

Introduced by: Mayor Cleworth
Date: March 21, 2011

ORDINANCE NO. 5838

AN ORDINANCE TO AMEND FGC SECTIONS 10-101 AND 10-102, ADOPTING THE 2009 INTERNATIONAL MECHANICAL CODE WITH AMENDMENTS

WHEREAS, the Building Code Review and Appeals Commission has reviewed the 2009 International Mechanical Code, and the amendments thereto, and has recommended adoption with local amendments; and

WHEREAS, the City Council desires to accept the recommendations of the Building Code Review and Appeals Commission;

NOW, THEREFORE, BE IT ENACTED BY THE CITY COUNCIL OF THE CITY OF FAIRBANKS, ALASKA, AS FOLLOWS:

Section 1. Fairbanks General Code Sections 10-101 and 10-102 are hereby repealed and re-enacted as follows (substantive changes shown in bold font):

Sec. 10-101. Adoption.

The International Mechanical Code **2009** Edition, as published by the International Code Council, is hereby adopted by the City of Fairbanks.

Sec. 10-102. Amendments.

Section 101.2.1 Appendices. Add the following to this section.

Appendix A as amended by the combustion air provisions of chapter 7 is hereby adopted.

Except for sections 101, 102, and the following amendments, delete Chapter 1 in its entirety and refer to the Administrative Code for the City of Fairbanks Building Department.

Section 102.8 Referenced codes and standards. Revise and add two subsections at the end of this section as follows:

102.8.1 Plumbing. Where reference to any Plumbing Code is made in this Code it shall be taken to mean the *Uniform Plumbing Code* as adopted and amended by the City of Fairbanks.

102.8.2 Electrical. Where reference to any Electrical Code is made in this Code it shall be taken to mean the *National Electrical Code* as adopted and amended by the City of Fairbanks.

102.8.3 Administrative. The provisions of the Administrative Code for the City of Fairbanks Building Department shall apply to the administration and enforcement of this code. Where provisions of the Administrative Code and this code conflict, the more restrictive text shall apply.

102.8.4 Energy. Where reference is made in this Code to the *International Energy Conservation Code* it shall be taken to mean the *IECC* as currently adopted by the City of Fairbanks.

Section 201.3 Terms defined in other codes. Revise this section as follows.

Where terms are not defined in this code and are defined in the *International Building Code*, *National Electrical Code*, *International Fire Code*, *International Fuel Gas Code*, or *Uniform Plumbing Code*, such terms shall have meanings ascribed to them in those codes.

Section 201.4 Terms not defined. Amend this section by adding the following sentence.

Webster's Third New International Dictionary of the English Language, Unabridged shall be considered as providing ordinarily accepted meanings.

Section 301.2 Energy utilization. Delete this section in its entirety.

Section 301.7 Electrical. Add the following sentence to the end of this subsection.

When an existing fuel-fired appliance is not equipped with the required manual disconnect and the appliance is replaced, an approved manual disconnect within clear view of the appliance shall be installed.

Section 302.6 Penetration Weatherproofing. Add this section and the following after section 302.5.3.

Joints at roofs and exterior walls around pipes, ducts, appurtenances or equipment shall be made watertight by the use of approved materials.

Section 301.16 Carbon Monoxide Alarm. Add this section numbering, title, and the following after section 301.15.

Where a fuel-fired appliance is installed or replaced in an existing dwelling an approved carbon monoxide alarm shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms. A single station, battery-operated carbon monoxide alarm shall be listed as complying with UL 2034 and shall be installed according to the manufacturer's installation instructions.

Section 302.1.1 Pipe and Tubing embedded in concrete. Add this subsection with the following text.

Pipe and tubing embedded in concrete slabs or footings, including sleeves, shall not be placed at a depth below the top surface of the concrete of less than 1 ½ - inch for concrete exposed to earth or weather or ¾-inch for concrete not exposed to earth or weather. They shall not be spaced closer than 3 diameters or widths from structural steel elements.

Section 303.4 Protection from damage. Add the following at the end of Section 303.4.

