



November 21, 2017

April Trafton
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Tarzana, CA 91356

Re: IAPMO Standards Council Decision
TIA UMC-001-18
Decision date: November 21, 2017**
Uniform Mechanical Code – Sections 220.0, 1111.0 – 1111.4,
1112.4 – 1112.5.2

Dear Ms. Trafton:

I am transmitting to you herewith the following decision of the Standards Council. At its meeting on November 15, 2017, the Standards Council considered your written request for the issuance of proposed TIA UMC-001-18 in the 2018 edition of the Uniform Mechanical Code. The proposed Tentative Interim Amendment requested revisions to sections 220.0, 1111.0 – 1111.4, and 1112.4 – 1112.5.2 as follows:

Table with 2 columns: ASHRAE and 220.0 Refrigeration System, Indirect. A system in which a secondary coolant cooled or heated by the refrigerating system is circulated to the air or other substance to be cooled or heated. Indirect systems are distinguished by the method of application given below. [ASHRAE 15:5.1.2]
Indirect Open Spray System. A system in which a secondary coolant is in direct contact with the air or other substance to be cooled or heated. [ASHRAE 15:5.1.2.1]
Double Indirect Open Spray System. A system in which the secondary substance for an indirect open spray system is heated or cooled by the secondary coolant circulated from a second enclosure. [ASHRAE 15:5.1.2.2]
Indirect Closed System. A system in which a secondary coolant passes through a closed circuit in the air or other substance to be cooled or heated. [ASHRAE 15:5.1.2.3]
1111.0 Pressure-Limiting Devices.
1111.1 Where Required. Pressure-limiting devices complying with Section 1111.2 through Section 1111.4 shall be provided for compressors on all systems operating above atmospheric pressure.
Exception: Pressure limiting devices are not required for listed factory-sealed systems containing less than 22 pounds (9.9 kg) of Group A1 refrigerant listed by an approved agency. [ASHRAE 15:9.9.1]
1111.2 Setting. Where required in Section 1111.1, the maximum setting to which a pressure-limiting device is capable of being readily set by use of the adjusting means provided shall not exceed the design pressure of the highside of a system that is not protected by a pressure-relief device or 90 percent of the setting of the pressure-relief device installed on the highside of a system. The pressure-limiting device shall stop the action of the pressure-imposing element at a pressure not more than the maximum setting.
Exception: On systems using nonpositive displacement compressors, the maximum setting of the pressure-limiting device shall not be required to be less than the design pressure of the highside of the system provided the pressure-relief device is located in the lowside, subject to lowside pressure, and there is a permanent (unvalved) relief path between the highside and the lowside of the system.
Pressure limiting devices shall be set in accordance with one the following:
(1) For positive displacement compressors:
(a) When systems are protected by a highside pressure relief device, the compressor's pressure limiting device shall be set not more than 90 percent of the operating pressure for the highside pressure relief device.
(b) When systems are not protected by a highside pressure relief device, the compressor's pressure limiting device shall be set not more than the system's highside design pressure.

