

ORDINANCE # 5103

AN ORDINANCE REPEALING CHAPTER 15.26 OF THE RAPID CITY MUNICIPAL CODE IN ITS ENTIRETY AND ADOPTING A NEW CHAPTER 15.26 OF THE RAPID CITY MUNICIPAL CODE ENTITLED MECHANICAL CODE.

BE IT ORDAINED by the City of Rapid City that Chapter 15.26 of the Rapid City Municipal Code is repealed in its entirety.

BE IT FURTHER ORDAINED by the City of Rapid City that a new Chapter 15.26 of the Rapid City Municipal Code, entitled Mechanical Code, be and is hereby adopted as follows:

15.26.010 Adoption

There is adopted by the City of Rapid City, for the purpose of regulating the design construction, quality of materials, erection, installation, alteration, repair, location, relocation, replacement, addition to, use of maintenance of heating, ventilation, cooling, incinerators or other miscellaneous heat producing appliances, that certain code known as the International Mechanical Code, published by the International Code Council, Inc., specifically the 2003 edition thereof, including Appendix A, providing for the issuance of permits and collection of fees therefore; and each and all of the regulations, provisions, conditions and terms of such “International Mechanical Code”, 2003 edition, published by the International Code Council, Inc. A Copy of said Code is on file in the office of the City Building Official.

BE IT FURTHER ORDAINED that the International Mechanical Code (2003 edition), as adopted by the City of Rapid City, be amended as follows:

15.26.020 IMC Chapter 1, Section 101.1, Title - Amended.

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

15.26.030 IMC Chapter 1, Section 101.2 Scope – Amended.

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 shall be regulated by the Rapid City Gas Code, fuel gas-fired appliances and fuel gas-fired appliance venting systems shall be regulated by the International Fuel Gas Code.

15.26.040 IMC Chapter 1, Section 103 Department of Mechanical Inspection – Amended

**SECTION 103
BUILDING PERMIT REVIEW TEAM**

103.1 General. The building permit review team is hereby created and the executive official in charge thereof shall be known as the code official.

103.2 Appointment. The code official shall be appointed by the chief appointing authority of the jurisdiction; and the code official shall not be removed from office except for cause and after full opportunity to be heard on specific and relevant charges by and before the appointing authority.

103.3 Deputies. In accordance with the prescribed procedures of this jurisdiction and with the concurrence of the appointing authority, the code official shall have the authority to appoint a deputy code official, other related technical officers, inspectors and other employees.

103.4 Liability. The code official, officer or employee charged with the enforcement of this code, while acting for the jurisdiction, shall not thereby be rendered liable personally, and is hereby relieved from all personal liability for any damage accruing to persons or property as a result of an act required or permitted in the discharge of official duties.

Any suit instituted against any officer or employee because of an act performed by that officer or employee in the lawful discharge of duties and under the provisions of this code shall be defended by the legal representative of the jurisdiction until the final termination of the proceedings. The code official or any subordinate shall not be liable for costs in an action, suit or proceeding that is instituted in pursuance of the provisions of this code; and any officer of the department of mechanical inspection, acting in good faith and without malice, shall be free from liability for acts performed under any of its provisions or by reason of any act or omission in the performance of official duties in connection there with.

15.26.050 IMC Chapter 1, Section 105.1 Modifications - Amended

105.1 Modifications. Whenever there are practical difficulties involved in carrying out the provisions of this code, the mechanical board shall have the authority to grant modifications for individual cases, provided the mechanical board shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and does not lessen health, life and fire safety requirements. The details of action granting modifications shall be recorded and entered in the files of the mechanical inspection department.

15.26.060 IMC Chapter 1, Section 105.2 Alternative materials, methods, equipment, and appliances – Amended

105.2 Alternative materials, methods, equipment and appliances. The provisions of this code are not intended to prevent the installation of any material or to prohibit any method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material or method of construction shall be approved where the mechanical board finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety.

15.26.070 IMC Chapter 1, Section 106.2 Permits not required – Amended

106.2 Permits not required. Permits shall not be required for the following:

1. Portable heating appliances;
2. Portable ventilation appliances and equipment;
3. Portable cooling units;
4. Steam, hot water or chilled water piping within any heating or cooling equipment or appliances regulated by this code;
5. The replacement of any minor part that does not alter the approval of equipment or an appliance or make such equipment or appliance unsafe;
6. Portable evaporative coolers; and
7. Self-contained refrigeration systems that contain 10 pounds (4.5 kg) or less of refrigerant, or that are actuated by motors of 1 horse power (0.75 kW) or less.
8. Portable fuel cell appliances that are not connected to a fixed piping system and are not interconnected to a power grid.
9. Water heaters installed in one- and two-family dwellings.

Exemption from the permit requirements of this code shall not be deemed to grant authorization for work to be done in violation of the provisions of this code or other laws or ordinances of this jurisdiction.

15.26.080 IMC Chapter 1, Section 106.3.1 Construction documents – Amended

106.3.1 Construction documents. Construction documents, engineering calculations, diagrams and other data shall be submitted in two or more sets with each application for a permit. The code official shall require construction documents, computations and specifications to be prepared and designed by a registered design professional when required by state law or when the valuation of construction is \$25,000 or greater. Construction documents shall be drawn to scale and shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that the work conforms to the provisions of this code. Construction documents for buildings more than two stories in height shall indicate where penetrations will be made for mechanical systems, and the materials and methods for maintaining required structural safety, fire-resistance rating and fireblocking.

Exception: The code official shall have the authority to waive the submission of construction documents, calculations or other data if the nature of the work applied for is such that reviewing of construction documents is not necessary to determine compliance with this code.

15.26.090 IMC Chapter 1, Section 106.4.1 Approved construction documents – Amended

106.4.1 Reviewed construction documents. When the code official issues the permit where construction documents are required, the construction documents shall be endorsed in writing and stamped “REVIEWED.” Such reviewed construction documents shall not be changed, modified or altered without authorization from the code official. Work shall be done in accordance with the reviewed construction documents.

The code official shall have the authority to issue a permit for the construction of part of a mechanical system before the construction documents for the entire system have been submitted or reviewed, provided adequate information and detailed statements have been filed complying with all pertinent requirements of this code. The holder of such permit shall proceed at his or her own risk with out assurance that the permit for the entire mechanical system will be granted.

15.26.100 IMC Chapter 1, Section 106.4.2 Validity – Amended

106.4.2 Validity. The issuance of a permit or review of construction documents shall not be construed to be a permit for, or a review of, any violation of any of the provisions of this code or of other ordinances of the jurisdiction. A permit presuming to give authority to violate or cancel the provisions of this code shall be invalid.

The issuance of a permit based upon construction documents and other data shall not prevent the code official from thereafter requiring the correction of errors in said construction documents and other data or from preventing building operations from being carried on thereunder when in violation of this code or of other ordinances of this jurisdiction.

15.26.110 IMC Chapter 1, Section 106.4.3 Expiration – Amended

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.

15.26.120 IMC Chapter 1, Section 106.4.4 Extensions – Amended

106.4.4 Extensions. A permittee holding an unexpired permit shall have the right to apply for an extension of the time within which the permittee will commence work under that permit when work is unable to be commenced within the time required by this section for good and satisfactory reasons. The code official shall extend the time for action by the permittee for a period not exceeding 180 days if there is reasonable cause.

15.26.130 IMC Chapter 1, Section 106.4.5 Suspension or revocation of permit – Amended

106.4.5 Suspension or revocation of permit. The code official shall revoke a permit or review issued under the provisions of this code in case of any false statement or misrepresentation of fact in the application or on the construction documents upon which the permit or approval was based.

15.26.140 IMC Chapter 1, Section 106.4.6 Retention of construction documents – Amended

106.4.6 Retention of construction documents. One set of construction documents shall be retained by the code official until final review of the work covered therein. One set of reviewed construction documents shall be returned to the applicant, and said set shall be kept on the site of the building or job at all times during which the work authorized thereby is in progress.

15.26.150 IMC Chapter 1, Section 106.5.2 Fee schedule – Amended

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

TABLE 100-A RESIDENTIAL PERMIT FEES

TOTAL VALUATION	FEE
\$1.00 to \$1,600.00	\$37.00
\$1,601 to \$2,000.00	\$37.00 for the first \$1,600.00 plus \$2.00 for each additional \$1,000.00, or fraction thereof, to and including \$2,000.00
\$2,001 to \$25,000.00	\$45.00 for the first \$2,000.00 plus \$9.00 for each additional \$1,000.00, or fraction thereof, to and including \$25,000.00
\$25,001.00 to \$50,000	\$252.00 for the first \$25,000.00 plus \$6.50 for each additional \$1,000.00, or fraction thereof, to and including \$ 50,000.00
\$50,001.00 to \$100,000.000	\$414.50 for the first \$50,000.00 plus \$4.50 for each additional \$1,000.00, or fraction thereof, to and including \$100,000.00
\$100,001.00 to \$500,000.00	\$639.50 for the first \$100,000.00 plus \$3.50 for each additional \$1,000.00, or fraction thereof, to and including \$500,000.00
\$500,00.00 to \$1,000,000.00	\$2,039.50 for the first \$500,000.00 plus \$3.00 for each additional \$1,000.00, or fraction thereof, to and including \$1,000,000.00
\$1,000,001.00 and up	\$3,539.50 for the first \$1,000,000.00 plus \$2.00 for each additional \$1,000.00, or fraction thereof
Other Inspections and Fees:	
1. Inspections outside of normal business hours.....	\$42.00 per hour ¹ (minimum charge – two hours)
2. Re-inspection fees	\$42.00 per hour ¹
3. Inspections for which no fee is specifically indicated.....	\$42.00 per hour ¹ (minimum charge – one hour)
4. Additional plan review required by changes, additions, or revisions to plans.....	\$42.00 per hour ¹ (minimum charge – one hour)
5. For use of outside consultants for plan checking and inspections, or both.....	Actual costs ²
6. Plan review fees for 1 and 2 family dwellings and accessory structures shall be 10% of the building permit fee.	
7. Plan review fees for all occupancies except 1 and 2 family dwellings shall be 50% of the building permit fee.	

¹Or the total hourly cost to the jurisdiction, whichever is the greatest. This cost shall include supervision, overhead, equipment, hourly wages, and fringe benefits of the employees involved.

²Actual costs include administrative and overhead costs.

