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15-Day Written Comments Received: Air Filters
Title 20, Sections 1601, 1602, 1604, 1606 and 1607
August 29, 2022 through September 13, 2022

Commenter(s) Name(s)	Organization	Date Received	Comment type	Assigned number
John T. Schlafer	General Electric (GE)	September 13, 2022	Written public comment	1
Jacki Donner	Home Ventilation Institute (HVI)	September 13, 2022	Written public comment	2
Rupal Choksi	Madison IAQ	September 12, 2022	Written public comment	3
Bryan Gerhardt	3M	September 12, 2022	Written public comment	4
Mike Moore	Stator LLC	September 7, 2022 & September 8, 2022	Written public comment	5
Jeff Miller	Self	September 8, 2022	Written public comment	6
Vivian Cox	Air-Conditioning, Heating, and Refrigeration Institute (AHRI)	September 13, 2022	Written public comment	7

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1.1	GEA is a brand owner and distributor of a line of mini-split and multi-split ducted residential heating and cooling systems. The indoor units for these systems contain a basic plastic mesh screen, which is referred to as an air filter in product literature. Unlike a traditional air filter, however, which is designed to remove particulate matter from the air to the benefit of the occupants of the conditioned space, these plastic mesh screens are intended to protect the components of the split-system indoor units from debris when no air filter is otherwise installed by the user. While the screens do remove some debris from the air, the screens do not function as the proposed regulation contemplates for traditional air filters and no MERV rating or other effectiveness information is communicated to consumers. The screens are removeable, washable, and reusable. The screens are not generally available at retail, but they may sometimes be purchased as replacement parts like many components of the systems with which they are sold. The screens do not come in standard sizes. Rather, they are designed as components for specific models only. In addition, they are not sold independent of their associated models. Because the screens described above are designed for a different purpose than the air filters it appears are intended to be covered by the proposed regulation, GEA requests that the language of the proposed regulation be revised to unambiguously exclude them. To that end, GEA proposes the below amendments to the proposed definitions. “Air filter” means a disposable or reusable air-cleaning device with air filtering media encased in a frame of a nominal depth of no greater than 6.0 inches used for removing particulate matter from the air and designed for installation in residential ducted forced-air ventilation, heating or cooling systems. (1) Air filter does not include: (A) Electronic air cleaners; (B) Filter media sold as rolls, i.e. not encased in a frame;	The regulations were not intended to include this product in its coverage. After review of the comments received, the definition for air filters were modified to add clarity and remove unnecessary language that added ambiguity. To add clarity, the definition for air filters will include the term “ducted system” in the plural form to specify the use of filters which are, and are not, subject to the proposed regulation. See response 2.1.

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	(C) Air filters designed and sold exclusively for installation in products other than residential ducted forced-air systems; (D) Single-layer plastic mesh screens sold as components of equipment.	
2.1	To-date, HVI has not participated in this docket because its scope has not included products certified by HVI. This was evident based on the following definition of air filter, which was included in the "Proposed Regulatory Language" docketed on March 24, 2022: *"Air filter" means an air-cleaning device installed in forced-air heating or cooling equipment and used for removing particulate matter from the air and designed for installation in residential ducted forced-air heating or cooling systems.* However, the latest modification proposed by CEC to the definition of "air filter" (shown below) within the "Express Terms for Air Filter Regulation" docketed on August 29, 2022, could be construed to expand the docket's scope to include air filters that serve residential unitary supply ventilation systems and residential unitary heat and energy recovery ventilators. Such an expansion should not be undertaken without careful consideration for the issues that are unique to these products and without permitting ample time for further dialogue with the industry. Fifteen days is not sufficient for such dialogue to occur. *"Air filter" means a disposable or reusable air-cleaning device with air filtering media encased in a frame of a nominal depth of no greater than 6.0 inches used for removing particulate matter from the air and designed for installation in residential ducted forced-air **ventilation**, heating **or** cooling systems.* *1) Air filter does not include:* *(A) Electronic air cleaners;* *(B) Filter media sold as rolls, i.e. not encased in a frame;* *(C) Air filters designed and sold exclusively for installation in products other than residential ducted forced-air systems.*	HVI's comment reflects a concern that the regulations do not sufficiently differentiate between two types of systems: residential *ducted* systems, as defined by section 1602(c), and residential *ventilation* systems. As written, the proposed regulation only affects filters used in residential *ducted* systems. It does not affect residential *ventilation* systems. The term "residential ducted systems" is an industry term of art that's well-understood within the industry and no other entity has expressed concern about possible confusion. As the term is known, it refers to a system generally with a single air inlet filter that goes to a Heating, Ventilation, and Air Conditioning (HVAC) unit which then distributes air through permanently installed ducts into various rooms. By contrast, the term "residential ventilation system," such as those required by Title 24 or ASHRAE 62.2, is an industry term of art that refers to systems that do not recirculate and condition air *within* a residence, but rather that achieve energy-efficient mechanical ventilation by exchanging air *with the outside environment*. This includes systems such as Energy Recovery Ventilators (ERVs),

