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Dr. Stephanie Johnson
U.S. Department of Energy
Building Technologies Office, Mailstop EE-5B
1000 Independence Avenue, SW
Washington, DC 20585- 0121

Submitted via email: CRE2017TP0008@ee.doe.gov

Re: Notice of Proposed Rulemaking – Energy Conservation Program for Appliance Standards:
Test Procedure for Commercial Refrigerators, Freezers, and Refrigerator-Freezers, Docket
Number EERE-2017-BT-TP-0008

Dear Dr. Johnson:

These comments are submitted by the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) in response to the U.S. Department of Energy's (DOE) Notice of Proposed Rulemaking (NOPR) regarding the test procedure for commercial refrigerators, freezers, and refrigerator-freezers, appearing in the *Federal Register* on June 30, 2022.

AHRI is the trade association representing more than 300 manufacturers of heating, cooling, water heating, and refrigeration equipment. AHRI is an internationally recognized advocate for the industry and develops standards for and certifies the performance of many of the products manufactured by our members. In North America, the annual economic activity resulting from the HVACR industry is approximately \$256 billion. In the United States alone, AHRI's members, along with distributors, contractors, and technicians, employ more than 1.3 million people.

AHRI would like to acknowledge and thank the DOE staff for the time and effort that went into this rulemaking to find a practical and beneficial path forward for this test procedure. AHRI supports many of the changes made in this NOPR to add clarity and reduce test burdens.

AHRI recommends that DOE use the referenced standards as intended. AHRI cautions DOE that combining test standards is unnecessary and inadvisable and recommends that DOE regulate the issues in the test procedure under a singular standard. AHRI is concerned that the data set used here does not provide clarity as to whether the testing is indicative of energy efficiency. DOE should ideally wait to update certain regulations until clearer test standards have been determined through consensus by manufacturers and third parties. Furthermore, AHRI notes that ENERGY STAR is not yet ready to employ certain referenced standards, raising concerns that DOE is prematurely adopting these requirements.

AHRI requests that DOE approach this rulemaking unilaterally and employ a collaborative approach to regulating CRE. AHRI also advises DOE that these hurried, last-minute rulemakings often yield rushed, inaccurate results, and debilitatingly limit manufacturers in their ability to adequately review and provide meaningful feedback. Industry and DOE have successfully collaborated in the past, with overwhelmingly positive results. While AHRI understands the enormous pressure that DOE is under to update test procedures and energy conservation standards etc. for HVACR equipment at large, significantly more complete and accurate results can be obtained by following the correct process for these rulemakings and working collaboratively in a purposeful manner.

While AHRI is supportive of several of the changes outlined in this document, we do ask the DOE to provide more detail and/or reconsider some of the provisions proposed in the document, specifics outlined below.

Response to DOE Request for comment:

(1) DOE requests comment on the proposed amended definition of ice-cream freezer, and on whether any additional characteristics may better differentiate this equipment from other commercial freezers.

As issues 1 and 2 reference the same types of equipment, this response in part addresses both issues. AHRI recommends that DOE move toward integrated operating temperature, as this will limit which products are covered, and would prevent coverage of equipment that would be inappropriate to include under this definition. DOE should also utilize already published information to refine this definition, to avoid language covering products that shouldn't be regulated under this definition. AHRI requests that DOE provide clarification regarding the -15 °F operating temperature, as too little information is currently offered.

DOE should add the below clarification to the definition of ice cream freezer. "Multi-purpose commercial freezers, manufactured for storage and display, for example, of frozen foods as well as ice cream would not meet this definition, and DOE would not treat them as commercial ice-cream freezers in this rulemaking."¹

AHRI disagrees with DOE's proposal to amend the ice-cream freezer definition to refer to equipment intended for "frozen desserts". Some commercial refrigeration equipment models are sold and marketed as "ice-cream freezers". We are not aware of any product specifically marketed for "frozen desserts". The term "frozen desserts" is not defined, and DOE indicates that they intend this to include gelato, frozen yogurt, sorbet, and other ice-cream like products. We disagree with DOE's statement that these products are typically displayed, stored, and dispensed in the same manner as ice-cream. These additional products have an array of temperature requirements depending on their characteristics (i.e., fat content, etc.) and the application (i.e., holding, dispensing, etc.). The term "frozen desserts" is also problematic because it can be interpreted to encompass frozen pastries, cakes, fruits, chocolates, and other confectionary items, served frozen at the end of a meal, but have very different requirements than ice-cream-like products. In addition, "frozen desserts" could potentially be interpreted to exclude products like "frozen treats" or "frozen snacks".

