DEPARTMENT OF LABOR AND INDUSTRY

CODE CHANGE PROPOSAL FORM

(Must be submitted electronically)

Author/requestor: Brian Stemwedel

Date: 12/5/2024

Email address: Bstemwedel@goldenvalleymn.gov

Model Code: IMC

Telephone number: (612)275-1436

Code or Rule Section: MMC Section 313

Firm/Association affiliation, if any: AMBO

Topic of proposal: CO Detection

Code or rule section to be changed: MN Mechanical Code Section 313

Intended for Technical Advisory Group ("TAG"):

General Information	**Yes**	**No**
A. Is the proposed change unique to the State of Minnesota?	☐	☒
B. Is the proposed change required due to climatic conditions of Minnesota?	☐	☒
C. Will the proposed change encourage more uniform enforcement?	☒	☐
D. Will the proposed change remedy a problem?	☒	☐
E. Does the proposal delete a current Minnesota Rule, chapter amendment?	☐	☒
F. Would this proposed change be appropriate through the ICC code development process?	☒	☐

Proposed Language

1. The proposed code change is meant to:

   ☐ change language contained in the model code book? If so, list section(s).

   ☒ change language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s). MN Rules 1346.0313

   ☐ delete language contained in the model code book? If so, list section(s).

   ☐ delete language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s).

   ☒ add new language that is not found in the model code book or in Minnesota Rule.

2. Is this proposed code change required by Minnesota Statute? If so, please provide the citation.

3. Provide *specific* language you would like to see changed. Indicate proposed new words with underlining and ~~strikethrough~~ words proposed for deletion. Include the entire code (sub) section or rule subpart that contains your proposed changes.

Section 313

Carbon Monoxide ~~Alarms~~ Detection

313.1 General.

Carbon monoxide (CO) ~~alarms~~ detection shall be installed in new and existing rooms containing a fuel-burning appliance ~~that is utilized to control environmental conditions and produces~~ capable of producing carbon monoxide during operation. Compliance with this section is required at the time of installation or replacement of a fuel burning appliance.

Exceptions:

1. Rooms containing a boiler that is regulated by Minnesota Rules, Chapter 5225, shall be provided with carbon monoxide ~~alarms~~ detection in accordance with that chapter.
2. Where the room containing the fuel-burning appliance is located in a building regulated by the International Residential Code, carbon monoxide ~~alarms~~ detection shall be provided in accordance with Minnesota Rules, Chapter 1309.

313.2 Carbon monoxide alarms.

Carbon monoxide alarms under Section 313.1 shall comply with Sections 313.2.1 to 313.2.1.4.

313.2.1 Power source.

Carbon monoxide alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source, and when primary power is interrupted, receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than that required for overcurrent protection.

Exceptions:

1. Where installed in buildings without commercial power, battery-powered carbon monoxide alarms are permitted.
2. Where installed in the room of an existing building containing a fuel-burning appliance, battery powered carbon monoxide alarms are permitted.

313.2.1.2 Listings.

Carbon monoxide alarms shall be listed in accordance with UL 2034.

313.2.1.3 Combination alarms.

Combination carbon monoxide and smoke alarms shall be an acceptable alternative to carbon monoxide alarms. Combination carbon monoxide and smoke alarms shall be listed in accordance with UL 2034 and UL 217.

313.2.1.4 Carbon monoxide detection systems.

Carbon monoxide detection systems that comply with ~~NFPA 720~~ NFPA 72 and are listed in accordance with UL 2075 shall be an acceptable alternative to carbon monoxide alarms listed in Sections 313.2.1.2 and 313.2.1.3.

313.3 Locations

Carbon monoxide detection shall be provided in the locations specified in Sections 313.3.1 and 313.3.2 when a fuel-burning appliance capable of producing carbon monoxide is installed.

Exception: In multifamily dwellings, approved and operational carbon monoxide detection may be installed between 15 and 25 feet (4572 and 7620 mm) of carbon monoxide-producing central fixtures and equipment provided there is a connection to the Fire Alarm System or other approved mechanism for responsible parties to hear the alarms at all times.

313.3.1 Dwelling units.
Carbon monoxide detection shall be installed in dwelling units outside of each separate sleeping area in the immediate vicinity within 10 feet of the bedrooms. Where a CO source is located within a bedroom or its attached bathroom, carbon monoxide detection shall be installed within the bedroom.
313.3.2 Sleeping units.
Carbon monoxide detection shall be installed in sleeping units.
Exception: Carbon monoxide detection shall be allowed to be installed outside of each separate sleeping area within 10 feet of the sleeping unit where the sleeping unit or its attached bathroom does not contain a CO source and is not served by a CO-producing forced-air furnace.
313.4 New Buildings
When a Fire Alarm System is required per 907.2 MSBC for Group **I-1, I-2, I-4, R,** and **E,** and a fuel-burning appliance capable of producing carbon monoxide is installed in a *furnace room* or *boiler room*, a Carbon Monoxide Detection System shall be installed between 15 and 25 feet of carbon monoxide-producing central fixtures and equipment. The Carbon Monoxide Detection System shall be connected to the Fire Alarm System and installed in compliance with the conditions of the listing and NFPA 72

4. Will this proposed code change impact other sections of a model code book or an amendment in Minnesota Rule? If so, please list the affected sections or rule parts.

NO

Need and Reason

1. Why is the proposed code change needed? Please provide a general explanation as well as a specific explanation for any changes to numerical values (heights, area, etc.)
   Carbon monoxide (CO) poisoning is the second-most common cause of nonmedicinal poisoning deaths. According to the Centers for Disease Control and Prevention, over 10,000 people are poisoned by carbon monoxide and need medical treatment each year. More than 438 people in the United States die annually from carbon monoxide poisoning.
   a. language is added to Section 313.3 to coordinate with the carbon monoxide location requirements in M.S. 299F.51 specific to hotel and lodging house guestrooms.
   b. Where a FACP is installed in I-1, I-2, I-4, R, and E Occupancies, and CO producing appliances are installed in a furnace room or boiler room (i.e. central location), then interconnection to the FACP provides a means to alert occupants of CO. Interconnection with the FACP would be in compliance with NFPA 72.
2. Why is the proposed code change a reasonable solution?
   Detection of Carbon Monoxide in the immediate vicinity of the appliances capable of producing CO provide for quicker detection of the potentially poisonous gas allowing occupants more time to react. This also adds clarity to the requirements and aligns more closely with MSFC and MSBC

3. What other factors should the TAG consider?
   Need to expand CO Section for alignment with MN Statute and foster uniform enforcement.

