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| **Project Title:** | Commercial and Industrial Fans and Blowers |
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| **Document Title:** | Response to Comments 15-day comment period |
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| **Filer:** | Alex Galdamez |
| **Organization:** | California Energy Commission |
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15-Day Written Comments Received
Commercial and Industrial Fans and Blowers
Title 20, Sections 1802, 1860 through 1870

**July 11, 2022, through July 26, 2022**

| Commenter(s) Name(s) | Comment type | Organization | Assigned number |
|---|---|---|---|
| Karen Klepack,<br>Kate Zeng<br>and<br>Patrick Eilert | Joint written comment | Southern California Edison, San Diego Gas and Electric Company, and PG&E. (CAIOUs) | 1 |
| Michael Ivanovich | Written Comment | Air Movement and Control Association International (AMCA) | 2 |
| Laura Petrillo-Groh<br>and<br>Michael Ivanovich | Joint written comment | Air Conditioning, Heating, and Refrigeration Institute (AHRI) and AMCA | 3 |
| Michael L. Wolf | Written Comment | Greenheck Group | 4 |
| Greenheck | Written supplemental information email | Greenheck Group | 5 |
| CA IOUs | Written supplemental information Comment | CA IOUs | 6 |
| AMCA | Written supplemental information comment | AMCA | 7 |

| Commenter Number and Comment number | Comments/ Suggested Revisions | Response |
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| 1.1 | The CA IOUs recommend CEC not to remove power ventilators for smoke control systems from the list of excluded safety fans.<br>In the Notice of Proposed Action,1 CEC included 'a fan bearing an Underwriter Laboratories or Electric Testing Laboratories listing for "Power Ventilators for Smoke Control Systems";' as a type of safety fan but struck it from the list in the 15-day language. We do not believe CEC intends to regulate this type of fan, and we recommend that CEC not strike this type of fan from the safety fan definition, because it is not covered by the other fan types included in the safety fan definition. | CEC staff re-instated Power Ventilators for Smoke Control Systems under the definition for Safety Fan, following discussions with stakeholders and based on staff's understanding of applicable Underwriter Laboratories testing for Power Ventilators for Smoke Control Systems. |

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| 1.2 | We recommend that CEC make the following changes to the reporting requirements in Table X of the New Regulatory Language for manufacturer flexibility and ease of enforcement.<br>We recommend that if fans have a regulated polyphase motor under 10 CFR §431.25 *Energy conservation standards and effective dates for electric motors2*, CEC requires manufacturers to report the voltage and rated nameplate horsepower rather than the motor model number. We recommend this because manufacturers often source a given regulated polyphase motor with the same characteristics from distributors who may not always have availability from the same manufacturer. Therefore, requiring manufacturers to report the model numbers of all possible motors would add an unnecessary burden that does not promote energy efficiency.<br>For the same reason, we also recommend that manufacturers be able to report multiple controller model numbers for a fan, because they may have a single fan with multiple variable frequency drive options.<br>Finally, to add clarity for enforcement officials, we recommend CEC add a reporting requirement for whether the fan was rated using static pressure or total pressure. | CEC staff updated the proposed regulatory language to incorporate the suggested changes by removing the model number requirement and instead requiring that manufacturers specify the type of motor that the fan is being sold with. CEC staff also added to the reporting requirements the horsepower of the motor and the voltage and for polyphase motors.<br><br>Using this logic, the CEC will no longer ask for the model number of the controller, but rather the type of controller if the unit is being sold with a controller.<br><br>In addition, the CEC will include the type of pressure used for the rating of the fan.<br><br>These changes ensure the presence of information necessary to support enforcement activities if or when needed. |

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| 1.3 | Request to changes in Table to state “manufactured after August 10, 2023” | CEC staff finds that asking for motor model number will add complexity to the certification without adding meaningful benefit to the data received for certification. Model numbers for electric motors change extremely often, both compared to fan and blower model numbers and to other appliances subject to certification requirements, and requiring this information would therefore place an undue burden on fan and blower manufacturers to continually update their product listings. CEC staff has changed the field to instead require the type of motor that the fans is sold with, and specified permissible answers of “None”, “Single-phase Induction”, “Polyphase Induction”, “Synchronous DC (including ECM)”, “Permanent Magnet AC”, and “Other”<br><br>Comment accepted. The new effective date is November 16, 2023. |
| 1.4 | Proposed change listed to table X suggested:<br>For the Controller model number permissible answer suggested to be change to “multiple model numbers can be entered” | Similar to motor model number, the controller model number also does not provide substantial benefit to the data received and can change based on pairing immediately prior to sale. CEC staff has therefore made a similar accommodating change to specify the type of controller sold with the fan rather than a specific model number. |