¹ Federal Register Vol. 72 No. 143/Thursday, July 26, 2007/proposed Rules, page 41173.

(2) DOE requests comment on the proposed amended definition for ice-cream freezer and the proposed definition for low-temperature freezer.

AHRI agrees with DOE's intent to amend the definition of "ice-cream freezer" to products with operating temperatures at or below -15°F, but the definition for these products should be refined to specify "ice-cream hardening freezer" or ice-cream holding freezer". This will clarify the proper application and how the equipment is marketed. We are not aware of any ice cream that is dispensed or served at or below -15°F. Please reference our response to issue 1, for further comment.

(3) DOE requests comment on the proposed definitions for high-temperature refrigerator and medium-temperature refrigerator, including whether the terms should be mutually exclusive or constructed such that equipment could be considered to meet both definitions.

Regarding "high-temperature refrigerators", AHRI recommends that DOE consider using existing product designations and existing labelling in ANSI/NSF 7-2019. Per the applicable sanitation requirements, self-contained storage refrigerators must be capable of maintaining an air temperature of 40°F in 100°F ambient for sanitation. (Presumably they should be able to maintain IAT 38°F for DOE energy test.) Beverage coolers that have a permanently attached label which states: "This equipment is intended for the storage and display of non-potentially hazardous bottled or canned products only" are exempt from temperature test requirements. Self-contained display refrigerators labelled: "This display refrigerator is not for the display of potentially hazardous foods" are also exempt from similar temperature performance testing. These equipment types represent refrigerators that meet applicable sanitation requirements for high-temperature applications.

Further, AHRI advises DOE that the proposed separate designation for "medium-temperature refrigerator" is not needed and could introduce confusion. These products would already be covered under the current definition of refrigerators if they do not fall under the proposed sub-classification of "high-temperature refrigerators". This approach would be consistent with the proposed new definition of "low-temperature freezers", since an additional category for "medium-temperature freezer" has not been suggested.

(4) DOE requests comment on the proposal to specify the requirements from the April 2014 Final Rule regarding basic models of CRE that operate in multiple equipment classes.

AHRI recommends that DOE remove the phrase 'capable of operating at' from the following 2014 Final Rule language, "*CRE with thermostats capable of operating at integrated average temperatures ("IATs") that span multiple equipment categories must be certified and comply with DOE's regulations for each applicable equipment category.*" The purpose of the language in this section is to offer clarification for marketing purposes, and not technical capability, which makes the use of this phrase unnecessary.²

Following the same reasoning, AHRI also recommends that DOE remove the use of the word 'or' from the following language, "*remote condensing equipment without a thermostat*

² DOE Final Rule [Docket No. EERE-2013-BT-TP-0025] Energy Conservation Program: Test Procedure for CRE, page 57

that is marketed, designed, or intended to operate at IATs spanning multiple equipment categories must be certified and comply with the relevant energy conservation standards for all applicable equipment categories.”³

- (5) DOE requests comment on the proposal to incorporate by reference AHRI 1200-202X and on whether the use of the updated test method would impact CRE ratings based on the current DOE test procedure.**

AHRI supports the DOE’s proposal to incorporate by reference AHRI 1200-202X.

- (6) DOE requests comment on the proposal to incorporate by reference AHRI 1200-202X, including the new provisions regarding high glide refrigerants. DOE also requests information on whether any remote condensing CRE are currently tested and rated using high glide refrigerants and whether the proposed test procedure would impact the rated energy consumption for such models.**

AHRI supports DOE’s proposal to incorporate by reference AHRI 1200-202X. AHRI informs DOE that select members consistently test and rate remote condensing CRE using high-glide refrigerants. AHRI advises DOE that refrigerants 407 or 448A or 449A are considered high glide under the new definition in 1200. The updated AHRI 1200-202X method is the most accurate way to determine the rated energy consumption and will result in very similar rated numbers to previous non-high glide refrigerants like R-404A. Furthermore, AHRI notes that the current AHRI 1200-202X standard does not include testing requirements for CO₂, so this refrigerant would require DOE waivers for future use.

