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JULIUS A. BALLANCO, P.E.
President

December 16, 2019

Board of Directors
International Association of Plumbing and Mechanical Officials
The IAPMO Group – West Building
4755 E. Philadelphia Street
Ontario, CA 91761

Dear Board Members:

RE: Petition to the IAPMO Board regarding TIA UMC-006-18

Petitioner: Julius Ballanco, P.E.
JB Engineering and Code Consulting, P.C.
On Behalf of Daikin US
1661 Cardinal Drive
Munster, IN 46321

Action Petitioned: Rejections of TIA UMC-006-18 by the Standards Council

Action Being Sort: Approval of TIA UMC-006-18 based on technical merit and emergency nature

Hearing Requested: A hearing is hereby requested for this petition. Please invoice JB Engineering and Code Consulting, P.C. for the fee of $2500 once the request is granted.

Supporting Argument: In accordance with the *Regulations Governing Committee Projects* (procedures), I am filing this petition to the Board of Directors regarding the decision of the Standards Council on TIA UMC-006-18. As a member of the Plumbing Technical Committee for 19 years, I have great respect for the Standards Council. However, in accordance with the procedures, *"where extraordinary circumstances requiring the intervention of the Board of directors exist,"* the Board may take the necessary action to preserve the integrity of the standards development. I believe that the decision by the Standards Council and the Mechanical Technical Committee on TIA UMC-006-18 resulted in extraordinary circumstances.

I filed a Tentative Interim Amendment (TIA), as allowed by Section 5 of the procedures. In following the procedures, I included the technical merits supporting the proposed TIA and the emergency nature of the TIA.

It should be noted that, the reason I filed this TIA, was because of a commitment I made to the California Air Resource Board (CARB) to pursue every possible avenue for updating the Uniform Mechanical Code to allow a smooth transition, in the State of California, to low global warming potential (GWP) refrigerants. In numerous conference calls and emails, I have been informing CARB on the IAPMO procedures, means of updating the code, and interpretation of the Uniform Mechanical Code.

Because of my commitment to CARB, I asked my client to allow me to submit a TIA regarding the use of low GWP refrigerants in high probability systems. My client agreed to allow me to file the TIA. To avoid any perceived conflict of interest, I did identify in the TIA that I was representing Daikin US.

Before filing the TIA, I contacted ASHRAE, since the technical content is directly extracted from ASHRAE Standard 15. The technical content follows the extraction policy and agreement between IAPMO and ASHRAE. In speaking with ASHRAE staff, they supported my effort to file the TIA, but indicated that it would be onerous for them to be a joint proponent of the TIA. As such, I merely requested that they submit the latest editions (2019) of ASHRAE 15 and ASHRAE 34. Both documents were submitted to the Mechanical Technical Committee and Standards Council before they received the TIA.

The vote of the Mechanical Technical Committee failed for TIA UMC-006-18. The comments for voting negative on the technical merit of the TIA were not supported by any technical justification from any of the Mechanical Technical Committee members. Each of the comments stated, in essence, "The proposal needs to be fully vetted by the Technical Committee." Of course, the TIA is the opportunity for the Technical Committee to review the standards and proposed text since they were included in the TIA.

The Standards Council recognized that the Mechanical Technical Committee did not provide a technical reason for ruling against the TIA on technical merit. As such, the Standards Council overruled the Mechanical Technical Committee and stated, "The Council was surprised to note the Technical Committee did not find the TIA to be of technical merit. The Council disagrees with the Technical Committee and finds the TIA does possess technical merit." This comment by the Standards Council is greatly appreciated.

With the acceptance of technical merit for the TIA, the remaining issue is the emergency nature of the TIA. If the emergency nature was validated in the eyes of the Standards Council, the TIA would have been approved. For that reason, I will concentrate my petition on proving the emergency nature of this TIA. If the Board of Directors agrees with the emergency nature, the TIA would be approved.