TABLE 100-C COMMERCIAL PERMIT FEES

TOTAL VALUATION	FEE
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\$1.00 to \$1,600.00	\$37.00
\$1,601 to \$2,000.00	\$69.25
\$2,001 to \$25,000.00	\$69.25 for the first \$2,000.00 plus \$14.00 for each additional \$1,000.00, or fraction thereof, to and including \$25,000.00
\$25,001.00 to \$50,000	\$391.25 for the first \$25,000.00 plus \$10.10 for each additional \$1,000.00, or fraction thereof, to and including \$ 50,000
\$50,001.00 to \$100,000.000	\$643.75 for the first \$50,000.00 plus \$7.00 for each additional \$1,000.00, or fraction thereof, to and including \$100,000.00
\$100,001.00 to \$500,000.00	\$993.75 for the first \$100,000.00 plus \$5.60 for each additional \$1,000.00, or fraction thereof, to and including \$500,000.00
\$500,00.00 to \$1,000,000.00	\$3,233.75 for the first \$500,000.00 plus \$4.75 for each additional \$1,000.00, or fraction thereof, to and including \$1,000,000.00
\$1,000,001.00 and up	\$5,608.75 for the first \$1,000,000.00 plus \$3.15 for each additional \$1,000.00, or fraction thereof
Other Inspections and Fees:	
1. Inspections outside of normal business hours.....	\$47.00 per hour ¹
(minimum charge – two hours)	
2. Re-inspection fees	\$47.00 per hour ¹
3. Inspections for which no fee is specifically indicated.....	\$47.00 per hour ¹
(minimum charge – one hour)	
4. Additional plan review required by changes, additions, or revisions to plans.....	\$47.00 per hour ¹
(minimum charge – one hour)	
5. For use of outside consultants for plan checking and inspections, or both.....	Actual costs ²
6. Plan review fees for 1 and 2 family dwellings and accessory structures shall be 10% of the building permit fee.	
7. Plan review fees for all occupancies except 1 and 2 family dwellings shall be 50% of the building permit fee.	

¹Or the total hourly cost to the jurisdiction, whichever is the greatest. This cost shall include supervision, overhead, equipment, hourly wages, and fringe benefits of the employees involved.

²Actual costs include administrative and overhead costs.

15.26.160 IMC Chapter 1, Section 106.5.3 Fee refunds – Amended

106.5.3 Fee refunds. The building official is authorized to establish a refund policy.

15.26.170 IMC Chapter 1, Section 109 Means of Appeal - Amended

109.1 Rapid City Mechanical Board. There is established the Rapid City Mechanical Board which shall consist of the Mechanical Inspector, three mechanical contractors licensed by the City, two mechanical installers licensed by the City, a representative from a related wholesale business, a natural gas supplier, a propane gas supplier, a representative from the refrigeration industry, a representative from the appliance industry, and a representative from the mechanical engineering profession. The Building Official shall serve at the board meetings in the absence of the Mechanical Inspector. The members of such board shall be appointed by the Mayor, subject to the approval of the Council to two-year terms. The members of the board, except for the Mechanical Inspector, shall serve without compensation for such service. A quorum shall consist of 5 board members to conduct official business.

109.2 Purpose. The purpose of the Board is to protect the public health, safety, and welfare, and to guard against unsafe, unstable, or short-lived products or services related to installation of heating, ventilating, cooling systems, and other heat-producing appliances within this jurisdiction. The Board shall also insure new or small volume contractors are able to obtain a license without hardship.

109.3 Powers and Duties of the Board.

- A. The Board is authorized to adopt such rules and regulations as shall become necessary with the approval of the Council. The board shall notify all license holders of such proposed rules and regulations within 30 days prior to the delivery of such rules and regulations to the Council.
- B. The Board shall hold meetings as necessary for transaction of business; for examination of applicants, to determine the qualifications and fitness of all applicants as to their knowledge of the rules and regulations governing mechanical work; and to grant licenses and renewals to applicants who show proper qualifications.

- C. The Board shall review all licenses issued hereunder and make recommendations to the Council concerning renewal and issuance.
- D. The Mechanical Board shall preside over and hear appeals and complaints filed with it and concerning mechanical code and licensure related issues. The board shall render its opinion on any such complaint or appeal.
- E. Any appeal or complaint stemming from a determination made by the City of Rapid City mechanical Inspector may be taken to the board upon written notice served upon the Building Official. Such appeals must be served within thirty calendar days of the decision or action appealed. The Mechanical Inspector shall give notice to all interested parties, including the relevant department head, and shall convene the board to hear the appeal within thirty calendar days of the receipt of the notice of appeal, excluding the day of receipt. The board shall not have the authority to waive any requirements of federal, state, or local law. The board may make such inquiries, as it deems expedient.

109.4 Violations and Penalties.

- A. The Board may revoke any license if the holder thereof is doing work without a permit. The Board may revoke any contractor’s license if the Board determines the contractor’s work has been consistently substandard, the contractor has violated any applicable statute, ordinance, rule or regulation promulgated by the Board, or the contractor has demonstrated inability or unfitness to perform the work for which he has been licensed.
- B. Should any applicant or licensee be aggrieved by a decision of the Board, he may, within 10 days, provide written notice of his intent to appeal such decision to the Council. The Council may affirm, modify or reverse the action of the mechanical board. All decisions of the Council shall be final.
- C. Any person violating this ordinance shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punishable by a fine, not to exceed \$100, or by imprisonment in the county jail, not to exceed 30 days, or by both fine and imprisonment. Each day shall be deemed to constitute a separate offense.
- D. Any licensee subject to investigation by the Board shall cooperate fully with the Board.

15.26.180 Chapter 1, Section 110 Mechanical licenses – Added

110.1 License Required.

A. Mechanical Contractor. It shall be unlawful for any person or persons representing or operating under the auspices of a proprietorship, partnership, firm, or corporation to conduct, carry on, or engage in the business of mechanical work or act in the capacity of a mechanical contractor, without first being approved by the Rapid City Mechanical Board, and having had issued to them a valid mechanical contractor’s license by the City Finance Officer.

1. Mechanical Contractor means a proprietorship, partnership, firm, or corporation, who for compensation undertakes or offers to undertake mechanical contracting. As a proprietorship, partnership, firm, or corporation, the owner shall be qualified in the mechanical trade as a mechanical contractor, or have employed as a supervisor a person with said qualifications and license. The mechanical contractor’s license shall be issued in the name of an individual, DBA (Doing business As) company name. The individual licensed as a contractor under a proprietorship, partnership, firm, or corporation, shall have six years verifiable experience, via completion of the work record portion of the mechanical license application, and be qualified in planning, superintending, and the practical installation of mechanical system. A completed 18-24 month mechanical educational program will count as 1 year of experience and a completed 9-12 month mechanical educational program will count as ½ year experience. A written exam is required to be passed by a minimum score of 75% in addition to the work record and proof of insurance.

2. Mechanical Contracting means the enlargement, alteration, improvement, conversion, or installation of mechanical systems; including the planning, superintending and the practical installation; and being familiar with the laws, rules and regulations governing the same.

3. If the person holding the contractors license for a business leaves that business, that existing business will have 90 days to obtain another contractors license under another person.

B. Mechanical Installer. It shall be unlawful for any person to labor at the trade or in the capacity of a mechanical installer without first being approved by the Rapid City Mechanical Board and having had issued to him a valid mechanical installer's license by the City Finance Officer.

1. Mechanical Installer means any person with four years verifiable experience, via completion of the work record portion of the mechanical license application, in the installation of mechanical equipment, who as his principal occupation, is engaged as an employee of, or otherwise working under, the direction of a mechanical contractor, and who is lawfully qualified and licensed as a mechanical installer pursuant to the provisions of this chapter. A completed 18-24 month mechanical educational program will count as 1 year of experience and a completed 9-12 month mechanical educational program will count as ½ year experience. A written exam is required to be passed by a minimum score of 75% in addition to the work record.

C. Mechanical Apprentice. It shall be unlawful for any person to labor at the trade or in the capacity of a mechanical apprentice without first being approved by the Rapid City Mechanical Board and having had issued to him a valid mechanical apprentice license by the City Finance Officer.

1. Mechanical apprentice means any person other than a mechanical installer who is engaged in working as an employee of a mechanical contractor under the immediate and personal supervision of a mechanical installer, learning and assisting in the installation of mechanical systems. No apprentice shall be in charge of any phase of work.

D. Appliance Specialist. It shall be unlawful for any person to labor at the trade or in the capacity of an appliance specialist without first being approved the Rapid City Mechanical Board and having had issued to him a valid appliance specialist license by the City Finance Officer.

1. Appliance Specialist means any person other than a mechanical contractor, installer, or apprentice who is engaged only in the installation of listed and labeled gas burning hearth appliances and their venting systems, listed and labeled solid fuel fireplaces and cord wood burning appliances and their venting systems, and listed and labeled wood pellet and biomass burning appliances and their venting systems. A written exam is required to be passed by a minimum score of 75% and proof of insurance.

All persons actively practicing the above form of work for more than ninety (90) days before the passage of this ordinance may obtain the Appliance Specialist license without testing for up to ninety (90) days after the passage of this ordinance.

E. Homeowner Exemption. A homeowner may do mechanical work only in a residence, accessory structure, or mobile home, which he owns and occupies or will occupy as his home, subject to the following:

1. All mechanical work installed pursuant to this section shall be installed only by the owner, without compensation or pay to any other person for such labor or installation. Such installation shall comply with the requirements of this code. The homeowner shall file plans, demonstrate to the satisfaction of the City of Rapid City that he possesses sufficient knowledge of code requirements and the ability to make such installation properly, apply for and secure a permit, pay the required permit fees, and call for inspections in the manner provided in this code. Homeowner permits shall be valid for a period of six months from the date of the last inspection.

F. Any licensed Rapid City Plumbing Contractor or their licensed employees can install piping or tubing for a Hydronic or Refrigeration System following the requirements of Chapters 11 and 12 of the International Mechanical Code, 2003 edition; and Boilers following the requirements of Chapter 10 of the International Mechanical Code, 2003 edition.

110.2 License – Issuance.

A mechanical license shall be issued to every person who makes application for such license, pays the required fee and successfully passes the examination conducted by the Rapid City Mechanical Board, and meets all other requirements set forth by the Rapid City Municipal Code; however, the board may approve the issuance of such license to any person who makes application therefore, pays the required fee and presents to the board a valid, current mechanical license issued to him by any other governmental agency giving the examination the scope and character of which, in the opinion of the board, is at least equal to that given by the Rapid City Mechanical Board. Every applicant for a mechanical contractor’s license shall present to the building official for his review, a valid certificate of insurance at the time of application. It shall be the duty of every mechanical contractor to continually maintain valid liability insurance. All licenses shall be issued by the City Finance Officer in accordance with this chapter and are not transferable. If a license has been issued and the employment check comes back with less than the required six (6) years experience for a contractor and four (4) years experience for an installer, the license will be revoked for filing false statements.

110.3 License – Renewal.

Every license issued pursuant to this chapter shall be for a two-year maximum time frame, beginning March 1, in odd numbered years unless cancelled or revoked prior to that date. If the renewal license is not applied for by April 1, or if that day be a weekend or a non-business day, then before the close of business on the next business day; the license shall be considered lapsed, and the initial fee and testing requirements shall apply.

- A. The mechanical contractor shall complete and submit license applications and renewals for all employees prior to their presence on any job site.
- B. Continuing Education. The requirement for biennial renewal is one hour of attendance for every year the license is in effect, at a class approved by the Rapid City Mechanical Board or the Rapid City Mechanical Inspector.

110.4 Examinations.

A written examination is required for a mechanical contractor, appliance specialist, and mechanical installer license. Before any written exam can be taken, the applicants for the contractor and installer license must submit a list of previous employers. This list will be verified as to the applicant’s employment status. If the background check shows the applicant does not have the required six (6) years of experience for the contractor and four (4) years experience for the appliance specialist and installer, the test will not be valid.