Fuel-fired equipment and appliances located within the direct perpendicular path of a garage door opening of eight foot or less in height shall comply with Section 303.4.1

303.4.1 Fuel-fired appliance protection. Fuel fired appliances and equipment located in the direct path of vehicles as described in 303.4 shall be protected from impact with one of the following methods.

1. A minimum schedule 40 nominal 3" diameter steel pipe 30" high, with a vertical face of the pipe at least 6" in the direction of vehicle approach and:
 - 1.1 Buried a minimum 2'0" deep in compacted soil and imbedded in at least 4" nominal concrete slab, or
 - 1.2 Set in a minimum 1'0" x1'0"x1'0" block of concrete (slab included).
2. A platform on which the equipment sits, at least 24" high, extended at least 6" greater than the equipment footprint (including attachments such as burners and controls) in the direction of vehicle approach and in contact with the structure opposite the direction of vehicle approach.
3. An approved system of equivalent resistance to vehicle impact extending at least 6" ahead of the equipment's footprint in the direction of vehicle approach, including attachments such as burners and controls.

Section 303.8 Elevator Shafts. Delete this section in its entirety and replace as follows.

Mechanical systems shall not be located in an elevator shaft except mechanical equipment and devices exclusively serving the elevator. Discharge piping from any sump pump shall exit the hoistway as low as practicable. Sump pumps shall be sized per the Uniform Plumbing Code as amended.

Section 304.1.1 Fuel-fired equipment startup report. Add this subsection as follows.

A startup report is required for all fan-assisted or power-burner fuel-fired equipment indicating the following conditions and others which the manufacturer recommends in their installation instructions. A non-returnable copy must be provided to the inspector for insertion in the Building Department project files.

Company, Name, address, & Phone Number of Startup Technician

Manufacturer and Model No. of Equipment

Date and Time of Startup and Noted Readings

Net Stack Temperature

Overfire Draft

Breech Draft

Stack Draft

CO or Smoke

CO2 or O2

Actual Rate of fuel input

Section 312.1 Load calculations. Delete the last sentence of this section and substitute the following.

Alternatively, design loads shall be determined by an approved equivalent computation procedure.

Section 401.4 Intake Openings. Add the following exception.

Exception:

Passive Outdoor Air intake openings, including opening doors and windows, shall not be located closer than 3 feet horizontally to any gas pressure regulator vent opening, unless such vent opening is located at least 3 feet above the air intake opening.

Section 401.5 Outdoor opening protection. Add an exception at the end of this section as follows:

Exception: HRV weatherhoods as provided by the respective unit's manufacturer may be used for its Intake and Exhaust Air openings.

TABLE 401.5

OPENING SIZES IN LOUVERS, GRILLES AND SCREENS PROTECTING OUTDOOR EXHAUST AND AIR INTAKE OPENINGS

Delete Table 401.6 and replace with the following.

OUTDOOR OPENING TYPE	MINIMUM AND MAXIMUM OPENING SIZES IN LOUVERS, GRILLES AND SCREENS MEASURED IN ANY DIRECTION
Exhaust & Intake openings in residential occupancies	½ inch
Intake openings in other than residential occupancies	Not < ½ inch and not > 1 inch

Section 403.3 Ventilation rate. Amend this section by revising the first sentence to read as follows.

Ventilation systems shall be designed to have the capacity to supply the minimum outdoor airflow rate determined in accordance with Table 403.3 based on the occupancy of the spaces and the occupant load or in accordance with the latest edition of ASHRAE Standard 62.

Section 501.2 Exhaust discharge. Delete the exceptions to this section.

Section 502.20 Nail Salons. Add this section.

The inlet to an exhaust system shall be located in the immediate area of heaviest concentration of contaminants. The permit holder shall verify capture and containment performance of the exhaust system. This field test shall be conducted with all sources of outdoor air providing makeup

air operating and with all sources of recirculated air operating which provide conditioning for the space in which the capture & containment is required. Capture and containment shall be verified visually by observing smoke simulating contaminant emission.

Section 505.1 Domestic systems. Delete the first paragraph of this section and substitute the following.

