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Madison IAQ comments - Title 24 - 2022 15-day Express Terms

Comments attached.

Additional submitted attachment is included below.

July 21, 2021

California Energy Commission
Docket Unit, MS-4
Re: Docket No. 21-BSTD-01
1516 Ninth Street
Sacramento, California 95814-5512

(Submitted electronically to Docket 21-BSTD-01)

Re: Madison Indoor Air Quality (MIAQ) Comments – Title 24-2022 15-Day Express Terms [Docket No. 21-BSTD-01]

CEC Staff:

Madison Indoor Air Quality (MIAQ) respectfully submits these comments in response to the California Energy Commission (CEC) 15-Day Express Terms 2022 Energy Code – Residential and Nonresidential for the Project Title 2022 Energy Code Update Rulemaking published on July 14, 2021.

MIAQ is one of the largest and most successful privately held companies in the world with a significant footprint in the HVAC market. MIAQ's mission is to make the world safer, healthier, and more productive by creating innovative solutions that deliver outstanding customer value.

MIAQ's portfolio comprises 15 companies including Therma-stor (brands: Quest, Santa Fe, Phoenix) and Dehumidified Air Solutions (brands: Dectron, Seresco, PoolPak and Quest IQ), which service the Controlled Environment Horticulture (CEH) market with industry leading dehumidification and space conditioning equipment. The current proposed changes to the Title 24 regulation for CEH would drastically affect the extent of dehumidification products MIAQ can offer to the CEH industry through the brands Quest and Quest IQ. The loss of these products would also negatively impact the efficiency and environmental impacts of indoor growing in California.

Due to our continuous review of market demands and advancement to higher efficiency equipment, MIAQ feels uniquely qualified to provide feedback to CEC staff and the State of California. We thank CEC staff for taking time to read these comments and encourages them to work with Madison IAQ to address our thoughts and concerns during the rule-making process.

Revision to Mandatory Requirements for Covered Processes - Section 120.6 (h) Mandatory Requirements for Controlled Environment Horticulture (CEH)

The draft regulation sent out for public review on May 6th, 2021 (Docket Number:21-BSTD-01, TN#:237717) included the following language to permit the use of stand-alone dehumidifiers for indoor growing dehumidification of Controlled Environment Horticulture (CEH) spaces:

A. Stand-alone dehumidifiers that meet the following minimum integrated energy factors as measured by the test conditions in Appendix X1 to Subpart B of 10 CFR Part 430:

i. Minimum integrated energy factor of 1.77 L/kWh for product case volumes of 8.0 cubic feet or less;

ii. Minimum integrated energy factor of 2.41 L/kWh for product case volumes greater than 8.0 cubic feet;

This language was developed by the CASE CEH team with the cooperation and input of many industry stakeholders including representatives from MIAQ CEH focused brands, *Quest* and *Quest IQ*.

On July 14th, a new set of proposed changes was released (Docket Number:21-BSTD-01, TN#: 238848) with the requirements for the use of stand-alone dehumidifiers, now called “dehumidifiers”, altered to the following:

A. Dehumidifiers subject to regulation under federal appliance standards tested in accordance with 10 CFR 430.23(z) and Appendix X or X1 to Subpart B of 10 CFR Part 430 as applicable, and complying with 10 CFR 430.32(v)2.ng with 10 CFR 430.32(v)2.

Through conversation with individuals close to this decision-making process, it is our understanding this wording revision was implemented to prevent the preemption of federal requirements for dehumidification equipment subject to 10CFR430.

We further understand that while 10CFR430 is specifically focused on “Consumer Products” (i.e., products purchased in small quantities by individuals for residential use), the justification to require all units be subject to 10CFR430 is based on the fact that there is no capacity, compressor size or other size limit listed in 10CFR430. While we cannot fully dispute this reasoning, this decision creates potential collateral impacts that will negatively affect our product offerings and the energy consumption of the CEH industry.

We respectfully request that the CEC and the State of California reconsider this revision and return the language to the wording in the May 6th release.

Potential Impacts of the Revised Regulation: Manufacturers and California

Revision of this language to subject all dehumidifiers formerly, stand-alone dehumidifiers, to 10CFR430 has two primary implications that may affect the sale of these units to the California CEH market:

1. Dehumidifiers will now be subject to the definitions of “portable” and “whole-home” as defined in 10CFR430. With these definitions are the revised test conditions and efficiency requirements that will negatively impact the selection and installation options of dehumidifiers.¹

¹ The definitions of “whole-home dehumidifier” and “portable dehumidifier” are provided in 10 CFR § 430.2 *Definitions*. The test conditions for those two categories are provided in 10 CFR Appendix X1 to Subpart B of Part 430 - *Uniform Test Method for Measuring the Energy Consumption of Dehumidifiers*.

“Whole Home” dehumidifiers are essentially units that are ducted. They must meet minimum efficiency listed in 10 CFR 430.32(v)2 at the conditions of 73F/60% and 0.2” external static pressure. This is achievable by most stand-alone dehumidification units in the industry.

“Portable” dehumidifiers are essentially unducted units. In the CEH industry, this would describe dehumidifiers hung in the “Portable” dehumidifiers are essentially unducted units. In the CEH industry, this would describe dehumidifiers hung in the growing space. They must meet minimum efficiencies listed in 10 CFR 430.32(v)2 that are, for units greater than 50 ppd, higher than whole home units while at the lower dewpoint

. At these conditions, many stand-alone dehumidifiers will not be permitted to hang in the grow space.

2. Dehumidifiers, regardless of size, that are subject to 10CFR430, could be considered “residential dehumidifiers”. Under pending regulations by CARB (California Air Resources Board)², “residential dehumidifiers” must use refrigerants with a GWP (Global Warming Potential) of 750 or less by 1/1/2023. Due to a lack of suitable components and building code updates, it is doubtful that this compliance date would be feasible.

If the pending CARB regulation is not altered to allow the compliance date of stand-alone dehumidifiers built for the CEH industry to be pushed back to 1/1/2025, like other air conditioning equipment, there may be a gap where the units cannot be sold into the CEH market.

The impact on California, its electric grid, the environment and the CEH industry’s efficiency is straightforward. As it was originally explained to the CASE team developing the CEH regulation, moving away from stand-alone dehumidifiers will push the CEH industry to much less efficient HVAC options for dehumidification.

Dehumidification for the CEH market is primarily used during “lights out” period when there is minimal A/C load, but the plants continue to transpire moisture into the air. Without the latent removal capacity of A/C or stand-alone dehumidifiers, cooling with reheat must be used to remove the moisture from the air.

Under the CASE modeling requirements, “lights out” conditions were set at 70F and 50%. Quest’s stand-alone dehumidification products sold into the CEH industry ranges in efficiency at the “lights out” condition from 3.8 to 5.7 pints/kWh. Other manufacturers of stand-alone dehumidifiers provide units comparable to the bottom end of that range.

If stand-alone dehumidifiers were banned from sale, the closest alternative would be to use packaged (unitary) air conditioning equipment with hot gas reheat. Information collected from various manufacturers shows this equipment provides dehumidification in the range of 0.7 to 3.9 pint/kWh, with

² CARB’s pending regulation that affects all refrigerant using space conditioning equipment, including dehumidifiers, is titled, *Prohibitions on Use of Certain Hydrofluorocarbons in Stationary Refrigeration, Chillers, Aerosols-Propellants, and Foam End-Uses Regulation*. The latest version was posted on May 13, 2021.

most of the equipment at the equivalent size to a stand-alone dehumidifier in the bottom portion of that efficiency range.

This means removal of stand-alone dehumidifiers from the CEH market would reduce the efficiency to ¼ or less of today's standards. Dehumidification is the primary electrical load on CEH facilities for the lights out period (i.e., typically 12 hours per day) and a significant load for the rest of the day.

MIAQ's Request and Reasoning

MIAQ requests that the requirements for the use of stand-alone from draft regulation sent out for public review on May 6th, 2021 be reinstated. It is our contention that this previous version of the draft regulation:

1. Did not differentiate between stand-alone dehumidifiers based on their installation.
2. Did not preempt federal regulation.
3. Allows the most efficient technology available for providing dehumidification to the CEH industries to continue to be used unencumbered.

In support of these contentions, we offer the following explanations.