Cost/Benefit Analysis

1. Will the proposed code change increase or decrease costs? Please explain and provide estimates if possible.
   CO detectors connected to a FACP are already optional, requiring them may increase costs

2. If there is an increased cost, will this cost be offset by a safety or other benefit? Please explain. If the benefit is quantifiable (for example energy savings), provide an estimate if possible.
   N/A

3. If there is a cost increase, who will bear the costs? This can include government units, businesses, and individuals.
   Building owners, designers and installers

4. Are there any enforcement or compliance cost increases or decreases with the proposed code change? Please explain. NO

5. Will the cost of complying with the proposed code change in the first year after the rule takes effect exceed $25,000 for any one small business or small city (Minn. Stat. § 14.127)? A small business is any business that has less than 50 full-time employees. A small city is any statutory or home rule charter city that has less than ten full-time employees. Please explain.
   No

Regulatory Analysis

1. What parties or segments of the industry are affected by this proposed code change?
   Contractors, Code Officials, Designers, and Fire Code Officials

2. Can you think of other means or methods to achieve the purpose of the proposed code change? What might someone opposed to this code change suggest instead? Please explain what the alternatives are and why your proposed change is the preferred method or means to achieve the desired result.

3. What are the probable costs or consequences of not adopting the code change, including those costs or consequences borne by identifiable categories of affected parties, such as separate classes of government units, businesses, or individuals?

4. Are you aware of any federal or state regulation or requirement related to this proposed code change? If so, please list the federal or state regulation or requirement and your assessment of any differences between the proposed code change and the federal regulation or requirement.
   No

   N/A

***Note: Incomplete forms may be returned to the submitter with instruction to complete the form. Only completed forms can considered by the TAG.

DEPARTMENT OF LABOR AND INDUSTRY

CODE CHANGE PROPOSAL FORM

(Must be submitted electronically)

Author/requestor: Brian Stemwedel

Date: 12/5/2024

Email address: Bstemwedel@goldenvalleymn.gov

Model Code: IFGC

Telephone number: (612)275-1436

Code or Rule Section: MFGC Section 311

Firm/Association affiliation, if any: AMBO

Topic of proposal: CO Detection

Code or rule section to be changed: MN Fuel Gas Code Section 311

Intended for Technical Advisory Group ("TAG"):

General Information	**Yes**	**No**
A. Is the proposed change unique to the State of Minnesota?	☐	☒
B. Is the proposed change required due to climatic conditions of Minnesota?	☐	☒
C. Will the proposed change encourage more uniform enforcement?	☒	☐
D. Will the proposed change remedy a problem?	☒	☐
E. Does the proposal delete a current Minnesota Rule, chapter amendment?	☐	☒
F. Would this proposed change be appropriate through the ICC code development process?	☒	☐

Proposed Language

1. The proposed code change is meant to:

   ☐ change language contained in the model code book? If so, list section(s).

   ☒ change language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s). MN Rules 1346.5311

   ☐ delete language contained in the model code book? If so, list section(s).

   ☐ delete language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s).

   ☒ add new language that is not found in the model code book or in Minnesota Rule.

2. Is this proposed code change required by Minnesota Statute? If so, please provide the citation.

3. Provide *specific* language you would like to see changed. Indicate proposed new words with underlining and ~~strikethrough~~ words proposed for deletion. Include the entire code (sub) section or rule subpart that contains your proposed changes.

Section 311

Carbon Monoxide ~~Alarms~~ Detection

311.1 General.

Carbon monoxide ~~alarms~~ detection shall be installed in new and existing rooms containing a fuel-burning appliance ~~that is utilized to control environmental conditions and produces~~ capable of producing carbon monoxide during operation. Compliance with this section is required at the time of installation or replacement of a fuel burning appliance.

Exceptions:

1. Rooms containing a boiler that is regulated by Minnesota Rules, Chapter 5225, shall be provided with carbon monoxide ~~alarms~~ detection in accordance with that chapter.
2. Where the room containing the fuel-burning appliance is located in a building regulated by the International Residential Code, carbon monoxide ~~alarms~~ detection shall be provided in accordance with Minnesota Rules, Chapter 1309.

311.2 Carbon monoxide alarms.

Carbon monoxide alarms under Section 311.1 shall comply with Sections 311.2.1 to 311.2.1.4.

311.2.1 Power source.

Carbon monoxide alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source, and when primary power is interrupted, receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than that required for overcurrent protection.

Exceptions:

1. Where installed in buildings without commercial power, battery-powered carbon monoxide alarms are permitted.
2. Where installed in the room of an existing building containing a fuel-burning appliance, battery powered carbon monoxide alarms are permitted.

311.2.1.2 Listings.

Carbon monoxide alarms shall be listed in accordance with UL 2034.

311.2.1.3 Combination alarms.

Combination carbon monoxide and smoke alarms shall be an acceptable alternative to carbon monoxide alarms. Combination carbon monoxide and smoke alarms shall be listed in accordance with UL 2034 and UL 217.

311.2.1.4 Carbon monoxide detection systems.

Carbon monoxide detection systems that comply with ~~NFPA 720~~ NFPA 72 and are listed in accordance with UL 2075 shall be an acceptable alternative to carbon monoxide alarms listed in Sections 311.2.1.2 and 311.2.1.3.

311.3 Locations

Carbon monoxide detection shall be provided in the locations specified in Sections 311.3.1 and 311.3.2 when a fuel-burning appliance capable of producing carbon monoxide is installed.

Exception: In multifamily dwellings, approved and operational carbon monoxide detection may be installed between 15 and 25 feet (4572 and 7620 mm) of carbon monoxide-producing central fixtures and equipment provided there is a connection to the Fire Alarm System or other approved mechanism for responsible parties to hear the alarms at all times.

311.3.1 Dwelling units.
Carbon monoxide detection shall be installed in dwelling units outside of each separate sleeping area in the immediate vicinity within 10 feet of the bedrooms. Where a carbon monoxide source is located within a bedroom or its attached bathroom, carbon monoxide detection shall be installed within the bedroom.
311.3.2 Sleeping units.
Carbon monoxide detection shall be installed in sleeping units.
Exception: Carbon monoxide detection shall be allowed to be installed outside of each separate sleeping area within 10 feet of the sleeping unit where the sleeping unit or its attached bathroom does not contain a carbon monoxide source and is not served by a forced-air furnace capable of producing carbon monoxide.
311.4 New Buildings
When a Fire Alarm System is required per 907.2 MSBC for Group **I-1, I-2, I-4, R,** and **E,** and a fuel-burning appliance capable of producing carbon monoxide is installed in a *furnace room* or *boiler room*, a Carbon Monoxide Detection System shall be installed between 15 and 25 feet of carbon monoxide producing central fixtures and equipment. The Carbon Monoxide Detection System shall be connected to the Fire Alarm System and installed in compliance with the conditions of the listing and NFPA 72

4. Will this proposed code change impact other sections of a model code book or an amendment in Minnesota Rule? If so, please list the affected sections or rule parts.