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	The "Public Notice 15-day comment period" document docketed on August 20, 2022, cites the following rationale for modifying this definition: "Air filters definition was updated to include suggested language received through public comments to clarify which products fall within the definition, including an enumerated list of products, such as electronic air cleaners, that do not constitute air filters. The changes to the definitions were necessary to add clarity and exclude a specific appliance that may be regulated or is in the process of becoming regulated by the U.S. Department of Energy." This rationale does not mention expanding the scope to add new product classes but instead provides justification for narrowing the scope to exclude certain products. In other words, the rationale suggests that CEC's intention was *not* to expand the scope to include air filters that serve residential unitary supply ventilation systems and residential unitary heat and energy recovery ventilators. Ensuing conversations with CEC staff also helped clarify that the modified definition of air filter is meant to apply to filters used with air handlers in residential ducted forced-air heating or cooling systems, such as ducted heat pumps, air conditioners, and furnaces, and is not intended to apply to filters serving residential unitary supply ventilation systems or residential unitary heat and energy recovery ventilators. To maintain the docket's scope, please further modify the definition of air filter. The following modification is offered for CEC's consideration: "Air filter" means a disposable or reusable air-cleaning device with air filtering media encased in a frame of a nominal depth of no greater than 6.0 inches used for removing particulate matter from the air and designed for installation in residential ducted forced-air ~~ventilation,~~ heating or cooling systems. (1) Air filter does not include: (A) Electronic air cleaners; (B) Filter media sold as rolls, i.e. not encased in a frame;	which are a type of residential ventilation system that essentially brings in fresh air, pulls out waste air, and performs a heat exchange between the two to keep the air cool during summer and warm during winter. Staff understands that HVI has raised concerns about whether air filters used in residential *ventilation* systems are covered by this rulemaking. As discussed above, the scope of this rulemaking is explicitly limited to residential ducted systems by existing language, and therefore no additional change is necessary. Note that the definition of an "air filter" is explicitly limited to products "designed for installation in residential ducted systems," and explicitly excludes products designed and sold exclusively for installation in products other than residential ducted systems. Therefore, this regulation does not concern air filters designed and sold for use in residential *ventilation* systems. Residential *ducted* systems are defined in a way that they *only* include systems that are connected to federally-regulated HVAC systems such as air conditioners, furnaces, or heat pumps. By CEC's definition, residential ducted systems do not include other systems used for ventilation if they incidentally have ducts, such as ERVs, in residential ventilation systems.