110.5 License Fees.

Every person applying for a license shall pay to the City Finance Officer the following fees:

	Initial Fee	Renewal Fee
Mechanical Contractor	\$205.00	\$80.00
Appliance Specialist	205.00	80.00
Mechanical Installer	40.00	40.00
Mechanical Apprentice	25.00	25.00

110.6 License Violations.

It shall be unlawful for a person, firm or corporation to erect, construct, enlarge, alter, move, improve, remove, convert or demolish, equip, use of maintain mechanical systems or equipment or cause or permit the same to be done in violation of this code.

Any person who violates this section shall, in addition to any criminal proceedings instituted therefore, be subject to license revocation by the Mechanical Board.

15.26.190 IMC Chapter 2, Section 201.3 Terms defined in other codes – Amended

201.3 Terms defined in other codes. Where terms are not defined in this code and are defined in the *International Building Code*, the current Electrical Code adopted by the city of Rapid City, *International Fire Code*, *International Fuel Gas Code* – Chapters 2, 3, 5, 6, 7, 8, and appendix B, the Rapid City Gas Code, or the current Plumbing Code adopted by the City of Rapid City, such terms shall have meanings ascribed to them as in those codes.

15.26.200 IMC Chapter 2, Section 202 – Amended

SECTION 202 GENERAL DEFINITIONS

ABRASIVE MATERIALS. Moderately abrasive particulate in high concentrations, and highly abrasive particulate in moderate and high concentrations, such as alumina, bauxite, iron silicate, sand and slag.

ABSORPTION SYSTEM. A refrigerating system in which refrigerant is pressurized by pumping a chemical solution of refrigerant in absorbent, and then separated by the addition of heat in a generator, condensed (to reject heat), expanded, evaporated (to provide refrigeration), and reabsorbed in an absorber to repeat the cycle; the system may be single or multiple effect, the latter using multiple stages or internally cascaded use of heat to improve efficiency.

ACCESS (TO). That which enables a device, appliance or equipment to be reached by ready access or by a means that first requires the removal or movement of a panel, door or similar obstruction [see also “Ready access (to)”].

AIR. All air supplied to mechanical equipment and appliances for combustion, ventilation, cooling, etc. Standard air is air at standard temperature and pressure, namely, 70EF (21EC) and 29.92 inches of mercury (101.3 kPa).

AIR CONDITIONING . The treatment of air so as to control simultaneously the temperature, humidity, cleanness and distribution of the air to meet the requirements of a conditioned space.

AIR-CONDITIONING SYSTEM. A system that consists of heat exchangers, blowers, filters, supply, exhaust and return ducts, and shall include any apparatus installed in connection therewith.

AIR DISTRIBUTION SYSTEM. Any system of ducts, plenums and air-handling equipment that circulates air within a space or spaces and includes systems made up of one or more air-handling units.

AIR, EX HAUST. Air being re moved from any space, appliance or piece of equipment and conveyed directly to the atmosphere by means of openings or ducts.

AIR-HANDLING UNIT. A blower or fan used for the purpose of distributing supply air to a room, space or area.

AIR, MAKEUP. Air that is provided to replace air being exhausted.

ALTERATION. A change in a mechanical system that involves an extension, addition or change to the arrangement, type or purpose of the original installation.

APPLIANCE. A device or apparatus that is manufactured and designed to utilize energy and for which this code provides specific requirements.

APPLIANCE, EXISTING . Any appliance regulated by this code which was legally installed prior to the effective date of this code, or for which a permit to install has been issued.

APPLIANCE TYPE.

High-heat appliance. Any appliance in which the products of combustion at the point of entrance to the flue under normal operating conditions have a temperature greater than 2,000EF (1093EC).

Low-heat appliance (residential appliance). Any appliance in which the products of combustion at the point of entrance to the flue under normal operating conditions have a temperature of 1,000EF (538EC) or less.

Medium-heat appliance. Any appliance in which the products of combustion at the point of entrance to the flue under normal operating conditions have a temperature of more than 1,000EF (538EC), but not greater than 2,000EF (1093EC).

APPLIANCE, VENTED. An appliance designed and installed in such a manner that all of the products of combustion are conveyed directly from the appliance to the outside atmosphere through an approved chimney or vent system.

APPROVED. Approved by the code official or other authority having jurisdiction.

APPROVED AGENCY. An established and recognized agency that is approved by the code official and regularly engaged in conducting tests or furnishing inspection services.

AUTOMATIC BOILER. Any class of boiler that is equipped with the controls and limit devices specified in Chapter 10.

BATHROOM. A room containing a bath tub, shower, spa or similar bathing fixture.

BOILER. A closed heating appliance intended to supply hot water or steam for space heating, processing or power purposes. Low-pressure boilers operate at pressures less than or equal to 15 pounds per square inch (psi) (103 kPa) for steam and 160 psi (1103 kPa) for water. High-pressure boilers operate at pressures exceeding those pressures.

BOILER ROOM. A room primarily utilized for the installation of a boiler.

BRAZED JOINT. A gas-tight joint obtained by the joining of metal parts with metallic mixtures or alloys which melt at a temperature above 1,000EF (538EC), but lower than the melting temperature of the parts to be joined.

BRAZING. A metal joining process wherein coalescence is produced by the use of a non ferrous filler metal having a melting point above 1,000EF (538EC), but lower than that of the base metal being joined. The filler material is distributed between the closely fitted surfaces of the joint by capillary attraction.

Btu. Abbreviation for British thermal unit, which is the quantity of heat required to raise the temperature of 1 pound (454 g) of water 1EF (0.56EC) (1 Btu = 1055 J).

BUILDING. Any structure occupied or intended for supporting or sheltering any occupancy.

CHIMNEY. A primarily vertical structure containing one or more flues, for the purpose of carrying gaseous products of combustion and air from a fuel-burning appliance to the outside atmosphere.

Factory-built chimney. A listed and labeled chimney composed of factory-made components, assembled in the field in accordance with manufacturer's instructions and the conditions of the listing.

Masonry chimney. A field-constructed chimney composed of solid masonry units, bricks, stones or concrete.

Metal chimney. A field-constructed chimney of metal.

CHIMNEY CONNECTOR. A pipe that connects a fuel-burning appliance to a chimney.

CLEARANCE. The minimum distance through air measured between the heat-producing surface of the mechanical appliance, device or equipment and the surface of the combustible material or assembly.

CLOSED COMBUSTION SOLID-FUEL-BURNING APPLI ANCE. A heat-producing appliance that employs a combustion chamber that has no openings other than the flue collar, fuel charging door and adjustable openings provided to control the amount of combustion air that enters the combustion chamber.

CLOTHES DRYER. An appliance used to dry wet laundry by means of heat. Dryer classifications are as follows:

Type 1. Factory-built package, multiple production. Primarily used in family living environment. Usually the smallest unit physically and in function output.

Type 2. Factory-built package, multiple production. Used in business with direct intercourse of the function with the public. Not designed for use in individual family living environment.

CODE. These regulations, subsequent amendments thereto, or any emergency rule or regulation that the administrative authority having jurisdiction has lawfully adopted.

CODE OFFICIAL. The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative.

COMBUSTIBLE ASSEMBLY. Wall, floor, ceiling or other assembly constructed of one or more component materials that are not defined as noncombustible.

COMBUSTIBLE LIQUIDS. Any liquids having a flash point at or above 100EF (38EC), and that are divided into the following classifications:

Class II. Liquids having flash points at or above 100EF (38EC) and below 140EF (60EC).

Class IIIA. Liquids having flash point at or above 140EF (60EC) and below 200EF (93EC).

Class IIIB. Liquids having flash points at or above 200EF (93EC).

COMBUSTIBLE MATERIAL. Any material not defined as noncombustible.

COMBUSTION. In the context of this code, refers to the rapid oxidation of fuel accompanied by the production of heat or heat and light.

COMBUSTION AIR. Air necessary for complete combustion of a fuel, including theoretical air and excess air.

COMBUSTION CHAMBER. The portion of an appliance within which combustion occurs.

COMBUSTION PRODUCTS. Constituents resulting from the combustion of a fuel with the oxygen of the air, including the inert gases, but excluding excess air.

COMMERCIAL COOKING RECIRCULATING SYSTEM. Self-contained system consisting of the exhaust hood, the cooking equipment, the filters, and the fire suppression system. The system is designed to capture cooking vapors and residues generated from commercial cooking equipment. The system removes contaminants from the exhaust air and recirculates the air to the space from which it was with drawn.

COMMERCIAL COOKING APPLIANCES. Appliances used in a commercial food service establishment for heating or cooking food and which produce grease vapors, steam, fumes, smoke or odors that are required to be

removed through a local exhaust ventilation system. Such appliances include deep fat fryers; upright broilers; griddles; broilers; steam-jacketed kettles; hot-top ranges; under-fired broilers (charbroilers); ovens; barbecues; rotisseries; and similar appliances. For the purpose of this definition, a food service establishment shall include any building or a portion thereof used for the preparation and serving of food.

COMMERCIAL KITCHEN HOODS.

Backshelf Hood. A backshelf hood is also referred to as a low-proximity hood, or as a side wall hood where wall mounted. Its front lower lip is low over the appliance(s) and is “set back” from the front of the appliance(s). It is always closed to the rear of the appliances by a panel where free-standing, or by a panel or wall where wall mounted, and its height above the cooking surface varies. (This style of hood can be constructed with partial end panels to increase its effectiveness in capturing the effluent generated by the cooking operation).

Double Island Canopy Hood. A double island canopy hood is placed over back to back appliances or appliance lines. It is open on all sides and overhangs both fronts and the sides of the appliance(s). It could have a wall panel between the backs of the appliances. (The fact that exhaust air is drawn from both sides of the double canopy to meet in the center causes each side of this hood to emulate a wall canopy hood, and thus it functions much the same with or without an actual wall panel between the backs of the appliances).

Eyebrow Hood. An eyebrow hood is mounted directly to the face of an appliance, such as an oven and dishwasher, above the opening(s) or door(s) from which effluent is emitted, extending past the sides and overhanging the front of the opening to capture the effluent.

Pass-over Hood. A pass-over hood is a free-standing form of a backshelf hood constructed low enough to pass food over the top.

Single Island Canopy Hood. A single island canopy hood is placed over a single appliance or appliance line. It is open on all sides and overhangs the front, rear, and sides of the appliance(s). A single island canopy is more susceptible to cross drafts and requires a greater exhaust air flow than an equivalent sized wall-mounted canopy to capture and contain effluent generated by the cooking operation(s).

Wall Canopy Hood. A wall canopy exhaust hood is mounted against a wall above a single appliance or line of appliance(s), or it could be free-standing with a back panel from the rear of the appliances to the hood. It overhangs the front and sides of the appliance(s) on all open sides. (The wall acts as a back panel, forcing the makeup air to be drawn across the front of the cooking equipment, thus increasing the effectiveness of the hood to capture and contain effluent generated by the cooking operation(s)).