The procedures include six factors that can qualify as an emergency nature. I believe that only three of those factors apply to this TIA. They would be identified as:

> (d) the proposed TIA intends to offer to the public a benefit that would lessen a recognized (known) hazard or ameliorate a continuing dangerous condition or situation.
>
> (e) the proposed TIA intends to accomplish a recognition of an advance in the art of safeguarding property or life where an alternative method is not in current use or is unavailable to the public.
>
> (f) the proposed TIA intends to correct a circumstance in which the revised document has resulted in an adverse impact on a product or method that was inadvertently overlooked in the total revision process, or was without adequate technical (safety) justification for the action.

As I pointed out in the TIA submittal, and testified during the Standards Council meeting, the main reason this is of an emergency nature is the fact that the State of California will be enacting requirements that mandate the use of low GWP refrigerants for direct systems for comfort cooling. To replace R410A, the most commonly used refrigerant in new air-conditioners produced today, neither the 2018 Uniform Mechanical Code, 2021 Uniform Mechanical Code, nor ASHRAE 34-2019 have a listed Group A1 refrigerant that falls into the category of a low GWP refrigerant, as defined by the State of California new requirements being enacted.

The low GWP refrigerants are either Group A2L, A2, A3, or B2L refrigerants. The safe use of low GWP refrigerants in direct (high probability) systems used for comfort cooling has been identified as using Group A2L refrigerants. The other three groups pose too high a hazard to use in direct systems. This TIA only addresses the use of Group A2L refrigerants in direct systems for comfort cooling.

In support of the emergency nature, Dr. Aanchal Kohli, with the California Air Resource Board, testified during the hearing before the Standards Council, that California will be enacting restrictions on the use of high GWP refrigerants well before the publication of the 2024 Uniform Mechanical Code. Following Dr. Kohli's testimony, David Mann, speaking on his own behalf, stated that the State of California could amend the Uniform Mechanical Code to add requirements for regulating Group A2L low GWP refrigerants.

What David Mann apparently was unaware of is that the California Air Resources Board does not have the authority to modify the adoption of the Uniform Mechanical Code. It is for this reason that they seek to have the 2021 Uniform Mechanical Code regulate the use and installation of low GWP refrigerant systems for comfort cooling.

Following the procedures, this TIA meets factor (d). The TIA lessens a known hazard. The hazard would be having a code that does not regulate a product and installation. The purpose of the code is to protect public health and safety. If there are no regulations, this presents a hazard to the public. By adding these requirements, the code will have public health and safety requirements for the use of low GWP refrigerants. Thus, the TIA meets this factor as being of an emergency nature.

The emergency nature also meets factor (e). This TIA will accomplish the recognition of the advance in the art of safeguarding life where an alternative method is not available. The only means of complying with a mandate to use low GWP refrigerants is by using Group A2L refrigerants. Adding the TIA to the Uniform Mechanical Code will advance the art of safeguarding the public by regulating a new group of refrigerant systems. This is what the public expects from the Uniform Mechanical Code as a premier model code.

Finally, the emergency nature meets factor (f). The TIA corrects the 2021 edition of the Uniform Mechanical Code because of the result in an adverse impact on a product that was inadvertently overlooked in the total revision process and was without adequate technical (safety) justification for the action. During the last two code change cycles, there were proposed changes to add requirements regulating Group A2L refrigerants in high probability systems.

During the 2016-17 code change cycle, UMC Item 144 was rejected by the Technical Committee for the following reason, as published in the 2017 UMC Report on Comments, "Addendum D of ASHRAE 15 was not completed at the time of this public comment." While it was disappointing to have this code change rejected, Addendum d, in fact, was not completed.

During the most recent code change cycle, UMC Item 91 would have added requirements for regulating Group A2L refrigerants for high probability systems. Following the first hearing, the reason published for removing all of the regulations for Group A2L refrigerants was stated as, "The proposed text is being modified as ASHRAE 15 Addendum d was still under public review and not yet finalized at the time that this monograph was published."

By the second hearing in 2019, Addendum d to ASHRAE 15 had been completed and the contents of Addendum d appeared in the full edition of ASHRAE 15-2019. ASHRAE

submitted a public comment that included the requirements from ASHRAE 15-2019 (Addendum d of ASHRAE 15-2016) to UMC Item 91.