1. MIAQ contends that a "consumer product" dehumidifier could be easily construed as a "residential dehumidifier".

MIAQ respectfully opposes the proposed revisions to the Energy Code that defines Dehumidifiers because 10CFR430 is title "Energy Conservation Program for Consumer Products" and its purpose and scope as defined in §430.1 states:

This part... establishes an energy conservation program for consumer products other than automobiles.

10CFR430.1 provides the following definition of "consumer products":

Consumer product means any article (other than an automobile, as defined in Section 501(1) of the Motor Vehicle Information and Cost Savings Act):

(1) Of a type—

(i) Which in operation consumes, or is designed to consume, energy or, with respect to showerheads, faucets, water closets, and urinals, water; and

(ii) Which, to any significant extent, is distributed in commerce for personal use or consumption by individuals;

(2) Without regard to whether such article of such type is in fact distributed in commerce for personal use or consumption by an individual, except that such term includes fluorescent lamp ballasts, general service fluorescent lamps, incandescent reflector lamps, showerheads, faucets, water closets, and urinals distributed in commerce for personal or commercial use or consumption.

Under this definition, it has always been the understanding of MIAQ, Therma-Stor and its various brands (i.e., Quest, Phoenix, Ultra-Aire and Santa Fe) that only dehumidifiers built for residential service are subject to 10 CFR 430, which does not include the larger Quest units built for the CEH market.

By forcing all dehumidifiers to be subject to the regulations of 10CFR430, stand-alone dehumidifiers may be construed as “residential dehumidifiers” and subject to a potentially unachievable compliance date of 1/1/2023 for <750 GWP refrigerant use.

2. MIAQ contends the draft regulation as proposed in the public review of May 6th, 2021 does not preempt federal regulation

MIAQ respectfully contends that our larger stand-alone dehumidifiers do not fall under the regulation of any energy efficiency regulation promulgated by the Department of Energy, any other federal agency, building code or ANSI accredited standard (e.g., ASHRAE Standard 90.1). Based on this, it would be impossible to preempt federal regulation as no regulation exists.

Precedence for this understanding has been set by the *2019 Denver Amendments to the 2018 Edition of the International Energy Conservation Code*, Chapter 4: C403.13.1 *Dehumidification*:

C403.13.1 Dehumidification. All indoor plant grow operations that require dehumidification shall utilize one of the following dehumidification options:

1. *Free-standing dehumidification units with a minimum energy factor of 1.9 l/kWh. The test method for minimum energy factor shall be as specified in 10 CFR Part 430, Subpart B - Appendix X.*
2. *Chilled water system with heat recovery from the condenser coil to achieve dehumidification reheat.*
3. *Integrated HVAC system with heat recovery from the condenser coil (hot gas reheat) to achieve dehumidification reheat.*

This regulation was the basis for wording originally drafted by the CASE CEH draft team and modified to meet DOE Appendix X1 standards instead of DOE Appendix X standards, as in the Denver code.

It has been the dehumidifier industry’s understanding that the Denver Code does not preempt federal regulation, but rather require adherence to the performance requirements of 10CFR430 for all dehumidifiers, whether they are subject to 10CFR430. Since there is no other regulation covering non-consumer products dehumidifiers, it is considered valid.

MIAQ’s Compromise Solution

If the CEC and the State of California will not agree to return to the original language found in the May 6th version of the draft regulation, MIAQ then asks they consider the following suggested revision to the current language found in Title 24 Section 120.6 (h) 1.A:

Dehumidifiers subject to regulation under federal appliance standards tested in accordance with 10 CFR 430.23(z) and Appendix X or X1 to Subpart B of 10 CFR Part 430 as applicable and complying with 10 CFR 430.32(v)2, ng with 10 CFR 430.32(v)2, or non-consumer product

dehumidifiers that meet the same performance requirements as those dehumidifiers subject to 10 CFR 430.23(z).

The intention with this revision of the draft regulatory language is to allow stand-alone dehumidifiers that are constructed for the commercial, industrial, and agricultural markets to be used in California CEH facilities without subjecting them to 10CF430 and any unintended consequences that may entail. Of course, this will still require stand-alone dehumidifiers to be subject to the “portable” and “whole-home” categories and their compliance conditions, which will result in an overall reduction of units available to the CEH market.

Madison Indoor Air Quality appreciates the opportunity to provide these comments. If you have any questions regarding this submission, please do not hesitate to contact me.

Sincerely,



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