

Article C: Heating, Ventilating and Air Conditioning Code

Sec. 15-1-50 Purpose and Scope.

- (a) The purpose of this Heating, Ventilating and Air Conditioning Code is to provide minimum regulations, provisions and requirements in the City of Onalaska to insure safety and adequacy to persons and property wherever heating, ventilating and air conditioning is installed and to all alterations or improvements, including replacement of any apparatus or device, pertaining to heating, ventilating and air conditioning.
- (b) The provisions of this Article shall apply to every building, or portion of a building, devoted to a new use for which the requirements are in any way more stringent than the requirements covering the previous use.
- (c) This Article shall be known as the "Heating, Ventilating and Air Conditioning Code of the City of Onalaska," and will be referred to as this "Code" or "this Article."

Sec. 15-1-51 State Regulations.

- (a) **Adopted by Reference.** Ch. ILHR 23, Wis. Adm. Code; Ch. ILHR 64, Wis. Adm. Code; NFPA 54; and ANSI 2223.1 are adopted and by reference made a part of this Chapter with the same force and effect as though set out in full.
- (b) **To Be on File.** A copy of the Heating, Ventilating and Air Conditioning Code shall be on file in the offices of the Department of Inspection.

Sec. 15-1-52 Heating, Ventilating and Air Conditioning (HVAC) Definitions.

In this Article, the following definitions shall be applicable:

- (a) **Heating System.** Any combination of building construction, machines, devices or equipment, so proportioned, arranged, installed, operated and maintained as to produce and deliver in place the required amount and character of heating service.
- (b) **Ventilating.** The process of supplying or removing air by natural or mechanical means, to or from any space.
- (c) **Furnace.** A completely self-contained direct-fired automatically controlled, vented appliance for heating air by transfer of heat of combustion through metal to air and designed to supply heated air through ducts to spaces remote from the appliance location.
- (d) **Air Conditioning.** The process of treating air to control simultaneously its temperature, humidity, cleanliness and distribution to meet the requirements of the conditioned space.

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**Sec. 15-1-53 Heating, Ventilating and Air Conditioning Permits
Required.**

- (a) **Permit Required.** It shall be unlawful for a person, firm or corporation to construct, install, alter or repair any heating, ventilating or exhaust system (and appurtenance), replace a boiler, furnace, install stoker and conversion units in or for any building before securing a permit, except that in cases of emergency the contractor may proceed with the work and file the application for a permit within twenty-four (24) hours thereafter (Sundays and holidays excepted). A heating permit will not be required for the installation of electric baseboard or bathroom heaters when installed as auxiliary heat; that is, to supplement the existing heating system designed and installed to satisfy the load requirements of the space to be heated. The reference to appurtenances shall include direct heaters, cooling coils, central residential air conditioning (cooling) and similar devices affecting the safety or operation of the heating system.
- (b) **Application.** The application shall be in writing upon forms which the Department of Inspection shall provide and shall include the name of the owner and the description of the property on which the work is to be done, along with such pertinent information as the Department of Inspection may require, and shall state that the property owner and the applicant will be bound by and subject to the provisions of this Chapter.
- (c) **Issuance, Term, Suspension and Revocation.** When the Department of Inspection is satisfied that the work proposed by the applicant can be done in conformity with the provisions of this Article and after appropriate fees have been paid to him, he shall issue the permit. Such permit shall allow for the continuous performance of the work named thereon. A permit shall automatically expire when work ceases for a period of sixty (60) days without good reasonable cause for the same as may be approved by the Department of Inspection and shall automatically expire on completion of the work for which it is issued, provided the Department of Inspection may, upon notice, suspend or revoke such permit for violation of the provisions of this Article.
- (d) **Restrictions on Issuance.**
 - (1) No HVAC permit shall be issued to any person who is in violation of this Article until such violation has been corrected.
 - (2) No HVAC permit shall be issued to any person against whom an order issued by the Department of Inspection is pending, provided this restriction may be waived by the Department of Inspection.
- (e) **Data Required as Part of the Permit Application.** All drawings submitted for approval shall be accompanied by sufficient data and information for the Department of Inspection to determine if the capacity of the equipment and the performance of the equipment shall satisfy the requirements of the Section. The following data shall be submitted:
 - (1) Submit heat loss calculation in BTU per hour for each room to be heated.
 - (2) Include calculations for ventilation requirements.