- (7) DOE requests comment on the proposal to adopt a rating point of 55 [deg]F 2.0 [deg]F for high-temperature refrigerators by adopting through reference certain provisions of AHRI 1200-202X.**

AHRI advises DOE that the 55°Fahrenheit (plus/minus 2°F) rating point aligns with AHRI standard 1200-202X and offers support for the proposed rating point adoption for high-temperature refrigerators.

- (8) DOE requests comment on its proposal to incorporate by reference ASHRAE 72-2018R, including on whether the updates included in the industry test standard would impact the measured energy consumption of any CRE currently available.**

AHRI offers support for DOE’s proposal to incorporate by reference ASHRAE 72-2022. AHRI believes that the updates included in the industry test standard should not significantly impact the measured energy consumption of any CRE currently available.

- (9) DOE requests comment on the proposed additional instructions regarding loading drawers. DOE requests information on whether the proposed approach is consistent with any future industry standard revisions to address this issue. DOE requests comment on whether other instructions for CRE with drawers should be revised (e.g., fully open definition for drawers) or if additional instructions are needed.**

³ 79 Federal Register 22277, 22291

AHRI notes that the updated version of ASHRAE 72-2022 (the update to ASHRAE standard 72-2018), is in process, and may be available as early as May 2024. Revisions to ASHRAE 72-2022 include the addition of a specific test procedure for drawers. AHRI recommends DOE temporarily pause the process of providing additional instructions regarding loading drawers, for the publication of ASHRAE 72-2022, as the updated standard will provide more complete instructions. AHRI stresses the importance of waiting to update instructions regarding loading drawers until ASHRAE 72-2022 is complete, as the proposed and current standards are incomplete and provide a suboptimal approach.

10) DOE requests comment on the proposal to incorporate by reference AHRI 1320-2011 for CRE used with secondary coolants, including the proposal to only reference the industry standard for provisions specific to secondary coolants and to otherwise reference AHRI 1200-202X, as proposed for other CRE.

AHRI recommends against DOE's proposal to incorporate by reference AHRI 1320-2011 for CRE used with secondary coolants, and advises DOE that AHRI is likely to update AHRI 1320-2011 during 2023. An updated standard could create confusion for compliance purposes. AHRI also brings to DOE's attention that this is not a widely used, or needed standard, and that waiting for a more updated standard to incorporate in the test procedure would be of benefit.

11) DOE requests comment on the model regulation guidelines and on whether there are opportunities for DOE to harmonize its regulations with other regulations in place for CRE.

AHRI advises DOE to consider harmonizing model regulation guidelines with the Environmental Protection Agency's regulations currently in place for commercial refrigeration equipment.

12) DOE requests comment on the proposed definition for buffet table or preparation table. DOE requests information on whether any additional definitions are necessary for the purposes of testing this equipment, or whether any additional equipment characteristics are necessary to differentiate this equipment from other categories of CRE.

AHRI has no objection to this proposed definition for buffet table or preparation table. AHRI advises DOE that additional definitions may not be necessary as the current definition is broad enough for the purposes of testing this equipment and defining necessary equipment characteristics. AHRI recommends that DOE specify that this definition is for self-contained units. If the equipment does or does not share a coil, this should be included in the definition.

AHRI issues the following general comments applicable to issues 13-23 regarding buffet tables and preparation tables:

AHRI cautions DOE against imposing additional provisions and restrictions with these proposed changes and recommends that DOE use the referenced standards as intended. AHRI cautions DOE that combining test standards is unnecessary and inadvisable and recommends that DOE regulate these issues under a singular standard. AHRI is

concerned that the data set used here does not provide clarity as to whether the testing is indicative of energy efficiency. DOE should ideally wait to update this regulation until clearer test standards have been determined through consensus by manufacturers and third parties. Furthermore, AHRI notes that ENERGY STAR is not yet ready to employ referenced standards, raising concerns that DOE is prematurely adopting these requirements.