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	(C) Air filters designed and sold exclusively for installation in products other than residential ducted forced-air heating or cooling systems.	These ventilation systems generally do not use ducted systems as that term is commonly understood in the industry and defined in section 1602(c); therefore, air filters for these systems would not fall within the scope of these regulations. We hope this clears up any remaining confusion.
3.1	MIAQ supports CEC's efforts to correct a previously flawed regulation, originally enacted in 2015. In the intervening years, and in the wake of the COVID-19 pandemic, which brought both heightened interest in air filtration, along with massive supply chain shortages, we have a few suggestions to strengthen this proposal and ensure that California consumers have access to high quality air filters, and appropriate information on product efficacy. MIAQ thanks CEC for the clear and thorough definition of electronic air cleaners included in the 15-day language. MIAQ thanks CEC for taking into consideration the requests to move the proposed effective date of the amendments by changing it from December 1, 2022, to April 1, 2023, but emphasizes the need for the full one-year compliance date. Complexities in the sale of these products require that CEC not deviate from requirements by enacting a shortened compliance window. MIAQ also asks that CEC clarify whether filters delivered within a unit need to comply with the stated labeling requirements.	After review of all the comments received during the four public comment periods the CEC has changed the effective date of the proposed regulations to take effect on July 1, 2024, which was concluded as ample time for manufacturers in acquiring and taking all necessary steps to comply with the proposed regulation. CEC staff also concluded that such will also provide ample time for retailers to sell its existing stock or comply with the proposed regulation. CEC staff clarifies that all filters that are within the scope of the regulation and that are manufactured after the effective date of July 1, 2024, are subject to the proposed regulation even if it is sold within an appliance. The marking requirement allows inspectors to confirm Title 24 compliance in addition to providing consumers sufficient information about the filter itself.
3.2	MIAQ has not previously submitted comments because the scope has not included products certified by HVI as evident based on the following definition of air filter which was included	See responses 1.1 and 2.1 above.

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	in the “Proposed Regulatory Language” docketed on March 24, 2022: *“Air filter” means an air-cleaning device installed in forced-air heating or cooling equipment and used for removing particulate matter from the air and designed for installation in residential ducted forced-air heating or cooling systems.* However, the latest modification proposed by CEC to the definition of “air filter” (shown below) within the “Express Terms for Air Filter Regulation” docketed on August 29, 2022, could be construed to expand the docket’s scope to include air filters that serve residential unitary supply ventilation systems and residential unitary heat and energy recovery ventilators (H/ERVs). Such an expansion should not be undertaken without careful consideration for the issues that are unique to these products and without permitting ample time for further dialogue with the industry. Fifteen days is not sufficient for such dialogue to occur. *“Air filter” means a disposable or reusable air-cleaning device with air filtering media encased in a frame of a nominal depth of no greater than 6.0 inches installed in forced air heating or cooling equipment and used for removing particulate matter from the air and designed for installation in residential ducted forced-air ventilation, heating **or** cooling systems.* *(1) Air filter does not include:* *(A) Electronic air cleaners;* *(B) Filter media sold as rolls, i.e. not encased in a frame;* *(C) Air filters designed and sold exclusively for installation in products other than residential ducted forced-air systems.* The “Public Notice 15-day comment period” document docketed on August 20, 2022, cites the following rationale for modifying this definition: “Air filters definition was updated to include suggested language received through public comments to clarify which products fall within the definition, including an enumerated list of products, such as electronic air cleaners, that do not constitute air filters. The changes to the definitions were	

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	necessary to add clarity and exclude a specific appliance that may be regulated or is in the process of becoming regulated by the U.S. Department of Energy." This rationale does not mention expanding the scope to add new product classes but instead provides justification for narrowing the scope to exclude certain products. In other words, the rationale suggests that CEC's intention was *not* to expand the scope to include air filters that serve residential unitary1 supply ventilation systems or residential unitary H/ERVs. Ensuing conversations with CEC staff also helped clarify that the modified definition of air filter is meant to apply to air filters used with air handlers in residential ducted forced-air heating or cooling systems, such as ducted heat pumps, air conditioners, and furnaces and is not intended to apply to filers serving residential unitary supply ventilation systems or residential heat and energy recovery ventilators (H/ERVs). To maintain the docket's intended scope, MIAQ requests CEC to further modify the Air filter definition to remove any ambiguity about the requirement of air filters within single dwelling unit mechanical ventilation systems (highlighted yellow below). *"Air filter" means a disposable or reusable air-cleaning device with air filtering media encased in a frame of a nominal depth of no greater than 6.0 inches installed in forced air heating or cooling equipment and used for removing particulate matter from the air and designed for installation in residential ducted forced-air ~~ventilation,~~ heating **or** cooling systems.* *(1) Air filter does not include:* *(A) Electronic air cleaners;* *(B) Filter media sold as rolls, i.e. not encased in a frame;* *(C) Air filters designed and sold exclusively for installation in products other than residential ducted forced-air heating or cooling systems.*	