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- (1) Submit one (1) or more copies of complete drawings. When the heating and ventilation drawings require approval of the Department of Industry, Labor and Human Relations (Industrial Safety and Buildings Division), one (1) or more approved copies shall be submitted with the application.
 - (2) Summation of heating and ventilating load requirement.
 - (3) Installations shall be made to conform to approved drawings.
 - (4) Plot plan showing the location of the condensing unit for air conditioning.
 - (5) For solar systems, furnish an estimate of the amount of energy in BTUs to be delivered by the system on an annual basis, which estimate shall be based on the "F" chart analysis or another method appropriate to the system considered, and collector performance data as is determined by a recognized testing lab.
 - (6) For solar systems, furnish the collector tilt and azimuth angle and a solar path shading diagram for the proposed collector location indicating the shading between the hours of 9:00 a.m. and 3:00 p.m. CST for the entire year.
 - (7) For solar systems, furnish a plot plan showing the proposed location of the solar collector and any tree and/or structure that presently casts a shadow within twenty (20) feet of the proposed collector location.
 - (8) For solar systems, furnish a detailed drawing showing anchorage and bearing of collector supports.
 - (9) For solar systems, furnish detailed drawings of all piping, pumps, blowers, wiring, storage vessels, ductwork, dampers, valves, insulation and all other material that will be required to install the system..
- (f) **Design Standards.**
1. The heating and ventilating design shall conform to methods and standards approved by the Department of Inspection when not in conflict with the Wisconsin Department of Industry, Labor and Human Relations Regulation (Industrial Safety and Buildings Division).
- NOTE:** The Department of Inspection will accept the method and standards recommended by the American Society of Heating, Refrigeration and Air Conditioning Engineers; National Warm Air Heating and Air Conditioning Association; Mechanical Contractors' Association of America and National Electrical Manufacturers' Association.
2. Minimum design standards for all rooms in living quarters shall be seventy (70) degrees Fahrenheit except bathrooms, which shall be seventy-five (75) degrees Fahrenheit. The minimum outside design temperature shall be minus twenty (-20) degrees Fahrenheit.
 3. The total heat loss of a building, including the basement, shall be used in sizing heating units or electrical service for electrical space heating.
 4. The proper "U" factors shall be selected and shall reflect the additional heat loss in areas located over unheated areas.

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- (g) **Supplemental Permits.** The license holder responsible for the work shall complete any application for a supplemental permit mailed to him and return it to the Department of Inspection within seven (7) days of the postmark date of the application for a supplemental permit. Failure to return the application for a supplemental permit prior to commencing work shall be deemed to be working without a permit.

Sec. 15-1-54 Heating, Ventilating and Air Conditioning (HVAC) Inspections.

- (a) In any new building or addition, immediately upon completion of those portions of the installation which are thereafter to be concealed or covered, the heating contractor shall notify the Department of Inspection that said portions of the installations are ready for inspection; and it shall be unlawful for any person, firm or corporation to lath over, plaster or cover up any heating work before such work has been inspected and a rough inspection card posted. The Department of Inspection shall have the right and authority to order the removal of all such lath, plaster or other covering which may have been placed over such work as has not been inspected. The Department of Inspection shall make inspections within two (2) working days after notice. Final inspection on new installations is to be made upon completion of such work. Inspection of repairs, replacement or conversion work is to be made upon completion of such work. The heating contractor shall notify the Department of Inspection as soon as the installation is complete and ready for inspection.
- (b) Wherever any work or project governed by provisions of the HVAC Code and for which a permit has been issued, as provided herein, is being performed or carried on in violation of any of the provisions of said Code, it shall be the duty of the Department of Inspection to post a printed notice to "stop work" signed by the Department of Inspection on the premises where such work is in progress and to notify anyone in charge of such work on the premises of such stop work order. After the posting of such notice, it shall be unlawful for any person, firm or corporation to do any further work on such project until such time as the defects or violations of the HVAC Code have been eliminated to the approval of the Department of Inspection.
- (c) When the Department of Inspection finds any installation in which there are violations of the Code, it shall issue a written order specifying the violation and stating the date by which these corrections shall be made. Any licensee failing or neglecting to comply with written orders at the discretion of the Department of Inspection shall not be issued any further permits until such violations have been corrected and penalty fee paid. Failure or neglect to comply with the provisions of the HVAC Code and of the permit issued under this Code shall be considered a violation of this Article.

Sec. 15-1-55 Minimum Requirements for the Installation of Gas-Fired Heating Equipment and Piping.

In addition to the standard referred to in Section 15-1-51 hereof, which shall be classed as minimum standards of this Article, the installation of gas heating equipment shall conform to the requirements set forth in the following Subsections of this Section:

(a) **Scope.**

- (1) **Applicability.** The provisions of this Article, unless otherwise indicated herein, shall apply only to utilization pressure [not in excess of one-half (1/2) pound per square inch] gas pumping systems extending from the gas meter outlet connection to the inlet connections of appliances. They are intended to cover the design fabrication, installation and test of gas piping systems for fuel gases such as natural gas, liquified petroleum gas, liquified petroleum air, gas or mixtures thereof. They are not intended to cover systems or portions of systems supplying equipment engineering, designed and installed for specific manufacturing, production processing, large power generating application, melting and treating furnaces, production ovens and similar applications.
- (2) **Exception.** Gas piping and control equipment requirements for systems using gas pressures in excess of one-half (1/2) pound per square inch:
 - a. Generally, the valving arrangement shall conform to the American Standards Association (ASA-Z 21.33 - 1950). The Department of Inspection will recognize as approved valving, arrangements and designs approved by any other nationally recognized approved agency.
 - b. A safety relief valve shall be placed downstream from a gas pressure regulator where gas is supplied at pressures in excess of one-half (1/2) pound per square inch. The discharge from the relief valve shall be piped to a safe location outside the building. [Valve setting not to exceed four (4) pounds.]
 - c. Provide a suitable pressure gauge in the gas line located downstream from the pressure regulator.
 - d. Where a gas supply pressure is higher than that at which the burners are designed to operate, a gas pressure regulator shall be provided to reduce pressure to satisfy design conditions.
 - e. Where the gas supply pressure is in excess of one-half (1/2) pound per square inch, the piping system shall be identified indicating the maximum line pressure. It is recommended that the legend "Gas _____PSI"(pressure per square inch to be inserted in the blank) be applied on gas piping near and downstream from pressure regulator at intervals of fifty (50) feet in every room or area which is less than fifty (50) feet.
 - f. Submit two (2) copies of drawings (schematic is acceptable) and specifications to the Department of Inspection for review and approval.

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- (b) **Work on Gas Piping Containing Unmeasured Gas.** Disconnecting inlet of gas meter, changing meter location or making connection to gas service pipe shall be done only by gas shall connect or disconnect the building piping from outlet meter connections when necessary. No person, unless in the employ of the gas company or having permission from the gas company, shall turn on or reconnect gas service in or on any premises where and when gas service is not at the time being rendered. It shall further be unlawful to turn on or supply gas on or at any premises unless at least one (1) gas appliance is connected to the gas piping system and all outlets are properly and securely connected to appliances or capped or plugged with screw joint fittings.
- (c) **Authority to Disconnect.** The Department of Inspection or the gas utility is hereby authorized to disconnect or have disconnected any gas space heating equipment or gas piping which shall be found not to conform to the requirements of this Code or which may be found defective and in such condition as to endanger life or property. Where such disconnection has been made, a notice shall be attached to such equipment or gas piping which shall state that the same has been disconnected, together with a reason therefor, and such notice shall not be removed nor shall the equipment or gas piping be reconnected until authorized by the Department of Inspection to do so. Cost of such disconnect by the Inspector shall be paid for by the owner of the premises.
- (d) **General Precautions.**
 - (1) **Installation of Gas Piping.** Installation of gas piping shall be performed with the gas turned off to eliminate hazards from leakage of gas. Connection of the new piping system to the existing system shall be done, if practical, with the gas turned off.
 - (2) **Burner and Pilot Valves.** Before turning off the gas at the meter, except in cases of emergency, all burner and pilot valves on the premises supplied with gas through the meter shall be turned off and the meter test hand observed for a sufficient length of time to ascertain that there is not gas passing through the meter. When there is more than one (1) meter on the premises, precaution shall be exercised to assure that the proper meter is turned off.
 - (3) **Checking for Gas Leakage.** No matches, candles, flame or other source of ignition shall be employed to check for gas leakage from meters, piping or appliances. Check for gas leakage with a soap and water solution.
 - (4) **Artificial Illumination.** Artificial illumination used in connection with a search for gas leakage shall be restricted to electric hand flashlights, fixed electric lights controlled only by explosion-proof safety switches or switches remote from the area of the leakage or approved safety lamps.
 - (5) **Smoking Not Permitted.** When connecting or disconnecting pipe which contains gas, smoking shall not be permitted.
 - (6) **Electric Circuits Grounded to Gas Piping.** Except for appliance controls requiring a ground electrical system, including low voltage, circuits shall not be grounded to gas piping.

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(e) **Piping to Meter Location.**

- (1) **Piping Extended to Meter Location.** Gas building piping shall be extended to the meter location specified by the gas company. The meter location and gas piping connection shall be such that the meter connections are easily accessible in order that the meter may be read or changed.
- (2) **Piping Marked.** Piping from multiple meter installations [four (4) or more meters] shall be plainly marked near outlet connection with a permanent tag by the installer so that the piping systems supplied through them can be readily identified.
- (3) **Meters Supplied by Single Service Pipe.** Unless otherwise approved in writing by the gas company, all meters supplied by a single service pipe shall be at the same location.
- (4) **Piping Systems Not Interconnected.** Unless otherwise approved, where two (2) or more meters are installed on the same premises but supply separate consumers, the piping systems shall not be interconnected on the outlet side of the meters.
- (5) **Pipe Capacity Table 1.**