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| 1.5 | Proposed change listed to table X suggested:<br>Required information: Pressure type<br>Permissible Answers: S for static pressure and T for Total pressure | CEC has added the field to table X, consistent with the commenter's request. |
| 1.6 | We recommend the following editorial changes to the regulatory language.<br><br>High temperature fans are often sold for industrial processes, and are not necessarily safety fans. We recommend they be removed from the definition of safety fans and added to the list of excluded products.<br><br>Within the same list, we recommend changing 'air curtains unit' to 'air curtain units.'<br><br>Recommends grammatical change to add "an" | CEC staff removed high-temperature fans from the safety fan definition and incorporated to the list of exclusions under the Commercial and Industrial Fans and Blowers definition.<br><br>CEC also made the editorial change requested for air curtain units.<br><br>The change has been accepted and made. |
| 1.7 | Remove the "Dual-use fan" definition because it is not used in the new regulatory language | The CEC removed the definition for "Dual-use fan" since it is no longer being used in the body of the proposed regulation, consistent with the commenter's request. |
| 1.8 | Add 'total or static' to the "Maximum pressure" definition for clarity | CEC added of "total or static" to the definition for Maximum pressure to improve clarity, consistent with the commenter's request. |
| 1.9 | Additional changes to Table X to reflect the correct units for Airflow since the airflow used for the test is at atmospheric conditions and not Standard air flow. | CEC staff finds that the commenter is correct in noting this discrepancy and has changed the units to reflect CFM rather than SCFM. |

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| 1.10 | Add item K to the exclusions from the definition for Commercial fans and Blowers for Fans that operate at or above 482 degrees Fahrenheit previously listed in the safety-fan definition. | CEC staff re-categorized fans that operate above 482 degrees from the Safety-fan definition to the exclusions list of the CIFB definition to make it applicable to all fans that operate at these high temperatures, recognizing that such fans are not used only for safety purposes (as noted by the commenter). |
| 1.11 | Recommendation of spelling corrections | Changes accepted. |
| 2.1 | 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 February 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. | CEC staff appreciates the continued participation and recommendations suggested. |

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| 2.2 | Changes made to “safety fan” definitions<br>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.<br>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.<br>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: | See response 1.1, in addition the CEC included the ANSI/UL 705 reference in the 15-day language. |

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| | (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);<br>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. | |

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| 2.3 | **Section 1606 filing requirements - motor model number and controller model number**<br>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.<br>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.<br>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 | See response to question 1.2. |

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| | 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.<br>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.<br>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.<br>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. | |

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| 2.4 | **Custom fans**<br>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.<br>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.<br>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 | Products within the scope need to be certified prior to selling or offering to sell in California, not at the time of manufacturing. No changes are necessary to the proposed regulations to accommodate this concern. |

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

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| | (fan laws and AEDMs for appurtenances and geometry modifications). | |
| 3.1 | After careful review of the 15-day language, we have concluded that CEC is on track to publish 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 we appreciate many of the changes made to improve the draft regulatory language since the 45-day language was published on February 25, 2022. We applaud CEC's careful consideration of CIFB regulations from the perspective of the end-purchasers and users of commercial and industrial fans specifically, the original equipment manufacturers (OEMs) represented by AHRI, and finally engineers and specifiers of fans. We are hopeful the U.S. Department of Energy will adopt this collaborative approach as well. | CEC staff appreciates the continued participation and recommendations suggested. |

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| 3.2 | To make this regulation fully workable, and utterly clear, we recommend CEC make one minor change (or alternatively two changes) for replacement fans, which is consistent with CEC's analysis and the proposed regulatory construct. Adopting the Joint Commenters' recommendation (or recommendations) will clarify CEC's own recognition in Chapter 3 of the Staff Report that, when "manufactured for the purpose of being embedded into an appliance after market," "embedded fans are exempt."1 It cannot be overstated that there would be significant safety issues if one tried to replace a fan in a product with seismic certification or gas or electric heat with a different fan. Safety listings confirm the product complies with all safety certification requirements at the time of manufacture. Any fan retrofits with unapproved fan assemblies would void all safety listings based on safety standards and the warranty. The request to modify the definition of CIFB was also made in joint AHRI-AMCA comments to the 45-Day Language NOPA, submitted on April 29, 2022.2 AHRI and AMCA recommended that CEC clearly exempt fan blades, impellers, wheels, and other components used to repair/replace fans in existing HVACR and water heating equipment by modifying the proposed definition of "Commercial and Industrial fan and blower" in Title 20, CCR Section 1602, Definitions, shown as underlined and highlighted below. | The scope of the regulation and definitions of fans and blowers specifically exclude embedded fans. Thus, no changes to the proposed language are necessary. |
| 3.3 | Include "including embedded fans sold for replacement" to item (G) of the proposed definition for Commercial and Industrial Fans and Blowers. | CEC staff has included a version of the recommendation suggested. |

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| 3.4 | If CEC is unable to make appropriate clarifications for embedded fans sold for replacement purposes in the definitional exclusions of CIFB, alternatively, changes could be made to Section 1606 Table X and labeling requirements to reflect CEC's acknowledgement that replacement embedded fans hold the same purpose, and therefore should have the same exclusions, as fans embedded at the time of the OEM product's manufacture.<br>If not clearly exempted, replacement embedded fans should have their own row in § 1606 Table X to clarify that information required for fans intended for regulation is not required for replacement embedded fans. To achieve this, the Joint Commenters recommend adding text, underlined and highlighted, below. | CEC staff made the change to item (G) as suggested in the above comment and finds that the recommendation to include the Replacement SKU or part model number to table X is not required since embedded fans will be excluded from the requirements under the proposed regulations. |
| 3.5 | Secondarily, if the CIFB definitional change is not made, changes to Section 1607 would be required to relieve replacement embedded fans from marking requirements. To achieve this, AHRI recommends adding text, underlined and highlighted, below.<br>**§ 1607. Marking of Appliances.**<br>…[skipping (a) through (d)(15))]<br>(16) Commercial and Industrial Fans and Blowers. Each commercial and industrial fan and or blower, except replacement embedded fans, shall be marked, permanently and legibly on an accessible and conspicuous place on the unit, in characters no less than 1/4 inch in tabular form (as shown below): | See Response to Comment 3.4.<br><br>CEC staff finds that the recommendation to add the language to 1607(d)(16) is not necessary since embedded fans and their replacements are excluded per item (G) of the proposed definition. |

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| 3.6 | While it would be easier for regulators, manufacturers, and consumers if the modification is made to the definition, modifications to Section 1606 Table X and the labeling requirements will achieve the same end. The Joint Commenters remind CEC that HVACR and water-heating equipment is built, tested, and certified as a completed design that is reliant on a specific set of components. Changing these components in turn changes the performance of the equipment. In many cases, such as supply-air fans with air flow through gas fired heat exchangers, hot-water coils, or electric resistance units, a variety of safety standards in addition to performance standards are affected. The testing of all legacy equipment because of a fan change will be cost and resource-prohibitive. If a replacement fan is not compliant then, in most cases, an unsafe, engineered-to-fit substitution would be required. The costs, risks, and time required to retest the HVACR and water-heating equipment would be prohibitive. Testing would also be impractical if the HVACR and water heating equipment is out of production. Manufacturers would be forced to rebuild an out-of-production unit solely for the purpose of testing a new fan. There may be instances in which such part substitution makes sense, but that is not a reasonable basis for a broad, minimum standard | CEC staff excluded embedded fans from the proposed definition and such fans will not be subject to the proposed language. CEC staff appreciates the added reasoning for the exclusion. |
| 4.1 | AMCA Comments and Joint AHRI-AMCA Comments Greenheck is an active and supportive member of both the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) and the Air Movement and Control Association (AMCA) International. We encourage CEC to address recommendations provided in the AHRI-AMCA joint comments | CEC staff has addressed the joint recommendations submitted by AMCA and AHRI. See responses above. |

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| 4.1 | Inclusion of Safety Fan Language (§1602(d) [Definitions])<br>Greenheck recommends an exemption for fans performing safety-related activities. Safety fans provide for the evacuation of smoke-filled air in a life safety situation. They are intended to operate for a short period of time at an elevated temperature. Due to their specific application and limited use, inclusion in regulation will result in minimal energy savings while severely limiting safety fan availability in the market.<br>Proposed Language: 'A fan bearing a listing for "Power Ventilators for Smoke Control Systems" in compliance with ANSI/UL 705 Power Ventilators (dated August 24, 2021).'<br>This comment is provided in alignment with the AHRI and AMCA joint comments. | See response to comments 1.1 and 2.2. |