NO

Need and Reason

1. Why is the proposed code change needed? Please provide a general explanation as well as a specific explanation for any changes to numerical values (heights, area, etc.)
   Carbon monoxide (CO) poisoning is the second-most common cause of nonmedicinal poisoning deaths. According to the Centers for Disease Control and Prevention, over 10,000 people are poisoned by carbon monoxide and need medical treatment each year. More than 438 people in the United States die annually from carbon monoxide poisoning.
   a. language is added to Section 311.3 to coordinate with the carbon monoxide location requirements in M.S. 299F.51 specific to hotel and lodging house guestrooms.
   b. Where a FACP is installed in I-1, I-2, I-4, R, and E Occupancies, and CO producing appliances are installed in a furnace room or boiler room (i.e. central location), then interconnection to the FACP provides a means to alert occupants of CO. Interconnection with the FACP would be in compliance with NFPA 72.
2. Why is the proposed code change a reasonable solution?
   Detection of Carbon Monoxide in the immediate vicinity of the appliances capable of producing CO provide for quicker detection of the potentially poisonous gas allowing occupants more time to react. This also adds clarity to the requirements and aligns more closely with MSFC and MSBC

3. What other factors should the TAG consider?
   Need to expand CO Section for alignment with MN Statute and foster uniform enforcement.

Cost/Benefit Analysis

1. Will the proposed code change increase or decrease costs? Please explain and provide estimates if possible.
   CO detectors connected to a FACP are already optional, requiring them may increase costs

2. If there is an increased cost, will this cost be offset by a safety or other benefit? Please explain. If the benefit is quantifiable (for example energy savings), provide an estimate if possible.

N/A

3. If there is a cost increase, who will bear the costs? This can include government units, businesses, and individuals.
   Building owners, designers and installers

4. Are there any enforcement or compliance cost increases or decreases with the proposed code change? Please explain. NO

5. Will the cost of complying with the proposed code change in the first year after the rule takes effect exceed $25,000 for any one small business or small city (Minn. Stat. § 14.127)? A small business is any business that has less than 50 full-time employees. A small city is any statutory or home rule charter city that has less than ten full-time employees. Please explain.
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1. What parties or segments of the industry are affected by this proposed code change?
   Contractors, Code Officials, Designers, and Fire Code Officials

2. Can you think of other means or methods to achieve the purpose of the proposed code change? What might someone opposed to this code change suggest instead? Please explain what the alternatives are and why your proposed change is the preferred method or means to achieve the desired result.

3. What are the probable costs or consequences of not adopting the code change, including those costs or consequences borne by identifiable categories of affected parties, such as separate classes of government units, businesses, or individuals?

4. Are you aware of any federal or state regulation or requirement related to this proposed code change? If so, please list the federal or state regulation or requirement and your assessment of any differences between the proposed code change and the federal regulation or requirement.
   No

   N/A

***Note: Incomplete forms may be returned to the submitter with instruction to complete the form. Only completed forms can considered by the TAG.

DEPARTMENT OF LABOR AND INDUSTRY

CODE CHANGE PROPOSAL FORM

(Must be submitted electronically)

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Email address: jgsmith76@gmail.com

Telephone number: 612 867 3145

Firm/Association affiliation, if any: ACEC

Date: September 26, 2024
Rev 10/23/2024
Rev 12/2/2024

Model Code: 2024 IFGC

Code or Rule Section: 304 Combustion Air

Code or rule section to be changed: Section 304 Combustion Air

Intended for Technical Advisory Group ("TAG"): 1346 Mechanical and Fuel Gas Code

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General Information	**Yes**	**No**
A. Is the proposed change unique to the State of Minnesota?	☐	☒
B. Is the proposed change required due to climatic conditions of Minnesota?	☐	☒
C. Will the proposed change encourage more uniform enforcement?	☒	☐
D. Will the proposed change remedy a problem?	☒	☐
E. Does the proposal delete a current Minnesota Rule, chapter amendment?	☒	☐
F. Would this proposed change be appropriate through the ICC code development process?	☒	☐

Proposed Language

1. The proposed code change is meant to:

   ☒ change language contained the model code book? If so, list section(s).
   IMC Section 304

   ☒ change language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s).
   MN Rules 1346 304.1-304.6.2

   ☐ delete language contained in the model code book? If so, list section(s).

   ☒ delete language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s).
   MN Rules 1346 304.1-304.6.2

   ☒ add new language that is not found in the model code book or in Minnesota Rule.

2. Is this proposed code change required by Minnesota Statute? If so, please provide the citation.
   No

3. Provide *specific* language you would like to see changed. Indicate proposed new words with underlining and ~~strikethrough~~ words proposed for deletion. Include the entire code (sub) section or rule subpart that contains your proposed changes.

SECTION 304 (IFGS)—COMBUSTION, VENTILATION AND DILUTION AIR

304.1 General. Combustion, ventilation, and dilution air shall be provided as prescribed in sections 304.2 through 304.12 as applicable. ~~Where chemicals that generate corrosive or flammable products such as aerosol sprays are routinely used, one of the following shall apply to fired appliances where these chemicals can enter combustion air:~~

~~1. Fired appliances shall be located in a mechanical room separate or partitioned off from other areas with provisions for combustion and dilution air from outdoors.~~

~~2. The appliances shall be direct vent and installed in accordance with the appliance manufacturer's installation instructions.~~

304.2 Appliance location. *Appliances* shall be located so as not to interfere with proper circulation of combustion, ventilation and dilution air.

304.3 Draft hood/regulator location. Where used, a draft hood or a barometric draft regulator shall be installed in the same room or enclosure as the *appliance* served to prevent any difference in pressure between the hood or regulator and the *combustion air* supply.

304.4 Makeup air provisions. Where exhaust fans, clothes dryers and kitchen ventilation systems interfere with the operation of *appliances*, makeup air shall be provided.

~~**304.5 Indoor combustion air.** The required volume shall be determined in accordance with Section 304.5.1 or 304.5.2, except that where the air infiltration rate is known to be less than 0.40 air changes per hour (ACH), Section 304.5.2 shall be used. The total required volume shall be the sum of the required volume calculated for all *appliances* located within the space. Rooms communicating directly with the space in which the *appliances* are installed through openings not furnished with doors, and through *combustion air* openings sized and located in accordance with Section 304.5.3, are considered to be part of the required volume.~~

~~**304.5.1 Standard method.** The minimum required volume shall be 50 cubic feet per 1,000 Btu/h (4.8 m3/kW) of the *appliance* input rating.~~

~~**304.5.2 Known air infiltration rate method.** Where the air infiltration rate of a structure is known, the minimum required volume shall be determined as follows:~~

~~For *appliances* other than fan-assisted, calculate volume using Equation 3-1.~~

~~**Equation 3-1** $\text{Required Volume}_{other} \geq \frac{21\ \text{ft}^3}{ACH}\left(\frac{I_{other}}{1{,}000\ \text{Btu/h}}\right)$~~

For fan-assisted appliance, calculate volume using Equation 3-2.