**CAPACITY-CUBIC FEET PER HOUR WITH A
67 S.P. 970 BTU SP. GR. GAS AND PRESSURE
DROP OF 0.3 INCH WATER COLUMN**

Length of Pipe in Feet	Nominal Diameter of Pipe in Inches						
	3/4	1	1-1/4	1-1/2	2	3	4
15	158	319	694	1130	2300	6000	12900
30	111	223	495	790	1640	4350	9000
45	92	184	403	650	1360	3600	7300
60	80	160	352	565	1200	3200	6300
75	71	144	317	500	1040	2775	5550
90	65	131	287	455	925	2500	5100
105	60	123	264	415	850	2250	4700
120		111	250	390	795	2125	4450
150		101	224	350	720	1925	4050
180		93	208	325	670	1800	3700
210			190	295	610	1650	3400
240			176	280	570	1550	3200
270			165	265	535	1450	3000
300			158	250	500	1375	2750
450			130	210	415	1150	2300
600			110	180	360	950	1975

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(f) **Size of Piping to Gas Appliances.**

- (1) **Sufficient Size.** Piping shall be of such size and so installed as to provide a supply of gas sufficient to meet the maximum demand without undue loss of pressure between the meter and the appliance or appliances. The minimum gas pipe shall be not less than three-fourths (3/4) inch. This does not apply to water heaters, space heaters and unit heaters with inputs of less than fifty thousand (50,000) input. The size of the gas pipe to be used depends upon the following factors.
 - a. Allowable loss in pressure to be provided for.
 - b. Maximum gas consumption to be provided for.
 - c. Length of pipe and number of fittings.
 - d. Specific gravity of the gas.
 - e. Diversity factor.
- (2) **Pressure Loss.** The pressure loss in any gas piping system from the gas meter to any appliance for the maximum demand shall not exceed three-tenths (0.3) inch water column. The minimum size of piping required to comply with the three-tenths (0.3) inch pressure loss limitation shall be determined by the procedure given in Subsection (3) below or by standard engineering methods, including use of gas flow computers.
- (3) **Size of Piping.** To determine the size of any section of gas pipe in a system, proceed as follows:
 - a. Measure the length of pipe from the gas meter to the most remote outlet of the building on that piping system. Where separate or individual fuel lines are extended from the meter to one (1) or more appliances, such as an individual gas line to heating plant, each separate fuel line from the meter shall be considered as a separate piping system.
 - b. In Table No. 1, select the horizontal line showing the distance or the next longer distance if the table does not give the exact length.
 - c. Use this horizontal line so selected to locate all gas demand figures for this particular system of gas piping.
 - d. Starting at the most remote outlet, find in the horizontal line just selected the gas demand for that outlet. If the exact figure of demand is not shown, choose the next larger figure in the same horizontal line.
 - e. Above this demand figure in the first line at the top of Table No. 1 will be found the correct size of pipe required to serve such an outlet.
 - f. Proceed in a similar manner for each outlet and each section of pipe. For each section of pipe, determine the total gas demand supplied by that section and use the length indicated by Subsection (e)(5) above, which length is at all times taken as the total distance from the meter to the most remote outlet.
 - g. The hourly volume of gas required at each outlet shall be taken as not less than the maximum hourly rating specified by the manufacturer of the appliance or appliances to be connected to each such outlet. Where the

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manufacturer's rating of an appliance is given in British Thermal Units (BTU) per hour, this rating shall be divided by nine hundred seventy (970) to obtain the corresponding gas demand in cubic feet per hour for natural gas. Where BTU rating of gas appliances to be installed has not been definitely specified, estimate of approximate requirements may be based on current typical appliances.

- (4) **Extensions to Existing Piping.** Extensions to existing piping shall conform to Subsection (f)(1). Existing piping, if extended, shall be converted to the proper size of pipe where necessary. In no case shall extensions be made to existing pipe which is smaller than permitted by Subsection (f)(1).
- (g) **Materials for Pipe and Fittings.**
- (1) **Rigid Pipe and Fittings.**
- a. Gas pipe shall be black wrought iron or steel pipe complying with the American Standard for Wrought Iron and Wrought Steel Pipe A.S.A. B36 D-1939. All pipe fittings (except shut-off cocks or valves) shall be malleable iron or steel when used with wrought iron or steel pipe. In sizes three (3) inches or larger, all piping must be welded. (See Subsection b below.) Exception: Plastic pipe may be used outside of a building only and when it is buried at a minimum depth of twelve (12) inches and when it is used in the sizes of three-eighths (3/8) inch outside diameter for gas lights and five-eighths (5/8) inch outside diameter for gas grills. The plastic pipe must be an approved type. Alternate materials and methods of installation may be approved by the City of Onalaska Inspection Department upon submission of plans, materials and inspection schedule prior to commencing the installation. Any alternate installation must conform to the National Fuel Gas Code, NFPA 54 1988, and ANSI Z 223.1 1988.
 - b. The use of welded steel fittings, either shop or field fabricated, and jointing of pipe by welding is permissible.
 - c. Plain end pipe with gland-type couplings shall not be used within or under any building or structure but may be used for exterior or underground installations.
 - d. Ground joint unions or gasket-type unions with leather gaskets shall be used in gas building piping.
 - e. Copper or brass pipe in iron pipe sized when assembled with threaded fittings of the same material may be used. Copper tubing with seat, flared or compression fittings shall not be used for building piping.
 - f. Aluminum piping in iron pipe sizes may be used provided that no aluminum pipe may be used for underground installations, nor in contact with masonry or concealed in walls or partitions constructed of masonry materials, nor exposed to alkaline chemicals, fumes or materials. Aluminum pipe shall not be extended through walls or ceilings.

