

CHAPTER 23.20 LOCAL AMENDMENTS TO THE INTERNATIONAL MECHANICAL CODE

23.20.100 Local amendments to the International Mechanical Code.

The amendments to the International Mechanical Code (IMC) are listed hereafter by section. The edition adopted is as listed in AMC 23.05.010. The structure of amendments is as explained in AMC 23.05.015.

23.20.101.2 Scope.

Delete the exception.

23.20.103—23.20.115.

Delete sections 103 through 115. Refer to the Anchorage Administrative 21 Code.

23.20.302.6 Roof penetrations.

Add Section as follows:

302.6 Roof penetrations. For roof construction, including those regulated by the IRC:

1. All roof penetrations, excluding attic ventilation, shall be located a minimum of six feet from valley centerline and four feet from the exterior wall line measured on a horizontal plane.

23.20.303.4.1 Appliances subject to vehicle access.

Add Section as follows:

303.4.1 Appliances subject to vehicle impact. Appliances, including their associated piping and ductwork, subject to vehicle impact shall be protected by one or more of the following methods:

1. Install the appliance on a platform a minimum of 24 inches high. The appliance shall not extend beyond the face of the platform. Piping and ductwork shall not be surface mounted to the platform in a location subject to vehicle impact.
2. Protect the appliance with a barrier. The barrier shall be a minimum of 30" high and be constructed of a minimum 2" diameter schedule steel pipe. The barrier must have a minimum 6" setback from the platform or appliance. The maximum unprotected distance shall not exceed five (5) feet. The barrier shall be installed per one of the following methods:
 - a. Buried a minimum of 2'0" deep in compacted soil and 4 imbedded in concrete slab.

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- b. Set in a minimum 1'0" x 1'0" square by 1'0" deep block of concrete (slab not included).
 - c. Secured to the wood framed garage floor with flange and stainless-steel bolts and imbedded in concrete slab.
 - d. Secured to the concrete slab using a floor flange with a minimum of four $\frac{3}{8}$ " diameter by 3½" long galvanized or stainless anchor bolts.
3. Mount appliance and associated piping and ductwork to wall and/or suspend from the ceiling in a location clear of any potential vehicle interference.

In all cases the minimum clear width and depth of the garage shall be maintained in accordance with Title 21.

23.20.304.3 Elevation of ignition source.

Add the following to the end of the paragraph:

Rooms and spaces that are not part of the living space of a dwelling unit shall include but are not limited to utility, storage, mud, laundry, toilet and bathing rooms.

Group F, M and S occupancies with open spaces less than 5,000 square feet that include overhead doors providing access to vehicles and equipment containing combustible fuel shall comply with this section. Communicating spaces separated by a door are not considered part of this space.

Delete the exception to 304.3.

23.20.304.11 Guards.

Replace the exception with the following:

Exception: Guards are not required where allowed by IBC 1015.6 or 33 1015.7.

23.20.304.13 Aircraft hangars.

Add Section as follows:

304.13 Aircraft hangars. Overhead appliances installed in aircraft storage areas shall be located at least 10' vertically above the upper surface of the wings or engine enclosure of the tallest aircraft which may be housed in the hangar.

Exception. Where a 10' vertical separation cannot be maintained in an NFPA 409 Class III hangar, a sealed combustion appliance may be used. The appliance shall be located

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as high and as far away from the wings and engine enclosure as possible. This exception shall not apply to NFPA 409 Class I and Class II hangars.

23.20.306.4 Appliances under floors

Add the following sentence at the beginning of this section:

Installation of fuel burning appliances in under-floor crawl spaces is prohibited unless prior written approval is obtained from the authority having jurisdiction.

Add exception #3 as follows:

3. Direct vent appliances can be installed as long as no water or sign of water is present and the installation is in accordance with IMC12 304.10.

23.20.306.5 Equipment and appliances on roofs or elevated structures.

Add the following sentence to the end of the first paragraph:

An exterior means of access may only be used for heights 20 feet or less above grade.

At the end of design criteria #2 add the following sentence:

The bottom rung of the ladder shall be located within 14 inches of the 20 floor or grade.

23.20.306.6 Mezzanines and Platforms.

Add Section as follows:

306.6 Mezzanines and platforms. Every mezzanine or platform containing appliances or equipment requiring access more than ten feet, six inches above the ground or floor level shall be made accessible by a stairway or ladder fastened to the structure. The ladder shall be constructed in accordance with the provisions in section 306.5.

23.20.307.3 Condensate pumps.

Add to the end of the paragraph:

This paragraph does not apply to residential applications.