ASHRAE	(2) For nonpositive displacement compressors:
ASHRAE	(a) <u>When systems are protected by a highside pressure relief device, the compressor's pressure limiting device shall be set not more than 90 percent of the operating pressure for the highside pressure relief device.</u>
ASHRAE	(b) <u>When systems are protected by a lowside pressure relief device that is only subject to lowside pressure, and is provided with a permanent relief path between the systems' highside and lowside, without intervening valves, the compressor's pressure limiting device shall be set not more than the systems' highside design pressure. [ASHRAE 15:9.9.2]</u>
ASHRAE	1111.3 Connection Location. <u>Pressure-limiting devices shall be connected between the pressure-imposing element and the stop valve on the discharge side. There shall be no intervening stop valves in the line leading to the pressure-limiting device. Stop valves shall not be installed between the pressure imposing element and pressure limiting devices serving compressors. [ASHRAE 15:9.9.3]</u>
ASHRAE	1111.4 Operation Emergency Stop. <u>Where the system is protected by a pressure relief device, the pressure-limiting device shall stop the action of the pressure-imposing element at a pressure not exceeding 90 percent of the setting of the pressure-relief device. Activation of a pressure-limiting device shall stop the action of the pressure-imposing element. [ASHRAE 15:9.9.4]</u>
ASHRAE	1112.4 Evaporators. <u>Evaporators Heat exchanger coils located downstream, or upstream within 18 inches (457 mm), of a heating coil source and capable of being isolated shall be fitted with a pressure-relief device discharging that discharges to another part of the system in accordance with Section 1112.5 through Section 1112.5.2 or outside the building any enclosed space in accordance with the requirements of Section 1112.10. The pressure relief device shall be connected at the highest possible location of the heat exchanger or piping between the heat exchanger and its manual isolation valves.</u>
ASHRAE	Exceptions:
ASHRAE	(1) <u>Relief valves shall not be required on heating heat exchanger coils that are designed to produce a temperature that will result in the have a design pressure more than 110 percent of refrigerant saturation pressure of the refrigerant being less than the design pressure when exposed to the maximum heating source temperature.</u>
ASHRAE	(2) <u>A relief valve shall not be required on self-contained or unit systems where the volume of the lowside of the system, which is shut off by valves, is more than the specific volume of the refrigerant at critical conditions of temperature and pressure, as determined in accordance with Equation 1112.4.</u>
ASHRAE	$V_1 / [W_1 - (V_2 - V_1) / V_{gt}] > \quad \text{(Equation 1112.4)}$
ASHRAE	<u>Shall be more than V_{gc}</u>
ASHRAE	Where:
ASHRAE	V_1 = Lowside volume, cubic foot (m ³).
ASHRAE	V_2 = Total volume of system, cubic foot (m ³).
ASHRAE	W_1 = Total weight of refrigerant in system, pounds (kg).
ASHRAE	V_{gt} = Specific volume of refrigerant vapor at 110°F (43°C), cubic feet per pound (m ³ /kg).
ASHRAE	V_{gc} = Specific volume at critical temperature and pressure, cubic feet per pound (m ³ /kg). [ASHRAE 15:9.4.4]
ASHRAE	1112.5 Hydrostatic Expansion. <u>Pressure rise resulting from hydrostatic expansion due to temperature rise of liquid refrigerant trapped in or between closed valves shall be addressed in accordance with Section 1112.5.1 and Section 1112.5.2. [ASHRAE 15:9.4.3]</u>
ASHRAE	1112.5.1 Hydrostatic Expansion During Normal Operation. <u>Where trapping of liquid with subsequent hydrostatic expansion is capable of occurring automatically during normal operation or during standby, shipping, or power failure, engineering controls shall be used that are capable of preventing the pressure from exceeding the design pressure. Acceptable engineering controls include but are not limited to the following:</u>
ASHRAE	(1) <u>Pressure relief device to relieve hydrostatic pressure to another part of the system.</u>
ASHRAE	(2) <u>Reseating pressure relief valve to relieve the hydrostatic pressure to an approved treatment system. [ASHRAE 15:9.4.3.1]</u>
ASHRAE	1112.5.2 Hydrostatic Expansion During Maintenance. <u>Where trapping of liquid with subsequent hydrostatic expansion is capable of occurring only during maintenance—i.e., when personnel are performing maintenance tasks—either engineering or administrative controls shall be used to relieve or prevent the hydrostatic overpressure. [ASHRAE 15:9.4.3.2]</u>
ASHRAE	(renumber remaining sections)

Prior to the November 15 meeting, the proposed TIA was balloted through the Mechanical Technical Committee in accordance with the Regulations Governing Committee Projects to determine if there existed the necessary three-fourths majority support on technical merit and emergency nature to establish the recommendation for issuance. The ballot achieved the three-fourths majority support on technical merit. The Technical Committee ballot did not achieve three-fourths majority support on emergency nature.

In determining whether or not to issue a TIA, the Council looks to the TC letter ballot for a recommendation of support and, in this case, that support exists only as to technical merit. The Council concurs with the Technical Committee and finds in the complete record no basis for overturning the recommendation of the TC that the TIA has technical merit. The Technical Committee did not recommend acceptance of the TIA because it failed the vote on emergency nature.

Upon a full review and consideration of all of the information available to it, the Council finds that the TIA involves an issue of emergency nature and, accordingly, the Council overturns the recommendation of the Technical Committee and issues the TIA. The Council determines a clear and substantial basis exists to amend sections 220.0, 1111.0 – 1111.4, and 1112.4 – 1112.5.2 of the 2018 edition of the *Uniform Mechanical Code* – as noted above – to read consistently with *ASHRAE 15 – 2016*, the source of the extracted text. Of equal importance, the TIA will address confusion with regard to the appropriate method of relieving or controlling hydrostatic expansion; provide clarification of the inequality of Equation 1112.4; and include specific settings for pressure relief devices based on system configuration.

Thus, the Council hereby issues the proposed TIA.