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- (3) **Semi-Rigid Tubings and Flexible Metal Connectors.** Copper or aluminum semi-rigid tubing, flexible metal connectors and fittings may be used in place of rigid pipe for connection of individual appliances, other than gas space heating equipment and gas water heaters, to building piping. Flexible metal connections or fittings shall bear the seal or listing symbol of a nationally recognized testing agency acceptable to the Department of Inspection or be fabricated and assembled from material using a flared type connection. The length of tubing shall not exceed six (6) feet.
- (h) **Concealed Pipe.**
 - (1) **Pressure.** The requirements of this Section shall apply to concealed gas piping utilizing gas pressures up to and including four (4) pounds per square inch. Concealed or embedded pipe or tubing shall be tested before being covered to a hydrostatic or compressed air pressure of not less than fifty (50) pounds gauge for a period of not less than ten (10) minutes.
 - (2) **Minimum Size.** No pipe smaller than three-fourths (3/4) inch pipe size shall be used in any concealed location.
 - (3) **Gas Piping Embedded in Concrete.**
 - a. When gas pipe is to be embedded in concrete or cement, it shall be coated with a corrosion-resisting material or laid in a conduit of iron pipe or glazed tile with tightly sealed joints. Tile joints shall be packed with jute or hemp at the base and remaining joint space filled with cement mortar or hot pour compound suitable for clay pipe. The coating or conduit shall be extended at least two (2) inches beyond the point where the pipe emerges from its concrete embedment. Where the encasing conduit terminates underground, it shall be tightly sealed around the gas pipe with bituminous or asphaltic material to prevent the entrance of moisture. Where pipe is to be embedded directly in a concrete floor, necessary precautions shall be observed to prevent the pipe from being damaged prior to and during the pouring of the concrete floor. The piping shall be installed and supported above the underlying fill so that there will be a minimum thickness of three-fourths (3/4) inch of concrete both under and over the pipe in the finished installation. Gas pipe shall not be embedded in a cinder fill or in a cinder concrete fill unless the pipe is laid in glazed tile pipe with tightly sealed joints as specified above.
 - b. Gas pipe in solid floors, such as concrete, may be laid in channels in the floor suitably covered to permit access to pipe with minimum damage to the building. The channel may be covered with a removable cover or the channel may be filled with some non-corrosive material.
 - c. No gas line shall be buried in or contact with the ground or fill under any building or structure unless suitably encased in a conduit installed as prescribed above for embedment in concrete.

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- (4) **Piping in Partitions.** Where concealed piping is located in hollow rather than solid partitions, the space concealing the pipe shall be ventilated to permit the escape of gas should leakage develop. Ventilation may be provided by small grills in the wall or by making the opening through which the pipe leaves the concealed space at least one-half (1/2) inch larger than the outside diameter of pipe.
 - (5) **Connections in Original Installation.** When installing pipe which will be concealed, unions, running threads, right- and left-hand couplings, bushings and swing joints made by combination of more than two (2) fittings (not including nipples) shall not be used.
 - (6) **Reconnections.** When necessary to insert fittings in piping which has been installed in a concealed location, the piping may be reconnected by the use of a ground joint union with the nut "center punched" to prevent loosening by vibration.
- (i) **Underground Gas Piping.**
- (1) **Corrosion-Resistive Material.** All wrought iron or steel gas piping installed below ground level outside of any building or structure shall be protected against corrosion with a coating or corrosion-resisting material recommended by the manufacturer for underground use and applied in accordance with manufacturer's printed instructions.
 - (2) **Minimum Depth.** Underground piping located exterior to any building or structure shall be installed at a depth to provide a minimum cover of eighteen (18) inches. Exception: The depth of burial of plastic gas pipe for gas lights three-eighths (3/8) inch outside diameter and grills five-eighths (5/8) inch outside diameter shall be not less than twelve (12) inches. Where plastic gas piping passes within twelve (12) inches of any underground electrical piping, it shall be run in a split tile or an approved asbestos product. Where it crosses underground electrical piping, it must be run in split tile or an approved cement asbestos product for a distance of two (2) feet on each side of the electrical piping.
 - (3) **Separate Ditch.** Gas house piping shall not be installed in the same ditch with water, sewer, drainage or other piping.
 - (4) **Dielectric Insulation Fittings.** When any portion of iron or steel pipe in gas house piping is buried or in contact with the ground and is to be connected directly, such as through a water heater or other appliance having water connections, to any copper piping or tubing that is at some point in contact with the ground, the copper and iron piping shall be separated electrically by means of dielectric insulation fittings installed in the gas line.
 - (5) **Iron and Copper Piping.** Iron gas pipe buried or in contact with the ground shall be placed a minimum of two (2) feet from all copper piping or tubing that is buried or in contact with the ground. Where iron and copper cross underground and it is impractical to maintain this spacing, the iron pipe shall have a one-thirty-second (1/32) inch coating of corrosion-resisting material suitable for underground use and applied in accordance with manufacturer's printed instructions for a distance of two (2) feet from the point of crossing.