COMPENSATING HOODS. Compensating hoods are those having integral (built-in) makeup air supply. The makeup air supply for such hoods is generally supplied from: short-circuit flow from inside the hood, air curtain flow from the bottom of the front face, and front face discharge from the outside front wall of the hood. The compensating makeup airflow can also be supplied from the rear or side of the hood, or the rear, front, or sides of the cooking equipment. The makeup air flow can be one or a combination of methods.

COMPRESSOR. A specific machine, with or without accessories, for compressing a gas.

COMPRESSOR, POSITIVE DISPLACEMENT. A compressor in which increase in pressure is attained by changing the internal volume of the compression chamber.

COMPRESSOR UNIT. A compressor with its prime mover and accessories.

CONCEALED LOCATION. A location that cannot be accessed without damaging permanent parts of the building structure or finish surface. Spaces above, below or behind readily removable panels or doors shall not be considered as concealed.

CONDENSATE. The liquid that condenses from a gas (including flue gas) caused by a reduction in temperature.

CONDENSER. A heat exchanger designed to liquefy refrigerant vapor by removal of heat.

CONDENSING UNIT. A specific refrigerating machine combination for a given refrigerant, consisting of one or more power-driven compressors, condensers, liquid receivers (when required), and the regularly furnished accessories.

CONDITIONED SPACE. An area, room or space being heated or cooled by any equipment or appliance.

CONFINED SPACES. A space having a volume less than 50 cubic feet per 1,000 British thermal units per hour (Btu/h) (4.8 m³/kW) of the aggregate in put rating of all appliances installed in that space.

CONSTRUCTION DOCUMENTS. All of the written, graphic and pictorial documents prepared or assembled for describing the design, location and physical characteristics of the elements of the project necessary for obtaining a building permit. The construction drawings shall be drawn to an appropriate scale.

CONTROL. A manual or automatic device designed to regulate the gas, air, water or electrical supply to, or operation of, a mechanical system.

CONVERSION BURNER. A burner designed to supply gaseous fuel to an appliance originally designed to utilize another fuel.

COOKING APPLIANCE. See “Commercial cooking appliances.”

DAMPER. A manually or automatically controlled device to regulate draft or the rate of flow of air or combustion gases.

Volume damper. A device that, when installed, will restrict, retard or direct the flow of air in a duct, or the products of combustion in a heat-producing appliance, its vent connector, vent or chimney therefrom.

DESIGN WORKING PRESSURE. The maximum allowable working pressure for which a specific part of a system is designed.

DIRECT REFRIGERATION SYSTEM. A system in which the evaporator or condenser of the refrigerating system is in direct contact with the air or other substances to be cooled or heated.

DIRECT-VENT APPLIANCES. Appliances that are constructed and installed so that all air for combustion is derived from the outside atmosphere and all flue gases are discharged to the outside atmosphere.

DRAFT. The pressure difference existing between the appliance or any component part and the atmosphere, that causes a continuous flow of air and products of combustion through the gas passages of the appliance to the atmosphere.

Induced draft. The pressure difference created by the action of a fan, blower or ejector, that is located between the appliance and the chimney or vent termination.

Natural draft. The pressure difference created by a vent or chimney because of its height, and the temperature difference between the flue gases and the atmosphere.

DRIP. The container placed at a low point in a system of piping to collect condensate and from which the condensate is removable.

DRY CLEANING SYSTEMS. Dry cleaning plants or systems are classified as follows:

Type I. Those systems using Class I flammable liquid solvents having a flash point below 100EF (38EC).

Type II. Those systems using Class II combustible liquid solvents having a flash point at or above 100EF (38EC) and below 140EF (60EC).

Type III. Those systems using Class III combustible liquid solvents having a flash point at or above 140EF (60EC).

Types IV and V. Those systems using Class IV non flammable liquid solvents.

DUCT. A tube or conduit utilized for conveying air. The air passages of self-contained systems are not to be construed as air ducts.

DUCT FURNACE. A warm-air furnace normally installed in an air distribution duct to supply warm air for heating. This definition shall apply only to a warm-air heating appliance that, for air circulation, depends on a blower not furnished as part of the furnace.

DUCT SYSTEM. A continuous passageway for the transmission of air that, in addition to ducts, includes duct fittings, dampers, plenums, fans and accessory air-handling equipment and appliances.

DWELLING. A building or portion thereof that contains not more than two dwelling units.

DWELLING UNIT. A single unit providing complete, independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

ELECTRIC HEATING APPLIANCE. An appliance that produces heat energy to create a warm environment by the application of electric power to resistance elements, refrigerant compressors or dissimilar material junctions.

ENERGY RECOVERY VENTILATION SYSTEM. Systems that employ air-to-air heat exchangers to recover energy from or reject energy to exhaust air for the purpose of pre-heating, pre-cooling, humidifying or dehumidifying outdoor ventilation air prior to supplying such air to a space, either directly or as part of an HVAC system.

EQUIPMENT. All piping, ducts, vents, control devices and other components of systems other than appliances which are permanently installed and integrated to provide control of environmental conditions for buildings. This definition shall also include other systems specifically regulated in this code.

EQUIPMENT, EXISTING . Any equipment regulated by this code which was legally installed prior to the effective date of this code, or for which a permit to install has been issued.

EVAPORATIVE COOLER. A device used for reducing the sensible heat of air for cooling by the process of evaporation of water into an airstream.

EVAPORATIVE COOLING SYSTEM. The equipment and appliances intended or installed for the purpose of environmental cooling by an evaporative cooler from which the conditioned air is distributed through ducts or plenums to the conditioned area.

EVAPORATOR. That part of the system in which liquid refrigerant is vaporized to produce refrigeration.

EXCESS AIR. The amount of air provided in addition to theoretical air to achieve complete combustion of a fuel, thereby preventing the formation of dangerous products of combustion.

EXHAUST SYSTEM. An assembly of connected ducts, plenums, fittings, registers, grilles and hoods through which air is conducted from the space or spaces and exhausted to the outside atmosphere.

EXTRA-HEAVY DUTY COOKING APPLIANCE. Extra-heavy duty cooking appliances include appliances utilizing solid fuel such as wood, charcoal, briquettes, and mesquite as the primary source of heat for cooking.

FIREPLACE. An assembly consisting of a hearth and fire chamber of noncombustible material and provided with a chimney, for use with solid fuels.

Factory-built fireplace. A listed and labeled fireplace and chimney system composed of factory-made components, and assembled in the field in accordance with manufacturer's instructions and the conditions of the listing.

Masonry fireplace. A field-constructed fireplace composed of solid masonry units, bricks, stones or concrete.

FIREPLACE STOVE. A free-standing chimney-connected solid-fuel-burning heater, designed to be operated with the fire chamber doors in either the open or closed position.

FLAME SAFEGUARD. A device that will automatically shut off the fuel supply to a main burner or group of burners when the means of ignition of such burners becomes inoperative, and when flame failure occurs on the burner or group of burners.

FLAME SPREAD INDEX. The numerical value assigned to a material tested in accordance with ASTM E 84.

FLAMMABILITY CLASSIFICATION. Refrigerants shall be assigned to one of the three classes—1, 2 or 3—in accordance with ASHRAE 34. For Classes 2 and 3, the heat of combustion shall be calculated assuming that combustion products are in the gas phase and in their most stable state.

Class 1. Refrigerants that do not show flame propagation when tested in air at 14.7 psia (101 kPa) and 70EF (21EC).

Class 2. Refrigerants having a lower flammability limit (LFL) of more than 0.00625 pound per cubic foot (0.10 kg/m³) at 70EF (21EC) and 14.7 psia (101 kPa) and a heat of combustion of less than 8,174 Btu/lb (19 000 kJ/kg).

Class 3. Refrigerants that are highly flammable, having a LFL of less than or equal to 0.00625 pound per cubic foot (0.10 kg/m³) at 70EF (21EC) and 14.7 psia (101 kPa) or a heat of combustion greater than or equal to 8,174 Btu/lb (19 000 kJ/kg).

FLAMMABLE LIQUIDS. Any liquid that has a flash point below 100EF (38EC), and has a vapor pressure not exceeding 40 psia (276 kPa) at 100EF (38EC). Flammable liquids shall be known as Class I liquids and shall be divided into the following classifications:

Class IA. Liquids having a flash point below 73EF (23EC) and a boiling point below 100EF (38EC).

Class IB. Liquids having a flash point below 73EF (23EC) and a boiling point at or above 100EF (38EC).

Class IC. Liquids having a flash point at or above 73EF (23EC) and below 100EF (38EC).

FLAMMABLE VAPOR OR FUMES. Mixtures of gases in air at concentrations equal to or greater than the LFL and less than or equal to the upper flammability limit (UFL).

FLASH POINT. The minimum temperature corrected to a pressure of 14.7 psia (101 kPa) at which the application of a test flame causes the vapors of a portion of the sample to ignite under the conditions specified by the test procedures and apparatus. The flash point of a liquid shall be determined in accordance with ASTM D 56, ASTM D 93 or ASTM D 3278.

FLOOR AREA, NET. The actual occupied area, not including unoccupied accessory areas or thicknesses of walls.

FLOOR FURNACE. A completely self-contained furnace suspended from the floor of the space being heated, taking air for combustion from outside such space and with means for observing flames and lighting the appliance from such space.

FLUE. A passageway within a chimney or vent through which gaseous combustion products pass.

FLUE CONNECTION (BREECHING). A passage for conducting the products of combustion from a fuel-fired appliance to the vent or chimney (see also “Chimney connector” and “Vent connector”).

FLUE GASES. Products of combustion and excess air.

FLUE LINER (LINING). A system or material used to form the inside surface of a flue in a chimney or vent, for the purpose of protecting the surrounding structure from the effects of combustion products and conveying combustion products without leakage to the atmosphere.

FUEL GAS. A natural gas, manufactured gas, liquefied petroleum gas or a mixture of these.

FUEL OIL. Kerosene or any hydrocarbon oil having a flash point not less than 100EF (38EC).

FUEL-OIL PIPING SYSTEM. A closed piping system that connects a combustible liquid from a source of supply to a fuel-oil-burning appliance.

FURNACE. A completely self-contained heating unit that is designed to supply heated air to spaces remote from or adjacent to the appliance location.

FURNACE ROOM. A room primarily utilized for the installation of fuel-burning space-heating and water-heating appliances other than boilers (see also “Boiler room”).

FUSIBLE PLUG. A device arranged to relieve pressure by operation of a fusible member at a predetermined temperature.

GROUND SOURCE HEAT PUMP LOOP SYSTEM. Piping buried in horizontal or vertical excavations or placed in a body of water for the purpose of transporting heat transfer liquid to and from a heat pump. Included in this definition are closed loop systems in which the liquid is recirculated and open loop systems in which the liquid is drawn from a well or other source.

HAZARDOUS LOCATION. Any location considered to be a fire hazard for flammable vapors, dust, combustible fibers or other highly combustible substances. The location is not necessarily categorized in the *International Building Code* as a high-hazard use group classification.

HEAT EXCHANGER. A device that transfers heat from one medium to another.