13) DOE requests comment on its proposal to adopt through reference certain provisions of ASTM F2143-16 as the basis for testing buffet tables and preparation tables. DOE also seeks comment on the proposal to specify test procedures only for self-contained buffet tables and preparation tables, consistent with ASTM F2143-16.

AHRI cautions DOE against imposing additional provisions and restrictions with this proposal and recommends that DOE use the ASTM F2143-16 standard as intended. AHRI cautions DOE against combining test standards and recommends regulating this issue under a singular standard. AHRI is concerned that the data set used here doesn't provide clarity as to whether the testing is indicative of energy efficiency. DOE should wait to update this regulation until clearer test standards have been determined through consensus by manufacturers and third parties. Furthermore, AHRI reiterates that ENERGY STAR is not yet ready to employ this standard, raising concerns that DOE is prematurely adopting these requirements.

AHRI has numerous concerns with this standard and advises DOE that it may not be ready to be used in a DOE test procedure. In the case that DOE does utilize this standard in a test procedure, it should only apply to self-contained equipment. AHRI reminds DOE that this standard is not widely used, and we are therefore unable to speak to the impacts it would have.

14) DOE requests comment on the proposal for testing buffet tables and preparation tables with test conditions (i.e., test chamber conditions, measurement location, and electric supply conditions) consistent with ASHRAE 72-2018R, with additional detail specific to buffet tables and preparation tables.

AHRI supports DOE's inclusion of the ASHRAE 72-2022 ambient testing conditions with the qualification that AHRI cautions against DOE combining test standards, as it is unnecessary and inadvisable. AHRI recommends that DOE regulate this issue under a singular standard, and that this test procedure needs to be developed through industry consensus and should be brought to the appropriate standards committee. AHRI notes that ASHRAE 72-2022 does not address areas where there are two different cooling spaces.

15) DOE requests comment on the proposal for testing buffet tables and preparation tables with test setup instructions consistent with ASHRAE 72-2018R rather than ASTM F2143-16.

AHRI favors the test setup conditions consistent with ASTM F2143-16 with the qualification that AHRI cautions DOE against combining test standards, as it is unnecessary and inadvisable. Please take into consideration that the ASTM F2143-16 standard is currently under review and will potentially be updated within the next one to

two years. It may be prudent for DOE to wait to further regulate, for the publication of the updated standard. AHRI recommends that DOE regulate this issue under a singular standard and advises DOE that small business retailers may be disproportionately negatively impacted by the proposed leapfrogging of standards, especially for buffet tables, where full analysis of testing has not been completed.

16) DOE requests comment on the proposed test loads and temperature measurement locations for buffet tables and preparation tables--i.e., distilled water in pans for the open-top refrigerated area and no load in any refrigerated compartment--consistent with the approach in ASTM F2143-16.

DOE should take into consideration that the proposed changes under consideration for test mediums or loading would be subjected to a test revision process. AHRI members noted that distilled water is much less burdensome than alternative mediums, such as glycol, used for testing purposes. AHRI nonetheless also has concerns with the proposed use of distilled water as a medium, as it may have limitations in certain applications. For example, manufacturers are concerned that test results from manufacturers to third party testing labs, may be inconsistent and difficult to replicate when using distilled water as a testing medium. Manufacturers need to be able to conduct further testing to determine if distilled water is the decisively preferred testing medium, or if a lack testing repeatability render distilled water a less-preferred testing medium. AHRI also notes that ENERGY STAR is not yet ready to employ this standard, raising concerns that DOE is prematurely adopting these requirements. AHRI's final recommendation regarding this topic is to avoid including requirements for this issue in the test procedure now, and to wait until the ASTM F2143-16 standard has been updated, which is anticipated to be complete within the next one to two years.

17) DOE requests comment on the proposal to account for defrosts when testing buffet tables and preparation tables, consistent with the approach in ASHRAE 72-2018R.

AHRI supports DOE's proposal to account for defrosts, if the test period is greater than four hours, with the qualification that AHRI cautions DOE against combining test standards as it is unnecessary and inadvisable. AHRI recommends that DOE regulate this issue under a singular standard.

18) DOE requests comment on its proposal to require loading pans in the open-top refrigerated area and not moving them to a refrigerated compartment, if applicable, during testing.