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- (j) **Sleeve on Building Piping Through Masonry Wall.** Where gas pipe passes through a wall below grade, the joint between the pipe and the wall shall be caulked or cemented so as to form as tight a seal as is possible. If the pipe is encased in a sleeve or conduit, both ends of the sleeve or conduit shall be tightly sealed.
- (k) **Installation of Gas Piping.**
 - (1) **Drip Pipes.** Where practical, all gas piping shall be installed so that it will drain toward the meter. Horizontal piping shall be so graded approximately one-fourth (1/4) inch to fifteen (15) feet. Where it is necessary to trap the gas line, the drip pipe shall be attached to trapped piping at every point where condensation might collect. The drop pipe shall not be smaller than the diameter of pipe to which it is attached and shall be at least six (6) inches long. The end of drop pipe shall be capped and shall be accessible for draining.
 - (2) **Supporting Pipe.** Gas piping shall be securely fastened and supported with pipe straps or hangers at sufficient intervals to prevent pipe from sagging more than one-fourth (1/4) inch between supports. Gas pipe shall not be supported by or from other piping.
 - (3) **Fittings.** A tee-fitting with the bottom outlet plugged or capped instead of an ell-fitting shall be used at the bottom of any riser to catch any dirt or other foreign materials.
 - (4) **Avoid Clothes Chutes, Etc.** Gas pipe inside any building shall not be run in through spaces used for air duct, clothes chutes, chimney or flue, ventilating duct, dumbwaiter or elevator shaft.
 - (5) **Cap All Outlets.** Each outlet, including a valve or cock outlet, shall be securely closed gas-tight with a threaded iron plug or cap if not used immediately after installation and shall be left closed until an appliance is connected thereto. Likewise, when an appliance is removed from an outlet and the outlet is not to be used again immediately, it shall be securely closed gas-tight, using a threaded iron plug or cap.
 - (6) **Air or Oxygen Under Pressure.** Where air or oxygen under pressure is used in connection with the gas supply, effective means shall be provided to prevent air or oxygen from passing back into gas piping. Where air or oxygen supply is interconnected with the gas piping system, a device used to prevent gas from passing the meter shall be approved by the Building Inspector.
- (1) **Gas Shut-Off Valves.**
 - (1) **Accessibility of Gas Valves.**
 - a. Main gas shut-off cocks or gate valves controlling several piping systems shall be placed an adequate distance from each other so they will be easily accessible for operation. These valves shall be plainly marked with a metal tag wired to the valve by the installer so that the piping systems supplied through them can be readily identified.
 - b. The main gas shut-off valves on all gas space heating equipment shall be placed as close as possible to the equipment but shall be located between four (4) feet and six (6) feet above floor level. No main gas shut-off valves shall be concealed in the space-heating cabinet. Exception: On suspended units, rooftop units, space heaters and through-wall units, the gas valve shall be easily accessible and placed within three (3) feet of the unit.

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- c. All gas-fired appliances shall be equipped with a main shut-off valve located between the appliance and the building piping. The shut-off valve for heating plants and water heaters shall be of the lever type.
- (2) **Location of Shut-Off on Piping for Apartments on Master Meter.**
 - a. In multiple-tenant buildings supplied through a master meter, a shut-off cock shall be installed in the apartment, to be supplied at each of the appliances. If one (1) riser or fuel line supplies all the gas to any one (1) apartment, only one (1) shut-off cock need be installed in this riser or fuel line, but it shall be located so as to be readily accessible.
 - b. In the event that shut-off cocks are to be installed on the risers or fuel lines in the basement, instead of in the piping at the appliance where the master meter is used, each riser or fuel line shall be tagged with a wired-on metal.

Sec. 15-1-56 Wood and Solid Fuel Burning Equipment.