HEAT PUMP. A refrigeration system that extracts heat from one substance and transfers it to another portion of the same substance or to a second substance at a higher temperature for a beneficial purpose.

HEAT TRANSFER LIQUID. The operating or thermal storage liquid in a mechanical system, including water or other liquid base, and additives at the concentration present under operating conditions used to move heat from one location to another. Refrigerants are not included as heat transfer liquids.

HEAVY-DUTY COOKING APPLIANCE. Heavy-duty cooking appliances include electric under-fired broilers, electric chain (conveyor) broilers, gas under-fired broilers, gas chain (conveyor) broilers, gas open-burner ranges (with or without oven), electric and gas wok ranges, and electric and gas over-fired (upright) broilers and salamanders.

HIGH-PROBABILITY SYSTEMS. A refrigeration system in which the basic design or the location of components is such that a leakage of refrigerant from a failed connection, seal or component will enter an occupancy classified area, other than the machinery room.

HIGH-SIDE PRESSURE. The parts of a refrigerating system subject to condenser pressure.

HOOD. An air-intake device used to capture by entrapment, impingement, adhesion or similar means, grease and similar contaminants before they enter a duct system.

Type I. A kitchen hood for collecting and removing grease vapors and smoke.

Type II. A general kitchen hood for collecting and removing steam, vapor, heat and odors.

HYDROGEN GENERATING APPLIANCE. A self-contained package or factory-matched packages of integrated systems for generating gaseous hydrogen. Hydrogen generating appliances utilize electrolysis, reformation, chemical, or other processes to generate hydrogen.

IGNITION SOURCE. A flame, spark or hot surface capable of igniting flammable vapors or fumes. Such sources include appliance burners, burner ignitors and electrical switching devices.

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH). The concentration of airborne contaminants that poses a threat of death, immediate or delayed permanent adverse health effects, or effects that could prevent escape from such an environment. This contaminant concentration level is established by the National Institute of Occupational Safety and Health (NIOSH) based on both toxicity and flammability. It is generally expressed in parts per million by volume (ppm v/v) or milligrams per cubic meter (mg/m³).

INDIRECT REFRIGERATION SYSTEM. A system in which a secondary coolant cooled or heated by the refrigerating system is circulated to the air or other substance to be cooled or heated. Indirect systems are distinguished by the method of application shown below:

Closed system. A system in which a secondary fluid is either cooled or heated by the refrigerating system and then circulated within a closed circuit in indirect contact with the air or other substance to be cooled or heated.

Double-indirect open-spray system. A system in which the secondary substance for an indirect open-spray system is heated or cooled by an intermediate coolant circulated from a second enclosure.

Open-spray system. A system in which a secondary coolant is cooled or heated by the refrigerating system and then circulated in direct contact with the air or other substance to be cooled or heated.

Vented closed system. A system in which a secondary coolant is cooled or heated by the refrigerating system and then passed through a closed circuit in the air or other substance to be cooled or heated, except that the evaporator or condenser is placed in an open or appropriately vented tank.

JOINT, FLANGED. A joint made by bolting together a pair of flanged ends.

JOINT, FLARED. A metal-to-metal compression joint in which a conical spread is made on the end of a tube that is compressed by a flare nut against a mating flare.

JOINT, MECHANICAL. A general form of gas-tight joints obtained by the joining of metal parts through a positive-holding mechanical construction, such as flanged joint, screwed joint or flared joint.

JOINT, PLASTIC ADHESIVE. A joint made in thermoset plastic piping by the use of an adhesive substance which forms a continuous bond between the mating surfaces without dissolving either one of them.

JOINT, PLASTIC HEAT FUSION. A joint made in thermoplastic piping by heating the parts sufficiently to permit fusion of the materials when the parts are pressed together.

JOINT, PLASTIC SOLVENT CEMENT. A joint made in thermoplastic piping by the use of a solvent or solvent cement which forms a continuous bond between the mating surfaces.

JOINT, SOLDERED. A gas-tight joint obtained by the joining of metal parts with metallic mixtures of alloys which melt at temperatures between 400EF (204EC) and 1,000EF (538EC).

JOINT, WELDED. A gas-tight joint obtained by the joining of metal parts in molten state.

LABELED. Devices, equipment, appliances or materials to which have been affixed a label, seal, symbol or other identifying mark of a nationally recognized testing laboratory, inspection agency or other organization concerned with product evaluation that maintains periodic inspection of the production of the above-labeled items and by whose label the manufacturer attests to compliance with applicable nationally recognized standards.

LIGHT-DUTY COOKING APPLIANCE. Light-duty cooking appliances include gas and electric ovens (including standard, bake, roasting, revolving, retherm, convection, combination convection/steamer, conveyor, deck or deck-style pizza, and pastry), electric and gas steam-jacketed kettles, electric and gas compartment steamers (both pressure and atmospheric) and electric and gas cheesemelters.

LIMIT CONTROL. A device responsive to changes in pressure, temperature or level for turning on, shutting off or throttling the gas supply to an appliance.

LIMITED CHARGE SYSTEM. A system in which, with the compressor idle, the design pressure will not be exceeded when the refrigerant charge has completely evaporated.

LISTED. Equipment, appliances or materials included in a list published by a nationally recognized testing laboratory, inspection agency or other organization concerned with product evaluation that maintains periodic inspection of production of listed equipment, appliances or materials, and whose listing states either that the equipment, appliances or material meets nationally recognized standards or has been tested and found suitable for use in a specified manner. Not all testing laboratories, inspection agencies and other organizations concerned with product evaluation use the same means for identifying listed equipment, appliances or materials. Some do not recognize equipment, appliances or materials as listed unless they are also labeled. The authority having jurisdiction shall utilize the system employed by the listing organization to identify a listed product.

LIVING SPACE. Space within a dwelling unit utilized for living, sleeping, eating, cooking, bathing, washing and sanitation purposes.

LOWER EXPLOSIVE LIMIT (LEL). See “LFL.”

LOWER FLAMMABILITY LIMIT (LFL). The minimum concentration of refrigerant that is capable of propagating a flame through a homogeneous mixture of refrigerant and air.

LOW-PRESSURE HOT-WATER-HEATING BOILER. A boiler furnishing hot water at pressures not exceeding 60 psi (1103 kPa) and at temperatures not exceeding 250°F (121°C).

LOW-PRESSURE STEAM-HEATING BOILER. A boiler furnishing steam at pressures not exceeding 15 psi (103 kPa).

LOW-PROBABILITY SYSTEMS. A refrigeration system in which the basic design or the location of components is such that a leakage of refrigerant from a failed connection, seal or component will not enter an occupancy-classified area, other than the machinery room.

LOW-SIDE PRESSURE. The parts of a refrigerating system subject to evaporator pressure.

MACHINERY ROOM. A room meeting prescribed safety requirements and in which refrigeration systems or components thereof are located (see Sections 1105 and 1106).

MECHANICAL DRAFT SYSTEM. A venting system designed to remove flue or vent gases by mechanical means, that consists of an induced-draft portion under nonpositive static pressure or a forced-draft portion under positive static pressure.

Forced-draft venting system. A portion of a venting system using a fan or other mechanical means to cause the removal of flue or vent gases under positive static pressure.

Induced-draft venting system. A portion of a venting system using a fan or other mechanical means to cause the removal of flue or vent gases under nonpositive static vent pressure.

Power venting system. A portion of a venting system using a fan or other mechanical means to cause the removal of flue or vent gases under positive static vent pressure.

MECHANICAL EQUIPMENT/APPLIANCE ROOM. A room or space in which nonfuel-fired mechanical equipment and appliances are located.

MECHANICAL EXHAUST SYSTEM. A system for removing air from a room or space by mechanical means.

MECHANICAL JOINT. A connection between pipes, fittings, or pipes and fittings, which is neither screwed, caulked, threaded, soldered, solvent cemented, brazed nor welded. Also, a joint in which compression is applied along the centerline of the pieces being joined. Some joints are part of a coupling, fitting or adapter.

MECHANICAL SYSTEM. A system specifically addressed and regulated in this code and composed of components, devices, appliances and equipment.

MEDIUM-DUTY COOKING APPLIANCE. Medium-duty cooking appliances include electric discrete element ranges (with or without oven), electric and gas hot-top ranges, electric and gas griddles, electric and gas double-sided griddles, electric and gas fryers (including open deep fat fryers, donut fryers, kettle fryers, and pressure fryers), electric and gas pasta cookers, electric and gas conveyor pizza ovens, electric and gas tilting skillets (braising pans) and electric and gas rotisseries.

MODULAR BOILER. A steam or hot-water-heating assembly consisting of a group of individual boilers called modules intended to be installed as a unit with no intervening stop valves. Modules are under one jacket or are individually jacketed. The individual modules shall be limited to a maximum input rating of 400,000 Btu/h (117 228 W) gas, 3 gallons per hour (gph) (11.4 L/h) oil, or 115 kW (electric).

NATURAL DRAFT SYSTEM. A venting system designed to remove flue or vent gases under nonpositive static vent pressure entirely by natural draft.

NATURAL VENTILATION. The movement of air into and out of a space through intentionally provided openings, such as windows and doors, or through nonpowered ventilators.

NONABRASIVE/ABRASIVE MATERIALS. Nonabrasive particulate in high concentrations, moderately abrasive particulate in low and moderate concentrations, and highly abrasive particulate in low concentrations, such as alfalfa, asphalt, plaster, gypsum and salt.

NONCOMBUSTIBLE MATERIALS. Materials that, when tested in accordance with ASTM E 136, have at least three of four specimens tested meeting all of the following criteria:

1. The recorded temperature of the surface and interior thermocouples shall not at any time during the test rise more than 54EF (30EC) above the furnace temperature at the beginning of the test.
2. There shall not be flaming from the specimen after the first 30 seconds.
3. If the weight loss of the specimen during testing exceeds 50 percent, the recorded temperature of the surface and interior thermocouples shall not at any time during the test rise above the furnace air temperature at the beginning of the test, and there shall not be flaming of the specimen.

OCCUPANCY. The purpose for which a building, or portion thereof, is utilized or occupied.

OFFSET (VENT). A combination of approved bends that make two changes in direction bringing one section of the vent out of line but into a line parallel with the other section.

OUTDOOR AIR. Air taken from the outdoors, and therefore not previously circulated through the system.

OUTDOOR OPENING. A door, window, louver or skylight openable to the outside atmosphere.

OUTLET. A threaded connection or bolted flange in a piping system to which a gas-burning appliance is attached.

PANEL HEATING. A method of radiant space heating in which heat is supplied by large heated areas of room surfaces. The heating element usually consists of warm water piping, warm air ducts, or electrical resistance elements embedded in or located behind ceiling, wall or floor surfaces.

PELLET FUEL-BURNING APPLIANCE. A closed-combustion, vented appliance equipped with a fuel-feed mechanism for burning processed pellets of solid fuel of a specified size and composition.

PIPING. Where used in this code, “piping” refers to either pipe or tubing, or both.

Pipe. A rigid conduit of iron, steel, copper, brass or plastic.

Tubing. Semirigid conduit of copper, aluminum, plastic or steel.

