The devices shall be re-evaluated for possible replacement when the entire roof covering is replaced. The devices shall be placed not more than 10 feet (3048 mm) on center along hip and ridge lines and placed not less than 10 feet (3048 mm) from roof edges and the open sides of walking surfaces.~~

306.2 Appliances in rooms. Rooms containing appliances shall be provided with a door and an unobstructed passageway to the service area of the appliance measuring not less than 36 inches (914 mm) wide and 80 inches (2032 mm) high.

Exception: Within a *dwelling unit*, appliances installed in a compartment, alcove, basement, or similar space shall be accessed by an opening or door and an unobstructed passageway measuring not less than 24 inches (610 mm) wide and large enough to allow removal of the largest *appliance* in the space, provided that a level service space of not less than 30 inches (762 mm) deep and the height of the *appliance*, but not less than 30 inches (762 mm), is present at the front or service side of the *appliance* with the door open.

Commentary: *This new local amendment clarifies that the passageway to the appliance must extend to the actual service area of the appliance, not just to the appliance.*

306.5 Equipment and appliances on roofs or elevated structures. Where *equipment* requiring access or appliances are located on an elevated structure or the roof of a building such that personnel will have to climb higher than 16 feet (4877 mm) above grade or floor level to access such equipment or appliances, an interior or exterior means of access shall be provided. Such access shall not require climbing over obstructions greater than 30 inches (762 mm) in height or walking on roofs having a slope greater than 4 units vertical in 12 units horizontal (33-percent slope). Such access shall not require the use of portable ladders. Where access involves climbing over parapet walls, the height shall be measured to the top of the parapet wall.

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 rung spacing not to exceed 14 inches (356 mm) on center. The uppermost rung shall be not greater than 24 inches (610 mm) below the upper edge of the roof hatch, roof, or parapet, as applicable.
3. Ladders shall have a toe spacing not less than 6 inches (152 mm) deep.
4. There shall be not less than 18 inches (457 mm) between rails.
5. Rungs shall have a diameter not less than 0.75-inch (19 mm) and be capable of withstanding a 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 per square foot (488.2 kg/m²). Landing dimensions shall be not less than 18 inches (457 mm) and not less than the width of the ladder served. A guard rail shall be provided on all open sides of the landing.
7. Climbing clearance. The distance from the centerline of the rungs to the nearest permanent object on the climbing side of the ladder shall be not less than 30 inches (762 mm) measured perpendicular to the rungs. This distance shall be maintained from the point of ladder access to the bottom of the roof hatch. A minimum clear width of 15 inches (381 mm) shall be provided on both sides of the ladder measured from the midpoint of and parallel with the rungs except where cages or wells are installed.
8. Landing required. The ladder shall be provided with a clear and unobstructed bottom landing area having a minimum dimension of 30 inches (762 mm) by 30 inches (762 mm) centered in front of the ladder.
9. Ladders shall be protected against corrosion by *approved* means.

10. Access to ladders shall be provided at all times. 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.

11. Exterior access may be by means of a ladder which need not extend closer than 8 feet (2438 mm) to finished grade.

12. When a new hatch is being used to access equipment or appliances on a roof or elevated structure, the handle or release must be on the same side of the roof hatch as the ladder or within 18 inches (457 mm) of the ladder

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 shall not apply to Group R-3 occupancies.

Commentary: *This has been modified for the safety of personnel to gain access to the roof. Item 11 carries over a legacy code provision to not require a ladder to extend to grade for security purposes. Item 12 prevents a ladder to terminate at the hinge side of the hatch.*

306.5.1 Sloped roofs. Where appliances, *equipment*, fans, or other components that require service are installed on a roof having a slope of greater than 3 units vertical in 12 units horizontal (25-percent slope) ~~or greater~~ and having an edge more than 30 inches (762 mm) above grade at such edge, a level platform shall be provided on each side of the *appliance* or *equipment* to which access is required for service, repair, or maintenance. The platform shall be not less than 30 inches (762 mm) in any dimension and shall be provided with guards. The guards shall extend not less than 42 inches (1067 mm) above the platform, shall be constructed so as to prevent the passage of a 21-inch-diameter (533 mm) sphere, and shall comply with the loading requirements for guards specified in the *International Building Code*. Access shall not require walking on roofs having a slope greater than 4 units vertical in 12 units horizontal (33-percent slope).

Where access involves obstructions greater than 30 inches (762 mm) in height, such obstructions shall be provided with ladders installed in accordance with Section 306.5 or stairways installed in accordance with the requirements specified in the *International Building Code* in the path of travel to and from appliances, fans, or *equipment* requiring service.

Commentary: *This does not require service platforms for roofs with a slope of 3:12 or less.*

306.6 Appliances above suspended ceilings. Rooms containing appliances above suspended ceilings shall be installed in accordance with Section 306.2. In such locations there shall be a space of not less than 30 inches wide by 30 inches deep from the top of the service area of the appliance to the level floor below. Any obstructions are limited to lights and the suspended ceiling system. A wall or partition shall be allowed in the first 6 inches of the 30-inch-deep service area in front of the appliance, provided the wall or partition terminates below the bottom

[of the appliance and the depth of the service space is increased to 36 inches deep from the top of the appliance to the level floor below.](#)

Commentary: *This provides for greater access for serviceability for appliances that are installed above suspended ceilings.*

312.1 Load calculations. ~~Heating~~ [When deemed necessary by the mechanical inspector, heating](#) 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 [CE] of the *International Energy Conservation Code*.

Commentary: *Instead of mandatory load calculations on all mechanical systems, load calculations are required at the discretion of the Mechanical Inspector.*

401.4 Intake opening location. Air intake openings shall comply with all of the following:

1. Intake openings shall be located not less than 10 feet (3048 mm) from lot lines or buildings on the same lot.
2. Mechanical and gravity outdoor air intake openings shall be located not less than 10 feet (3048 mm) ~~horizontally~~ from any hazardous or noxious contaminant source, such as vents, streets, alleys, parking lots, and loading docks, except as specified in Item 3 or Section 501.3.1. Outdoor air intake openings shall be permitted to be located less than 10 feet (3048 mm) horizontally from streets, alleys, parking lots, and loading docks provided that the openings are located not less than 25 feet (7620 mm) vertically above such locations. Where openings front on a street or public way, the distance shall be measured from the [centerline](#) ~~closest edge~~ of the street or public way.
3. Intake openings shall be located not less than 3 feet (914 mm) below contaminant sources where such sources are located within 10 feet (3048 mm) of the opening.
4. Intake openings on structures in flood hazard areas shall be at or above the elevation required by Section 1612 of the *International Building Code* for utilities and attendant equipment.

Commentary: *This new code provision would have made it extremely difficult to bring fresh air into a building in a downtown building. This continues the same make-up air location as previous codes.*

403.3.2.1 Outdoor air for dwelling units. An outdoor air ventilation system consisting of a mechanical exhaust system, supply system, or combination thereof shall be installed for each dwelling unit. Local exhaust or supply systems, including outdoor air ducts connected to the return side of an air handler, are permitted to serve as such a system. The outdoor air ventilation

system shall be designed to provide the required rate of outdoor air continuously during the period that the building is occupied. The minimum continuous outdoor airflow rate shall be determined in accordance with Equation 4-9.

403.3.2.1.1 Outside air supplied direct to habitable spaces. When outdoor air is supplied directly to habitable spaces, it shall be tempered to a minimum of 40°F deg. F at the local 99.6% heating design temperature.

403.3.2.1.2 Outdoor air supplied to forced air supply systems. When outdoor air is supplied to a forced air system, the mixed air temperature shall not be less than allowed by the heating equipment manufacturer's installation instructions. The system's blower shall be in operation whenever the whole-house ventilation system is in operation. No interlock with an exhaust fan is required when outdoor air is supplied to a forced air system.