- (a) **Scope. The HVAC Code regulates** all heating units, stoves, furnaces, boilers, freestanding or used in tandem with other heating systems that use wood, coal or other solids as fuel.
- (b) **Inspection Required.** No person shall operate or permit the operation of any heating equipment until inspected and approved by the Department of Inspection.
- (c) **Installation Clearances to Combustibles.**
 - (1) **Unlisted Radiant-Type Space Heaters.**
 - a. Top thirty-six (36) inches.
 - b. Back thirty-six (36) inches.
 - c. Side thirty-six (36) inches.
 - d. Front thirty-six (36) inches.
 - e. Install only on noncombustible or protected floor.
 - (2) **Unlisted Circulating-Type Heaters.**
 - a. Top thirty-six (36) inches.
 - b. Back twelve (12) inches.
 - c. Side twelve (12) inches.
 - d. Front twenty-four (24) inches.
 - e. Install only on noncombustible or protected floor.
 - (3) **Furnaces-Central and Add-on Types; Boilers Central and Add-on Types.**
 - a. Top eighteen (18) inches.
 - b. Back eighteen (18) inches.
 - c. Side eighteen (18) inches.
 - d. Front forty-eight (48) inches.
 - e. Install only on noncombustible or protected floor.
 - (4) **Dual-Fuel Furnaces.**
 - a. Top eighteen (18) inches.
 - b. Back eighteen (18) inches.
 - c. Side eighteen (18) inches.
 - d. Front forty-eight (48) inches.

- e. Install only on noncombustible or protected floor.

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(5) **Ranges - Cooking Stoves.**

- a. Top thirty (30) inches.
- b. Back twenty-four (24) inches.
- c. Firing side twenty-four (24) inches.
- d. Opposite side eighteen (18) inches.
- e. Install only on noncombustible or protected floor.

NOTE: The above clearances apply unless otherwise shown on listed appliances or approved wall protection is used.

(d) **Mounting of Unit.**

- (1) On noncombustible floor, unit must be mounted on a firm level base.
- (2) On combustible floors, all units without legs shall be mounted on four (4) inch thick hollow concrete or tile blocks covered with twenty-four (24) U.S. gauge sheet metal. Such protection shall extend not less than eighteen (18) inches around the perimeter of the unit. Equivalent protection will be acceptable.
- (3) All units that have eighteen (18) inches or more of open space under the base of the unit may be mounted on combustible floors provided the floor is protected by a stove board extending eighteen (18) inches in front, twelve (12) inches to the side and rear.
- (4) Units with shorter legs may be mounted on combustible floors with approved protection.

NOTE: Above clearances apply unless otherwise shown on listed appliances.

(c) **Type and Size of Chimney.** The chimney shall be sized so that the cross-sectional area is not smaller than the cross-section area of the flue collar of the equipment to be connected to it. All masonry chimneys shall be constructed in accordance with the Onalaska Building Code and factory-built all fuel chimneys bearing a listing by a nationally recognized testing laboratory will be considered as approved.

(f) **Chimney Connector (Stovepipes and Vents).**

- (1) Vent connectors shall not be less than twenty-four (24) gauge steel.
- (2) Vent connectors shall have an internal cross-sectional area not less than that of the flue collar of the equipment.
- (3) Vent connectors shall have a rise in the horizontal portion of not less than one-quarter (1/4) inch to the running foot so that the connection at the chimney is higher than the end at the equipment.
- (4) The smoke pipe shall be well supported and fastened together with screws or rivets.
- (5) The smoke pipe shall have eighteen (18) inches clearance to combustibles.
- (6) The smoke pipe shall have a cast iron damper to control the draft, subject to manufacturer's specifications.
- (7) The smoke pipe shall be connected to the masonry chimney with a metal or burned fire-class thimble that is cemented to the liner with a cement designed for that purpose.
- (8) Smoke pipes that pass through combustible partitions must use a ventilated metal thimble.

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- (g) **Duel-Fuel Equipment.** Duel-fuel equipment shall be installed as per manufacturer's specifications.
- (h) **Supplemental Heating Units Connected to Existing Systems.** Supplemental heating unit connection to existing system shall be installed as per manufacturer's specifications.

Sec. 15-1-57 Heating, Ventilating and Air Conditioning (HVAC) Permit Fees.

The schedule of HVAC permit fees to be paid shall be as follows, and such fees shall be paid at the time the permit is issued:

- (a) Prior to performing any work concerning, affecting or relating to the installation, construction, remodeling, locating, relocating, moving, replacing, converting, repairing or resetting of any heat-producing appliance connected with space heating or air conditioning equipment; or any other matter governed by the provisions of this Code; a permit therefor shall be obtained by a person, firm, partnership, corporation, association or combination thereof, who is qualified under the provisions of this Code, and it shall be unlawful to proceed with such work unless a permit shall first have been obtained and the permit fee therefor paid in accordance with permit fee schedule herein provided:

Valuation of HVAC Work	Fee
0 to \$2,000	\$40.00
2,001 to 3,000	\$45.00
3,001 to 4,000	\$55.00
4,001 to 5,000	\$65.00
5,001 to 6,000	\$75.00
6,001 to 7,000	\$85.00
7,001 to 8,000	\$95.00
8,001 to 9,000	\$105.00
9,001 to 10,000	\$115.00

Greater than \$10,000: \$115 for the first \$10,000 plus \$2.50 for each \$1,000.00 additional valuation of fraction thereof.”