23.20.401.2 Ventilation required.

Add to the end of the section: "Nail salon ventilation shall be in accordance with Table 403.3.1.1."

23.20.401.4.1 Mechanical intake openings serving dwelling units.

Add Section as follows:

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401.4.1 Mechanical intake openings serving dwelling units. Mechanical outdoor air intake openings serving dwelling units shall be located a minimum of 6-feet horizontally from a gas pressure regulator relief vent outlet. Where a vent outlet is located within 6-feet horizontally of a mechanical outdoor intake opening, such opening shall be located a minimum of 2-feet below the vent outlet. Measurements shall be taken from the gas pressure regulator relief vent outlet.

23.20. Table 401.5 Opening Sizes in Louvers, Grilles and Screens 6 Protecting Air Intake Openings.

Revise Table 401.5 as follows:

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

23.20.403.0 Compliance Options

Add the following at the beginning of this section:

Mechanical ventilation shall be designed and installed in accordance with this section or, as applicable, with ASHRAE 62.1-2022 "Ventilation and Acceptable Indoor Air Quality" or ASHRAE 62.2-2022 "Ventilation and Acceptable Indoor Air in Residential Buildings".

23.20. Table 403.3.1.1.1.2 Zone air distribution effectiveness.

In the last row of the table, replace the words "near to" with "within 4-feet of".

23.20.501.3 Exhaust discharge.

Delete Exception #1.

23.20.501.3.2 Exhaust opening protection.

Delete the words "¼ inch (6.4mm) and not larger than".

23.20.504.9.2 Duct Installation.

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In the last sentence of the first paragraph, delete the words "more than 1/8 inch (3.2mm)".

23.20.504.9.5 Length identification.

Add after "equivalent length exceeds 35 feet (10 668mm)" the following:

"or is concealed from visual inspection".

Add to the end of the paragraph:

"and shall be laminated or in a moisture-resistant sleeve secured to the wall using screw, staples, or thumb tacks. Push pins will not be accepted."

23.20.505.3 Exhaust Ducts.

Insert the following sentence after the second sentence:

Clearance above cook top shall be at least 30 inches to unprotected combustible material. When the underside of such combustible material is protected with insulating millboard at least 1/4-inch thick covered with 0.021-inch-thick (No. 28 U.W. Gauge) sheet metal or a metal ventilating hood, the distance shall not be less than 24 inches.

Delete exception No. 1.

23.20.505.4 Makeup air required.

Add the following exception:

Exception: Where exhausting in excess of 400 cfm, a back draft test may be performed to verify proper operation of all combustion appliances without providing makeup air. If back drafting occurs under any operational scenario, makeup air shall be provided.

23.20.505.6 Other than Group R.

Revise the section title to read "All Occupancies".

Replace the wording "other than Group R occupancies" with "All occupancies".

23.20.507.1.2 Domestic cooking appliances used for commercial purposes.

Add the following exception:

Exception: A residential gas or electric stovetop with up to 4 burners, used for warming foods in a commercial building application such as an office building break room or church kitchen may utilize a residential or Type II exhaust hood, vented to the exterior under the following stipulations:

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1. The intended use will not produce grease laden vapors or smoke.³¹
2. A letter of intended use is submitted to the AHJ stating the intended use with a printed menu if applicable. This provision does not apply to office break rooms.
3. A permanent laminated or moisture resistant sign shall be placed in plain sight within 6-feet of the stove top stating "Cooking that produces grease laden vapors or smoke is prohibited." This³⁷ provision does not apply to office break rooms.

23.20.507.2.6 Clearances for Type I hood.

In Exception #1, replace "in all directions from the hood" with "beyond the top and sides, and continuous to the floor."

23.20.510.1 Dust, stock and refuse conveying systems.

Add the following exception:

Exception: Manufactured dust collectors and separators designed and installed in accordance with NFPA 664.

23.20.514 Multi-port exhaust fans.

Add Section 514 as follows:

514 Multi-port exhaust fans

514.1 General.

Multi-port exhaust fan installations shall comply with the following:

1. This type of fan may be used for exhausting environmental air such as bathrooms and toilet rooms and shall not be used for clothes dryer or range exhaust.
2. If this fan is installed in the attic, it shall be within 3-feet of the attic access and the exhaust registers it serves shall be permanently labeled as to the location of the fan for service and maintenance.
3. The operating range for these fans is limited to -40 degrees F to +140 degrees F.
4. Combustion air requirements for fireplaces, water heaters, furnaces, boilers, etc., shall not be affected by the use or operation of this type of fan.
5. These fans shall not be used to exhaust combustible or flammable vapors, fumes, or dusts.