Built-in Cook-top or Range-top domestic cooking appliances located within dwelling units and within areas where domestic cooking appliance operations occur shall be listed and labeled as household-type appliances for domestic use. A ventilating hood above, or an approved downdraft exhaust, shall be provided for a cook-top or range-top domestic cooking appliance, and shall discharge to the outdoors through a single-wall duct. The duct shall be sheet metal, of galvanized steel, stainless steel, aluminum or copper, airtight, and equipped with a backdraft damper. A microwave or cooking appliance that exhausts to the outdoors according to this section, is listed and labeled for installation over a cooking appliance, and conforms to the terms of the upper appliance's listing and label, shall be approved.

Delete exception #1.

Section 506.3.10 Grease duct enclosure. Add the following sentence at the end of this section's paragraph.

Duct enclosures penetrating wall assemblies shall have a fire-resistance rating of not less than that required for the wall assembly, but not less than 1-hour nor more than 2-hour.

506.3.10.1 Shaft enclosure. Delete and replace the second sentence of this subsection with the following.

Such grease duct systems and exhaust equipment shall have a clearance to combustible construction of not less than 18 inches, and shall have a clearance to noncombustible construction and gypsum wallboard attached to noncombustible structures of not less than 3 inches.

Section 507.1 General. Amend this section by adding the following sentence.

Design documents for commercial hoods, commercial ventilation and makeup air systems shall be designed by and bear the stamp of a professional mechanical engineer currently registered in the State of Alaska.

Section 508.1 Makeup air. Amend this section by adding the following sentence.

Design documents for commercial hoods, commercial ventilation and makeup air systems shall be designed by and bear the stamp of a professional mechanical engineer currently registered in the State of Alaska.

Section 601.4 Contamination prevention. Amend this section numbering the published Exception as noted and adding Exception 2 as follows.

Exception 1. Exhaust systems...

Exception 2.

Environmental air exhaust ducts under positive pressure may extend into or through ducts or plenums if one of the following design approaches is used.

1. Route environmental air exhaust ducts inside a shaft when passing through a duct or plenum. Install a second duct around the environmental air exhaust duct where passing through ducts and plenums to minimize leakage to the duct plenums. Seal both ends of the outer duct to the outside.
2. Install a second duct around the environmental air exhaust duct where passing through ducts and plenums to minimize leakage to the duct or plenum. Seal both ends of the outer duct to outside.
3. Seal the environmental air exhaust ducts along all seams and joints using a listed low to medium pressure duct sealant which is typically applied by brush, trowel or caulking gun.
4. Provide flexible duct with no seams in the duct or plenum. The maximum length of the flexible duct is limited to 8 feet due to high static loss. A metal duct may be sleeved by the flexible seamless duct.

Section 602.1 General. Revise this section as follows.

Supply, return, exhaust, relief and ventilation air plenums shall be limited to areas above a ceiling or below the floor, attic spaces and mechanical equipment rooms. Plenums shall be limited to one fire area. Fuel-fired appliances shall not be installed within a plenum.

Exception: Underfloor crawlspaces shall not be used as plenums.

Section 604.1 General. Revise this section as follows.

Duct insulation shall conform to the requirements of sections 604.2 through 604.13 and the *International Energy Conservation Code*. All supply, return, and exhaust ducts and plenums shall be insulated with a

minimum of R-11 insulation when located outside the building envelope. When located within a building envelope assembly, the duct or plenum shall be separated from the building exterior or unconditioned space or exempt spaces by a minimum of R-11 insulation.

Exceptions:

1. When located within equipment.
2. When the design temperature difference between the interior and exterior of the duct or plenum does not exceed 15 degrees F (8 degrees C).
3. When located within the under floor crawlspace of a one or two family dwelling unit.

607.4 Access and identification. Add the following between the 1st and 2nd sentences of this Section.

Access doors for fire dampers & smoke dampers shall be located as close as practicable to the dampers and also sized so fire damper spring catch and fusible links are accessible with two hands when the damper is closed. Duct access doors shall be a minimum size of 18 inches x 16 inches where the size of the duct permits, and a minimum size of 24 inches & 16 inches where entry of an individual is needed for the required minimum access.

CHAPTER 7 COMBUSTION AIR

Section 701.1 Scope. Delete this section in its entirety and substitute the following.

The provisions of this chapter shall govern the requirements for combustion and dilution air for fuel-burning appliances other than gas-fired appliances. Solid fuel-burning appliances shall be provided with combustion air in accordance with the appliance manufacturers' instructions. Oil-fired appliances shall be provided with combustion air in accordance with this chapter and, where not modified by this chapter, with Chapter 5 of NFPA 31. The methods of providing combustion air in this chapter do not apply to fireplaces and fireplace stoves.

Add the following after Section 701.1

701.2 Combustion and dilution air required. Every room or space containing fuel-burning appliances shall be provided with combustion air, including both air for complete fuel combustion and draft dilution, as required by this code. An approved engineered system may be used to provide combustion air as an alternative to the requirements of this chapter. An approved method shall be utilized to control the temperature

of the room or space containing fuel-burning appliances. The room or space shall be maintained between 40 degrees F and 120 degrees F. The requirements for Combustion Air in this chapter do not include what might be needed for maintaining the ambient temperature of the room or space containing the fuel-burning equipment. Exhaust fans that create a negative draft in the room or space, or other fans that might create conditions of unsatisfactory combustion or venting, are not permitted unless electrically interlocked with the fuel-burning appliances to prevent simultaneous operation.

701.3 Prohibited Sources. 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. Combustion air shall not be obtained from any location below the design flood elevation, a crawlspace, or an attic.

701.4 Outdoor openings. Combustion air outdoor openings shall be located and protected according to Sections 401.4 and 401.5, as amended, and located at least 24 inches above grade.

702.0 Outdoor Air

702.1 Outdoor Air is required provided for combustion air. Combustion air as required by this chapter shall not be supplied by infiltration.

702.2 Indirect-Connection, Passive-flow Combustion Air. A minimum of one combustion air opening is required. The opening shall be sized with an effective opening to the outdoors of 1 square inch per 6000 Btu/h of the combined input rating of the fuel-burning appliances or according to Table 7-1. The opening into the enclosure containing the appliances shall be located no lower in elevation than 2/3 the distance from the top of the finished floor to the bottom of the finished ceiling in the enclosure.

**TABLE 7-1
OIL-FIRED APPLIANCE COMBUSTION AIR DUCT SIZING**

Appliance Size (Btu/hr Input)	GPH Input at 140,000 Btu/gallon	Combustion Air Duct Minimum Free Area (sq. in.)	Minimum Round Duct Size (sq. in.)
<120,000	<.85	12	4
120,000 -155,000	.85 – 1.10	19	5
155,000 – 175,000	1.10 – 1.25	28	6

702.3 Indirect-Connection, Forced-flow Combustion Air. Where combustion air is provided by a mechanical forced-air system, it shall be supplied at the minimum rate of 1 cfm per 3500 Btu/h of the combined input rating of all the fuel-burning appliances served. Each of the appliances served shall be electrically interlocked to the mechanical forced-air system so as to prevent operation of the appliances when the mechanical system is not in operation. Where combustion air is provided by the building's mechanical ventilation system, the system shall provide the specified combustion air rate in addition to the required ventilation air.

702.4 Direct-Connection. Fuel-burning appliances that are listed and labeled for direct combustion air connection to the outdoors shall be installed in accordance with the manufacturer's installation instructions.

703.0 Combustion Air Ducts.

703.1 General. Indirect-Connection Combustion air ducts shall:

- 1. Be of galvanized steel complying with Chapter 6 or of equivalent rigid, corrosion-resistant material approved for this application.**
- 2. Have a minimum cross-sectional dimension of 3 inches .**
- 3. Terminate in an unobstructed space allowing free movement of combustion air to the appliances.**
- 4. Have the same cross-sectional areas as the free area of the openings to which they connect. Each combustion air inlet shall only open into the appliance space with one, separate ducted opening of the required free area opening.**
- 5. Serve a single appliance enclosure.**
- 6. Any dampers installed within any part of a combustion air duct or opening shall be electrically interlocked with the firing cycle of the appliance served, so as to prevent operation of any appliance when the dampers are closed.**

Section 801.21 Location and support of venting systems other than masonry chimneys. Add this new section with the following text.