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3.3	MIAQ companies have concerns with the proposed effective date for this rulemaking. The new labeling requirement adds a layer of complexity to the labeling process, requiring more time for manufacturers to comply. Manufacturers of private label products, which are products manufactured by a third-party that are sold under a retailer's brand name, must have all revisions to die-cut graphics reviewed and approved before use. While this may appear to be a straightforward process, these added steps would require updates that would create a subsequent delay in updating die-cuts, and therefore manufacturers' collective ability to comply with the timeline set forth in the regulation. On March 27, 2022, CEC gave notice of the proposed regulation. Even for manufacturers who immediately began the complex process of retesting their materials and proposing the necessary changes to *retail chains* 2 selling their products, it would be difficult, if not impossible, to be compliant with new labeling requirements by December 1, 2022. *Retail chains* must discuss labeling redesign at length and approve any changes made prior to manufacturers sending updated designs to the die-cut. This approval process requires multiple meetings between manufacturers and *retail chains* and is time-consuming. As *retail chains* generally have a 90-day supply of air filters on hand, motivating a more efficient transition is difficult and could require disposing of products ready for retail. Currently this timeline is expected to start after the publication of the final rule, at which point manufacturers who have not already started the process of transitioning to new labeling standards will find it impossible to comply. It is not a straightforward or effortless process for manufacturers to incorporate a redesign into their products, and as such they need an appropriate length of time to collaborate with chain retailers to complete a redesign and to bring their products into compliance.	See responses 1.1 and 2.1 above. The attempt of Table Z-3 was to have an interim marking that could be used and address the supply chain issues due to COVID-19, and expedite the effective date of the proposed regulation. However, after review of all the comments received during the four public participation periods, CEC staff determined that the new effective date of July 1, 2024, provides ample time and addresses all the causes expressed by the commenters including those due to the COVID-19 epidemic.

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	Separately, air filter manufacturers compete with the beverage industry for die-cut time, and the entire supply chain has been impacted by the pandemic, making supplies tight and die-cut time scarce. Consequently, if a *retail chain* delays the change to their label, and the compliance date for the updated labeling requirements is immovable, requiring replacement of packaging in the 270-day supply chain, there is currently no excess capacity to replace this supply, and there is insufficient time to meet the schedule and replace the entire supply chain. Finally, MIAQ reminds CEC of Public Resources Code section 25402(c)(1)(A) which requires an effective date of "no sooner than one year after the date of adoption or revision" and asks that CEC modify the revised labeling standard effective date accordingly to June of 2023 instead of December 1, of 2022. This rule is being promulgated under the authority of Public Resources Code sections 25213(a), 25218(e), 25402(c)(1), and 25402.5 and should comply with 25402(c)(1)(A) and should have a one- year effective date, at minimum.	
4.1	This latest revision of the for the filter labeling requirements has a new labeling requirement. Section 1607 under item 11 *"In addition, each unit of air filters manufactured on or after January 1, 2026, shall be marked , permanently and legibly, on an accessible and conspicuous place on the edge of the filter frame in font size 12 or larger characters, with the calculated airflow rate value at an Initial Resistance of 0.1 inches water column (cubic feet per minute), and with either the filter's particle size efficiency in the 0.3 to 1.0 micrometer range or the filter's MERV rating."* The previous versions had the filter MERV and 0.3-1.0 PSE information already on the frame in addition to the filter pressure resistance at multiple flow rates. The airflow marking at 0.1 Inch Water Column was only required for the filter registration in earlier versions including the original in 2016. This is a significant change to the labeling requirement as there is now a label required to be visible on the packaging and a	After review of all the comments received, CEC staff recognized that the new label requirement, depicted in Table Z-3, added different unintended complexities to the proposed regulation rather than simplifying the marking requirement and allowing for an earlier effective date to proposed regulation. CEC staff has removed from the proposed regulation. See response 3.3 above.