PLASTIC, THERMOPLASTIC. A plastic that is capable of being repeatedly softened by increase of temperature and hardened by decrease of temperature.

PLASTIC, THERMOSETTING . A plastic that is capable of being changed into a substantially infusible or insoluble product when cured under application of heat or chemical means.

PLENUM. An enclosed portion of the building structure, other than an occupiable space being conditioned, that is designed to allow air movement, and thereby serve as part of an air distribution system.

PORTABLE FUEL CELL APPLIANCE. A fuel cell generator of electricity, which is not fixed in place. A portable fuel cell appliance utilizes a cord and plug connection to a grid-isolated load and has an integral fuel supply.

POWER BOILER. See “Boiler.”

PREMISES. A lot, plot or parcel of land, including any structure thereon.

PRESSURE, FIELD TEST. A test performed in the field to prove system tightness.

PRESSURE-LIMITING DEVICE. A pressure-responsive mechanism designed to stop automatically the operation of the pressure-imposing element at a predetermined pressure.

PRESSURE RELIEF DEVICE. A pressure-actuated valve or rupture member designed to relieve excessive pressure automatically.

PRESSURE RELIEF VALVE. A pressure-actuated valve held closed by a spring or other means and designed to relieve pressure automatically in excess of the device’s setting.

PRESSURE VESSELS. Closed containers, tanks or vessels that are designed to contain liquids or gases, or both, under pressure.

PRESSURE VESSELS—REFRIGERANT. Any refrigerant-containing receptacle in a refrigerating system. This does not include evaporators where each separate section does not exceed 0.5 cubic foot (0.014 m³) of refrigerant-containing volume, regardless of the maximum inside dimensions, evaporator coils, controls, headers, pumps and piping.

PROTECTIVE ASSEMBLY (REDUCED CLEARANCE). Any noncombustible assembly that is labeled or constructed in accordance with Table 308.6 and is placed between combustible materials or assemblies and mechanical appliances, devices or equipment, for the purpose of reducing required air space clearances. Protective assemblies attached directly to a combustible assembly shall not be considered as part of that combustible assembly.

PURGE. To clear of air, water or other foreign substances.

QUICK-OPENING VALVE. A valve that opens completely by fast action, either manually or automatically controlled. A valve requiring one-quarter round turn or less is considered to be quick opening.

RADIANT HEATER. A heater designed to transfer heat primarily by direct radiation.

READY ACCESS (TO). That which enables a device, appliance or equipment to be directly reached, without requiring the removal or movement of any panel, door or similar obstruction [see “Access (to)”].

RECEIVER, LIQUID. A vessel permanently connected to a refrigeration system by inlet and outlet pipes for storage of liquid refrigerant.

RECIRCULATED AIR. Air removed from a conditioned space and intended for reuse as supply air.

RECLAIMED REFRIGERANTS. Refrigerants reprocessed to the same specifications as for new refrigerants by means including distillation. Such refrigerants have been chemically analyzed to verify that the specifications have been met. Reclaiming usually implies the use of processes or procedures that are available only at a reprocessing or manufacturing facility.

RECOVERED REFRIGERANTS. Refrigerants removed from a system in any condition without necessarily testing or processing them.

RECYCLED REFRIGERANTS. Refrigerants from which contaminants have been reduced by oil separation, removal of noncondensable gases, and single or multiple passes through devices that reduce moisture, acidity and particulate matter, such as replaceable core filter driers. These procedures usually are performed at the field job site or in a local service shop.

REFRIGERANT. A substance utilized to produce refrigeration by its expansion or vaporization.

REFRIGERANT SAFETY CLASSIFICATIONS. Groupings that indicate the toxicity and flammability classes in accordance with Section 1103.1. The classification group is made up of a letter (A or B) that indicates the toxicity class, followed by a number (1, 2 or 3) that indicates the flammability class. Refrigerant blends are similarly classified, based on the compositions at their worst cases of fractionation, as separately determined for toxicity and flammability. In some cases, the worst case of fractionation is the original formulation.

Flammability. Class 1 indicates refrigerants that do not show flame propagation in air when tested by prescribed methods at specified conditions. Classes 2 and 3 signify refrigerants with “lower flammability” and “higher flammability,” respectively; the distinction depends on both the LFL and heat of combustion.

Toxicity. Classes A and B signify refrigerants with “lower toxicity” and “higher toxicity,” respectively, based on prescribed measures of chronic (long-term, repeated exposures) toxicity.

REFRIGERATED ROOM OR SPACE. A room or space in which an evaporator or brine coil is located for the purpose of reducing or controlling the temperature within the room or space to below 68EF (20EC).

REFRIGERATING SYSTEM. A combination of interconnected refrigerant-containing parts constituting one closed refrigerant circuit in which a refrigerant is circulated for the purpose of extracting heat.

REFRIGERATION CAPACITY RATING. Expressed as 1 horsepower (0.75 kW), 1 ton or 12,000 Btu/h (3.5 kW), shall all mean the same quantity.

REFRIGERATION MACHINERY ROOM. See “Machinery room.”

REFRIGERATION SYSTEM, ABSORPTION. A heat-operated, closed-refrigeration cycle in which a secondary fluid (the absorbent) absorbs a primary fluid (the refrigerant) that has been vaporized in the evaporator.

Direct system. A system in which the evaporator is in direct contact with the material or space refrigerated, or is located in air-circulating passages communicating with such spaces.

Indirect system. A system in which a brine coil cooled by the refrigerant is circulated to the material or space refrigerated, or is utilized to cool the air so circulated. In direct systems are distinguished by the type or method of application.

REFRIGERATION SYSTEM CLASSIFICATION. Refrigeration systems are classified according to the degree of probability that leaked refrigerant from a failed connection, seal or component will enter an occupied area. The distinction is based on the basic design or location of the components.

REFRIGERATION SYSTEM, MECHANICAL. A combination of interconnected refrigeration-containing parts constituting one closed refrigerant circuit in which a refrigerant is circulated for the purpose of extracting heat and in which a compressor is used for compressing the refrigerant vapor.

REFRIGERATION SYSTEM, SELF-CONTAINED. A complete factory-assembled and tested system that is shipped in one or more sections and has no refrigerant-containing parts that are joined in the field by other than companion or block valves.

REGISTERED DESIGN PROFESSIONAL. An individual who is registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws of the state or jurisdiction in which the project is to be constructed.

RETURN AIR. Air removed from an approved conditioned space or location and recirculated or exhausted.

RETURN AIR SYSTEM. An assembly of connected ducts, plenums, fittings, registers and grilles through which air from the space or spaces to be heated or cooled is conducted back to the supply unit (see also "Supply air system").

ROOM HEATER VENTED. A free-standing heating unit burning solid or liquid fuel for direct heating of the space in and adjacent to that in which the unit is located.

SAFETY VALVE. A valve that relieves pressure in a steam boiler by opening fully at the rated discharge pressure. The valve is of the spring-pop type.

SELF-CONTAINED EQUIPMENT. Complete, factory-assembled and tested, heating, air-conditioning or refrigeration equipment installed as a single unit, and having all working parts, complete with motive power, in an enclosed unit of said machinery.

SHAFT. An enclosed space extending through one or more stories of a building, connecting vertical openings in successive floors, or floors and the roof.

SHAFT ENCLOSURE. The walls or construction forming the boundaries of a shaft.

SMOKE DAMPER. A listed device that is designed to resist the passage of air and smoke. The device is arranged to operate automatically, controlled by a smoke detection system, and when required, is capable of being positioned manually from a remote command station.

SMOKE-DEVELOPED INDEX. A numerical value assigned to a material tested in accordance with ASTM E 84.

SOLID FUEL (COOKING APPLICATIONS). Applicable to commercial food service operations only, solid fuel is any bulk material such as hardwood, mesquite, charcoal or briquettes that is combusted to produce heat for cooking operations.

SOURCE CAPTURE SYSTEM. A mechanical exhaust system designed and constructed to capture air contaminants at their source and to exhaust such contaminants to the outdoor atmosphere.

STATIONARY FUEL CELL POWER PLANT. A self-contained package or factory-matched packages which constitute an automatically operated assembly of integrated systems for generating useful electrical energy and recoverable thermal energy that is permanently connected and fixed in place.

STEAM-HEATING BOILER. A boiler operated at pressures not exceeding 15 psi (103 kPa) for steam.

STOP VALVE. A shutoff valve for controlling the flow of liquid or gases.

STORY. That portion of a building included between the upper surface of a floor and the upper surface of the floor next above, except that the top most story shall be that portion of a building included between the upper surface of the top most floor and the ceiling or roof above.

STRENGTH, ULTIMATE. The highest stress level that the component will tolerate without rupture.

SUPPLY AIR. That air delivered to each or any space supplied by the air distribution system or the total air delivered to all spaces supplied by the air distribution system, which is provided for ventilating, heating, cooling, humidification, dehumidification and other similar purposes.

SUPPLY AIR SYSTEM. An assembly of connected ducts, plenums, fittings, registers and grilles through which air, heated or cooled, is conducted from the supply unit to the space or spaces to be heated or cooled (see also "Return air system").

THEORETICAL AIR. The exact amount of air required to supply oxygen for complete combustion of a given quantity of a specific fuel.

THERMAL RESISTANCE (*R*). A measure of the ability to retard the flow of heat. The *R*-value is the reciprocal of thermal conductance.

TLV-TWA (THRESHOLD LIMIT VALUE-TIMEWEIGHTED AVERAGE). The time-weighted average concentration of a refrigerant or other chemical in air for a normal 8-hour workday and a 40-hour work week, to which nearly all workers are repeatedly exposed, day after day, without adverse effects, as adopted by the American Conference of Government Industrial Hygienists (ACGIH).

TOILET ROOM. A room containing a water closet and, frequently, a lavatory, but not a bathtub, shower, spa or similar bathing fixture.

TOXICITY CLASSIFICATION. Refrigerants shall be classified for toxicity to one of two classes in accordance with ASHRAE 34:

Class A. Refrigerants for which toxicity has not been identified at concentrations less than or equal to 400 parts per million (ppm), based on data used to determine Threshold Limit Value-Time-Weighted Average (TLV-TWA) or consistent indices.

Class B. Refrigerants for which there is evidence of toxicity at concentrations below 400 ppm, based on data used to determine TLV-TWA or consistent indices.

TRANSITION FITTINGS, PLASTIC TO STEEL. An adapter for joining plastic pipe to steel pipe. The purpose of this fitting is to provide a permanent, pressure-tight connection between two materials which can not be joined directly one to another.

UNCONFINED SPACE. A space having a volume not less than 50 cubic feet per 1,000 Btu/h (4.8 m³/kW) of the aggregate input rating of all appliances installed in that space. Rooms communicating directly with the space in which the appliances are installed, through openings not furnished with doors, are considered a part of the unconfined space.

UNIT HEATER. A self-contained appliance of the fan type, designed for the delivery of warm air directly into the space in which the appliance is located.