AHRI recommends that any changes to the ASTM F2143-16 standard should be brought up to the appropriate standards committee. AHRI also advises DOE that manufacturers have not tested equipment to the specifications proposed, and therefore do not have the knowledge to advise DOE regarding the appropriateness of this change. AHRI supports DOE's proposal and recommends further that DOE should not support moving pans during the test procedure, as it can result in varying outcomes. AHRI cautions DOE that combining test standards is unnecessary and inadvisable and recommends that DOE regulate this issue under a singular standard.

19) DOE requests comment on the proposed 24-hour test period, which is consistent with the approach in ASTM F2143-16.

AHRI cautions DOE that combining test standards is unnecessary and inadvisable and recommends that DOE regulate this issue under a singular standard. AHRI recommends that DOE use this procedure within its intended 8–12-hour window, rather than the proposed 24-hour test period. This equipment is generally used during store hours only, and a 24-hour test period would not be representative of actual use. The hours of uncovered time create a large strain on the case, and on the product, and do not reflect typical use. This procedure is also very burdensome for those conducting the testing.

AHRI requests that DOE provide clarification regarding this issue, as a 24-hour test period has been part of the test procedure and has already been confirmed by manufacturers.

- 20) DOE requests comment on the proposed door and cover opening procedures, which are consistent with the approach specified in ASTM F2143-16. DOE requests data and information on representative usage of buffet tables and preparation tables, including door and cover openings.**

AHRI notes that this issue is dependent on DOE's ultimate decision regarding issue 14. Ambient conditions must be selected in order to select the door-type in use for equipment. AHRI also recommends that any changes to this standard be brought to the appropriate standards committee for review and approval, and that a test procedure needs to be developed prior to regulating this equipment.

- 21) DOE requests comment on the proposed stabilization approach for buffet table and preparation table testing, which would reference the approach specified in ASHRAE 72-2018R.**

AHRI supports DOE's proposed stabilization approach with the qualification that AHRI cautions DOE against combining test standards as it is unnecessary and inadvisable. AHRI recommends that DOE regulate this issue under a singular standard. AHRI further notes that buffet tables have not yet been addressed by ASHRAE standard 72-2022.

- 22) DOE requests comment on the proposed approach for testing buffet tables and preparation tables based on separate pan and compartment average temperatures. DOE also requests feedback on the proposed target temperature of 38 [deg]F ± 2 [deg]F for each average temperature.**

AHRI cautions DOE that combining test standards is unnecessary and inadvisable and recommends that DOE regulate this issue under a singular standard. AHRI recommends that DOE's target temperature should remain below 41°F.

- 23) DOE requests comment on the proposed capacity metrics of pan storage volume, compartment volume, and pan display area. DOE requests feedback on the proposed methods for measuring each and the extent to which these metrics are relevant capacity metrics for buffet tables and preparation tables.**

AHRI recommends that the proposed changes to capacity metrics of pan storage volume, compartment volume and pan display area need to be updated in tandem with the standard. It is important to remain consistent and to align fully with the referenced standard.

24) DOE requests comment on the proposed product-specific enforcement provisions regarding how DOE would determine whether a model meets the pull-down temperature application definition. DOE also requests data and comment on whether the proposed product-specific enforcement provisions sufficiently differentiate pull-down temperature applications from holding temperature applications.

AHRI disagrees with DOE's proposal as long as more detailed information regarding pull down of "full load" is not available, as we understand this proposal to be in conflict with NSF requirements.

Referencing DOE's slide deck utilized during the August 1, 2022, webinar for the CRE Test Procedure, AHRI notes two concerns with pull down temperature and enforcement actions. First, issue 24 in the slide deck is a question on the request for comment, for pull-down temperature applications. Is DOE referring only to the category of pull down CRE, or is DOE adding pull down to all categories for enforcement? Would this allow for the randomized placement of bottles during a legitimate test procedure? Second, issue 56 is related to certified volume vs. volume measurement. Will this allow manufacturers to use their discretion?

25) DOE seeks comment on the proposed definitions of "blast chiller" and "blast freezer."