Vent terminations that penetrate a metal roof with a slope greater than 2:12 shall be protected by an ice dam or deflector of a type and design approved by the Code Official.

Section 923.2 Small ceramic kilns-ventilation. Add this new section with the following text.

A canopy-hood shall be installed directly above each kiln. The face opening area of the hood shall be equal to or greater than the top horizontal surface area of the kiln. The hood shall be constructed of not less than No. 24 U.S. gauge galvanized steel or equivalent and be supported at a height of between 12 inches and 30 inches above the kiln by noncombustible supports.

Exception: Each hood shall be connected to a gravity ventilation duct extending in a vertical direction to outside the building. This duct shall be of the same construction as the hood and shall have a minimum cross-sectional area of not less than one fifteenth of the face opening area of the hood. The duct shall terminate a minimum of 12 inches above any portion of a building within four feet and terminate no less than 4 feet from the adjacent property line or any openable window or other openings into the building. The duct opening to the outside shall be shielded, without reduction of duct area, to prevent entrance of rain into the duct. The duct shall be supported at each section by noncombustible supports. Provisions shall be made for air to enter the room in which a kiln is installed at a rate at least equal to the air being removed through the kiln hood.

Section 1001.1 Scope. Amend exception #7 as follows.

7. Any boiler or pressure vessel subject to inspection by federal inspectors.

Section 1005.2 Potable water supply. Delete this section and its title in their entirety and substitute the following.

Section 1005.2 Water Supply. An automatic means of water or heat transfer liquid makeup supply is required connected to all boilers. Connections to the potable water piping system shall be in accordance with the *Uniform Plumbing Code* as amended.

Section 1006.7 Boiler safety devices. Amend this section by adding the following and Table 10-3 of the *2009 Uniform Mechanical Code*.

Automatic boilers shall be equipped with controls and limit devices as set forth in Table 10-3.

**TABLE 10-3
Controls and Limit Devices for Automatic Boilers**

Boiler Group	Fuel	Fuel Input Range (Inclusive), Btu/h	Type of Pilot ²	Safety Control Timing (Nominal Maximum Time in Seconds)				Assured Fuel Supply Control	Assured Air Supply Control	Low Fire Start Up Control	Pre-purging Control	Hot Water Temperature and Low Water Limit Controls	Steam Pressure and Low Water Limit Controls	Approved Fuel Shutoff	Control and Limit Device System Design
				Trial for Main Burner Flame		Main Burner Flame Failure	Flame Pilot								
				Trial for Pilot	Direct Electric Ignition										
A	Gas	0-400,000	Any type	90	Not Required	90	90	Not required	Required	Not required	Required	Required	Not required	Required	
B	Gas	400,001-2,500,000	interrupted or intermittent	15	15	15	2-4	Not required	Required	Not required	Required	Required	Not required	Required	
C	Gas	2,500,001-5,000,000	interrupted or intermittent	15	15	15	2-4	Required	Required	Required	Required	Required	Required	Required	
D	Gas	Over 5,000,000	interrupted	15	15	15	2-4	Required	Required	Required	Required	Required	Required	Required	
E	Oil	0-400,000	Any type	Not Required	90	90	90	Not required	Required	Not required	Required	Required	Not required	Required	
F	Oil	400,001-1,000,000	interrupted	Not Required	30	30	2-4	Required	Required	Not required	Required	Required	Not required	Required	
G	Oil	1,000,001-3,000,000	interrupted	Not Required	15	15	2-4	Required	Required	Not required	Required	Required	Not required	Required	
H	Oil	Over 3,000,000	interrupted	15	15	60	2-4	Required	Required	Required	Required	Required	Required	Required	
K	Electric	All	Not required	Not required	Not required	Not required	Not required	Not required	Not required	Not required	Required	Required	Not required	Required	
L	Gas, Oil and/or Coal	12,500,000 or more	Any	10 sec per NFPA 85	Per NFPA 85	Per NFPA 85	Per NFPA 85	Per NFPA 85	Per NFPA 85	Per NFPA 85	Per ASME Power Boiler Code, Section I and NFPA 85	Per ASME Power Boiler Code, Section I and NFPA 85	Per NFPA 85	Per NFPA 85	
M	Heat Recovery Steam Generator	Any	None	Per NFPA 85	Per NFPA 85	Per NFPA 85	Per NFPA 85	Per NFPA 85	Per NFPA 85	Per NFPA 85	Per ASME Boiler & Pressure Code & NFPA 85	Per ASME Boiler & Pressure Code & NFPA 85	Per NFPA 85	Per NFPA 85	