~~**Equation 3-2** $\text{Required Volume}_{fan} \geq \frac{15\ \text{ft}^3}{ACH}\left(\frac{I_{fan}}{1{,}000\ \text{Btu/h}}\right)$~~

~~where:~~

~~I_{other} = All appliances other than fan-assisted (input in Btu/h).~~

~~I_{fan} = Fan-assisted *appliance* (input in Btu/h).~~
~~*ACH* = Air change per hour (percent of volume of space exchanged per hour, expressed as a decimal). For purposes of this calculation, an infiltration rate greater than 0.60 ACH shall not be used in Equations 3-1 and 3-2.~~
~~**304.5.3 Indoor opening size and location.** Openings used to connect indoor spaces shall be sized and located in accordance with Sections 304.5.3.1 and 304.5.3.2 (see Figure 304.5.3).~~
~~**304.5.3.1 Combining spaces on the same story.** Where combining spaces on the same story, each opening shall have a minimum free area of 1 square inch per 1,000 Btu/h (2200 mm2/kW) of the total input rating of all *appliances* in the space, but not less than 100 square inches (0.06 m2). One permanent opening shall commence within 12 inches (305 mm) of the top and one permanent opening shall commence within 12 inches (305 mm) of the bottom of the enclosure. The minimum dimension of air openings shall be not less than 3 inches (76 mm).~~
~~**304.5.3.2 Combining spaces in different stories.** The volumes of spaces in different stories shall be considered to be communicating spaces where such spaces are connected by one or more permanent openings in doors or floors having a total minimum free area of 2 square inches per 1,000 Btu/h (4402 mm2/kW) of total input rating of all *appliances*.~~

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

1. Combustion air requirements for Category I, III, and IV gas-fired appliances when the combined input is up to and including 400,000 Btu/hr per Table 304.6.

2. Combustion air requirements for power burner appliances equipped with a draft control device and having an input above 400,000 Btu/hr shall have a net free area of 0.2 square inches per 1,000 Btu/hr. Combustion air shall be provided from a single opening from the outdoors. In lieu of this requirement, combustion air requirements specified by the manufacturer for a specific power burner appliance may be approved by the building official.

3. Combustion air requirements for power burner appliances not equipped with a draft control device and having an input above 400,000 Btu/hr shall have a net free area of 0.1 square inches per 1,000 Btu/hr. Combustion air shall be provided from a single opening from the outdoors. In lieu of this requirement, combustion air requirements specified by the manufacturer for a specific power burner appliance may be approved by the building official.

TABLE 304.6
COMBUSTION AIR REQUIREMENTS FOR CATEGORY I, III, AND IV GAS-FIRED APPLIANCES WHEN THE COMBINED INPUT IS UP TO AND INCLUDING 400,000 BTU/HR

TOTAL INPUT OF APPLIANCES[1],THOUSANDS OF BTU/HR (KW)	REQUIRED FREE AREA OF AIR-SUPPLY OPENING OR DUCT, SQUARE INCHES (SQ MM)	ACCEPTABLE APPROXIMATE ROUND DUCT EQUIVALENT DIAMETER[2], INCH (MM)
25 (8)	7 (4500)	3 (76)
50 (15)	7 (4500)	3 (76)
75 (23)	11 (7000)	4 (100)
100 (30)	14 (9000)	4 (100)

125 (37)	18 (12 000)	5 (125)
150 (45)	22 (14 000)	5 (125)
175 (53)	25 (16 000)	6 (150)
200 (60)	29 (19 000)	6 (150)
225 (68)	32 (21 000)	6 (150)
250 (75)	36 (23 000)	7 (175)
275 (83)	40 (26 000)	7 (175)
300 (90)	43 (28 000)	7 (175)
325 (98)	47 (30 000)	8 (200)
350 (105)	50 (32 000)	8 (200)
375 (113)	54 (35 000)	8 (200)
400 (120)	58 (37 000)	9 (225)

1. For total inputs falling between listed capacities, use next largest listed input.
2. Opening size based on maximum equivalent duct length of 20 feet. For equivalent duct lengths in excess of 20 feet up to and including a maximum of 50 feet increase round duct diameter by one size.

304.6.1 Two-permanent-openings method. Two permanent openings, one commencing within 12 inches (305 mm) of the top and one commencing within 12 inches (305 mm) of the bottom of the enclosure, shall be provided. The openings shall communicate directly or by ducts with the outdoors or spaces that freely communicate with the outdoors. Where directly communicating with the outdoors, or where communicating with the outdoors through vertical ducts, each opening shall have a minimum free area of 1 square inch per 4,000 Btu/h (550 mm^2/kW) of total input rating of all *appliances* in the enclosure [see Figures 304.6.1(1) and 304.6.1(2)]. Where communicating with the outdoors through horizontal ducts, each opening shall have a minimum free area of not less than 1 square inch per 2,000 Btu/h (1100 mm^2/kW) of total input rating of all *appliances* in the enclosure [see Figure 304.6.1(3)].

304.6.2 One-permanent-opening method. One permanent opening, commencing within 12 inches (305 mm) of the top of the enclosure, shall be provided. The *appliance* shall have clearances of not less than 1 inch (25 mm) from the sides and back and 6 inches (152 mm) from the front of the *appliance*. The opening shall directly communicate with the outdoors, or through a vertical or horizontal duct, to the outdoors or spaces that freely communicate with the outdoors (see Figure 304.6.2) and shall have a minimum free area of 1 square inch per 3,000 Btu/h (734 mm^2/kW) of the total input rating of all *appliances* located in the enclosure and not less than the sum of the areas of all vent connectors in the space.

~~**304.7 Combination indoor and outdoor combustion air.** The use of a combination of indoor and outdoor *combustion air* shall be in accordance with Sections 304.7.1 through 304.7.3.~~

~~**304.7.1 Indoor openings.** Where used, openings connecting the interior spaces shall comply with Section 304.5.3.~~

~~**304.7.2 Outdoor opening location.** Outdoor opening(s) shall be located in accordance with Section 304.6.~~

~~**304.7.3 Outdoor opening(s) size.** The outdoor opening(s) size shall be calculated in accordance with the following:~~

~~1. The ratio of interior spaces shall be the available volume of all communicating spaces divided by the required volume.~~

~~2. outdoor size reduction factor shall be one minus the ratio of interior spaces.~~

~~3. The minimum size of outdoor opening(s) shall be the full size of outdoor opening(s) calculated in accordance with Section 304.6, multiplied by the reduction factor. The minimum dimension of air openings shall be not less than 3 inches (76 mm).~~

304.8 Engineered installations. Engineered *combustion air* installations shall provide an adequate supply of combustion, ventilation and dilution air determined using engineering methods.

304.9 Mechanical combustion air supply. Where all *combustion air* is provided by a mechanical air supply system, the *combustion air* shall be supplied from the outdoors at a rate not less than 0.35 cubic feet per minute per 1,000 Btu/h (0.034 m^3/min per kW) of total input rating of all *appliances* located within the space.

304.9.1 Makeup air. Where exhaust fans are installed, makeup air shall be provided to replace the exhausted air.

304.9.2 Appliance interlock. Each of the *appliances* served shall be interlocked with the mechanical air supply system to prevent main burner operation when the mechanical air supply system is not in operation.