AHRI recommends that DOE align with the SPC language for ASHRAE 220 (Method of Testing for Rating Small Commercial Blast Chillers, Chiller Freezers, and Freezers) for the proposed definition of "blast chiller" and "blast freezer" (see the below language), but ultimately finds that it would be acceptable for DOE to align with ASTM, ASHRAE, or other established standards. AHRI further notes that DOE should go through the standard review process and should not attempt to address this through an amendment to the DOE test procedure, or through the development of a new standard.

- *"Blast chiller—a rapid pull-down cooler designed to cool food to a safe refrigerated temperature (typically between 32 °F and 41 °F), but not freeze it.*
- *Blast freezer—a rapid pull-down cooler designed to freeze food.*
- *Rapid pull-down cooler—commercial refrigeration equipment intended for the rapid intermediate chilling or freezing of hot food products within a specified time period and holding the food at a safe temperature when not engaged in the chilling or freezing process."*

26) DOE seeks comment on the proposal to establish test procedures for self-contained commercial blast chillers and blast freezers that have a refrigerated volume of up to 500 ft³.

AHRI has no comment at this time.

27) DOE seeks comment on the proposal to incorporate certain provisions from the draft ASHRAE 220 and certain deviations for the blast chillers and blast freezers test procedures.

AHRI has no comment at this time.

- 28) DOE seeks comment on the proposal to reference section 4 and the relevant portions of Appendix A of ASHRAE 72-2018R for instrumentation requirements for the blast chiller and blast freezer test procedures.**

AHRI cautions DOE against referencing the ASHRAE 220 standard with this test procedure, as it would create inconsistencies to reference ASHRAE 220 and ASHRAE 72-2022 simultaneously.

- 29) DOE seeks comment on the proposal to require the dry-bulb temperatures specified in the tentative ASHRAE 220 draft and incorporate section 6.1 and Figure 6 of ASHRAE 72-2018R to specify the point TA where the dry-bulb temperatures are to be measured and the type of thermocouple to use when measuring dry-bulb in the blast chillers and blast freezers test procedures.**

AHRI recommends that incorporating ASHRAE standard 220 where necessary, is appropriate.

- 30) DOE seeks comment on the proposal to incorporate the portions of Appendix A in ASHRAE 72-2018R which specify the requirements for voltage and frequency in the blast chillers and blast freezers test procedures.**

AHRI recommends that any proposed changes be brought to the ASHRAE 220 committee and worked through there, for review and approval.

- 31) DOE seeks comment on whether any additional test conditions are appropriate for blast chiller and blast freezer testing, including those specified in Sections 6.2, 6.3, and Appendix A in ASHRAE 72-2018R.**

AHRI has no comment at this time.

- 32) DOE seeks comment on the proposal to incorporate Sections 5.1, 5.2, 5.3 (including sub-sections 5.3.1 to 5.3.17), and the relevant portions of Appendix A of ASHRAE 72-2018R, with the proposed deviations, for the blast chillers and blast freezers test procedures.**

AHRI recommends that any proposed changes be brought to the ASHRAE 220 committee and worked through there, for review and approval.

- 33) DOE seeks comment on the proposal to incorporate the relevant portions of Appendix A of ASHRAE 72-2018R for the electrical measurement locations for the blast chillers and blast freezers test procedures.**

AHRI recommends that any proposed changes be brought to the ASHRAE 220 committee and worked through there, for review and approval.

- 34) DOE seeks comment on the proposal to reference AHRI 1200-202X for measuring the refrigerated volume of blast chillers and blast freezers.**

AHRI offers support for the proposal to reference AHRI 1200-202X for measuring the refrigerated volume of blast chillers and freezers.

- 35) DOE seeks comment on the proposal to incorporate the standard product pan specifications in ASHRAE 220 for the blast chillers and blast freezers test procedures.**

AHRI offers support for the proposal to incorporate the standard product pan specification in ASHRAE 220 for the blast chillers and blast freezers test procedures.

- 36) DOE seeks comment on the proposed method to determine the number of pans required for testing blast chillers and blast freezers.**

AHRI recommends that any proposed changes be brought to the ASHRAE 220 committee and worked through there, for review and approval.

- 37) DOE seeks comment on the proposal to determine the tested product capacity for the blast chillers and blast freezers test procedures.**

AHRI recommends that any proposed changes be brought to the ASHRAE 220 committee and worked through there, for review and approval.

- 38) DOE seeks comment on the proposed method for distributing the pans within the test unit's cabinet for testing blast chillers and blast freezers.**

A method for distributing pans within the test unit's cabinet is reflected in ASTM 26 testing standards. AHRI advises DOE to reference this standard.

- 39) DOE seeks comment on the proposed method to determine which standard product pans would include temperature measurement sensors for the blast chillers and blast freezers test procedures.**

AHRI recommends that any additional instructions need to be filtered through the ASHRAE 220 committee for review and approval. The ASHRAE 220 committee is in process of adding a similar requirement, and for DOE to do so would be redundant/unnecessary.

- 40) DOE seeks comment on the proposed method of measuring the product temperature in the measured pans for the blast chillers and blast freezers test procedures.**

AHRI recommends that any proposed changes be brought to the ASHRAE 220 committee and worked through there, for review and approval.

- 41) DOE seeks comment on the proposed method for preparing the product medium mixture to be placed in the standard product pans for the blast chillers and blast freezers test procedures.**

AHRI recommends that any proposed changes be brought to the ASHRAE 220 committee and worked through there, for review and approval.

- 42) DOE seeks comment on the proposal to include pre-cooling and pull-down operating in the blast chiller and blast freezer test procedure and to not include any holding periods during testing.**

AHRI has no comment at this time.

43) DOE seeks comment on the proposed data recording rate for the blast chillers and blast freezers test procedures.

Data recording rates for blast chillers and blast freezers are reflected in ASTM 26 testing standards. AHRI advises DOE to reference this standard.

44) DOE seeks comment on the proposed data collection periods for the blast chillers and blast freezers test procedures.

Data collection periods for blast chillers and blast freezers are reflected in ASTM 26 testing standards. AHRI advises DOE to reference this standard.

45) DOE seeks comment on the proposed method to conduct the pre-cool cycle for the blast chillers and blast freezers test procedures.

Methods to conduct the pre-cool cycle for blast chillers and blast freezers are reflected in ASTM 26 testing standards. AHRI advises DOE to reference this standard.

46) DOE seeks comment on the proposed method to load the prepared standard product pans into the test unit for the blast chillers and blast freezers test procedures.

The method to load the prepared standard product pans into the test unit for blast chillers and blast freezers is reflected in ASTM 26 testing standards. AHRI advises DOE to reference this standard.

47) DOE seeks comment on the proposed method to conduct the blast chilling or blast freezing test.

The method to conduct testing for blast chillers and blast freezers is reflected in ASTM 26 testing standards. AHRI advises DOE to reference this standard.

48) DOE requests comment on the proposed amendment to the definition for chef base or griddle stand, which specifies a maximum height of 32 inches for this equipment. DOE requests information on any other identifiable equipment characteristics that may differentiate chef bases and griddle stands from other similar CRE.

AHRI has no objection to the proposed height characteristic and would like to recommend that DOE examine the ENERGY STAR version 5 for griddle stands (ES.4.1). Considering ENERGY STAR's target where ~20% of the market is listed with ENERGY STAR, DOE should examine having a higher KWH allowance than ENERGY STAR, taking into consideration mandatory vs. optional compliance.

49) DOE requests comment on its proposal to test chef bases and griddle stands according to the test procedure used for other CRE.

AHRI requests that DOE provide more information on the size of units that are tested, as well as more information about the size and heat load for griddles. Currently, there is no

test standard specific to chef bases. If DOE incorporates standard ASHRAE 72, AHRI would like to work with the committee to craft an energy test for chef bases. AHRI has concerns with DOE's proposal to test chef bases and griddle, stands, and with how DOE is proposing testing be conducted. AHRI advises DOE that chef bases, and griddle stands are primarily drawer units, that are designed for higher ambient conditions. This renders the temperature standard for CRE inapplicable and is why chef bases are currently exempt.

50) DOE requests comment on the proposed definition for mobile refrigerated cabinet. DOE also requests comment on the proposal to not establish test procedures for mobile refrigerated cabinets.

It is AHRI's assumption that if no test procedure is developed for mobile refrigerated cabinets, no energy conservation standard will be developed either.