FOOTNOTES FOR TABLE 10-3

¹Fuel input shall be determined by one of the following:

(a) The maximum burner input as shown on the burner nameplate or as otherwise identified by the manufacturer.

(b) The nominal boiler rating, as determined by the building official, plus twenty-five percent (25%).

²Automatic boilers shall have one flame failure device on each burner, which shall prove the presence of a suitable ignition source at the point where it will reliably ignite the main burner, except that boiler groups A, B, E, F, and G, which are equipped with direct electric ignition, shall monitor the main burner, and all boiler groups using interrupted pilots shall monitor only the main burner after the prescribed limited trial and ignition periods. Boiler group A, equipped with continuous pilot, shall accomplish 100 percent shutoff within ninety (90) seconds upon pilot flame failure. The use of intermittent pilots in boiler group C is limited to approved burner units.

³In boiler groups B, C, and O a 90-second main burner flame failure limit may apply if continuous pilots are provided on manufacturer assembled boiler-burner units that have been approved by an approved testing agency as complying with nationally recognized standards approved by the building official. Boiler groups F and G equipped to re-energize their ignition systems within 0.8 second after main burner flame failure will be permitted thirty (30) seconds for group F or fifteen (15) seconds for group G to reestablish their main burner flames.

⁴Boiler groups C and D shall have controls interlocked to accomplish a nonrecycling fuel shutoff upon high or low gas pressure, and boiler groups F, G, and H using steam or air for fuel atomization shall have controls interlocked to accomplish a nonrecycling fuel shutoff upon low atomizing steam or air pressure. Boiler groups F, G, and H equipped with a preheated oil system shall have controls interlocked to provide fuel shutoff upon low oil temperature.

⁵Automatic boilers shall have controls interlocked to shut off the fuel supply in the event of draft failure if forced or induced draft fans are used or, in the event of low combustion airflow, if a gas power burner is used. Where a single motor directly driving both the fan and the oil pump is used, a separate control is not required.

⁶Boiler groups C, O, and H, when firing in excess of 400,000 Btu per combustion chamber, shall be provided with low fire start of its main burner system to permit smooth light-off. This will normally be a rate of approximately one-third of its maximum firing rate.

⁷Boiler groups C, D, and H shall not permit pilot or main burner trial for ignition operation before a purging operation of sufficient duration to permit a minimum of four complete air changes through the furnace, including combustion chamber and the boiler passes. Where this is not readily determinable, five complete air changes of the furnace, including combustion chamber up to the first pass, will be considered equivalent. An atmospheric gas burner with no mechanical means of creating air movement or an oil burner that obtains two-thirds or more of the air required for combustion without mechanical means of creating air movement shall not require purge by means of four air changes, so long as its secondary air openings are not provided with means of closing. If such burners have means of closing secondary air openings, a time delay must be provided that puts these closures in a normally open position for four

minutes before an attempt for ignition. An installation with a trapped combustion chamber shall, in every case, be provided with a mechanical means of creating air movement for purging.