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| 4.2 | Database and Filing Requirements (§1606)<br>Greenheck recommends use of the language and requirements published in the first draft of the regulation. The second draft of the regulation requires manufacturers to list a motor model number for any fan sold with a motor. This requirement will necessitate that manufacturers supply motor model information for every fan/motor combination; this requirement will be untenable, provide no additional energy savings, and will be confusing to the consumer. For example, a 30-inch mixed flow inline fan selected for 10000 cfm at 1-inch external static pressure consumes 2.3 hp. We offer this fan with over 324 motor options as shown below:<br>• Three power ratings (2, 3, 5 hp)<br>Three speeds (900, 1200, 1800 rpm)<br>• Three enclosures (ODP, TEFC, EXP)<br>• Six voltages (115, 230, 277 in single phase or 230, 460, 575 in three phase)<br>• Two motor manufacturers (primary, secondary)<br>Listing each motor model is unrealistic due to the motor options available and the number of new motors that are constantly added due to new technologies, supply chain issues, new vendors, and/or cost reduction projects. For fans certified using shaft power and regulated motors, the provision of the specific motor model number is irrelevant. Greenheck recommends that this language reverts to the language used in the regulation's first draft.<br>Existing Language: List 'Motor model number (if fan is sold with a motor)'<br>Proposed Language: List 'Motor model number (if fan is certified with a motor)'<br>Greenheck also recommends that the language for the controller model number revert to the language used in the regulation's first draft.<br>Existing Language: List 'Controller model number (if fan is sold with a controller)' | See response to comment 1.2. |

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| | Proposed Language: List 'Controller model number (if fan is certified with a controller)'<br>This comment is provided in alignment with the AHRI and AMCA joint comments | |
| 4.3 | Harmonization with CEC T24<br>To minimize burden and confusion in the market, Greenheck recommends the harmonization of T20 Fan Regulation and fan system requirements in T24. | Staff finds that the proposed regulation does not create a conflict nor add extra requirements than those in title 24 – it is effectively harmonized with current California Energy Code provisions. Thus, no changes to the proposed regulations are necessary. |
| 4.4 | Harmonization with AMCA Certification Program.<br><br>a. Maximize the impact and value of the regulation.<br>b. Assure utilization of several decades of test data on record and in compliance with the AMCA CRP.<br>c. New requirements of the CEC T20 regulation that deviate from the AMCA CRP testing and related tolerances will result in additional tests and potential alteration of published performance. This will drive little or no additional energy savings while creating extreme burden to manufacturers and confusion to end users and consumers. | The tolerances requirements align with both AMCA 210, used for the testing, and AMCA 214. Other tolerances used for AMCA CRP are not referenced in the proposed test procedures and therefore are not included in the proposed regulatory language. Thus, no changes to the proposed regulations are necessary. |

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| 5.1 | Clarification email received:<br>Alex,<br>There are 2 issues Greenheck recommends CEC consider regarding harmonization with the AMCA CRP:<br>1. Reporting – We'd like to have CEC accept AMCA CRP input for listing "Commercial and Industrial Fans" in the CEC MAEDBs? This would be a huge step towards:<br>a. Reducing the burden on manufacturers to submit data to both AMCA and CEC.<br>b. Eliminating confusion in the marketplace between the CEC MAEDBs and the AMCA CRP directory.<br>It is my understanding that CEC T20 accepts HVI CRP input for "Residential Exhaust Fans" and lists these fans in the CEC MAEDBs. See screen shot below for a listing of some Greenheck Residential Exhaust Fans. How can the same process CEC T20 uses with HVI be implemented for the AMCA CRP and "Commercial/Industrial Fans"?<br>2. Compliance and Enforcement – Harmonization with the AMCA CRP will bring added rigor to the T20 program in that the AMCA CRP requires periodic monitoring, testing and compliance enforcement of manufacturers published fan performance.<br>Please let me know if you have other questions and/or Greenheck can provide additional support regarding the items listed above. | The CEC staff is acquiring data for certification and to implement the use of a label. The data used for both requirements listed by the proposed regulation is the one used by the proposed test procedure and AMCA's CRP.<br><br>CEC's appliance efficiency program accepts data for certification and can set the same set of procedures as tthose implemented by HVI-CRP for certification of Residential Exhaust Fans with the difference being AMCA-CRP and the test procedure under the proposed regulation. AMCA-CRP as any other lab would need to register to MAEDbS and get CEC's approval prior to being able to input data for certification requirements. The harmonization will be a decision that any independent lab or AMCA can set for their members to then submit to CEC's database. However, the data collected is harmonized in the sense that it is the same information just used differently. AMCA can incorporate and make the necessary changes of the data that the organization will submit to CEC's database as part of their membership and can work with CEC to harmonize the data being submitted. |