51) DOE requests comment on its tentative determination to not propose amended test procedures for dedicated remote condensing units.

AHRI offers support for this tentative determination not to propose amended test procedures for dedicated remote condensing units and would like to thank DOE for this determination.

52) DOE requests comment on the proposed approach to account for long duration defrost cycles using an optional two-part test procedure consistent with the existing waiver approach granted for such models. DOE also requests comment on whether any additional provisions are necessary to account for different defrost operation or controls, and on DOE's proposed approach in which the test period would start with the defrost occurrence having the longest interval between defrosts.

AHRI offers support for this proposed approach, and further recommends that DOE bring this approach to the ASHRAE 72 committee in the future, for their review.

53) DOE requests comment on the proposed alternate refrigerant conditions to be used for testing remote CRE with CO₂ refrigerant. DOE requests comment on whether any other aspects of the current test procedure require amendment to allow for testing with CO₂ or any other alternative refrigerants.

AHRI is not aware of any alternative refrigerants and is not aware of any aspects of the current test procedure that would require amendments to the test procedure. Manufacturers are still working to determine which refrigerants they will use to comply with the AIM Act. AHRI advises that DOE consider there may be additional refrigerants and properties to those refrigerants that are currently unknown and will need to be taken under consideration.

AHRI tentatively agrees with the proposed alternate condition for testing CRE with CO₂ refrigerant as specified by DOE; "the liquid inlet saturation temperature be 38°F with liquid inlet subcooling of 5°F". However, it is necessary to add tolerances to both liquid temperature and subcooling values. AHRI recommends DOE wait for an update to

ASHRAE 72 to address CO₂ as the ASHRAE 72 committee is addressing typical conditions for CO₂ remote CRE.

- 54) DOE requests comment on the proposed definition and term “customer order storage cabinet” to describe the equipment currently addressed in the September 2018 Waiver and the July 2021 Interim Waiver. DOE requests comment on the proposal to test such equipment with reduced door openings, consistent with the waiver and interim waiver approach.**

AHRI offers support for this proposed approach, and further recommends that DOE bring this approach to the ASHRAE 72 committee for their review.

- 55) DOE requests comment on the additional proposed test procedure amendments that would allow for reverse heat leak testing of customer order storage cabinets with floating suction pressures for multiple different temperature compartments.**

AHRI requests that DOE provide more information to clarify the additional amendments.

- 56) DOE requests comment on the proposed product-specific enforcement provisions for CRE.**

AHRI is concerned that the proposed product specific enforcement provisions for CRE is not open-ended. AHRI otherwise offers tentative support for the proposed provisions, and requests that DOE provide more information through a public meeting, to clarify intent.

- 57) DOE seeks comment on the proposed sampling plan for CRE volume and TDA.**

AHRI advises DOE that the proposed sampling plan for CRE volume and TDA needs modification, and that DOE should certify the volume and TDA. These are important values and are critical to determining the allowable energy consumption of a product. AHRI recommends working with AHRI to modify standard AHRI 1200-202X to develop appropriate tolerances. AHRI also recommends that DOE should bring this issue to the appropriate standards committee for review and approval.

- 58) DOE requests comment on its initial conclusion that the amendments detailed in this NOPR would not have a significant impact on a substantial number of small entities.**

AHRI advises DOE that this conclusion is inaccurate, and that we have profound concerns about the impact of the proposed amendments on small entities including both manufacturers and end users. AHRI's concerns center around the possibility of the proposed amendments driving a continued use of older, less efficient and leaky equipment.

AHRI also advises DOE that Natural Resources Canada (NRCAN) is likely to harmonize with this requirement, and that there will be an additional cost associated with the testing for NRCAN, especially for new classifications. The costs associated with going to a third party for testing (required for both NRCAN and ENERGY STAR) will create an undue burden, especially on small businesses.

AHRI appreciates DOE's consideration of these concerns. Please do not hesitate to contact me with any questions or for further discussion regarding this submission.

Sincerely,

A handwritten signature in black ink that reads "Vivian Cox". The signature is fluid and cursive, with the first name "Vivian" being larger and more prominent than the last name "Cox".

Vivian Cox
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