304.9.3 Combined combustion air and ventilation air system. 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.

304.10 Louvers and grilles. The required size of openings for combustion, ventilation and dilution air shall be based on the net free area of each opening. Where the free area through a design of louver, grille or screen is known, it shall be used in calculating the size opening required to provide the free area specified. Where the design and free area of louvers and grilles are not known, it shall be assumed that wood louvers will have 25-percent free area and metal louvers and grilles will have ~~75~~ 50 percent free area. Screens shall have a mesh size not smaller than 1/4 inch (6.4 mm). Nonmotorized louvers and grilles shall be fixed in the open position. Motorized louvers shall be interlocked with the *appliance* so that they are proven to be in the full open position prior to main burner ignition and during main burner operation. Means shall be provided to prevent the main burner from igniting if the louvers fail to open during burner start-up and to shut down the main burner if the louvers close during operation.

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

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

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

Ducts shall be of galvanized steel or an equivalent corrosion-resistant material. If flexible duct is used, increase the duct diameter by one size and stretch with minimal sags.

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

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

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

9. Where a common exterior hood is used for gravity combustion air and powered makeup air, the hood shall be partitioned to prevent cross flow between the openings.

304.12 Protection from fumes and gases. Where chemicals that generate corrosive or flammable products such as aerosol sprays are routinely used, one of the following shall apply to fired *appliances* where these chemicals can enter combustion air:

1. Fired appliances shall be located in a mechanical room separate or partitioned off from other areas with provisions for combustion and dilution air from outdoors.
2. The appliances shall be direct vent and installed in accordance with the appliance manufacturer's installation instructions.

4. Will this proposed code change impact other sections of a model code book or an amendment in Minnesota Rule? If so, please list the affected sections or rule parts.
   No

Need and Reason

1. Why is the proposed code change needed? Please provide a general explanation as well as a specific explanation for any changes to numerical values (heights, area, etc.)

   Section 304.5 Indoor Combustion Air and its subparagraphs should be deleted in their entirety. The indoor combustion air method relies on building infiltration in the appliance room and adjacent rooms with direct communication through permanent openings to provide combustion air. In 304.5.1 Standard Method, the infiltration rate is based on 0.50 ACH. Subparagraph 304.5.2 Known Air-Infiltration-Rate method (KAIR), equation 3-1 (other than fan assisted appliances) or 3-2 (fan assisted appliances), is used when the air infiltration rate of the structure is known to be less than 0.40 ACH and not greater than 0.60 ACH. It is unclear and even misleading of how the ACH is to be identified for calculation purposes and I could find no definitive method of how this should be determined. Typical air door tests identify the building ACH at 50 Pa pressure but this is not clearly identified as the proper method to use. An Energy Star building has a requirement of 3 ACH or less at 50 Pa (3 ACH50 which is equivalent to 0.20 inches w.c. or 25 mph wind). A very tight passive house has an ACH of no greater than 0.60 ACH50. How equations 3-1 and 3-2 were derived could not be determined, and I question their validity and reliability to calculate the volume of outdoor air introduced through building infiltration. Using ACH50 testing is a valid method to identify how well sealed a building is, but in my opinion should not be used for calculating combustion air. I would also note that an air door test creates a negative condition in the entire building, thereby causing infiltration on all exposures. In actual building operating conditions, about one-half of the building will be infiltrating (windward sides) while about one-half of the building will be exfiltrating (leeward sides), which further reduces the volume of air available for combustion air. I would also note that the ACH results from all exposed surfaces – if an appliance room is below grade, its infiltration rate will be significantly reduced, thereby resulting is much less combustion air than anticipated. The combustion air for a building should be through unobstructed openings which provide free flow of air as required by the appliances.

   Combustion air design requirements are based on a review of NFPA 54, AGA, ASHRAE, CSA B149.1-10, NB-132, existing MN code and several equipment manufacturer recommendations.

   Table 304.6 for appliances less than or equal to 400,000 Btuh input is based on CSA tables except that the table applies to non draft controlled and draft controlled appliances.

2. Why is the proposed code change a reasonable solution? It further clarifies requirements which are in the 2020 MN IFGC code and provides simpler information to contractors who may need the information.

3. What other factors should the TAG consider?

Cost/Benefit Analysis

1. Will the proposed code change increase or decrease costs? Please explain and provide estimates if possible.
   No changes.

2. If there is an increased cost, will this cost be offset by a safety or other benefit? Please explain. If the benefit is quantifiable (for example energy savings), provide an estimate if possible.

3. If there is a cost increase, who will bear the costs? This can include government units, businesses, and individuals.

4. Are there any enforcement or compliance cost increases or decreases with the proposed code change? Please explain.
   Should make compliance and enforcement more uniform and easier to achieve.

5. Will the cost of complying with the proposed code change in the first year after the rule takes effect exceed $25,000 for any one small business or small city (Minn. Stat. § 14.127)? A small business is any business that has less than 50 full-time employees. A small city is any statutory or home rule charter city that has less than ten full-time employees. Please explain.

Regulatory Analysis

1. What parties or segments of industry are affected by this proposed code change?
   Owners, contractors, building officials.
   Owners, contractorts, design engineers, building code officials.

2. Can you think of other means or methods to achieve the purpose of the proposed code change? What might someone opposed to this code change suggest instead? Please explain what the alternatives are and why your proposed change is the preferred method or means to achieve the desired result.
   No

3. What are the probable costs or consequences of not adopting the code change, including those costs or consequences borne by identifiable categories of affected parties, such as separate classes of government units, businesses, or individuals?

   Confusion and inconsistency in the design of combustion air requirements. Proposed solutions may be different than what would be required by code officials.

4. Are you aware of any federal or state regulation or requirement related to this proposed code change? If so, please list the federal or state regulation or requirement and your assessment of any differences between the proposed code change and the federal regulation or requirement.

   No

***Note: Incomplete forms may be returned to the submitter with instruction to complete the form. Only completed forms can considered by the TAG.

DEPARTMENT OF LABOR AND INDUSTRY

CODE CHANGE PROPOSAL FORM

(Must be submitted electronically)

Author/requestor: Brian Stemwedel *Date:* 11/7/2024

Email address: Bstemwedel@goldenvalleymn.gov *Model Code:* Fuel Gas Code (2024)

Telephone number: (612)275-1436 *Code or Rule Section:* 635.1 IFGC

Firm/Association affiliation, if any: AMBO *Topic of proposal:* *Add Language*

Code or rule section to be changed: MN Fuel Gas Code: Section 636 (Outdoor Decorative Appliances)

Intended for Technical Advisory Group ("TAG"):

General Information	**Yes**	**No**
A. Is the proposed change unique to the State of Minnesota?	☐	☒
B. Is the proposed change required due to climatic conditions of Minnesota?	☐	☒
C. Will the proposed change encourage more uniform enforcement?	☒	☐
D. Will the proposed change remedy a problem?	☒	☐
E. Does the proposal delete a current Minnesota Rule, chapter amendment?	☐	☒
F. Would this proposed change be appropriate through the ICC code development process?	☒	☐

Proposed Language

1. The proposed code change is meant to:

   ☒ change language contained in the model code book? If so, list section(s).
   Section 635.1 (Outdoor Decorative Appliances) IFGC
   ☐ change language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s).

   ☐ delete language contained in the model code book? If so, list section(s).

   ☐ delete language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s).

   ☒ add new language that is not found in the model code book or in Minnesota Rule.

2. Is this proposed code change required by Minnesota Statute? If so, please provide the citation.

3. Provide *specific* language you would like to see changed. Indicate proposed new words with underlining and ~~strikethrough~~ words proposed for deletion. Include the entire code (sub) section or rule subpart that contains your proposed changes.

Section 635 (IFGC)—Outdoor decorative appliances
635.1 General.
Permanently fixed-in-place outdoor decorative appliances shall be listed in accordance with ANSI Z21.97 and shall be installed in accordance with the manufacturer's instructions.
Appliances shall be equipped with a *flame safeguard* device.
635.1.1 Gas Timer/ Emergency Gas Shutoff
Outdoor Decorative Appliances shall be provided with a *listed* timer that has the ability to control gas flow for 1-hour (60 minutes). In addition, appliances shall be provided with an Emergency Gas Shutoff Valve located within 6' of the appliance served and shall be readily accessible and permanently identified. Appliances equipped with Emergency Shutoff Valves installed in compliance with this Section shall be deemed to comply with 409.5.
Exception: Emergency Gas Shutoff Valve shall be located in an approved location within 50' of the appliance served. Approved signage within 6' of the appliance shall indicate the location of the Emergency Shutoff Valve.

4. Will this proposed code change impact other sections of a model code book or an amendment in Minnesota Rule? If so, please list the affected sections or rule parts.
NO

Need and Reason

1. Why is the proposed code change needed? Please provide a general explanation as well as a specific explanation for any changes to numerical values (heights, area, etc.)
The ANSI Z21.97 Standard does not require Flame Safeguard Devices for appliances with a capacity of 65,000 BTU/Hr. (65 Cu. Ft./Hr.) or less.
65 Cu. Ft./ Hr. is a substantial amount of gas and may create a dangerous condition if the supply to the burner is not shut off if the flame is extinguished.
In Addition, Gas Timers mitigate risk and prevent an appliance from operating unattended for long periods of time. If needed, timer can be reset to allow for continued operation.

2. Why is the proposed code change a reasonable solution?
Flame Safeguard devices are utilized in almost every Fuel Gas Appliance to prevent gas flow to burners if the flame is extinguished or the means of ignition of such burners becomes inoperative.

3. What other factors should the TAG consider?
Although the ANSI Z21.97 Standard considers Outdoor Decorative Appliances to be constantly attended, the infrequent use of those appliances could result in gas flowing to the burners for extended periods if the burners are not ignited. (visual flames would be noticed and the appliance would most likely be shut off if not attended)

Cost/Benefit Analysis

1. Will the proposed code change increase or decrease costs? Please explain and provide estimates if possible.
   The cost of flame safeguard devices could be offset by the cost of gas flowing (unignited) to appliance for potentially long periods of time.
2. If there is an increased cost, will this cost be offset by a safety or other benefit? Please explain. If the benefit is quantifiable (for example energy savings), provide an estimate if possible.
   The relatively small cost of the FSD will increase the safety of outdoor appliances.

3. If there is a cost increase, who will bear the costs? This can include government units, businesses, and individuals.
   Manufacturer

4. Are there any enforcement or compliance cost increases or decreases with the proposed code change? Please explain.
   N/A
5. Will the cost of complying with the proposed code change in the first year after the rule takes effect exceed $25,000 for any one small business or small city (Minn. Stat. § 14.127)? A small business is any business that has less than 50 full-time employees. A small city is any statutory or home rule charter city that has less than ten full-time employees. Please explain.
   N/A

Regulatory Analysis

1. What parties or segments of industry are affected by this proposed code change?
   Contractors, Designers, Owners, Code Officials, manufacturers

2. Can you think of other means or methods to achieve the purpose of the proposed code change? What might someone opposed to this code change suggest instead? Please explain what the alternatives are and why your proposed change is the preferred method or means to achieve the desired result.
   No

3. What are the probable costs or consequences of not adopting the code change, including those costs or consequences borne by identifiable categories of affected parties, such as separate classes of government units, businesses, or individuals?
   Risk of injury, compromised safety, increased cost (of wasted) NG

4. Are you aware of any federal or state regulation or requirement related to this proposed code change? If so, please list the federal or state regulation or requirement and your assessment of any differences between the proposed code change and the federal regulation or requirement.
   No

***Note: Incomplete forms may be returned to the submitter with instructions to complete the form. Only completed forms can considered by the TAG.

DEPARTMENT OF LABOR AND INDUSTRY

CODE CHANGE PROPOSAL FORM

(Must be submitted electronically)

Author/requestor: Brian Stemwedel *Date:* 12/03/2024

Email address: Bstemwedel@goldenvalleymn.gov *Model Code:* IRC

Telephone number: (612)275-1436 *Code or Rule Section:* M1411.1

Firm/Association affiliation, if any: AMBO *Topic of proposal:* CO Alarms

Code or rule section to be changed: Residential Mechanical Code M1411.1

Intended for Technical Advisory Group ("TAG"):

General Information	**Yes**	**No**
A. Is the proposed change unique to the State of Minnesota?	☐	☒
B. Is the proposed change required due to climatic conditions of Minnesota?	☐	☒
C. Will the proposed change encourage more uniform enforcement?	☒	☐
D. Will the proposed change remedy a problem?	☒	☐
E. Does the proposal delete a current Minnesota Rule, chapter amendment?	☐	☒
F. Would this proposed change be appropriate through the ICC code development process?	☒	☐

Proposed Language

1. The proposed code change is meant to:

   ☒ change language contained in the model code book? If so, list section(s).

   ☐ change language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s). MN Rules 1346.0313

   ☐ delete language contained in the model code book? If so, list section(s).

   ☐ delete language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s).

   ☒ add new language that is not found in the model code book or in Minnesota Rule.

2. Is this proposed code change required by Minnesota Statute? If so, please provide the citation.

3. Provide *specific* language you would like to see changed. Indicate proposed new words with underlining and ~~strikethrough~~ words proposed for deletion. Include the entire code (sub) section or rule subpart that contains your proposed changes.
   ~~M1411.1 Approved refrigerants~~ refrigeration systems. ~~Refrigerants used in direct refrigerating systems shall conform to the applicable provisions of ANSI/ASHRAE 34~~.
   M1411.3 Refrigeration system installation. Refrigeration systems shall be installed in accordance with the manufacturer's installation instructions. After installation, the manufacturer's installation instructions, owner's manuals, service manuals and any other product literature provided with the equipment shall be attached to the indoor unit or left with the homeowner.
   M1411.3.1 Refrigeration systems. Refrigeration systems used in heating and cooling equipment shall be permitted to be installed in accordance with ASHRAE 15.2 to comply with the requirements of Sections M1411.2 through M1411.7 and Section M1411.12 through M1411.15.
4. Will this proposed code change impact other sections of a model code book or an amendment in Minnesota Rule? If so, please list the affected sections or rule parts.

NO

Need and Reason

1. Why is the proposed code change needed? Please provide a general explanation as well as a specific explanation for any changes to numerical values (heights, area, etc.)
   This CCP addresses ASHRAE Standard 15.2, which is the low-rise residential refrigeration safety standard. This will align with the 2027 IRC (passed ICC code hearing protocols)
   Standard 15.2 is designed to accommodate the use of A2L-classified refrigerants in low-rise residential applications and is intended for use by manufacturers, installers, contractors, service technicians, Building Code Officials, and others.
   Specific requirements are included for which refrigerants can be used, the maximum allowable refrigerant charge, accessories, and interconnecting piping, so that in the event of a full release of the refrigerant charge, the concentration in the space remains safely below the lower flammability limit of the refrigerant.
2. Why is the proposed code change a reasonable solution?
   This CCP references the correct ASHRAE Standard relating to residential applications.

3. What other factors should the TAG consider?
   This will align with the 2027 IRC

Cost/Benefit Analysis

1. Will the proposed code change increase or decrease costs? Please explain and provide estimates if possible.
   No effect, possible reduced cost due to alternate compliance path.

2. If there is an increased cost, will this cost be offset by a safety or other benefit? Please explain. If the benefit is quantifiable (for example energy savings), provide an estimate if possible.
   N/A

3. If there is a cost increase, who will bear the costs? This can include government units, businesses, and individuals.
   N/A

4. Are there any enforcement or compliance cost increases or decreases with the proposed code change? Please explain. NO

5. Will the cost of complying with the proposed code change in the first year after the rule takes effect exceed $25,000 for any one small business or small city (Minn. Stat. § 14.127)? A small business is any business that has less than 50 full-time employees. A small city is any statutory or home rule charter city that has less than ten full-time employees. Please explain.
   No

Regulatory Analysis

1. What parties or segments of the industry are affected by this proposed code change?
   Contractors, Code Officials, Designers, and Fire Code Officials

2. Can you think of other means or methods to achieve the purpose of the proposed code change? What might someone opposed to this code change suggest instead? Please explain what the alternatives are and why your proposed change is the preferred method or means to achieve the desired result.

3. What are the probable costs or consequences of not adopting the code change, including those costs or consequences borne by identifiable categories of affected parties, such as separate classes of government units, businesses, or individuals?

4. Are you aware of any federal or state regulation or requirement related to this proposed code change? If so, please list the federal or state regulation or requirement and your assessment of any differences between the proposed code change and the federal regulation or requirement.
   No

   N/A

***Note: Incomplete forms may be returned to the submitter with instruction to complete the form. Only completed forms can considered by the TAG.

DEPARTMENT OF LABOR AND INDUSTRY

CODE CHANGE PROPOSAL FORM

(Must be submitted electronically)

Author/requestor: Brian Stemwedel *Date:* 12/05/2024

Email address: Bstemwedel@goldenvalleymn.gov *Model Code:* IRC

Telephone number: (612)275-1436 *Code or Rule Section:* M1411.10

Firm/Association affiliation, if any: AMBO *Topic of proposal:* Condensate Pumps

Code or rule section to be changed: Residential Mechanical Code M1411.10

Intended for Technical Advisory Group ("TAG"):

General Information	**Yes**	**No**
A. Is the proposed change unique to the State of Minnesota?	☒	☐
B. Is the proposed change required due to climatic conditions of Minnesota?	☒	☐
C. Will the proposed change encourage more uniform enforcement?	☒	☐
D. Will the proposed change remedy a problem?	☒	☐
E. Does the proposal delete a current Minnesota Rule, chapter amendment?	☐	☒
F. Would this proposed change be appropriate through the ICC code development process?	☐	☒

Proposed Language

1. The proposed code change is meant to:

   ☒ change language contained in the model code book? If so, list section(s).
   IRC M1411.1

   ☐ change language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s).

   ☐ delete language contained in the model code book? If so, list section(s).

   ☐ delete language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s).

   ☒ add new language that is not found in the model code book or in Minnesota Rule.

2. Is this proposed code change required by Minnesota Statute? If so, please provide the citation.

3. Provide *specific* language you would like to see changed. Indicate proposed new words with underlining and ~~strikethrough~~ words proposed for deletion. Include the entire code (sub) section or rule subpart that contains your proposed changes.
   M1411.10 Condensate Pumps. Condensate pumps located in uninhabitable spaces, such as attics and crawl spaces, shall be connected to the appliance or equipment served such that when the pump fails, the appliance or equipment will be prevented from operating. ~~Pumps shall be installed in accordance with the manufacturer's instructions.~~

   Exception: Condensing appliances used for heating shall not be prevented from operating upon failure of condensate pump.

   M1411.10.1 Installation. Condensate pumps shall be protected from freezing and installed in an *approved* location in accordance with the manufacturer's instructions. Condensate shall be conveyed to an approved place of disposal.

4. Will this proposed code change impact other sections of a model code book or an amendment in Minnesota Rule? If so, please list the affected sections or rule parts.
   NO

Need and Reason

1. Why is the proposed code change needed? Please provide a general explanation as well as a specific explanation for any changes to numerical values (heights, area, etc.)
   Condensate pumps generally have a reservoir and a float switch to actuate pump. There is residual water in reservoir that when subjected to freezing temps will freeze and break pump housing creating a leak and rendering pump inoperative.
   Not shutting down condensing appliances used for heating may cause damage to structure due to leaking condensate, however, damage due to freezing pipes may be much worse. Might be a factor only when unoccupied, and most would notice heat was not working prior to pipes freezing.
2. Why is the proposed code change a reasonable solution?
   To mitigate potential for damage caused by water leaks, protecting pumps from freezing is a reasonable solution.

3. What other factors should the TAG consider?
   Requirements to not shut down heating appliances. *** This may require CCP's to amend M1411.9.1(4), M1411.9.1.1, and M1411.11 ex.

Cost/Benefit Analysis

1. Will the proposed code change increase or decrease costs? Please explain and provide estimates if possible.
   Potential for increased cost due to alternate installations protecting pumps from freezing.

2. If there is an increased cost, will this cost be offset by a safety or other benefit? Please explain. If the benefit is quantifiable (for example energy savings), provide an estimate if possible.
   Reduced exposure to damage caused by broken equip. due to expansion of water upon freezing causing damage/ leaks.