Sincerely,



Gabriella Davis
Secretary, Standards Council

CC: Monte Bogatz, Executive VP & General Counsel
Hugo Aguilar, VP, Codes & Standards Development
IAPMO Standards Council
Members of the Mechanical TC

****NOTE:** Participants in IAPMO's codes and standards making process are advised that limited review of this decision may be sought from the IAPMO Board of Directors. For the rules describing the available review and the method for petitioning the Board of Directors for review, please consult Section 1-7 of the *IAPMO Regulations Governing Committee Projects* and the *IAPMO Regulations Governing Petitions to the Board of Directors from Decisions of the Standards Council*. **Notice of the intent to file such a petition must be submitted to the Petitions Clerk of the Board of Directors within 15 calendar days of the Date of Decision noted in the subject line of this letter.** As this document is an American National Standard (ANSI), any persons who have directly and materially affected interests by this decision have the right to appeal to ANSI in accordance with ANSI procedures.

IAPMO Regulations Governing Committee Projects

Section 1-7

1-7 Petitions to the Board of Directors.

1-7.1 General. The Standards Council has been delegated the responsibility for the administration of the codes and standards development process and the issuance of Documents. However, where extraordinary circumstances requiring the intervention of the Board of Directors exist, the Board of Directors may take any action necessary to fulfill its obligations to preserve the integrity of the standards development process. Anyone seeking such intervention of the Board of Directors may petition the Board of Directors concerning Standards Council action on any matters. Such petitions shall be filed and processed in accordance with the Regulations Governing Petitions to the Board of Directors from Decisions of the Standards Council.

1-7.2 Notice of Intent to File the Petition. Anyone wishing to petition the Board of Directors concerning an Standards Council action related to the issuance of a document, shall file a Notice of Intent to File a Petition within 15 days following the Standards Council action. A Standards Council action related to the issuance of a document includes any action of the Council that issues or returns a Document or that affects the text of a Document. Petitions concerning other Standards Council actions shall be filed within a reasonable period of time.

1-7.3 Effect of Filing. The filing of a Petition will not serve to stay the effective date of a Document or a Tentative Interim Amendment unless the Chief Executive Officer of the Association or the Board of Directors acts, pursuant to 4-7.2 or 5-6, to delay the effective date. Any Petition pending at the time a Document or Tentative Interim Amendment becomes effective will be treated as a Petition to withdraw the Document or Tentative Interim Amendment.

1-8 Use of Visual Aids and Demonstrations Before the Standards Council or Board of Directors. The policy for the use of visual aids and physical demonstrations to the Standards Council and Board of Directors shall be the same as that required for TCCs, TCs, and Task Groups, in accordance with 3-3.3.3(e) and 3-3.3.3(f).

IAPMO Regulations Governing Petitions to the Board of Directors from Decisions of the Standards Council

ADOPTED BY THE IAPMO BOARD OF DIRECTORS SEPTEMBER 4, 2000. Amended in January 2007.

Section 1 Scope of and Authority for these Regulations.

(a) These regulations have been issued by the Board of Directors pursuant to its authority under Article 5, 6 and 8 of the IAPMO Bylaws.

(b) These regulations set forth the procedures to be used for the filing and processing of all petitions to the Board of Directors filed pursuant to 1-7 of the Regulations Governing Committee Projects.

(c) The Board of Directors can amend these regulations from time to time and waive or supplement, in whole or in part, at any time or times at its discretion.

(d) For the purposes of these regulations, the Standards Council Secretary, or such other person as the Chair of the Board of Directors may appoint, shall act as a petitions clerk.

Section 2 Subcommittees of the Board of Directors. Unless the Board of Directors otherwise orders, the authority to consider and make recommendations on the disposition of a petition by the Board of Directors shall be delegated to a subcommittee of the Board of Directors, which shall be appointed, in accordance with 2.1 of these regulations. Subcommittees shall be appointed by the Chair of the Board of Directors.

2-1 Composition of Subcommittees. Subcommittees shall consist of three or more members of the Board of Directors. The criteria for selection and appointment of subcommittee members shall be as follows:

(a) A subcommittee member shall be a person who can decide the petition on the merits in an impartial manner.

(b) A subcommittee member shall not have any conflict of interest. (A conflict of interest is defined as any situation in which a decision on a petition could substantially and materially affect the member's financial or business interest.)

(c) Each subcommittee member shall, to the extent practicable, represent diverse interests within the association.

In making a decision of whether or not to serve on a subcommittee, the member may consult with the IAPMO general counsel.