UNUSUALLY TIGHT CONSTRUCTION. Construction meeting the following requirements:

1. Walls exposed to the outside atmosphere having a continuous water vapor retarder with a rating of 1 perm (57 ng/s • m² • Pa) or less with openings gasketed or sealed;
2. Openable windows and doors meeting the air leakage requirements of the *International Energy Conservation Code*, Section 502.1.4; and
3. Caulking or sealants are applied to areas, such as joints around window and door frames, between sole plates and floors, between wall-ceiling joints, between wall panels, at penetrations for plumbing, electrical and gas lines, and at other openings.

VENT. A pipe or other conduit composed of factory-made components, containing a passageway for conveying combustion products and air to the atmosphere, listed and labeled for use with a specific type or class of appliance.

Pellet vent. A vent listed and labeled for use with listed pellet-fuel-burning appliances.

Type L vent. A vent listed and labeled for use with the following:

1. Oil-burning appliances that are listed for use with Type L vents.
2. Gas-fired appliances that are listed for use with Type B vents.

VENT CONNECTOR. The pipe that connects an approved fuel-fired appliance to a vent.

VENT DAMPER DEVICE, AUTOMATIC. A device intended for installation in the venting system, in the outlet of an individual automatically operated fuel-burning appliance that is designed to open the venting system automatically when the appliance is in operation and to close off the venting system automatically when the appliance is in a standby or shutdown condition.

VENTILATION. The natural or mechanical process of supplying conditioned or unconditioned air to, or removing such air from, any space.

VENTILATION AIR. That portion of supply air that comes from the outside (outdoors), plus any recirculated air that has been treated to maintain the desired quality of air within a designated space.

VENTING SYSTEM. A continuous open passageway from the flue collar of an appliance to the outside atmosphere for the purpose of removing flue or vent gases. A venting system is usually composed of a vent or a chimney and vent connector, if used, assembled to form the open passageway.

WATER HEATER. Any heating appliance or equipment that heats potable water and supplies such water to the potable hot water distribution system.

15.26.210 IMC Chapter 3, Section 301.2 Energy utilization – Deleted

15.26.220 IMC Chapter 3, Section 301.3 Fuel gas appliances and equipment – Amended

301.3 Fuel gas appliances and equipment. The approval and installation of fuel gas distribution piping and equipment shall be in accordance with the Rapid City Gas Code, fuel gas-fired appliances and fuel gas-fired appliance venting systems shall be in accordance with the *International Fuel Gas Code*.

15.26.230 IMC Chapter 3, Section 301.7 Electrical – Amended

301.7 Electrical. Electrical wiring, controls and connections to equipment and appliances regulated by this code shall be in accordance with the current Electrical Code adopted by the City of Rapid City.

15.26.240 IMC Chapter 3, Section 301.8 Plumbing connections- Amended

301.8 Plumbing connections. Potable water supply and building drainage system connections to equipment and appliances regulated by this code shall be in accordance with the current Plumbing Code adopted by the City of Rapid City.

15.26.250 IMC Chapter 3, Section [B] 301.13 Flood hazard – Amended

[B] 301.13 Flood hazard. See Chapter 15.32, Flood Area Construction Regulations, of the Rapid City Municipal Code.

15.26.260 IMC Chapter 3, Section 306.1 Clearances for maintenance and replacement – Amended

306.1 Clearances for maintenance and replacement. Clearances around appliances to elements of permanent construction, including other installed equipment and appliances, shall be 30 inches to allow inspection, service, repair or replacement without removing such elements of permanent construction or disabling the function of a required fire-resistance-rated assembly.

15.26.270 IMC Chapter 3, Section 306.3 Appliances in attics – Amended

306.3 Appliances in attics. Attics containing appliances requiring access shall be provided with an opening and unobstructed passageway large enough to allow removal of the largest appliance. The passageway shall not be less than 30 inches (762 mm) high and 22 inches (559 mm) wide. The passageway shall have continuous solid flooring not less than 24 inches (610 mm) wide. A level service space not less than 30 inches (762 mm) deep and 30 inches (762 mm) wide shall be present at the front or service side of the appliance. The clear access opening dimensions shall be a minimum of 20 inches by 30 inches (508 mm by 762 mm), where such dimensions are large enough to allow removal of the largest appliance.

Exception: The passage way and level service space are not required where the appliance is capable of being serviced and removed through the required opening.

15.26.280 IMC Chapter 3, Section 306.3.1 Electrical requirements – Amended

306.3.1 Electrical requirements. A lighting fixture controlled by a switch located at the required passageway opening and a receptacle outlet shall be provided at or near the appliance location in accordance with the current Electrical Code adopted by the City of Rapid City.

15.26.290 IMC Chapter 3, Section 306.4 Appliances under floors – Amended

306.4 Appliances under floors. Under floor spaces containing appliances requiring access shall be provided with an access opening and unobstructed passageway large enough to remove the largest appliance. The passageway shall not be less than 30 inches (762 mm) high and 22 inches (559 mm) wide. A level service space not less than 30 inches (762 mm) deep and 30 inches (762 mm) wide shall be present at the front or service side of the appliance. If

the depth of the passageway or the service space exceeds 12 inches (305 mm) below the adjoining grade, the walls of the passageway shall be lined with concrete or masonry. Such concrete or masonry shall extend a minimum of 4 inches (102 mm) above the adjoining grade and shall have sufficient lateral-bearing capacity to resist collapse. The clear access opening dimensions shall be a minimum of 22 inches by 30 inches (559 mm by 762 mm), where such dimensions are large enough to allow removal of the largest appliance.

Exception: The passageway is not required where the level service space is present when the access is open and the appliance is capable of being serviced and removed through the required opening.

15.26.300 IMC Chapter 3, Section 306.4.1, Electrical requirements – Amended

306.4.1 Electrical requirements. A lighting fixture controlled by a switch located at the required passageway opening and a receptacle outlet shall be provided at or near the appliance location in accordance with the current Electrical Code adopted by the City of Rapid City.

15.26.310 IMC Chapter 3, Section 306.5 Equipment and appliances on roofs or elevated structures – Amended

306.5 Equipment and appliances on roofs or elevated structures. Equipment and appliances installed on roofs or elevated structures shall be readily accessible.

Exceptions:

1. Permanent exterior ladders providing roof access need not extend closer than twelve (12) feet to the finish grade. The requirement for a permanent exterior ladder shall begin when the roof line is at twelve (12) feet.
2. A portable ladder may be used for access for furnaces on the single-story portion or a Group R or U Occupancy.
3. Permanent ladders for equipment access need not be provided at parapets or walls less than thirty (30) inches (762 mm) in height.

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.
3. Ladders shall have a toe spacing not less than 6 inches (152 mm) deep.
4. There shall be a minimum of 14 inches (356 mm) between rails.
5. Rungs shall have a minimum 0.75-inch (19 mm) diameter and be capable of withstanding a 300-pound (136.1 kg) load.
6. Ladders over 18 feet in height shall be provided with offset sections and landings capable of withstanding 100 pounds (488.2 kg/m²) per square foot.
7. Ladders shall be protected against corrosion by approved means.

Catwalks installed to provide the required access shall be not less than 24 inches (610 mm) wide and shall have railings as required for service platforms.

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

15.26.320 IMC Chapter 4, Section 401.2 Ventilation required – Amended

401.2 Ventilation required. Every occupied space shall be ventilated by natural means in accordance with Section 402 or by mechanical means in accordance with Section 403 or in compliance with nationally recognized standards.

15.26.330 IMC Chapter 4, Section [B] 401.5.3 Flood hazard – Amended

[B] 401.5.3 Flood Hazard. See Chapter 15.32, Flood Area Construction Regulations, of the Rapid City Municipal Code.

15.26.340 IMC Chapter 5, Section 403.3 Ventilation rate – Amended

403.3 Ventilation rate. Ventilation systems shall be designed to have the capacity to supply the minimum outdoor air flow rate determined in accordance with Table 403.3 or in compliance with nationally recognized standards, based on the occupancy of the space and the occupant load or other parameter as stated therein. The occupant load utilized for design of the ventilation system shall not be less than the number determined from the estimated maximum occupant load rate indicated in Table 403.3. Ventilation rates for occupancies not represented in Table 403.3 shall be determined by an approved engineering analysis. The ventilation system shall be designed to supply the required rate of ventilation air continuously during the period the building is occupied, except as otherwise stated in other provisions of the code.

Exception: The occupant load is not required to be determined, based on the estimated maximum occupant load rate indicated in Table 403.3 where approved statistical data document the accuracy of an alternate anticipated occupant density.

15.26.350 IMC Chapter 5, Section 507.2.2 Type II hoods – Amended

507.2.2 Type II hoods. Type II hoods shall be installed where cooking or dishwashing appliances produce heat or steam and do not produce grease or smoke, such as steamers, kettles, pasta cookers and dishwashing machines.

Exceptions:

1. Under-counter-type commercial dishwashing machines.
2. A Type II hood is not required for dishwashers and potwashers that are provided with heat and water vapor exhaust systems that are supplied by the appliance manufacturer and are installed in accordance with the manufacturer's instructions.
3. When the manufacturer's instructions does not require a Type II hood.

15.26.360 IMC Chapter 5, Section 508.1.1 Makeup air temperature – Amended

508.1.1 Makeup air temperature. The temperature of dedicated makeup air shall be capable of providing 60 degree **minimum** air to the kitchen area year around.

Exceptions:

1. Makeup air that is part of the air-conditioning system.
2. Makeup air shall not decrease the comfort conditions of other occupied spaces in the building.

15.26.370 IMC Chapter 5, Section 512.2 Materials – Amended

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 current Plumbing Code adopted by the City of Rapid City 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.

15.26.380 IMC Chapter 5, Section [B] 513.11 Power systems – Amended

[B] 513.11 Power systems. The smoke control system shall be supplied with two sources of power. Primary power shall be the normal building power systems. Secondary power shall be from an approved standby source complying with the the current Electrical Code adopted by the City of Rapid City. The standby power source and its transfer switches shall be in a separate room from the normal power transformers and switch gear and shall be enclosed in a room constructed of not less than 1-hour fire-resistance-rated fire barriers, ventilated directly to and from the exterior. Power distribution from the two sources shall be by independent routes. Transfer to full standby power shall be automatic and within 60 seconds of failure of the primary power. The systems shall comply with the current Electrical Code adopted by the City of Rapid City.

15.26.390 IMC Chapter 5, Section 513.12.1 Wiring- Amended

[B] 513.12.1 Wiring. In addition to meeting the requirements of the current Electrical Code adopted by the City of Rapid City, all wiring, regardless of voltage, shall be fully enclosed within continuous raceways.

15.26.400 IMC Chapter 5, Section 514.1 General – Amended

514.1 General. Energy recovery ventilation systems shall be installed in accordance with this section.

15.26.410 IMC Chapter 6, Section 602.2.1 Materials exposed within plenums

602.2.1 Materials exposed within plenums. Except as required by Sections 602.2.1.1 through 602.2.1.5, materials exposed within plenums shall be noncombustible or shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E 84.