One would think that, with the publication of ASHRAE 15-2019 and the long-standing policy of extracting requirements from ASHRAE 15 into Chapter 11 of the Uniform Mechanical Code, that the Technical Committee would readily accept the public comment submitted by ASHRAE. However, the Technical Committee voted to reject the ASHRAE public comment. The reason provided for rejecting the public comment was, "The comment is being rejected as the industry is not ready to allow A2L refrigerants for human comfort as there are a lack of training programs and installation requirements available at this time. Furthermore, there are concerns for life safety and flammability. Although the adoption of A2L for the use of human comfort is progressing, these provisions should not be adopted until adequate training is complete and HVAC contractors are able to safely handle A2L refrigerants. Additional time is needed to allow for ongoing research to be done. The committee is also concerned that there are no listed detectors to protect public safety."

In reviewing this reason for rejection, there is no technical justification provided. The first sentence makes an assumption that is incorrect. The industry is ready for the use of Group A2L refrigerants. California is going to be mandating the use of low GWP refrigerants.

The statement about training and installation requirements is also incorrect. What was stated at the hearings is that ACCA does not have training. However, there are many other training avenues besides ACCA. In November 2019, I presented training on the use and installation of Group A2L refrigerant equipment in Alaska to the Alaska Mechanical Contractors Association. AHRI is conducting training across the United States. Even the UA plans to begin contractor training on A2L refrigerants.

UL/CSA 60335-2-40 has extensive requirements regarding what must be included in the manufacturer's installation instructions for their equipment. These instructions are mandatory installation requirements in accordance with Section 303.1, which reads, in part, "The installation of equipment and appliances regulated by this code shall be in accordance with the conditions of the listing, the manufacturer's installation instructions and this code." The manufacturer must provide the installation instructions in order to comply with the standard. The third-party agency installs the unit in accordance with the required installation instructions in order to test the product to become listed. Hence, the statement regarding training and installation requirements is incorrect and not technical justification.

The statement that there are concerns for life safety and flammability is not technical justification. The proposed requirements address all concerns for life safety and

flammability. This was brought to the attention of the Technical Committee, but largely ignored.

The statement regarding ongoing research is incorrect. The Technical Committee could not stipulate what ongoing research is necessary because there is no ongoing research to verify the requirements in ASHRAE 15-2019. The research that verified the requirements that appear in the 2019 edition of ASHRAE 15 has been completed. Every safety requirement has been verified by research. Thus, the statement is not technical justification.

The last statement, that there are no listed detectors to protect public safety, is also incorrect. The current Section 1106.2.2.1 of the Uniform Mechanical Code requires listed detectors for machinery rooms. This has been a requirement in the Uniform Mechanical Code for more than 20 years. Honeywell is one of many manufacturers that has been selling listed refrigerant detectors for years. The Honeywell website identifies many listed refrigerant detectors that are typically used in machinery rooms.

The opponents to the change testified at the hearing that there were no listed detectors to be installed internally in A2L refrigeration equipment. This is actually a play on words since the requirements for refrigerant detection systems is found in UL/CSA 60335-2-40. The standard goes into extensive details regarding the requirements and testing for such systems. As an internal component to a large piece of equipment, the listing is for the overall unit, not the internal components within the unit. The third-party agencies do not individually list internal controls used in equipment. They merely include such controls in the overall testing and listing of the equipment. Thus, while attempting to obfuscate the facts, the reality is that refrigerant detection systems are a control within a listed A2L unit. Hence, they are a part of the listing of the equipment. The comment regarding refrigerant detectors is not technical justification and is incorrect.

I believe the supporting argument verifies the emergency nature of TIA UMC-006-18. With the recognition by the Standards Council that the TIA has technical merit and the validation of the emergency nature by the supporting argument, I urge the Board of Directors to approve the TIA, based on extraordinary circumstances.

Respectfully submitted,

Julius Ballanco, P.E.
President