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6. The exhaust fan and ductwork shall be insulated with minimum 2-inch thick fiberglass duct insulation to minimize heat transfer to the attic space, which can result in ice damming on the roof.

7. All ceiling vapor barrier penetrations shall be sealed airtight to minimize condensation build-up in the attic and ice damming on the roof.

8. All duct seams shall be sealed airtight with duct mastic/sealer to prevent condensation damage in the attic.

23.20.601.4 Contamination prevention.

Amend by adding the following two exceptions:

Exceptions:

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

3.1. Route environmental air exhaust ducts inside a shaft when passing through a duct or plenum.

3.2. 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.

3.3. Seal the environmental air exhaust ducts along all seams and joints using a listed low to medium pressure duct sealant, typically applied by brush, trowel, or caulking gun; install sealant per manufacturer's recommendations.

3.4. Provide flexible duct with no seams in the duct or plenum only to a limit of 8 feet. The 8 foot limit is due to high static losses. Also, sleeving the metal duct with flexible seamless duct is acceptable.

4. Gas vents installed in accordance with section 503.3.6 in the International Fuel Gas Code.

23.20.601.5 Return Air Openings.

Delete item #6.

Add "or underfloor crawlspace" to the end of item #7.

23.20.602.1.1 Locations Limited.

Delete from the first sentence the words "uninhabited crawl spaces".

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Add the following sentence to the end of the paragraph:

Underfloor crawlspaces shall not be used as plenums.

23.20.701.3 Circulation of air.

Add a new section as follows:

701.3 Circulation of air.

Fuel burning appliances may be required to pass a back-draft test as a part of the final plumbing or mechanical inspection. This test shall be conducted with all exhaust fans operating and with fireplace draft open.

23.20.801.20 Plastic vent joints.

Add to the end of the paragraph:

Solvent cement joints for CPVC and PVC pipe and fittings shall be primed. The primer shall be a contrasting color listed for the use.

23.20.801.22 Location and support of venting systems other than masonry chimneys.

Add a new section as follows:

801.22 Location and support of venting systems other than masonry chimneys.

Unless a vent or chimney listed for exterior use in cold weather climates is installed, a vent or chimney system installed exterior to the building outside the thermal envelope shall be enclosed in an insulated (R-19 minimum) chase. The portion of the system above the last (highest) roof and its projected plane need not be enclosed. The portion of the system passing through an attic space need not be insulated or enclosed

23.20.802.10 Vent terminals - ice and snow protection.

Add a new section as follows:

802.10 Vent terminals – ice and snow protection. Vent terminations penetrating any metal roof or an asphalt shingle roof exceeding an 8/12 pitch shall be protected by an *approved* type of snow retention or diversion device.

23.20.923.1 General.

Replace references to "Section 104.2.3" with "the Anchorage Administrative Code".

23.20.923.2 Small ceramic kilns - ventilation.

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Amend by adding the following section:

923.2 Small ceramic kilns - ventilation.

A canopy-type 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 0.024-inch (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: Electric kilns installed with listed exhaust blowers may be used when marked as being suitable for the kiln and installed in accordance with manufacturer's instructions.

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 4-feet and terminate no less than 4-feet from any openable windows or other openings into the building or adjacent property line. 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.

23.20.1001.1 Scope.

Amend Exception 7 by deleting the words "or state".

23.20.1004.4 Mounting.

Add the following to the end of the paragraph:

Boilers shall be installed in a water-tight pan of corrosion-resistant material. The pan shall be equipped with a minimum ¾-inch diameter drain discharging to an approved location.

Exceptions:

1. A pan is not required when a boiler is installed on a concrete slab.

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2. A pan is not required where a corrosion-resistant material is placed under the boiler provided that it covers the entire platform and extends to all walls adjoining the platform and turning up the walls a minimum of 2 inches.

23.20.1006.6 Safety and relief valve discharge.

Add item #14 to read:

14. When a boiler is installed on a platform, the boiler relief valve piping shall discharge to between 6 and 24 inches off the finished floor over the edge of the platform.

23.20.1006.7 Boiler safety devices.

Add to the end of the section:

At a minimum, boilers shall meet the requirements of Table 1006.7.

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23.20.Table 1006.7 Controls and Limit Devices for Automatic Boilers.