Exceptions:

1. Rigid and flexible ducts and connectors shall conform to Section 603.
2. Duct coverings, linings, tape and connectors shall conform to Sections 603 and 604.
3. This section shall not apply to materials exposed within plenums in dwelling units. Stud wall cavities and the spaces between solid floor joists to be utilized as air plenums shall comply with the following conditions:
 - a. Such cavities or spaces shall not be utilized as a plenum for supply air.
 - b. Such cavities or spaces shall not be part of a required fire-resistance-rated assembly.
 - c. Stud wall cavities shall not convey air from more than one floor level.
 - d. Stud wall cavities and joist space plenums shall be isolated from adjacent concealed spaces by tight-fitting fire blocking in accordance with Section R602.8 of the International Residential Code.
4. This section shall not apply to smoke detectors.
5. Combustible materials enclosed in approved gypsum board assemblies or enclosed in materials listed and labeled for such application.

15.26.420 IMC Chapter 6, Section 602.2.1.1 Wiring – Amended

602.2.1.1 Wiring. Combustible electrical or electronic wiring methods and materials, optical fiber cable, and optical fiber raceway exposed within a plenum shall have a peak optical density not greater than 0.50, an average optical density not greater than 0.15, and a flame spread not greater than 5 feet (1524 mm) when tested in accordance with NFPA 262. Only type OFNP (plenum rated nonconductive optical fiber cable) shall be installed in plenum-rated optical fiber raceways. Wiring, cable, and raceways addressed in this section shall be listed and labeled as plenum rated and shall be installed in accordance with current Electrical Code adopted by the City of Rapid City.

15.26.430 IMC Chapter 6, Section [B] 602.4 Flood hazard – Amended

[B] 602.4 Flood hazard. See Chapter 15.32, Flood Area Construction Regulations, of the Rapid City Municipal Code.

15.26.440 IMC Chapter 6, Section 603.6.1.1 Duct Length – Amended

603.6.1.1 Duct length. All flexible air ducts shall ~~not~~ be limited in length to 7 feet for any one trunk or duct branch.

15.26.450 IMC Chapter 6, Section 603.6.2.1 Connector length - Amended

603.6.2.1 Connector length. All flexible air connectors shall be limited in length to 7 feet.

15.26.460 IMC Chapter 6, Section 603.9 Joints, seams and connections – Amended

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 SMACNA *Fibrous Glass Duct Construction Standards* or NAIMA *Fibrous Glass Duct Construction Standards*. All longitudinal and transverse joints, seams and connections shall be sealed.

15.26.470 IMC Chapter 6, Section [B] 603.13 Flood hazard areas – Amended

[B] 603.13 Flood hazard areas. See Chapter 15.32, Flood Area Construction Regulations, of the Rapid City Municipal Code.

15.26.480 IMC Chapter 6, Section 604.1 General – Amended

604.1 General. Duct insulation shall conform to the requirements of Sections 604.2 through 604.13.

15.26.490 IMC Chapter 6, Section 606.2.1 Return air systems – Amended

606.2.1 Return air systems. Smoke detectors shall be installed in return air systems with a design capacity greater than 2,000 cfm (0.9 m³/s), in the return air duct or plenum upstream of any filters, exhaust air connections, outdoor air connections, or decontamination equipment and appliances.

Exceptions:

1. Smoke detectors are not required in the return air system where all portions of the building served by the air distribution system are protected by area smoke detectors connected to a fire alarm system in accordance with the *International Fire Code*. The area smoke detection system shall comply with Section 606.4.
2. For types A-3, B, M, and I-1 occupancies three stories or less, limited area smoke detection provided within commonly occupied spaces including corridors, rooms open to corridors, egress routes, conference rooms,

similar common use spaces, rooms containing specialized equipment, or as required by the Fire Department or Building Official, may be utilized in lieu of duct detection.

For this exception, limited area detection shall be defined as detection provided as identified in exception # 2 designed and installed in accordance with the provisions set forth in the most current edition of NFPA 72.

15.26.500 IMC Chapter 7, Section 701.5 Prohibited sources – Amended

701.5 Prohibited sources. Openings and ducts shall not connect appliance enclosures with a space in which the operation of a fan will adversely affect the flow of the combustion air. Combustion air shall not be obtained from a hazardous location, except where the fuel-fired appliances are located within the hazardous location and are installed in accordance with this code. Combustion air shall not be taken from a refrigeration machinery room, except where a refrigerant vapor detector system is installed to automatically shut off the combustion process in the event of refrigerant leakage.

15.26.510 IMC Chapter 8, Section 801.20 Plastic vent joints – Amended

801.20 Plastic vent joints. Plastic pipe and fittings used to vent appliances shall be installed in accordance with the pipe manufacturer's installation instructions and the appliance manufacturer's installation instructions. Solvent cement joints between ABS pipe and fittings shall be cleaned. Solvent cement joints between CPVC and PVC pipe and fittings shall be primed.

Exception: Where compliance with this section would conflict with the appliance manufacturer's installation instructions.

15.26.520 IMC Chapter 9, Section 901.1 Scope – Amended

901.1 Scope. This chapter shall govern the approval, design, installation, construction, maintenance, alteration and repair of the appliances and equipment specifically identified herein and factory-built fireplaces. The approval, design, installation, construction, maintenance, alteration and repair of gas-fired appliances shall be regulated by the *International Fuel Gas Code* – Chapters 2, 3, 5, 6, 7, 8 and Appendix B and the Rapid City Gas Code.

15.26.530 IMC Chapter 9, Section 906.1 General – Amended

906.1 General. Factory-built barbecue appliances shall be of an approved type and shall be installed in accordance with the manufacturer's installation instructions, this chapter and Chapters 3, 5, 7, 8 and the Rapid City Gas Code.

15.26.540 IMC Chapter 9, Section 908.5 Water supply – Amended

908.5 Water supply. Water supplies and protection shall be as required by the current Plumbing Code adopted by the City of Rapid City.

15.26.550 IMC Chapter 10, Section 1002.1 General – Amended

1002.1 General. Potable water heaters and hot water storage tanks shall be listed and labeled and installed in accordance with the manufacturer's installation instructions, the current Plumbing Code adopted by the City of Rapid City, and this code. All water heaters shall be capable of being removed without first removing a permanent portion of the building structure. The potable water connections and relief valves for all water heaters shall conform to the requirements of the current Plumbing Code adopted by the City of Rapid City. Domestic electric water heaters shall comply with UL 174 or UL 1453. Commercial electric water heaters shall comply with UL 1453. Oil-fired water heaters shall comply with UL 732.

15.26.560 IMC Chapter 10, Section 1002.2 Water heaters utilized for space heating – Amended

1002.2 Water heaters utilized for space heating. Water heaters utilized both to supply potable hot water and provide hot water for space-heating applications shall be listed and labeled for such applications by the

manufacturer and shall be installed in accordance with the manufacturer's installation instructions and the current Plumbing Code adopted by the City of Rapid City.

15.26.570 IMC Chapter 10, Section 1002.3 Supplemental water-heating devices – Amended

1002.3 Supplemental water-heating devices. Potable water-heating devices that utilize refrigerant-to-water heat exchangers shall be approved and installed in accordance with the current Plumbing Code adopted by the City of Rapid City and the manufacturer's installation instructions.

15.26.580 IMC Chapter 10, Section 1005.2 Potable water supply – Amended

1005.2 Potable water supply. The water supply to all boilers shall be connected in accordance with the current Plumbing Code adopted by the City of Rapid City.

15.26.590 IMC Chapter 10, Section 1006.6 Safety and relief valve discharge – Amended

1006.6 Safety and relief valve discharge. Safety and relief valve discharge pipes shall be of rigid pipe that is approved for the temperature of the system. The discharge pipe shall be the same diameter as the safety or relief valve outlet. Safety and relief valves shall not discharge so as to be a hazard, a potential cause of damage or otherwise a nuisance. High-pressure-steam safety valves shall be vented to the outside of the structure. Where a low-pressure safety valve or a relief valve discharges to the drainage system, the installation shall conform to the current Plumbing Code adopted by the City of Rapid City.

15.26.600 IMC Chapter 10, Section 1008.2 Discharge – Amended

1008.2 Discharge. Blowoff valves shall discharge to a safe place of disposal. Where discharging to the drainage system, the installation shall conform to the current Plumbing Code adopted by the City of Rapid City.

15.26.610 IMC Chapter 10, Section 1009.3 Open-type expansion tanks – Amended

1009.3 Open-type expansion tanks. Open-type expansion tanks shall be located a minimum of 4 feet (1219 mm) above the highest heating element. The tank shall be adequately sized for the hot water system. An overflow with a minimum diameter of 1 inch (25 mm) shall be installed at the top of the tank. The overflow shall discharge to the drainage system in accordance with the current Plumbing Code adopted by the City of Rapid City.

15.26.620 IMC Chapter 11, Section 1101.4 Water connection – Amended

1101.4 Water connection. Water supply and discharge connections associated with refrigeration systems shall be made in accordance with this code and the current Plumbing Code adopted by the City of Rapid City.

15.26.630 IMC Chapter 11, Section 1101.5 Fuel gas connection – Amended

1101.5 Fuel gas connection. Fuel gas devices, equipment and appliances used with refrigeration systems shall be installed in accordance with the Rapid City Gas Code.

15.26.640 IMC Chapter 11, Section 1201.1 Scope – Amended

1201.1 Scope. The provisions of this chapter shall govern the construction, installation, alteration and repair of hydronic piping systems. This chapter shall apply to hydronic piping systems that are part of heating, ventilation and air-conditioning systems. Such piping systems shall include steam, hot water, chilled water, steam condensate and ground source heat pump loop systems. Potable cold and hot water distribution systems shall be installed in accordance with the current Plumbing Code adopted by the City of Rapid City.

15.26.650 IMC Chapter 12, Section 1206.2 System drain down – Amended

1206.2 System drain down. Hydronic piping systems shall be designed and installed to permit the system to be drained. Where the system drains to the plumbing drainage system, the installation shall conform to the requirements of the current Plumbing Code adopted by the City of Rapid City.

15.26.660 IMC Chapter 12, Section 1206.3 Protection of potable water – Amended

1206.3 Protection of potable water. The potable water system shall be protected from backflow in accordance with the current Plumbing Code adopted by the City of Rapid City.

15.26.670 IMC Chapter 12, Section 1206.9.1 Flood hazard – Amended

1206.9.1 Flood hazard. See Chapter 15.32, Flood Area Construction Regulations, of the Rapid City Municipal Code.

15.26.680 IMC Chapter 13, Section 1305.2.1 Flood hazard – Amended

1305.2.1 Flood hazard. See Chapter 15.32, Flood Area Construction Regulations, of the Rapid City Municipal Code.

15.26.690 IMC Chapter 14, Section 1401.2 Potable water supply – Amended

1401.2 Potable water supply. Potable water supplies to solar systems shall be protected against contamination in accordance with the current Plumbing Code adopted by the City of Rapid City.

Exception: Where all solar system piping is a part of the potable water distribution system, in accordance with the requirements of the current Plumbing Code adopted by the City of Rapid City, and all components of the piping system are listed for potable water use, cross-connection protection measures shall not be required.

CITY OF RAPID CITY

Mayor

ATTEST:

Finance Officer

(SEAL)

First Reading:
Second Reading:
Published:
Effective: