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*Comment Received From: Air Movement and Control Association (AMCA) International*
*Submitted On: 7/26/2022*
*Docket Number: 22-AAER-01*

## AMCA International - Comments to 15-day CIFB new regulatory language

Please see attached comments from the Air Movement and Control Association (AMCA) International.

*Additional submitted attachment is included below.*

July 26, 2022

Mr. Alejandro Galdamez, PE
Commissioner
California Energy Commission
Docket Unit
Re: Docket No. 22-AAER-01
715 P Street, MS-1
Sacramento, CA 95814-5512

(submitted electronically to Docket 22-AAER-01)

Re: AMCA International Comments in Response to California Energy Commission's Proposed Regulatory Adoption of Efficiency Standards and Test Procedures for Commercial and Industrial Fans and Blowers (15-Day Language) *[Docket Number 22-AAER-01; TN#243977]*

Dear Mr. Galdamez:

Air Movement and Control Association (AMCA) International respectfully submits the following comments in response to the California Energy Commission (CEC) Notice of Proposed Action published July 11, 2022, with proposed amendments to the commercial-and-industrial-fans-and-blowers (CIFB) regulations contained in California's Appliance Efficiency Standards in Title 20 of the California Code of Regulations, Sections 1601 through 1609.

AMCA International is a not-for-profit association of manufacturers of fans, dampers, louvers, air curtains, and other air-system components for commercial heating, ventilation, and air-conditioning (HVAC); industrial-process; and power-generation applications. With programs such as certified ratings, laboratory testing and accreditation, industry education, and international-standards development, AMCA lives by its mission to advance the health, growth, and integrity of the air-systems industry on behalf of its approximately 400 member companies worldwide.

AMCA applauds CEC's efforts in continuing the work of developing a workable commercial fan regulation. This monumental task has been shaped by more than 11 years of regulatory analysis and stakeholder engagement. CEC has been largely responsive to stakeholder feedback, and AMCA appreciates many of the changes made to improve the draft regulatory language since the 45-day language was published on Feb. 25, 2022. CEC has carefully considered CIFB regulations from the perspectives of end-purchasers and users of commercial and industrial fans, manufacturers represented by AMCA, and engineers and specifiers of fans.

In the spirit of continued collaboration with CEC, AMCA offers the following comments.

**(1) Changes made to "safety fan" definitions**

AMCA supports that safety fans, as defined in proposed regulatory language for Section §1602(d) [Definitions], remain excluded from the Title 20 regulation. Safety fans are defined explicitly by a list of fan types or characteristics relating to safety applications. AMCA appreciates that many of its comments regarding the "safety fan" definition in the 45-day language have been incorporated in the 15-day language. However, AMCA is concerned with the removal of Item 3, UL- or ETL-listed power ventilators for smoke-control systems, as a safety-fan characteristic, leaving these fans to be covered by the regulation. After a review of the 45-day-language docketed comments, AMCA's interpretation is that no comments on this particular component of the "safety fan" definition were submitted, so it is unclear as to why Item 3 was removed.

AMCA does not support removing this exemption from the proposed regulatory language because of the explicit safety-related duty of these types of fans, as indicated by the UL listing. To obtain the UL listing, these types of fans must be listed under UL 705, *Standard for Safety Power Ventilators*, and withstand a particular elevated air-stream temperature for a specific duration (both specified by the UL listing). Many of these fans only run in emergency conditions and therefore consume little energy on a daily basis.

AMCA recommends that CEC reinstate this item either as presented in the 45-day language or with the modifications suggested below, depending on the reasons for which the item was removed in the 15-day language.

If explicitly naming "UL" or "ETL" language in Item 3 is problematic, AMCA proposes using the following language to anonymize the Nationally Recognized Testing Laboratory (NRTL) designation:

(3) A fan bearing a listing for "Power Ventilators for Smoke Control Systems" in compliance with ANSI/UL 705 Power Ventilators (dated August 24, 2021);

This language would add clarity to the definition of "safety fan" per the exemption in the 45-day language. The version of UL 705 with this date is recommended as it includes Additional Requirements for Ventilator for Heat and Smoke Control; Supplement SD.

**(2) Section 1606 filing requirements - motor model number and controller model number**

As written, a couple of changes listed in the 15-day regulatory language under Section 1606 could place a significant burden on fan manufacturers without providing benefit to users of the California database system. Specifically, these are the Required Information fields in Table X for "Motor model number (if fan is sold with a motor)" and "Controller model number (if fan is sold with a controller)." Changes made to both fields in the 15-day language essentially swapped the clause "if fan is **certified** with" for "if fan is **sold** with" [bold emphasis added here]. In essence, this change would significantly increase database-entry burden for fan manufacturers while providing minimal value to end users.

Under this change as written, a manufacturer would need to supply a model number for every motor that could possibly be installed on a regulated fan. This would include unique model numbers for voltage, HP, rpm, motor manufacture, enclosure, insulation, and other motor requirements.