Section 3 The Scope of Review. The petitioner shall generally confine the argument in the petition to matters that were presented below and shall not raise any new matters that could have but were not presented within the standards development process. A petition to the Board of Directors shall not be regarded as simply another opportunity to reargue a position that was rejected by the Standards Council. In considering a petition, the subcommittee shall give due deference to the judgment of the Standards Council and shall not intervene unless it can be demonstrated that extraordinary circumstances exist requiring the Board of Director's intervention to protect the integrity of the standards development process.

Section 4 The Record. In its consideration of the petition, the subcommittee shall have before it the entire record that was before the Standards Council, as well as all proceedings and decisions of the Standards Council on the issue. In addition, the subcommittee may consult any other records of the association that it deems pertinent to the issue, and the subcommittee may seek technical assistance from staff, the technical committee, or any other source or persons that it deems appropriate.

Section 5 Notice of Intent to File the Petition. Anyone wishing to petition the Board of Directors concerning a Standards Council action related to the issuance of a document, shall file a Notice of Intent to File a Petition within 15 days following the Standards Council action. A Standards Council action related to the issuance of a document includes any action of the Council that issues or returns a document or that affects the text of a document. Petitions concerning other Standards Council actions shall be filed within a reasonable period of time.

Section 6 Filing and Contents of the Petition.

(a) Within 15 days following the receipt of the notice of intent to file, or within such other time as the petitions clerk may allow, the petitioner shall file the petition together with 20 copies. The petition shall be no more than 10 pages in length and shall contain, in separately denominated sections, the following:

- (1) Name, affiliation, and address of the petitioner;
- (2) Statement identifying the particular Standards Council action to which the petition relates;
- (3) Argument setting forth the grounds for the petition and, in particular, addressing why there exist extraordinary circumstances requiring the intervention of the Board of Directors (see the preceding Section 3 and 1-7 of the Regulations Governing Committee Projects); and
- (4) Statement of the precise relief requested.

(b) Any part of the record related to the standards development process that is referenced or discussed in the petition should be clearly cited in the petition using available markings such as the title, author, date, and page of the record. Since the full record will be available to the subcommittee during its review, attachments and appendices shall not accompany the petition, unless express permission has been obtained from the petitions clerk.

Section 7 Consideration of the Petition.

7-1 Initial Review. The petitions clerk may, at his or her discretion, arrange for initial review of the petition by meeting, correspondence, or telephone conference. If upon such initial review of the petition and any relevant portions of the record, the subcommittee determines that the petition has no merit, it may dismiss the petition.

7-2 Full Review. If initial review is not conducted, or, if upon such review, the subcommittee determines that further review is warranted, it shall afford the opportunity for responses to be filed by interested parties. Responses, together with 20 copies, shall be filed within 15 days or within such other time as the petitions clerk may allow.

(a) Responses shall be no more than 10 pages in length and shall contain, in separately denominated sections, the following:

- (1) Name, affiliation, and address of the respondent;
- (2) Statement identifying the petition to which the response relates and stating whether the respondent supports or opposes the petition; and
- (3) Argument setting forth the grounds for opposing or supporting the petition and, in particular, addressing why there does or does not exist extraordinary circumstances requiring the intervention of the Board of Directors (see the preceding Section 3 and 1-7 of the Regulations Governing Committee Projects).

(b) Any part of the record related to the standards development process that is referenced or discussed in a response should be clearly cited in the response using available markings such as the title, author, date, and page of the record. Since the full record will be available to the subcommittee during its review, attachments and appendices shall not accompany the response, unless express permission has been obtained from the petitions clerk.

(c) So as to avoid unnecessary repetition and duplication of effort, parties are encouraged to file joint responses where possible and appropriate.

(d) Unless a hearing has been requested and granted by the subcommittee (see Section 8), the subcommittee shall, either by meeting or telephone conference, review and

render a decision on the petition based on the written submissions of the parties and the record before it.

Section 8 Requests for Hearings. If the petitioner requests a hearing on the petition and that hearing is granted, the petitioner shall be assessed a filing fee of \$2,500 to be posted following the granting of the request. This fee may be reduced or waived by the Chief Executive Officer upon application of the petitioner if good cause for reducing or waiving the fee is presented. If a hearing is granted, the Procedures for Hearings shall be followed.

Section 9 Waiver of Regulations. Any of the deadlines or requirements set forth in these regulations may be waived by the subcommittee upon application of the petitioner or any other party for good cause shown, or in the discretion of the subcommittee.

Section 10 Subcommittee Report to the Board of Directors. The subcommittee shall file with the Board of Directors a written report concerning each petition that it has determined.