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Sec. 15-1-58 Liability for Damages.

This Chapter shall not affect the responsibility or liability of any party owning, operating, controlling, or installing any heating, ventilating, and air conditioning equipment for damages to persons or property caused by any defect therein, nor shall the City be held as assuming any such liability by reason of the inspection or re-inspection authorized herein or the certificate of approval issued as herein provided or by reason of the approval or disapproval of any equipment authorized herein.

Sec. 15-1-59 Board of Gas Examiners.

Vacated

Sec. 15-1-60 Gas Licenses.

- (a) **License Required.** No person shall hereafter engage in the business or install, alter, repair or service gas burners or gas burner equipment as defined herein within the City of Onalaska without first securing from the Board of Gas Examiners a license. The requirements herein shall not be construed to limit the gas utility's right to render necessary service.
- (b) **Classification of Licenses.**
 - (1) **Class A License.** To work at or engage in the business of installing, repairing or servicing gas burners or gas burner equipment without regard to input capacity of the said burners.
 - (2) **Class B License.** To work at or engage in the business of installing, repairing or servicing gas burners or gas burner equipment whose input capacity is four hundred thousand (400,000) BTU and smaller.
 - (3) **Class C License.** To engage in the work of installing, altering, repairing, or servicing gas burners or gas burner equipment as an employee of a Class A or Class B Licensee.

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- (c) **Requirements for Partnership, Firm or Corporation.** Where a license is desired by a partnership, a firm, or a corporation, at least one (1) responsible officer, member or employee of such firm or corporation shall be required to qualify by examination to qualify such firm or corporation to carry on the business of gas installation. Each such partnership, firm, or corporation shall be required to have an appropriate license as required by this action, and in addition, each and every employee of such partnership, firm, or corporation who engages in the installation of gas burner equipment shall have an appropriate license.
- (d) **License Fees.** License fees for gas licenses shall be as set forth in the City of Onalaska fee schedule.
- (e) **Application, Examination, Qualifications.** The Inspection Department shall prescribe the form of applications. In order to obtain a license, each applicant shall pass an exam given by the Inspection Department or must provide satisfactory proof of having previously passed an exam deemed acceptable by the Inspection Department which exam was administered by a jurisdiction which enforces the 1992 Edition of ANSI 2223.1-NFPA 54, and all subsequent amendments or obtains the Department of Safety and Professional Services (DPS) HVAC Qualifier.
- (f) **Term and Renewal.** Each license shall expire on December 31st following issuance. Annual renewal licenses shall be issued without examination upon payment of the proper license fee.

Sec. 15-1-61 Bonds and Insurance

- (a) No Class A or Class B license shall become effective until the licensee shall have filed with the Inspection Department a Surety Bond in the penal sum of Ten Thousand Dollars (\$10,000.00) operating in favor of the City and conditioned that the City will be saved harmless from any cause or damage by reason of work performed under this Section, or by reason of improper or inadequate performance under this Section, by the holder of any such license. Such bond shall be approved as to form and execution by the City Attorney and as to surety by the Comptroller. Surety Bond must be filed with the Inspection Department before any such Class A or Class B licenses shall become effective.
- (b) Class A and Class B licensees shall carry insurance of the kind specified below and in the amounts herein specified as follows:
 - (1) **For Personal Injuries.** Liability insurance in the amount of Fifty Thousand Dollars (\$50,000.00) for each person and One Hundred Thousand Dollars (\$100,000.00) for each accident.
 - (2) **For Property Damage.** Liability insurance in the amount of Fifty Thousand Dollars (\$50,000.00).

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- (3) For Completed Operations Insurance. Insurance for completed operations with coverage sufficiently broad to cover installation, service and repair of equipment sold by the Licensee and servicing, installation and repair of equipment not sold by the Licensee, with coverage for personal injuries to be in the amount of Fifty Thousand Dollars (\$50,000.00) for each person, and One Hundred Thousand Dollars (\$100,000.00) for each accident; and for property damage Fifty Thousand Dollars (\$50,000.00) with One Hundred Thousand Dollars (\$100,000.00) aggregate limit.
- (4) Copies of such insurance policies, or certificates of insurance indicating such coverage must be filed with the Insurance Department before any such Class A or Class B licenses shall become effective.

Sec. 15-1-62 through Sec. 15-1-69

Reserved for Future Use.