403.3.2.1.3 Passive outdoor air. Outdoor air shall be allowed to be transferred into a dwelling when the outdoor air and exhaust terminations are separated with one on the uppermost level and one on the lowest level of the dwelling. For single-level dwellings, the outdoor air and exhaust terminations shall be separated by 1/2 the diagonal dimension of the largest room. Such outdoor air shall circulate through the dwelling from the outdoor air termination to the exhaust termination through permanent openings. Supply, return, and transfer ducts, open stairwells, or wall openings shall be considered permanent openings. The outdoor air intake duct shall be sized in accordance with Table 403.3.2.1 and air shall not be required to be tempered.

403.3.2.1.4 Fans. Fans used as part of the whole-house ventilation system shall be certified by the equipment manufacturer to be capable of continuous operation at the maximum fan-rated CFM. Surface-mounted fans shall have a sound rating of 1.0 sone or less. Fans used as whole-house ventilation fans shall be clearly marked at rough-in inspection as such.

403.3.2.1.5 Motorized dampers. Motorized dampers shall be installed in outdoor intake ducts and shall be interlocked with whole-house ventilation fan(s). Gravity or motorized dampers shall be installed in exhaust ducts. [Same number?]

403.3.2.1.5 System controls. The whole-house mechanical ventilation system shall be provided with controls that enable manual override. The controls shall be labeled "Whole-House Ventilation System" and shall be located near the thermostat or in the mechanical room. For whole-house ventilation fans which also function as bathroom exhaust fans, a local control switch shall be required in the bathroom to allow operation of the fan when the whole-house ventilation system is switched off.

Exception: Listed HRV/ERV systems shall be installed in accordance with the manufacturer's installation instructions. The distance between the exhaust and inlet termination of an individual system shall be allowed to be in accordance with the equipment manufacturer's instructions. HRV/ERVs shall be capable of balanced airflow operation at the ASHRAE 99.6% heating design temperature. Unit cycling for defrost is allowed.

Table 403.3.2.1 PASSIVE MAKEUP AIR DUCT SIZE

Passive duct size	Exhaust fan CFM
4"	35
5"	50
6"	80
7"	110
8"	130
9"	165

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Commentary: This clarifies ventilation requirements for dwelling units and accounts for cold climate conditions that the IMC language does not address.

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501.3.1 Location of exhaust outlets. The termination point of exhaust outlets and ducts discharging to the outdoors shall be located with the following minimum distances:

1. For ducts conveying explosive or flammable vapors, fumes, or dusts: 30 feet (9144 mm) from property lines; 10 feet (3048 mm) from operable openings into buildings; 6 feet (1829 mm) from exterior walls and roofs; 30 feet (9144 mm) from combustible walls and operable openings into buildings which are in the direction of the exhaust discharge; 10 feet (3048 mm) above adjoining grade.
2. For other product-conveying outlets: 10 feet (3048 mm) from the property lines; 3 feet (914 mm) from exterior walls and roofs; 10 feet (3048 mm) from operable openings into buildings; 10 feet (3048 mm) above adjoining grade.
3. For all *environmental air* exhaust: 3 feet (914 mm) from property lines; 3 feet (914 mm) from operable openings into buildings for all occupancies other than Group U₂; and 10 feet (3048 mm) from mechanical air intakes. Such exhaust shall not be considered hazardous or noxious.

Exceptions:

1. Bathroom exhaust fans serving individual dwelling units or sleeping units in Group R occupancies may be 3 feet from property lines, operable openings, and mechanical air intakes.
2. Minimum clearances between the exhaust and intake openings of an HRV/ERV system shall be in accordance with the manufacturer's installation instructions.

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4. Exhaust outlets serving structures in flood hazard areas shall be installed at or above the elevation required by Section 1612 of the *International Building Code* for utilities and attendant equipment.
5. For specific systems, see the following sections:
 - 5.1. Clothes dryer exhaust, Section 504.4.

- 5.2. Kitchen hoods and other kitchen exhaust *equipment*, Sections 506.3.13, 506.4, and 506.5.
- 5.3. Dust stock and refuse conveying systems, Section 511.2.
- 5.4. Subslab soil exhaust systems, Section 512.4.
- 5.5. Smoke control systems, Section 513.10.3.
- 5.6. Refrigerant discharge, Section 1105.7.
- 5.7. Machinery room discharge, Section 1105.6.1.

Commentary: A 10-foot distance for a bathroom exhaust fan from a mechanical air intake made compliance extremely difficult in an apartment or hotel. A 3-foot distance matched previous codes for air intakes. For clarification, where a heat recovery ventilator (HRV) or an energy recovery ventilator (ERV) is installed, the manufacturer's installation instructions, not a general provision of the mechanical code, defines the location of the intake and exhaust outlets based on the UL listing, and the engineered tested and designed pieces of equipment.

506.3.8 Grease duct cleanouts and openings. Grease duct cleanouts and openings shall comply with all of the following:

1. Grease ducts shall not have openings except where required for the operation and maintenance of the system.
2. Sections of grease ducts that are inaccessible from the hood or discharge openings shall be provided with cleanout openings spaced not more than 20 feet (6096 mm) apart and not more than 10 feet (3048 mm) from changes in direction greater than 45 degrees (0.79 rad).
3. Cleanouts and openings shall be equipped with tight-fitting doors constructed of steel having a thickness not less than that required for the duct.
4. Cleanout doors shall be installed liquid tight [and be classified in accordance with NFPA 96 or UL 1978](#).
5. Door assemblies including any frames and gaskets shall be approved for the application and shall not have fasteners that penetrate the duct.
6. Gasket and sealing materials shall be rated for not less than 1500°F (816°C).
7. Listed door assemblies shall be installed in accordance with the manufacturer's instructions.

Commentary: Instead of shop-made clean-out door serving grease ducts, this references a national model standard for the cleanout doors and assemblies.

507.2.6 Clearances for Type I hood. A Type I hood shall be installed with a *clearance* to combustibles of not less than 18 inches (457 mm).

Exception:

1. *Clearance* shall not be required from gypsum wallboard or 1/2-inch (12.7 mm) or thicker cementitious wallboard attached to noncombustible structures provided that a smooth, cleanable, nonabsorbent, and noncombustible material is installed between the hood and the gypsum or cementitious wallboard over an area extending not less than 18 inches (457 mm) in all directions from the hood.
2. Hoods that are listed and labeled for a reduced clearance in accordance with UL 710 shall be allowed with clearances in accordance with the listing of the hood, provided that a smooth, cleanable, nonabsorbent, and noncombustible material is installed between the hood and the combustible material over an area extending not less than 18 inches (457 mm) in all directions from the hood.

Commentary: The IMC does not recognize reduced clearance hoods, but the new UL 710 standard recognizes and specifies a 0 clearance for Type I hoods.

507.3 Type II hoods. Type II hoods shall be installed above dishwashers and appliances that produce heat or moisture and do not produce grease or smoke as a result of the cooking process. ~~except~~ Exclusive of above counter high temperature dishwashers, a Type II hood may not be required where the heat and moisture loads from such appliances are incorporated into the HVAC system design or into the design of a separate removal system. Type II hoods shall be installed above all appliances that produce products of combustion and do not produce grease or smoke as a result of the cooking process. Spaces containing cooking appliances that do not require Type II hoods shall be provided with exhaust at a rate of 0.70 cfm per square foot (0.00033 m³/s). For the purpose of determining the floor area required to be exhausted, each individual appliance that is not required to be installed under a Type II hood shall be considered as occupying not less than 100 square feet (9.3 m²). Such additional square footage shall be provided with exhaust at a rate of 0.70 cfm per square foot [0.00356 m³/(s × m²)].

Commentary: A high temperature dishwasher produces a large amount of steam and humidity which locally will require that steam to be captured by a hood to extend the moisture to the outside.

508.1.1 Makeup air temperature. The temperature ~~of differential between makeup air and the air in the conditioned space~~ shall not ~~be more than exceed~~ 10°F (6°C) below the temperature of the air in the conditioned space. ~~except where the added heating and cooling loads of the makeup air do not exceed the capacity of the HVAC system.~~ [Change to 10°F (-12°C)]

Exceptions:

1. Makeup air that is part of the air-conditioning system.
2. Makeup air that does not decrease the comfort conditions of the occupied space.

Commentary: *This allows for the use of makeup air for a commercial kitchen without the requirement of air conditioning of that makeup air.*

512.2 Materials. Subslab soil exhaust system duct material shall be air duct material *listed and labeled* to the requirements of UL 181 for Class 0 air ducts, or any of the following piping materials that comply with the *International Plumbing Code* as building sanitary drainage and vent pipe: cast iron; galvanized steel; brass or copper pipe; copper tube of a weight not less than that of copper drainage tube, Type DWV; and plastic piping.

Commentary: *This eliminates the reference to the International Plumbing Code.*

512.5 Identification. Not adopted by the city. ~~Subslab soil exhaust ducts shall be permanently~~

Commentary: *This marking requirement is eliminated because no inspections have been required for commercial radon systems.*

602.2.1.1 Wiring. Combustible electrical wires and cables and optical fiber cables exposed within a plenum shall be listed as having a maximum peak optical density of 0.50 or less, an average optical density of 0.15 or less, and a maximum flame spread distance of 5 feet (1524 mm) or less when tested in accordance with NFPA 262 or shall be installed in metal raceways or metal sheathed cable. Combustible optical fiber and communication raceways exposed within a plenum shall be listed as having a maximum peak optical density of 0.5 or less, an average optical density of 0.15 or less, and a maximum flame spread distance of 5 feet (1524 mm) or less when tested in accordance with ANSI/UL 2024. Only plenum-rated wires and cables shall be installed in plenum-rated raceways. Electrical wires and cables, optical fiber cables, and raceways addressed in this section shall be listed and labeled and shall be installed in accordance with NFPA 70.

Exception: Alternate wiring systems located within a plenum serving an information technology equipment room are allowed per NFPA 70.

Commentary: *This eliminates the more restrictive requirements of the Mechanical Code and refers those wiring systems that are located in information technology plenums to the National Electrical Code, which is NFPA 70.*

603.2 Duct sizing. Ducts installed within a single dwelling unit shall be sized in accordance with ACCA Manual D, the appliance manufacturer's installation instructions, or other approved

methods. Ducts installed within all other buildings ~~may shall~~ be sized in accordance with the ASHRAE *Handbook of Fundamentals* or other equivalent computation procedure.

Commentary: Instead of mandatory duct design on all mechanical systems, the referenced standards are utilized as guidelines.

603.6.1.1 Duct length. Flexible air ducts shall ~~not~~ be limited to 14 feet (4.3 m) in length.

Commentary: Due to airflow restrictions inherent in flexible air ducts, this material has been limited locally to a maximum length of 14 feet.

603.6.2 Flexible air connectors. ~~Not adopted by city. Flexible air connectors, both metallic and~~

603.6.2.1 Connector length. ~~Not adopted by city. Flexible air connectors shall be limited in~~

603.6.2.2 Connector penetration limitations. ~~Not adopted by city. Flexible air connectors shall~~

603.6.3 Air temperature. The design temperature of air to be conveyed in flexible air ducts ~~and flexible air connectors~~ shall be less than 250°F (121°C).

603.6.4 Flexible air duct ~~and air connector~~ clearance. Flexible air ducts and air connectors shall be installed with a minimum *clearance* to an *appliance* as specified in the *appliance* manufacturer's installation instructions.

Commentary: These types of flexible air ducts and connectors are an inefficient means of moving air in a duct system and have been excluded locally since the 1990s.

603.9 Joints, seams, and connections. All longitudinal and transverse joints, seams, and connections in metallic and nonmetallic ducts shall be constructed as specified in SMACNA *HVAC Duct Construction Standards—Metal and Flexible* and NAIMA *Fibrous Glass Duct Construction Standards*. All joints, longitudinal and transverse seams, and connections in ductwork ~~ductwork~~ outside the building thermal envelope, all return ducts located within 10 feet of any appliance or all return ducts within a mechanical room, and all supply main trunk ducts and branch duct connections to the main trunk ducts shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus-embedded-fabric systems, liquid sealants, or tapes. Tapes and mastics used to seal fibrous glass ductwork shall be listed and labeled in accordance with UL 181A and shall be marked “181 A-P” for pressure-sensitive tape, “181 A-M” for mastic, or “181 A-H” for heat-sensitive tape. Tapes and mastics used to seal metallic and flexible air ducts and flexible air connectors shall comply with UL 181B and shall be marked “181 B-FX” for pressure-sensitive tape or “181 B M” for mastic. Duct connections to flanges of air distribution system equipment shall be sealed and mechanically fastened. Mechanical fasteners for use with flexible nonmetallic air ducts shall comply with UL 181B and shall be marked “181 B-C.” Closure systems used to seal all ductwork shall be installed in accordance with the manufacturer's instructions.

Exception: For ducts having a static pressure classification of less than 2 inches of water column (500 Pa), additional closure systems shall not be required for continuously welded joints and seams and locking-type joints and seams of other than the snap-lock and button-lock types.

Commentary: Instead of the mandatory sealing of all ducts, this requirement for sealing has been limited locally to the main trunk ducts which would have the most potential for leakage.

[F] 606.4.1 Supervision. The duct smoke detectors shall be connected to a fire alarm system where a fire alarm system is required by Section 907.2 of the *International Fire Code*. The actuation of a duct smoke detector shall activate a visible and audible supervisory signal at a constantly attended location. In facilities that are required to be monitored by a supervising station, duct smoke detectors shall report only as a supervisory signal, not as a fire alarm. Duct smoke detectors installed more than 10 feet (3.1 m) above a finished floor, above a ceiling, or on a rooftop shall be installed with remote test/indicators in an approved location below and in proximity to the unit served.

Exceptions:

1. The supervisory signal at a constantly attended location is not required where the duct smoke detector activates the building's alarm-indicating appliances.
2. In occupancies not required to be equipped with a fire alarm system, actuation of a smoke detector shall activate a visible and audible signal in an *approved* location. Duct smoke detector trouble conditions shall activate a visible or audible signal in an *approved* location and shall be identified as air duct detector trouble.

Commentary: This is placed in the Mechanical Code to be consistent with the Fire Code to allow test indicators where a duct smoke detector is not accessible.

Section 150.032. Amendments, additions, and deletions to the *International Fuel Gas Code*.

The following sections of the 2015 International Fuel Gas Code shall be amended, added, or deleted as follows. All other sections or subsections of the 2015 International Fuel Gas Code as published shall remain the same.

[A] 101.1 Title. These regulations shall be known as the *Fuel Gas Code* of the city of Sioux Falls, South Dakota, hereinafter referred to as "this code."

Commentary: This simply inserts that these local modifications are applicable to the "City of Sioux Falls."

[A] **101.2 Scope.** This code shall apply to the installation of fuel gas *pip*ing systems, fuel gas appliances, gaseous hydrogen systems, and related accessories in accordance with Sections 101.2.1 through 101.2.5.

Exceptions:

1. Detached one- and two-family dwellings and multiple single-family dwellings (town houses) not more than three stories high with separate means of egress and their accessory structures shall comply with the *International Residential Code*.
2. [Fuel gas systems in existing buildings undergoing repair, alterations or additions, and change of occupancy shall be permitted to comply with the *International Existing Building Code*.](#)

Commentary: This section establishes when the provisions of the fuel gas code apply, whether all or in part. The amendment is to clarify that instead of only using the provision of the IFGC for repairs, remodels, alterations, changes of use, etc., that the designer or building owner has the ability to use the scoping provisions of the International Existing Building Code as an alternate.

[A] **103.2 Appointment.** ~~Not adopted by the city. The code official shall be appointed by the~~

Commentary: This is eliminated because the code official is not an appointed position.

[A] **103.4.1 Legal defense.** Any suit or criminal complaint instituted against any officer or employee because of an act or omission performed by that officer or employee in the lawful discharge of duties and under the provisions of this code shall be afforded all the protection provided by the city's insurance pool and immunities and defenses provided by other applicable state and federal laws and defended by the legal representatives 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.

Commentary: This amendment inserts that an employee who enforces the code is protected from liability within the limitations of the City's insurance pool or any other applicable state or federal law. This maintains language from the legacy codes as it relates to assuming liability in the enforcement of the minimum fuel gas standards of the code.

[A] **106.1 Where required.** An owner, owner's authorized agent, or contractor who desires to erect, install, enlarge, alter, repair, remove, convert, or replace an installation regulated by this code, or to cause such work to be performed, shall first make application to the code official and obtain the required permit for the work. A permit is not required by a licensed mechanical contractor if an inspection as specified in Section 107 is requested and obtained for any mechanical work.

Exception: Where *appliance* and *equipment* replacements and repairs are required to be performed in an emergency situation, the inspection request permit application shall be 48 hours after the replacement work is completed and before any portion of the appliance is concealed by any permanent portion of the structure.

Commentary: Currently, this maintains that an issued building permit is not required where the mechanical contractor is acting as a general contractor by the installation of only fuel gas systems. It is the licensed contractor's responsibility to request an inspection which acts as the permit. Where work is installed such as the replacement of a furnace in the winter, such work is deemed as an emergency situation and requires that the mechanical contractor request an inspection within 48 hours of installation.

[A] **106.6.1 Work commencing before permit issuance.** Any person who commences work on an installation before obtaining the necessary permits may shall be subject to a \$250 100 percent of the usual permit fee in addition to the required permit fees.

Commentary: This maintains the penalty for the failure to request an inspection for the installation of mechanical systems.

[A] **106.6.2 Fee schedule.** The fees for work shall be as indicated in Table No. 1-A, Mechanical Permit Fees in this code ~~the following schedule.~~

Commentary: This references Table No. 1-A of the Mechanical Code for the fee schedule referenced in the IFGC.

[A] **106.6.3 Fee refunds.** The code official shall authorize the refunding of fees as follows.

1. The full amount of any fee paid hereunder that was erroneously paid or collected.
2. Not more than 80 percent of the permit fee paid where work has not been done under a permit issued in accordance with this code.
3. Not more than 80 percent of the plan review fee paid where 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.

Commentary: This maintains the policy of refunds for permits that are issued where work is either canceled or is not commenced.

[A] **107.2 Required inspections and testing.** The code official, upon notification from the permit holder or the permit holder's agent, shall make the following inspections and other such

inspections as necessary, and shall either release that portion of the construction or notify the permit holder or the permit holder's agent of violations that are required to be corrected. The holder of the permit shall be responsible for scheduling such inspections.

It shall be the duty of the licensed mechanical contractor, or his designated mechanic, doing the work authorized by a permit to notify the mechanical inspector that such work is ready for inspection. The building official may require that every request for inspection be filed at least one working day before such inspection is desired.

1. Underground inspection shall be made after trenches or ditches are excavated and bedded, *pipng* is installed, and before backfill is put in place. Where excavated soil contains rocks, broken concrete, frozen chunks, and other rubble that would damage or break the *pipng* or cause corrosive action, clean backfill shall be on the job site.
2. Rough-in inspection shall be made after the roof, framing, fireblocking, and bracing are in place and components to be concealed are complete, and prior to the installation of wall or ceiling membranes.
3. Final inspection shall be made upon completion of the installation.

The requirements of this section shall not be considered to prohibit the operation of any heating *appliance* installed to replace an existing heating *appliance* serving an occupied portion of a structure in the event a request for inspection of such heating *appliance* has been filed with the department not more than 48 hours after replacement work is placed into operation or substantially completed, and before any portion of such *appliance* is concealed by any permanent portion of the structure.

Commentary: This clarifies that it is the responsibility of the licensed mechanical contractor or his/her designated installer to notify the mechanical inspector when an inspection is required for the installation of fuel gas equipment. To accommodate the scheduling for an inspection, one day's notice is referenced. The replacement of a heating appliance requires that an inspection be requested within 48 hours of the equipment being placed into operation or is substantially completed.

[A] 108.3 Prosecution of violation. If the notice of violation is not complied with promptly, the code official shall request the legal counsel of the jurisdiction to deem the violation as a strict liability offense and institute the appropriate proceeding at law or in equity to restrain, correct or abate such violation, or to require the removal or termination of the unlawful *occupancy* of the structure in violation of the provisions of this code or of the order or direction made pursuant thereto.

Commentary: The reference to strict liability offense is referenced in only one of the I-Codes but is legally applicable to any violation of a building code provision.

[A] **108.4 Violation penalties.** Persons who shall violate a provision of this code, fail to comply with any of the requirements thereof, or erect, install, alter, or repair 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 an ordinance violation and be subject to administrative citations through the code enforcement process. ~~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.~~

Commentary: This references that a violation of a mechanical provision of this code is subject to the citations through the administrative code enforcement process.

[A] **108.5 Stop work orders.** Upon notice from the code official that work is being performed 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, the owner's authorized agent, or the person doing 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 guilty of an ordinance violation and punishable by the general provisions of this code. ~~liable~~

Commentary: This references that a violation of a mechanical provision of this code is subject to the citations through the administrative code enforcement process.

[A] **109.1 Mechanical board of appeals and examiners.** ~~Application for appeal.~~ There is board of appeals and examiners to hear and decide appeals of orders, decisions, or determinations made by the building official relative to the application and interpretation of the International Mechanical Code, International Fuel Gas Code, including Part V—Mechanical and Part VI—Fuel Gas of the International Residential Code, to determine that the provisions of these codes do not fully apply, to determine if an equally or better construction is proposed as an alternative, to review all prospective changes to the mechanical and fuel gas codes and to submit recommendations to the responsible official and the city council, to review licensing and test application determinations and to examine applicants for licensing, and to investigate matters brought to the board. It shall consist of five members qualified by experience and training to pass upon matters pertaining to mechanical design, construction, and maintenance and the public health aspects of mechanical systems referenced in the International Mechanical Code and the International Fuel Gas Code. Members shall be appointed by the mayor with the advice and consent of the council and shall hold office for a term of three years. The board shall adopt rules and procedures for conducting its business. All decisions and findings shall be provided in writing to the appellant with a duplicate copy provided to the building services department.

~~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 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. Not adopted by the city. The board of appeals shall consist of five members appointed by the chief appointing authority as follows: one for 5 years; one for 4 years; one for 3 years; one for 2 years and one for 1 year. Thereafter, each new member shall serve for 5 years or until a successor has been appointed.

[A] 109.2.1 Qualifications. Not adopted by the city. The board of appeals shall consist of five individuals, one from each of the following professions or disciplines:

[A] 109.2.2 Alternate members. Not adopted by the city. 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 5 years, or until a successor has been appointed.

[A] 109.2.3 Chairman. Not adopted by the city. The board shall annually select one of its members to serve as chairman.

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

[A] 109.2.5 Secretary. Not adopted by the city. 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. Not adopted by the city. Compensation of members shall be determined by law.

[A] 109.3 Notice of meeting. Not adopted by the city. The board shall meet upon notice from the chairman, within 10 days of the filing of an appeal, or at stated periodic meetings.

[A] 109.4 Open hearing. Not adopted by the city. Hearings before the board shall be open to the public. The appellant, the appellant's representative, the code official and any person whose interests are affected shall be given an opportunity to be heard.

[A] 109.4.1 Procedure. Not adopted by the city. The board shall adopt and make available to

[A] 109.5 Postponed hearing. Not adopted by the city. When five members are not present to hear an appeal, either the appellant or the appellant's representative shall have the right to request a postponement of the hearing.

Commentary: Whereas the primary purpose of the Mechanical Board of Appeals and Examiners is to review interpretations of the Mechanical Code Official, these modifications include the additional responsibilities of the Board, which relates to review of ordinances and

review of mechanical licensure. The purpose of the Board is to review technical determinations by the Building and Fire Code Official, not administrative provisions. This also clarifies that the members are appointed by the Mayor with the advice and consent of the Council and that any findings are referred to the appellant in writing. Those sections that are not adopted are defined in the rules and procedures approved by the Board.

201.3 Terms defined in other codes. Where terms are not defined in this code and are defined in the *International Building Code*, *International Residential Code*, *International Existing Building Code*, *NFPA 80*, *International Fire Code*, *International Fuel Gas Code*, or the *International Uniform Plumbing Code*, such terms shall have meanings ascribed to them as in those codes.

Commentary: This section references those codes that are adopted accessory to the mechanical code, including the International Residential Code and the International Existing Building Code. Because the City does not utilize the International Plumbing Code or the International Private Sewage Disposal Code, the references are eliminated and instead simply refer to the plumbing ordinance, which adopts the Uniform Plumbing Code mandated by the State Plumbing Commission.

Section 202—General Definitions. Add the following definition:

STRICT LIABILITY OFFENSE. An offense in which the prosecution in a legal proceeding is not required to prove criminal intent as a part of its case. It is enough to prove that the defendant either did an act which was prohibited or failed to do an act which the defendant was legally required to do.

Commentary: This term brings the code in line with the current legal terminology used in other codes with regard to the prosecution of violations. With this term, the prosecutor is not required to prove that code violations were intended by a defendant or were even due to negligence. It is difficult to prove such intentions or negligence in a court of law. This provision is located only in the Property Maintenance Code but is inserted into all of the adopted Building Services codes.

301.6 Plumbing connections. Potable water supply and building drainage system connections to appliances regulated by this code shall be in accordance with the *International Plumbing Code*.

Commentary: The State Plumbing Commission mandates the use of the Uniform Plumbing Code which the City adopts in lieu of the International Plumbing Code the IMC references.

304.6 Outdoor combustion air. Outdoor *combustion air* shall be provided through opening(s) to the outdoors in accordance with Section 304.6.1, ~~or~~ 304.6.2, or 304.6.3. The minimum dimension of air openings shall be not less than 3 inches (76 mm).

[304.6.3 Alternate combustion air sizing \(IFGC\).](#) As an alternate, the net free area of openings, ducts, or plenums supplying air to an area containing gas- and oil-burning appliances shall be in accordance with B149.1-10, [Natural Gas and Propane Installation Code](#), published by the [Canadian Standards Association \(CSA\)](#).

[The combustion air duct is required to be upsized one diameter size when a dryer is installed in the same room as the combustion air.](#)

Commentary: *These provisions locally accept a Canadian Standard for the design, sizing, and installation of combustion air serving fuel-fired appliances which provides for more flexibility than the IFGC.*

304.11 Combustion air ducts. *Combustion air* ducts shall comply with all of the following:

1. Ducts shall be constructed of galvanized steel complying with Chapter 6 of the *International Mechanical Code* or of a material having equivalent corrosion resistance, strength, and rigidity.

Exception: Within dwellings units, unobstructed stud and joist spaces shall not be prohibited from conveying *combustion air*, provided that not more than one required fireblock is removed.

2. Ducts shall terminate in an unobstructed space allowing free movement of *combustion air* to the appliances.
3. Ducts shall serve a single enclosure.
4. Ducts shall not serve both upper and lower *combustion air* openings where both such openings are used. The separation between ducts serving upper and lower *combustion air* openings shall be maintained to the source of *combustion air*.
5. Ducts shall not be screened where terminating in an attic space.
6. Horizontal upper *combustion air* ducts shall not slope downward toward the source of *combustion air*.
7. The remaining space surrounding a chimney liner, gas vent, special gas vent, or plastic piping installed within a masonry, metal, or factory-built chimney shall not be used to supply *combustion air*.

Exception: Direct-vent gas-fired appliances designed for installation in a solid fuel-burning fireplace where installed in accordance with the manufacturer's instructions.

8. *Combustion air* intake openings located on the exterior of a building shall have the lowest side of such openings located not less than 12 inches (305 mm) vertically from the adjoining finished ground level.

9. Mechanical and gravity outdoor air intake openings shall be located not less than 10 feet (3048 mm) from any hazardous or noxious contaminant source, such as vents, streets, alleys, parking lots, and loading docks, except as specified in Item 3 or Section 501.3.1 of the International Mechanical Code.

Commentary: *For vent locations serving combustion air openings, this refers the user to the International Mechanical Code for clarity.*

305.1 General. *Equipment and appliances shall be installed as required by the terms of their approval, in accordance with the conditions of listing, the manufacturer's instructions, and this code. Manufacturers' installation instructions shall be available on the job site at the time of inspection. Where a code provision is less restrictive than the conditions of the listing of the equipment or appliance or the manufacturer's installation instructions, the conditions of the listing and the manufacturer's installation instructions shall apply.*

After completion of the installation, all safety and operating controls and venting shall be tested before placing the burner in service in accordance with the manufacturer's installation instructions. The following requirements need to be recorded and affixed to the inside of the gas train access panel:

1. The rate of flow of the gas or fuel shall be adjusted to within plus or minus 5 percent of the required Btu/hr rating at the manifold pressure specified by the manufacturer. When the prevailing pressure is less than the manifold pressure specified, the rates shall be adjusted at the prevailing pressure.
2. The gas inlet pressure per the manufacturer's installation settings.
3. The temperature rise across the heat exchanger per the manufacturer's installation settings.
4. The static pressure of the supply and return ducts per the manufacturer's installation settings.

Unlisted appliances *approved* in accordance with Section 301.3 shall be limited to uses recommended by the manufacturer and shall be installed in accordance with the manufacturer's instructions, the provisions of this code, and the requirements determined by the code official.

Commentary: *This is a requirement to ensure that all gas appliances are installed per the manufacturer's installation settings, specifically to require the installer to follow start-up procedures.*

[M] 306.2 Appliances in rooms. Rooms containing appliances shall be provided with a door and an unobstructed passageway to the service area of the appliance measuring not less than 36 inches (914 mm) wide and 80 inches (2032 mm) high.

Exception: Within a *dwelling unit*, appliances installed in a compartment, alcove, basement, or similar space shall be provided with *access* by an opening or door and an unobstructed

passageway measuring not less than 24 inches (610 mm) wide and large enough to allow removal of the largest *appliance* in the space, provided that a level service space of not less than 30 inches (762 mm) deep and the height of the *appliance*, but not less than 30 inches (762 mm), is present at the front or service side of the *appliance* with the door open.

Commentary: This new local amendment clarifies that the passageway to the appliance must extend to the actual service area of the appliance, not just to the appliance.

[M] 306.5 Equipment and appliances on roofs or elevated structures. Where equipment requiring access or appliances are located on an elevated structure or the roof of a building such that personnel will have to climb higher than 16 feet (4877 mm) above grade or floor level to access such equipment or appliances, an interior or exterior means of access shall be provided.

Such access shall not require climbing over obstructions greater than 30 inches (762 mm) in height or walking on roofs having a slope greater than 4 units vertical in 12 units horizontal (33-percent slope). Such access shall not require the use of portable ladders.

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 rung spacing not to exceed 14 inches (356 mm) on center. The uppermost rung shall be not more than 24 inches (610 mm) below the upper edge of the roof hatch, roof, or parapet, as applicable.
3. Ladders shall have a toe spacing not less than 6 inches (152 mm) deep.
4. There shall be not less than 18 inches (457 mm) between rails.
5. Rungs shall have a diameter not less than 0.75-inch (19 mm) and be capable of withstanding a 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 per square foot (488.2 kg/m²). Landing dimensions shall be not less than 18 inches (457 mm) and not less than the width of the ladder served. A guard rail shall be provided on all open sides of the landing.
7. Climbing clearance. The distance from the centerline of the rungs to the nearest permanent object on the climbing side of the ladder shall be not less than 30 inches (762 mm) measured perpendicular to the rungs. This distance shall be maintained from the point of ladder access to the bottom of the roof hatch. A minimum clear width of 15 inches (381 mm) shall be provided on both sides of the ladder measured from the midpoint of and parallel with the rungs, except where cages or wells are installed.

8. Landing required. The ladder shall be provided with a clear and unobstructed bottom landing area having a minimum dimension of 30 inches by 30 inches (762 mm by 762 mm) centered in front of the ladder.
9. Ladders shall be protected against corrosion by *approved* means.
10. Access to ladders shall be provided at all times.

11. Exterior access may be by means of a ladder which need not extend closer than 8 feet (2438 mm) to finished grade.

12. When a new hatch is being used to access equipment or appliances on a roof or elevated structure, the handle or release must be on the same side of the roof hatch as the ladder or within 18 inches (457 mm) of the ladder.

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 shall not apply to Group R-3 occupancies.

Commentary: *Items 1 and 12 has been modified for the safety of personnel to gain access to the roof. Item 11 carries over a legacy code provision to not require a ladder to extend to grade for security purposes. [should this be 11?]*

[M] 306.6 Guards. Guards shall be provided where various components that require service and roof hatch openings are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof, or grade below. The guard shall extend not less than 30 inches (762 mm) beyond each end of components that require service. The top of the guard shall be located not less than 42 inches (1067 mm) above the elevated surface adjacent to the guard. The guard shall be constructed so as to prevent the passage of a 21-inch-diameter (533 mm) sphere and shall comply with the loading requirements for guards specified in the *International Building Code*.

Commentary: *This new provision of the 2015 IMC allows fall restraint/anchorage connector devices as an alternate to a guard. The Mechanical Board's consensus was that such fall restraint devices are impractical use at rooftop HVAC equipment and that the nature of the servicing makes it impractical to utilize a restraining harness.*

306.7 Appliances above suspended ceilings. Rooms containing appliances above suspended ceilings shall be installed in accordance with Section 306.2. In such locations, there shall be a space of not less than 30 inches wide by 30 inches deep from the top of the service area of the appliance to the level floor below. Any obstructions are limited to lights and the suspended ceiling system. A wall or partition shall be allowed in the first 6 inches of the 30-inch-deep service area in front of the appliance, provided the wall or partition terminates below the bottom

of the appliance and the depth of the service space is increased to 36 inches deep from the top of the appliance to the level floor below.

Commentary: This provides for greater access for serviceability for appliances that are installed above suspended ceilings.

404.3 Prohibited locations. Piping shall not be installed in or through a ducted supply, return or exhaust, or a clothes chute, chimney or gas vent, dumbwaiter, or elevator shaft. ~~Piping installed downstream of the point of delivery shall not extend through any townhouse unit other than the unit served by such piping.~~

Commentary: This modification again eliminates the differences between the IFGC and the Plumbing Code as it relates to gas piping installed in town house units.

503.4.1.1 Plastic vent joints. Plastic pipe and fittings used to vent appliances shall be installed in accordance with the appliance manufacturer's instructions. Solvent cement joints between CPVC and PVC pipe and fittings shall be primed. ~~Where a~~ The primer is required, it shall be of a contrasting color.

*Commentary: This clarifies that a primer must be used and must **be a** ~~contracting-contrasting~~ verify that plastic pipe and fittings have been adequately primed.*

Section 150.002. Amendments, additions, and deletions to Part V—Mechanical and Part VI—Fuel Gas of the 2015 International Residential Code.

The following sections of Part V—Mechanical of the 2015 International Residential Code shall be amended, added, or deleted as follows. All other sections or subsections of Part V—Mechanical of the 2015 International Residential Code as published shall remain the same.

N1103.3.2.1 (R403.3.2.1) Sealed air handler. Not adopted by city. ~~Air handlers shall have a manufacturer's designation for an air leakage of no more than 2 percent of the design air flow rate when tested in accordance with ASHRAE 193.~~

Commentary: Staff has verified that major manufacturers of air handlers are not subject to the ASHRAE 193 test at this time.

N1103.3.3 (R403.3.3) Duct testing (Mandatory). Not adopted by city. ~~Ducts shall be pressure tested to determine air leakage by one of the following methods:~~

Commentary: The testing of duct sealing in a new house would be an expense of approximately \$400 or more. This maintains a local amendment to visually inspect for air leakage instead of having a testing and balancing company perform the test.

N1103.3.5 (R403.3.5) Building cavities (Mandatory). Building framing cavities shall not be used as ducts or plenums.

Exception: Stud spaces and floor joist cavities may be used for return air plenums.

Commentary: With the local exception, the use of a floor joist and stud space that is inside of the thermal envelope is allowed to continue instead of a new mandate to require all plenums to be ducted.

N1103.5 (R403.5) Service hot water systems. Energy conservation measures for service hot water systems shall be in accordance with ~~Sections N1103.5.1 and N1103.5.4.~~ the plumbing

Commentary: This reverts any insulation of hot water services within a dwelling to the plumbing code.

M1301.4 Plastic pipe, fittings and components. ~~Not adopted by city. Plastic pipe, fittings and components shall be third-party certified as conforming to NSF 14.~~

Commentary: Mechanical piping systems currently have no NSF rating that staff is aware of.

M1305.1.4.1 Ground clearance. *Equipment and appliances* supported from the ground shall be level and firmly supported on a concrete slab or other *approved* material extending not less than ~~1 1/2~~ 3 inches (~~38.76~~ mm) above the adjoining ground. Such support shall be in accordance with the manufacturer's installation instructions. *Appliances* suspended from the floor shall have a clearance of not less than 6 inches (152 mm) from the ground.

Commentary: Prefab concrete slabs used to support residential appliances are not thicker than 1 1/2 inches. This additionally maintains a headroom clearance of 6 feet 8 inches to accommodate future service work for a mechanical appliance.

M1411.6 Insulation of refrigerant piping. Piping and fittings for refrigerant vapor (suction) lines shall be insulated with insulation having a thermal resistivity of not less than R-2 ~~R-4~~ and having external surface permeance not exceeding 0.05 perm [2.87 ng/(s · m² · Pa)] when tested in accordance with ASTM E 96. *(Eliminate local amendment. New linesets that meet these standards are now readily available at little to no increased cost.)*

M1411.9 Minimum duct size. The minimum unobstructed total area of the outside and return air ducts or openings and supply air ducts to a heat pump and/or air conditioners shall be not less than 6 square inches per 1,000 Btu/h (13,208 mm²/kW) output rating or as indicated by the conditions of the listing of the heat pump or air conditioner. *(The code section that used to include this requirement has been changed. Since a duct design layout is not required on every house, this ensures a minimum size for proper operation of cooling equipment. Section 1411 is*

the logical place because it is the section for "Heating and Cooling Equipment." Minimum duct size for furnaces is already covered in the section for warm air furnaces.)

Commentary: *Preassembled refrigerant tubing sets are not locally available with an R-4 insulation but are capable of an R-2 thermal resistivity.*

M1502.4.2 Duct installation. Exhaust ducts shall be supported at 4-foot (1,219 mm) intervals ~~not to exceed 12 feet (3658 mm)~~ 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 Section M1601.4.1 ~~and shall be mechanically fastened~~. Ducts shall not be joined with screws or similar fasteners that protrude ~~more than 1/8 inch (3.2 mm)~~ into the inside of the duct.

Commentary: *This provision is inconsistent with the other portions of the IMC, IFGC, and the fuel gas provision of the residential code. Any protrusion of a screw into a clothes dryer exhaust would catch lint and create a fire hazard.*

M1506.3 Exhaust openings. Air exhaust openings shall terminate not less than 3 feet (914 mm) from property lines; 3 feet (914 mm) from operable ~~and nonoperable~~ openings into the building; and 10 feet (3048 mm) from mechanical air intakes, except where the opening is located 3 feet (914 mm) above the air intake. Openings shall comply with Sections R303.5.2 and R303.6. Minimum clearance between the exhaust and intake openings of a HRV/ERV system shall be in accordance with the manufacturer's installation instructions. *(These are UL listed, tested, and engineer designed pieces of equipment.)*

Commentary: *There is no risk of an exhaust termination to the outside adjacent to a nonoperable opening.*

Revise the new table 1506.2. It is very cumbersome, will be difficult to use, confusing, and time consuming to enforce. In addition, Sioux Falls already limits the allowed length of flexible duct. Below are the new code sections and table 1506.2 as is from the 2015 IRC, followed by the proposed revised table.

M1506.2 Duct length. The length of exhaust and supply ducts used with ventilating equipment shall not exceed the lengths determined in accordance with Table M1506.2.

Exception: Duct length shall not be limited where the duct system complies with the manufacturer's design criteria or where the flow rate of the installed ventilating equipment is verified by the installer or approved third party using a flow hood, flow grid, or other airflow measuring device.

**TABLE M1506.2
DUCT LENGTH**

DUCT TYPE	FLEX DUCT									SMOOTH-WALL DUCT								
	50	80	100	125	150	200	250	300	50	80	100	125	150	200	250	300		
Fan airflow rating (CFM @ 0.25 inch wc ^a)	50	80	100	125	150	200	250	300	50	80	100	125	150	200	250	300		
Diameter ^b (inches)	Maximum length ^{c, d, e} (feet)																	
3	X	X	X	X	X	X	X	X	5	X	X	X	X	X	X	X		
4	56	4	X	X	X	X	X	X	114	31	10	X	X	X	X	X		
5	NL	81	42	16	2	X	X	X	NL	152	91	51	28	4	X	X		
6	NL	NL	158	91	55	18	1	X	NL	NL	NL	168	112	53	25	9		
7	NL	NL	NL	NL	161	78	40	19	NL	NL	NL	NL	NL	148	88	54		
8 and above	NL	NL	NL	NL	NL	189	111	69	NL	NL	NL	NL	NL	NL	198	133		

- For SI: 1 foot = 304.8 mm.
- Fan airflow rating shall be in accordance with ANSI/AMCA 210-ANSI/ASHRAE 51.
 - For noncircular ducts, calculate the diameter as four times the cross-sectional area divided by the perimeter.
 - This table assumes that elbows are not used. Fifteen feet of allowable duct length shall be deducted for each elbow installed in the duct run.
 - NL = no limit on duct length of this size.
 - X = not allowed. Any length of duct of this size with assumed turns and fittings will exceed the rated pressure drop.

Here is the proposed revised table.

**TABLE M1506.2
DUCT SIZE**

Fan Airflow Rating (CFM)	0-80	81-125	126-200	201-300	Over 300
Minimum duct diameter (inches)	4	5	6	7	8

Section M1508. Subslab Soil Exhaust Systems.

M1508.1 General. When a subslab soil exhaust system is provided, the duct shall conform to the requirements of this section.

M1508.2 Materials. Subslab soil exhaust system duct material shall be air duct material listed and labeled to the requirements of UL 181 for Class 0 air ducts or any of the following piping materials that comply with the *International Plumbing Code* as building sanitary drainage and vent pipe: cast iron; galvanized steel; brass or copper pipe; copper tube of a weight not less than that of copper drainage tube, Type DWV; and plastic piping.

M1508.3 Grade. Exhaust system ducts shall not be trapped and shall have a minimum slope of 1/8 unit vertical in 12 units horizontal (1 percent slope).

M1508.4 Termination. Subslab soil exhaust system ducts shall extend through the roof and terminate at least 6 inches (152 mm) above the roof and at least 10 feet (3.048 mm) from any operable openings or air intake.

Commentary: This provision is found in an appendix chapter that has not been adopted. If it is chosen to install a sub slab soil exhaust system, this placement into Chapter 15 at least provides a standard for slope and termination requirements.

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M1601.1.1 Above-ground duct systems. Above-ground *duct systems* shall conform to the following:

1. *Equipment* connected to *duct systems* shall be designed to limit discharge air temperature to not greater than 250°F (121°C).
2. Factory-made ducts shall be listed and labeled in accordance with UL 181 and installed in accordance with the manufacturer's instructions. Flexible air ducts shall be limited in length to 14 feet (4,267 mm). Flexible air connectors are not allowed.
3. Fibrous glass duct construction shall conform to the SMACNA *Fibrous Glass Duct Construction Standards* or NAIMA *Fibrous Glass Duct Construction Standards*.
4. Field-fabricated and shop-fabricated metal and flexible duct constructions shall conform to the SMACNA HVAC Duct Construction Standards—Metal and Flexible except as allowed by Table M1601.1.1, except that sheet steel and strip used for duct, connectors, and round duct shall be G40 galvanized steel of lock-forming quality. Galvanized steel shall conform to ASTM A 653.
5. The use of gypsum products to construct return air ducts or plenums is permitted, provided that the air temperature does not exceed 125°F (52°C) and exposed surfaces are not subject to condensation.
6. *Duct systems* shall be constructed of materials having a flame spread index of not greater than 200.
7. Stud wall cavities and the spaces between solid floor joists to be used as air plenums shall comply with the following conditions:
 - 7.1. These cavities or spaces shall not be used as a plenum for supply air.
 - 7.2. These cavities or spaces shall not be part of a required fire-resistance-rated assembly.
 - 7.3. Stud wall cavities shall not convey air from more than one floor level.
 - 7.4. Stud wall cavities and joist-space plenums shall be isolated from adjacent concealed spaces by tight-fitting fireblocking in accordance with Section R602.8.
 - 7.5. Stud wall cavities in the outside walls of building envelope assemblies shall not be utilized as air plenums.

Commentary: *With reference to Item 2, due to high restrictions in flexible air ducts, this material has been limited locally to a maximum length of 14 feet. With reference to Item 4, SMACNA standards are referenced in the residential code for the first time. These standards are typically used for commercial and industrial construction. The standard would have required a thicker galvanized coating, a G60, which has been modified to a G40 which is the standard thickness of galvanizing for residential ducts.*

M1601.4.1 Joints, seams, and connections. Longitudinal and transverse joints, seams, and connections in metallic and nonmetallic ducts shall be constructed as specified in SMACNA HVAC Duct Construction Standards—Metal and Flexible and NAIMA Fibrous Glass Duct Construction Standards. Joints, longitudinal and transverse seams, and connections in ductwork outside the building envelope and all return ducts located within 10 feet (3.05 m) of any appliance or all return ducts within a mechanical room and the plenum/coil cabinet connections shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic- plus-embedded-fabric systems, liquid sealants, or tapes. Tapes and mastics used to seal fibrous glass ductwork shall be listed and labeled in accordance 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.

Tapes and mastics used to seal metallic and flexible air ducts and flexible air connectors shall comply with UL 181B and shall be marked “181 B-FX” for pressure-sensitive tape or “181 BM” for mastic. Duct connections to flanges of air distribution system equipment shall be sealed and 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 metallic ducts shall have a contact lap of not less than 1 inch (25 mm) and shall be mechanically fastened by means of not less than three sheet-metal screws or rivets equally spaced around the joint.