An example from one AMCA member manufacturer shows that, taking a simple mixed-flow inline fan of 10,000 cfm and 1-in. external static pressure, a selection might be made for a 30-in. fan that consumes roughly 2.3 HP. Possible options for a 3-HP motor in the manufacturer's database results in nearly 900 potential motor options. Listing each of these motor models seems unrealistic for the database and provides minimal value to the user. If fans are certified with shaft power and the motors are regulated, then providing a specific motor model number is irrelevant, as the same efficiency values always would be used.

Other manufacturers configure the motor to the fan at the time of sale, or even after the order has been accepted. While a sales memo (contract) may contain a motor and the fan will ship with a motor, the fan was not offered for sale with the specific motor acquired during fabrication. In the AMCA 214 framework, this would be considered a "bare fan" sale. Under these conditions, the fan manufacturer must accept the "default" motor efficiency when calculating power consumption and efficiency values. The fan manufacturer must accept the worst performing motor when performing these calculations.

AMCA, therefore, recommends that CEC revert to the original 45-day regulatory language for the motor-model-number field ("certified" instead of "sold"). If a fan manufacturer certified performance data with a specific motor, then requesting the motor model number would be of value, as it impacts overall fan efficiency.

A similar argument applies to the controller-model-number field. While there are far fewer controller options than there are motor options, the same issue can be foreseen. Unique controller manufactures and features require new model numbers and would need to be provided in the database. Assuming default controller efficiencies are used, minimal value would be provided by including controller model numbers. Again, AMCA recommends that CEC use the language

originally provided in the 45-day regulatory language, as it appears to be adequate to address fan manufacturers that certify data with specific controllers.

**(3) Custom fans**

After reviewing the proposed 15-day regulatory language, AMCA concludes the implementation has the potential to significantly inhibit commerce in the custom, or "one-off," fan market.

Custom fans begin with a prototype that is tested, with its performance documented, much like catalog-style fans. The difference with a custom fan is the fan is fully designed when the customer communicates specific performance requirements to the fan manufacturer. The performance of the prototype typically then is scaled, and any custom algorithms to accommodate appurtenances or geometry adjustments, such as those for width or diameter, are applied (i.e., alternative efficiency-determination method [AEDM]). Through this process, a fan of custom size is produced.

For example, a 40-in. (approximately 1-m) fan might serve as the basis for a custom fan product line. This fan would be built and tested in accordance with the current testing methodology. With respect to regulatory approaches, the fan would be tested in accordance with a current test procedure. At the time of quotation, the fan's design would be scaled to the appropriate size and width to deliver optimal performance for the customer's application. For example, in the case listed here, the 40-in. prototype fan could be scaled to 51.8-in. in diameter and 96% of the base impeller width.

This fan of custom size will require a measurably different amount of energy (power). Because the fan is clearly a different size (diameter or width) and consumes an appreciably different amount of energy than the prototype, it would be considered a different basic model than the original prototype. The individual design would not necessarily need to be tested because the original test data could be scaled using the fan laws and the accommodation for width adjustment applied using internally developed performance modifications. However, presuming AMCA's understanding of the regulatory requirements are correct, this proposed scaled product would need to be certified (entered in the MAEDbS) prior to being offered for sale through a quotation.

For catalog fans, this is reasonably accommodated by having a "scaled size" reference the appropriate Series Tested Fan Model. For custom fans, which are designed on a per-application basis, registering each order, or possibly even each quotation, would bring the industry to a halt and significantly delay the ability of fan manufacturers to serve the needs of customers in this area of the market.

The challenge lies in the size (impeller diameter) of a fan proposed for a solution not being known prior to the customer communicating the performance requirements. Consequently, the performance could not be predicted and certified prior to the fan being offered for sale. Hundreds

of quotations could occur every week, with only a small number of quotations being converted to actual orders. If every quote needed to be certified, the MAEDbS, for example, would be filled with numerous entries that would never turn into a product. In addition, the time to certify every quotation would be added to the sales process. This would be an additional burden that would provide no value.

Various interruptions in regulatory activity over the last five years have resulted in this precise topic being dropped from conversations.

Fan manufacturers of all types are committed to their ratings and how those ratings reflect in the market in terms of energy consumption and energy efficiency. AMCA requests that CEC facilitate linking a custom fan's design to the original prototype in terms of performance and efficiency and that nameplate data be arrived at through best practices in engineering, i.e., using ANSI/AMCA Standard 214, *Test Procedure for Calculating Fan Energy Index (FEI) for Commercial and Industrial Fans and Blowers*, calculation methods (fan laws and AEDMs for appurtenances and geometry modifications).

Thank you for the review and consideration of these comments. If you have any questions regarding this submission, please do not hesitate to contact me.

Respectfully submitted,

Michael Ivanovich
Senior Director, Global Affairs
Air Movement and Control Association International