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| 6.1 | We recommend reporting the types of motor and controller rather than specific model numbers. For many types of motors, particularly induction motors, a motor with a given performance from the same manufacturer may be sold with different model numbers because they have slightly different features. Further, regulated polyphase motors are interchangeable, and fan manufacturers will use multiple suppliers for functionally identical products. With the recent supply chain issues, manufacturers have been forced to find substitutes more often. The same applies to variable frequency drives. We believe a requirement to report specific model numbers would result in continual updates to the Modernized Appliance Efficiency Database System for the same fan, and would be a significant burden to both CEC and manufacturers with little added value.<br><br>To guide users as to the appropriate response for "type of motor," We suggest standardizing the possible entries:<br>• None<br>• Single-phase induction<br>• Synchronous DC, including ECM<br>• Permanent Magnet AC<br>• Other<br><br>For "type of controller," We suggest these three choices:<br>• None<br>• Variable Frequency Drive<br>• Other | CEC staff has made the changes to reflect the recommendation into Table X in section 1606 of the proposed regulation. |

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| 6.2 | We suggest that manufacturers be required to report the motor nameplate horsepower for all induction motors. It is necessary information for fans for which the Fan Electrical Power was calculated using Section 6.4 of AMCA 214-2021 and will be helpful for enforcement for fans that use the other methods. We believe this will make compliance and enforcement easier for the CEC and does not add a burden on manufacturers. | CEC staff has made the necessary changes to reflect the added field to table X in section 1606 of the proposed regulation. |
| 6.3 | We recommend adding a reporting requirement for whether the fan was rated using static or total pressure. This information is critical to CEC in determining whether the Fan Energy Index (FEI) was calculated correctly. | CEC staff has added the field to Table X in section 1606 for the proposed regulation. |
| 6.4 | Unlike air conditioner test procedures, AMCA test methods do not correct to standard cubic feet per minute (SCFM) but to report the tested airflow in cubic feet per minute (cfm) corrected to standard air density. We have indicated in the table where SCFM should be changed to CFM and where standard air density should be noted. | CEC has implemented the recommended changes to reflect the change to cubic foot per minute. The data which is converted to standard air density will be instructed on and covered under the outreach when the regulation is close to become effective. |

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| 6.5 | We suggest changing “Method used to determine $FEP_{act}$ of test method in section 1604(d)(2)” to reference AMCA 214-2021 rather than section 1604(d)(2). The different methods for determining the Fan Electrical Power are not mentioned in section 1604(d)(2), and a reader might not realize they can find the information in AMCA 214-2021. | CEC has included the reference to AMCA 214-2021 to the data-field required for certification. |
| 6.6 | To align with our comment above, we recommend that the CEC require the label for commercial and industrial fans and blowers to show if “maximum pressure” refers to total or static pressure. We also recommend that DOE change the labeling requirement for maximum airflow to be in CFM rather than SCFM. | CEC has included the pressure type as part of the labeling requirements in section 1607 of the proposed regulation for CIFB. |
| 7.1 | AMCA also comments on the use of SCFM for airflow reporting. AMCA Standards 210 and 214 use a method of converting data to standard air density that is different from standard cubic feet per minute (SCFM). In a general simplified summary, the method of conversion is to use actual cubic feet per minute (ACFM) while converting pressure and power to standard air density conditions. Thus, AMCA recommends that CEC remove all reference to SCFM as the AMCA Standards dictate the conversion method to standard air density and recommends instead that CEC simply note that all reporting is to standard air density per AMCA Standards 210 and 214. | CEC staff has made the change to the units to match the units reflected the units used in the test procedure (CFM). |