Trail for Main								Safety Control Timing (Nominal Maximum Time in Seconds)							
Boiler Group	Fuel	Fuel Input Range ¹ (Inclusive) (x0.293071 for W)	Type Of Pilot	Trial for Pilot	Direct Electric Ignition	Flame Pilot	Main Burner Flame Failure	Assured Fuel Supply Control	Assured Air Supply Control	Low Fire Start Up Control	Pre-Purging Control	Hot Water Temp. and Low Water Limit Controls	Steam Pressure and Low Water Limit Controls ⁹	Approved Fuel Shutoff	Control and Limit Device System Design
A	Gas	0-400,000 Btu/h	Any type	90	Not required	90	90	Not required	Required	Not required	Not required	Required	Required	Not required	Required
B	Gas	400,001-2,500,000 Btu/h	Interrupted or intermittent	15	15	15	2-4	Not required	Required	Not required	Not required	Required	Required	Not required	Required
C	Gas	2,500,001-5,000,000 Btu/h	Interrupted or intermittent	15	15	15	2-4	Required	Required	Required	Required	Required	Required	Required	Required
D	Gas	Over 5,000,000 Btu/h	Interrupted	15	15	15	2-4	Required	Required	Required	Required	Required	Required	Required	Required
E	Oil	0-400,000 Btu/h	Any type	Not required	90	90	90	Not required	Required	Not required	Not required	Required	Required	Not required	Required
F	Oil	400,001-1,000,000 Btu/h	Interrupted	Not required	30	30	2-4	Required	Required	Not required	Not required	Required	Required	Not required	Required

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G	Oil	1,000,001- 3,000,000 Btu/h	Interrupted	Not require d	15	15	2-4	Required	Required	Not require d	Not require d	Required	Required	Not require d	Required
H	Oil	Over 3,000,000 Btu/h	Interrupted	15	15	60	2-4	Required	Required	Require d	Require d	Required	Required	Require d	Required
K	Elec	All	Not required	Not require d	Not require d	Not require d	Not required	Not required	Not Required	Not require d	Not require d	Required	Required	Not require d	Required

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1. Fuel 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 25 percent.

2. Automatic 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 90 seconds upon pilot flame failure. The use of intermittent pilots in boiler Group C is limited to approved burner units.

3. In boiler Groups B, C and D, a 90-second main burner flame failure limit may apply if continuous pilots are provided on manufacturer-assembled boiler-burner units approved by an Approved testing agency as complying with nationally recognized standards approved by the building official. Boiler Groups F and G equipped to reenergize their ignition system within 0.8 second after main burner flame failure shall be permitted 30 seconds for Group F or seconds for Group G to reestablish its main burner flame.

4. Boiler 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.

5. Automatic 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.

6. Boiler Groups C, D 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 shall normally be a rate of approximately one-third of its maximum firing rate.

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7. Boiler 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 (5) complete air changes of the furnace, including combustion chamber up to the first pass, shall be considered equivalent. An atmospheric gas burner with no mechanical means of creating air movement or an oil burner which 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 (4) 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 shall be provided which puts these closures in a normally open position for four (4) 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.

8. Every automatic hot-water-heating boiler, low-pressure hot-water-heating boiler, and power hot-water boiler shall be equipped with two (2) high-temperature limit controls with a manual reset on the control with the higher setting interlocked to shut off the main fuel supply, except the manual reset on the high-temperature limit control shall not be required on any 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, installed 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 (6) units. 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.

9. Every 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 (2) 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 (2) 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.

10. Boiler 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

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valve shall 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 1-pound-per-square-inch pressure or having a trapped combustion chamber or employing horizontal fire tubes, shall be equipped with two (2) 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 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.

11. Control and limit device systems shall be grounded with operating voltage not to exceed 150 volts except, on 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.

23.20.1006.8 Electrical requirements.

Delete this section in its entirety.

23.20.1007 Boiler low-water cutoff.

Delete this section in its entirety.

23.20.1101.7 Changing refrigerant.

Delete item 2 in its entirety.

In item 4, replace "shall require code official approval" with the following:

Shall require one of the following:

- 4.1. Written instructions from the original equipment manufacturer.
- 4.2. An evaluation of the system by a registered design professional or approved agency that validates safety and suitability of the replacement refrigerant.

23.20.1105.3 Refrigerant detector.

Add a second sentence to read as follows:

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

23.20.1105.6.2 Makeup air.

Amend last sentence by changing ¼-inch to ½-inch.

23.20.1105.10 Seismic protection.

Add Section 1105.10 as follows:

1105.10 Seismic protection.

Refrigeration piping supported by equipment and/or structures that are not supported by a common foundation shall be installed to accommodate differential movement. Flexible connectors, soft copper piping loops and swing joints are an acceptable means. Flexible connectors shall be approved for use in refrigeration systems, and when installed outdoors, shall be approved for outdoor use.