⁸Every automatic hot-water-heating boiler, low-pressure hot-water-heating boiler, and power hot water boiler shall be equipped with two high-temperature limit controls with a manual reset on the control, with the higher setting interlocked to shut off the main fuel supply, except that manual reset on the high-temperature limit control shall not be required on any automatic package boiler not exceeding 400,000 Btu/h input and that has been approved by an approved testing agency. Every automatic hot-water heating, power boiler, and package hot-water supply boiler shall be equipped with one low-water level limit control with a manual reset interlocked to shut off the fuel supply, so installed as to prevent damage to the boiler and to permit testing of the control without draining the heating system, except on boilers used in Group R Occupancies of less than six units and in Group U Occupancies and further, except that the low-water level limit control is not required on package hot-water supply boilers approved by a nationally recognized testing agency. However, a low-water flow limit control installed in the circulating water line may be used instead of the low-water level limit control for the same purpose on coil-type boilers.

⁹Every automatic low-pressure steam-heating boiler, small power boiler, and power steam boiler shall be equipped with two high-steam pressure limit controls interlocked to shut off the fuel supply to the main burner with manual reset on the control, with the higher setting and two low-water-level limit controls, one of which shall be provided with a manual reset device and independent of the feed water controller. Coil-type flash steam boilers may use two high-temperature limit controls, one of which shall be manually reset in the hot water coil section of the boiler instead of the low-water level limit control.

¹⁰Boiler groups C, D, and H shall use an approved automatic reset safety shutoff valve for the main burner fuel shutoff, which shall be interlocked to the programming control devices required. On oil burners where the safety shutoff valve will be subjected to pressures in excess of ten (10) psi when the burner is not firing, a second safety shutoff valve shall be provided in series with the first. Boiler groups C and D using gas in excess of one (1) pound-per-square-inch pressure or having a trapped combustion chamber or employing horizontal fire tubes shall be equipped with two approved safety shutoff valves, one of which shall be an automatic reset type, one of which may be used as an operating control, and both of which shall be interlocked to the limit-control devices required. Boiler groups C and D using gas in excess of one (1) pound per square inch pressure shall be provided with a permanent and ready means for making periodic tightness checks of the main fuel safety shutoff valves.

¹¹Control and limit device systems shall be grounded with operating voltage not to exceed 150 volts, except that, upon approval by the building official, existing control equipment to be reused in an altered boiler control system may use 220 volt single phase with one side grounded, provided such voltage is used for all controls. Control and limit devices shall interrupt the ungrounded side of the circuit. A readily accessible means of manually disconnecting the control circuit shall be provided with controls so arranged that when they are de-energized, the burner shall be inoperative.

1006.8 Electrical requirements. Add the following sentence and exception to this subsection.

The required means of disconnect shall be within clear view of the boiler burner.

Exception: Where it is not possible for personnel to position themselves out of clear view of the means of disconnect while maintaining the boiler, the capability of being locked in the off position shall not be required of the means of disconnect.

Section 1007 BOILER LOW-WATER CUTOFF Delete this section in its entirety and refer to Section 1006.7 as amended.

Section 1101. 11 Installation Identification. Add this subsection with the following text.

Each refrigerating system erected on the premises shall be provided with legible permanent signage, securely attached and easily accessible, as required in sections 1101.11.1 – 1101.11.3. In the event that the type or amount of refrigerant or other indication is changed, the signs must be changed or replaced to indicate the new conditions.

1101.11.1 Each systems shall be provided a sign indicating:

- (a) the name and address of the installer,
- (b) the refrigerant number and amount of refrigerant,
- (c) the lubricant identity and amount, and
- (d) the field test pressure applied

1101.11.2 Systems containing more than 110 lb. of refrigerant and consisting of controls and piping shall be provided signs having letters at least .5 inches in height indicating:

- (a) Each valve or switch that controls the refrigerant flow, the machinery room ventilation, and the compressors
- (b) The specific fluid, whether a refrigerant or secondary coolant, that is contained in exposed piping outside of the refrigerating machinery room. Valves or the piping adjacent to the valves shall be labeled in accordance with ANSI A13.1.

1101.11.3 Each Refrigeration Machinery Room entrance must have in clear view a sign reading: "Machinery Room – Authorized Personnel Only. – Only those trained in emergency procedures if the Refrigerant alarm is activated."

Section 1105.3 Refrigerant detector. Amend this section by adding a second sentence to read as follows.

Refrigerant detectors shall alarm both inside and outside the machinery room and refrigerated space.

Section 1105.6.2 Makeup air. Amend this section as follows.

Provisions shall be made for makeup air to replace that being exhausted. Openings for makeup air shall be located to avoid intake of exhaust air. Supply and exhaust ducts to the machinery room shall serve no other area, shall be constructed in accordance with Chapter 5 and shall be covered with corrosion-resistant screen of not less than ½-inch mesh.

Section 1205.1.3 Pressure vessels. Add the following exception to this subsection.

Exception: Shutoff valves for diaphragm-type expansion tanks in systems installed with a single expansion tank of 12-gallon water volume or smaller, shall not be required.

Section 1205.1.6 Expansion Tanks. Delete this subsection in its entirety.

Section 1301.1 Scope. Amend this section as follows.

The design, installation, construction and repair of fuel oil and waste oil storage and piping shall be in accordance with this chapter and NFPA 31. The storage of fuel oil and flammable and combustible liquids shall be in accordance with the *International Fire Code*.

Section 1301.4 Fuel tanks, piping and valves. Amend and add to this section as follows.

The tank, piping and valves for appliances burning oil shall be installed in accordance with the requirements of this chapter. The oil supply line is required to be taken from the top of the tank only, and where the level of fuel within the tank may be above the inlet port of the appliance served an approved method to prevent siphoning from the tank must be provided. If the tank is located inside a building, emergency pressure relief venting is required to the exterior.

1301.4.1 Day tanks or supply tanks. Day tanks shall be installed in accordance with this code and NFPA 31.

1301.4.1.1 A day tank or supply tank of (60) gallons or less may be installed for generators, boilers and water heaters within a boiler or mechanical room provided a (1)-hour fire-resistive occupancy separation is constructed around the room containing the equipment being served and the day tank or supply tank.

1301.4.1.2 Day tanks or supply tanks which exceed (60) gallons shall be installed in accordance with the following requirements:

- A. A sprinkler system as approved by the Fire Department is required for the mechanical room.
- B. The room containing the day tank or supply tank shall be located on an exterior wall.
- C. Two exits shall be provided from the boiler room or mechanical room. One exit shall open directly to the exterior and be accessible to fire-fighting personnel.
- D. A (2)-hour fire resistive occupancy separation shall be provided around the boiler room or mechanical room.

1301.4.2 Waste oil tanks. Tanks installed inside buildings for the collection of class IIIB motor vehicle waste oil and connected to listed oil-burning appliances shall be restricted to Group S-1 and motor vehicle related occupancies as referenced by the *International Building Code*. Waste oil tanks located outside of central heating enclosures shall be limited to 500 gallon cumulative capacity, be provided with approved emergency pressure relief venting and shall be equipped with a hinged cap. All oil lines shall be equipped with a spring-loaded fusible valve located immediately adjacent to the tank shell.

Waste oil tanks exceeding 500-gallon capacity and connected to waste oil-burning appliances shall be enclosed in a separate one-hour fire-resistive occupancy separation, be provided with approved emergency pressure relief venting and shall be surrounded by a four(4) -inch high non-combustible curb.

Waste oil tanks located inside of central heating plant enclosures or generator mechanical rooms shall conform to section 1301.4.1 as amended.

Upon approval of the Fire Chief, listed waste oil heaters may be located in other occupancy groups provided the tanks are installed outside of the building in accordance with chapter 15 of the International Mechanical Code and NFPA 31 Chapter 12, or installed in compliance with IMC section 1301.4.1.

Section 2. That the effective date of this Ordinance shall be the 16th day of April, 2011.




Jerry Cleworth, Mayor

AYES: Roberts, Matherly, Gatewood, Bratcher, Stiver
NAYS: None
ABSENT: Eberhart
ADOPTED: April 11, 2011

ATTEST:

APPROVED AS TO FORM:



Janey Hovenden, CMC, City Clerk



Paul Ewers, City Attorney