Closure systems used to seal all ductwork shall be installed in accordance with the manufacturer's instructions.

Exceptions:

1. Spray polyurethane foam shall be permitted to be applied without additional joint seals.
2. Where a duct connection is made that is partially inaccessible, three screws or rivets shall be equally spaced on the exposed portion of the joint so as to prevent a hinge effect.
3. For ducts having a static pressure classification of less than 2 inches of water column (500 Pa), additional closure systems shall not be required for continuously welded joints and seams and locking-type joints and seams of other than the snap-lock and button-lock types.

Commentary: *The code has required all ducts to be sealed for the last three code cycles. The HVAC industry requested that only certain portions of a duct system necessitated sealing such as ducts outside of the thermal envelope and the ducts within the vicinity of a mechanical room due to a possible carbon monoxide mishap. The sealing of all ducts inside of the thermal envelope is considered as an additional expense as compared to the amount of air loss which occurs on an unsealed duct inside of the thermal envelope.*

M1601.4.4 Support. Factory-made ducts listed in accordance with UL 181 shall be supported in accordance with the manufacturer's installation instructions. Field- and shop-fabricated fibrous glass ducts shall be supported in accordance with the SMACNA Fibrous Glass Duct Construction Standards or the NAIMA Fibrous Glass Duct Construction Standards. Field- and

shop-fabricated metal and flexible ducts shall be supported in accordance with the SMACNA HVAC Duct Construction Standards—Metal and Flexible.

Exception: Metal ducts shall be supported by 1/2-inch- (13 mm) wide 18-gage, 1-inch- (25 mm) wide 24-gage, or 1 1/2-inch- (39 mm) wide 26-gage metal straps or 12-gage galvanized wire at intervals not exceeding 10 feet (3,048 mm) or other approved means.

Commentary: This maintains lesser gage of strap to accommodate residential contractors that do not have the machinery necessary to shear a thicker gage material. A 1-inch 24-gage strap is equivalent to a 1/2-inch 18-gage strap.

M2101.1 General. Hydronic piping shall conform to Table M2101.1. *Approved* piping, valves, fittings, and connections shall be installed in accordance with the manufacturer's instructions. Pipe and fittings shall be rated for use at the operating temperature and pressure of the hydronic system. Used pipe, fittings, valves, or other materials shall be free of foreign materials.

Exception: Polyvinyl Chloride (PVC) plastic pipe conforming to ASTM D1785 or ASTM D2241 is an allowable material for hydronic piping.

Commentary: PVC is the piping of choice locally and is accepted in the IMC but not referenced in the IRC.

G2407.6 (304.6) Outdoor combustion air. Outdoor *combustion* air shall be provided through opening(s) to the outdoors in accordance with Section G2407.6.1, ~~or G2407.6.2,~~ or G2407.6.3. ~~Dimension~~ of air openings shall be not less than 3 inches (76 mm).

Combustion air intake opening shall be located a minimum of 3 feet (914 mm) from a gas meter.

G2407.6.3 Alternate combustion air sizing. As an alternate, the net free area of openings, ducts, or plenums supplying air to an area containing gas- and oil-burning appliances shall be in accordance with B149.1-10, Natural Gas and Propane Installation Code, published by the Canadian Standards Association (CSA).

When all air is taken from the outdoors for appliances, one outside air duct may be used and shall terminate below the draft hood. An exterior opening may be used in place of a duct provided that it terminates within 1 foot (305 mm) above, and within 2 feet (610 mm) horizontally from, the burner level of the appliance having the largest input. (Eliminate this paragraph. Location is already covered within the Canadian Standard)

The combustion air duct is required to be upsized one diameter size when a dryer is installed in the same room as the combustion air.

Commentary: This maintains a minimum distance of 3 feet for a combustion air opening being located adjacent to a gas meter; and a reduced size of combustion air opening, consistent with B149.1-10, Natural Gas and Propane Installation Code published by the

Canadian Standards Association. This Canadian Standard has been expanded at the request of the Mechanical Board of Appeals to include appliances greater than 300,000 Btu/hr inputs.

G2408.1 (305.1) General. *Equipment and appliances shall be installed as required by the terms of their approval, in accordance with the conditions of listing, the manufacturer's instructions, and this code. Manufacturer's installation instructions shall be available on the job site at the time of inspection. Where a code provision is less restrictive than the conditions of the listing of the equipment or appliance or the manufacturer's installation instructions, the conditions of the listing and the manufacturer's installation instructions shall apply.*

After completion of the installation, all safety and operating controls and venting shall be tested before placing the burner in service in accordance with the manufacturer's installation instructions. The following requirements need to be recorded and affixed to the inside of the gas train access panel:

1. The rate of flow of the gas or fuel shall be adjusted to within plus or minus 5 percent of the required Btu/hr rating at the manifold pressure specified by the manufacturer. When the prevailing pressure is less than the manifold pressure specified, the rates shall be adjusted at the prevailing pressure.
2. The gas inlet pressure per the manufacturer's installation settings.
3. The temperature rise across the heat exchanger per the manufacturer's installation settings.
4. The static pressure of the supply and return ducts per the manufacturer's installation settings.

Unlisted *appliances approved* in accordance with Section G2404.3 shall be limited to uses recommended by the manufacturer and shall be installed in accordance with the manufacturer's instructions, the provisions of this code, and the requirements determined by the *code official*.

Commentary: This maintains the requirement to place the furnace and/or boiler into operation in accordance with the manufacturer's installation settings. This provision is now found in the 2012 IFGC but has not yet made it into the IRC.

G2411.1.1 (310.1.1) CSST. Corrugated stainless steel tubing (CSST) gas *pipng* systems and piping systems containing one or more segments of CSST shall be bonded to the electrical service grounding electrode system at the point where the gas service enters the building, or, where provided, the lightning protection electrode system. *(Eliminate local amendment. Wording in the upcoming Plumbing code will match current wording in the IFGC.)*

Commentary: This maintains consistency with the Uniform Plumbing Code to simply require the bonding of CSST piping at the point where the gas service enters the building.

G2415.2 (404.2) CSST. CSST piping systems shall be installed in accordance with the terms of their approval, the conditions of listing, the manufacturer's instructions, and this code.

The piping located on the exterior extending from the gas meter to the inside of the structure shall be a metallic pipe in compliance with Section G2414.4. The entrance into the structure shall be provided with the appropriate transition flange where an alternate gas piping material is utilized on the inside of the structure.

Commentary: *This provides consistency with the plumbing code that does not allow CSST piping from the meter to the entrance into the dwelling to eliminate tampering of the gas piping and to provide a rigid pipe connection from the meter to the entrance into the structure.*

G2415.3 (404.3) Prohibited locations. Piping shall not be installed in or through a ducted supply, return or exhaust, or a clothes chute, chimney or gas vent, dumbwaiter, or elevator shaft. ~~Piping installed downstream of the point of delivery shall not extend through any townhouse unit other than the unit served by such piping.~~

Commentary: *This is taken out of the IRC because it is not consistent with the plumbing code and plumbing contractors are who typically runs gas piping.*

G2427.4.1.1 (503.4.1.1) (IFGS) Plastic vent joints. Plastic pipe and fittings used to vent appliances shall be installed in accordance with the appliance manufacturer's instructions. Solvent cement joints between CPVC and PVC pipe and fittings shall be primed. ~~Where a~~ The primer is required, it shall be of a contrasting color.

Exception: Where compliance with this section would conflict with the appliance manufacturer's installation instructions. *(Eliminate current amended paragraphs and add the one sentence to the existing IFGC language and keep the current wording change to the last IFGC sentence. This achieves the same result with much less change to the original code language. The exception is already covered by the fact that the manufacturer's listing cannot be violated.)*

Commentary: *This requires all primers to be a contrasting color to be able to verify that the pipe has been adequately primed.*