3. If there is a cost increase, who will bear the costs? This can include government units, businesses, and individuals.
   N/A

4. Are there any enforcement or compliance cost increases or decreases with the proposed code change? Please explain. NO

5. Will the cost of complying with the proposed code change in the first year after the rule takes effect exceed $25,000 for any one small business or small city (Minn. Stat. § 14.127)? A small business is any business that has less than 50 full-time employees. A small city is any statutory or home rule charter city that has less than ten full-time employees. Please explain.
   No

Regulatory Analysis

1. What parties or segments of the industry are affected by this proposed code change?
   Contractors, Code Officials, Designers, installers

2. Can you think of other means or methods to achieve the purpose of the proposed code change? What might someone opposed to this code change suggest instead? Please explain what the alternatives are and why your proposed change is the preferred method or means to achieve the desired result.
   Do not allow condensing appliances to be installed in unconditioned space(s)

3. What are the probable costs or consequences of not adopting the code change, including those costs or consequences borne by identifiable categories of affected parties, such as separate classes of government units, businesses, or individuals?
   Cost associated with repairs due to condensate leaks

4. Are you aware of any federal or state regulation or requirement related to this proposed code change? If so, please list the federal or state regulation or requirement and your assessment of any differences between the proposed code change and the federal regulation or requirement.
   N/A

***Note: Incomplete forms may be returned to the submitter with instruction to complete the form. Only completed forms can considered by the TAG.

DEPARTMENT OF LABOR AND INDUSTRY

CODE CHANGE PROPOSAL FORM

(Must be submitted electronically)

Author/requestor: Jesse Soller

Date: 11-25-2024

Email address: Jesse.Soller@state.mn.us

Model Code: 2024 IRC

Telephone number: 651-284-5275

Code or Rule Section: M1601.1.1

Firm/Association affiliation, if any: Minnesota Department of Labor

Code or rule section to be changed: M1601.1.1

Intended for Technical Advisory Group ("TAG"):

General Information	**Yes**	**No**
A. Is the proposed change unique to the State of Minnesota?	☒	☐
B. Is the proposed change required due to climatic conditions of Minnesota?	☐	☐
C. Will the proposed change encourage more uniform enforcement?	☒	☐
D. Will the proposed change remedy a problem?	☒	☐
E. Does the proposal delete a current Minnesota Rule, chapter amendment?	☐	☒
F. Would this proposed change be appropriate through the ICC code development process?	☐	☒

Proposed Language

1. The proposed code change is meant to:

   ☐ change language contained the model code book? If so, list section(s).

   ☐ change language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s).

   ☒ delete language contained in the model code book? If so, list section(s).
   M1601.1.1 subpart 7

   ☐ delete language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s).

   ☐ add new language that is not found in the model code book or in Minnesota Rule.

2. Is this proposed code change required by Minnesota Statute? If so, please provide the citation.

3. Provide *specific* language you would like to see changed. Indicate proposed new words with underlining and words proposed to be deleted. Include the entire code (sub) section or rule subpart that contains your proposed changes.
M1601.1 Duct design. Duct systems serving heating, cooling and ventilation equipment shall be installed in accordance with the provisions of this section and ACCA Manual D, the appliance manufacturer's installation instructions or other approved methods.
M1601.1.1 Above-ground duct systems. Above-ground duct systems shall conform to the following:

1. Equipment connected to duct systems shall be designed to limit discharge air temperature to not greater than 250°F (121°C).
2. Factory-made ducts shall be listed and labeled in accordance with UL 181 and installed in accordance with the manufacturer's instructions.
3. Fibrous glass duct construction shall conform to the SMACNA Fibrous Glass Duct Construction Standards or NAIMA Fibrous Glass Duct Construction Standards.
4. Field-fabricated and shop-fabricated metal and flexible duct constructions shall conform to the SMACNA HVAC Duct Construction Standards—Metal and Flexible except as allowed by Table M1601.1.1. Galvanized steel shall conform to ASTM A653.
5. The use of gypsum products to construct return air ducts or plenums is permitted, provided that the air temperature does not exceed 125°F (52°C) and exposed surfaces are not subject to condensation.
6. Duct systems shall be constructed of materials having a flame spread index of not greater than 200.
~~7. Stud wall cavities and the spaces between solid floor joists to be used as air plenums shall comply with the following conditions:~~
~~7.1. These cavities or spaces shall not be used as a plenum for supply air.~~
~~7.2. These cavities or spaces shall not be part of a required fire-resistance-rated assembly.~~
~~7.3. Stud wall cavities shall not convey air from more than one floor level.~~
~~7.4. Stud wall cavities and joist-space plenums shall be isolated from adjacent concealed spaces by tight-fitting fireblocking in accordance with Section R302.11. Fireblocking materials used for isolation shall comply with Section R302.11.1.~~
~~7.5. Stud wall cavities in the outside walls of building envelope assemblies shall not be utilized as air plenums.~~
~~7.6. Building cavities used as plenums shall be sealed~~.
~~8~~ 7. Volume dampers, equipment and other means of supply, return and exhaust air adjustment used in system balancing shall be provided with access.

4. Will this proposed code change impact other sections of a model code book or an amendment in Minnesota Rule? If so, please list the affected sections or rule parts.
No

Need and Reason

1. Why is the proposed code change needed?
The current Minnesota energy code does not allow for stud walls or space between floor joist to be used at plenums.
2. Why is the proposed code change a reasonable solution?
If this section is left in it may confuse contractors and code officials that using stud walls or floor joist as plenums is allowed.
3. What other considerations should the TAG consider?

Cost/Benefit Analysis

1. Will the proposed code change increase or decrease costs? Please explain.
   No change

2. If there is an increased cost, will this cost be offset by a safety or other benefit? Please explain.

3. Are there any enforcement or compliance cost increases or decreases with the proposed code change? Please explain.
   No

4. Will the cost of complying with the proposed code change in the first year after the rule takes effect exceed $25,000 for any one small business or small city? A small business is any business that has less than 50 full-time employees. A small city is any statutory or home rule charter city that has less than ten full-time employees. Please explain.
   No

Regulatory Analysis

1. What parties or segments of industry are affected by this proposed code change?
   None, the energy code currently says it is not allowed.

2. What are the probable costs to the agency and to any other State agencies of implementing and enforcing of the proposed rule? Is there an anticipated effect on state revenues?
   No change

3. Are there less costly intrusive methods for achieving the purpose of the proposed rule?
   No

4. Can you think of other means or methods to achieve the purpose of the proposed code change? If so, please explain what they are and why your proposed change is the preferred method or means to achieve the desired result.
   No

5. What are the probable costs of complying with the proposed rule, including the portion of the total costs that will be borne by identifiable categories of affected parties, such as separate classes of governmental units, businesses, or individuals?
   None

6. What are the probable costs or consequences of not adopting the proposed rule, including those costs or consequences borne by identifiable categories of affected parties, such as separate classes of government units, businesses, or individuals?
   No

7. Are you aware of any federal regulation or federal requirement related to this proposed code change? If so, please list the federal regulation or requirement and your assessment of any differences between the proposed rule and the federal regulation or requirement.
   No

8. Please include an assessment of the cumulative effect of the rule with other federal and state regulations related to the specific purpose of the rule.
   I am not aware of any impact that this proposed change would have.

   ***Note: Incomplete forms may be returned to the submitter with instruction to complete the form. Only completed forms can considered by the TAG.