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	different label on the frame. Previous versions had the filtration performance (MERV and % PSE) as well as the airflow CFM and Initial Resistance printed on the frame and viewable through the packaging. This new proposal impacts a second raw material for the production of furnace filters that needs to be unique for each filter size and performance level and adds further complexity to manufacturing. If Table Z-2 is printed on the frame and legible through the packaging, this alone should provide the necessary product information without requiring Table Z-3 to be printed on the frame. If Table Z-1 or Z-2 is printed permanently and conspicuously on the frame and visible through packaging, **table Z-3 should not be required.** The "Airflow" from Table Z-3 should not be needed as the pressure drop is given for multiple face velocities in tables Z1 or Z2. Both tables have the data that is used to determine the airflow value and provide more data to the consumer than just an airflow value at one resistance level. If the air flow data is needed at 0.1 inches of water, it should be added to table Z1 and Z2 instead of being on a separate table. **Please do not have two different tables be required** if table Z1 or Z2 are printed on the frame. If table Z-3 will be required, it should either require MERV or 0.3-1.0 PSE value. Allowing the manufacturer to pick and choose which information to print adds confusion to the market.	
4.2	There was no response for the specific comment from 3M dated 5/5/22 with regards to the Dust Holding Capacity. These comments are repeated below in italics. *"The Proposed Regulatory Language, "Dust Holding Capacity at the maximum rated airflow rate as published by the manufacturer (grams)" is written. Dust holding is not measured at the maximum airflow rate. Dust holding is a measure of the grams of dust held in the filter within the specified testing conditions listed in the preceding data that the manufacturer has listed. It is the dust held in the filter as the filter was loaded from*	CEC agrees with this assessment. Thank you for bringing this to our attention. The language has been changed to reflect the dust holding capacity in grams.

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	the "initial resistance" to the "final resistance" at the "Face velocity for the test". The Dust Hold Capacity should be used from the ASHRAE 52.2 2017 standard. Recommend changing the wording to: ***Dust Holding Capacity per the testing conditions previously specified by the manufacturer (grams).*** "Dust holding capacity at maximum rated airflow" is terminology that is inconsistent with ASHRAE 52.2, as previously highlighted in the comments. Airflow is measured in CFM, while the Dust Holding capacity is the grams of dust captured by the filter at a specific airflow (CFM) between the initial and ending pressure resistance. The face velocity is specified by the ASHRAE test method and may not match the manufacturer maximum rated airflow.	

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4.3	An effective date of April 1, 2023, for table 1 or 2 to be on the retail package does not allow adequate time for manufacturers to comply with the regulations that are still being finalized. Until the regulation is finalized manufacturers cannot complete graphics changes on filter packaging components. The filter industry has many different filter sizes and filtration levels. This regulation will require unique components to be produced for each filter performance level and size, preventing manufacturers from being able to share components between filter performance levels. Manufacturers must currently maintain inventory of these components due to supply chain lead times. A short implementation time, likely could result in significant scrap of obsolete items and possibly an inability to produce some products for California. This current draft now requires two printed tables and moves the table Z1 or Z2 from being required on the frame to somewhere on the printed package by April 1 2023. The printed package could be the filter frame or bag, but nonetheless still has a similar impact on a manufacturers ability to comply given the short timeframe currently allowed. This is a large change to the industry and thus would still request an implementation date for Table Z1 or Z2 to be one year from when the final rule is published and Table Z3 not be required if Table 1 or 2 is printed on the frame as previously suggested.	See responses 3.3 and 4.1 above.
5.1	Labeling of filter packaging: Many retailers / distributors buy a master pack of 10, 20 or more filters. Each of these filters are individually packaged and identified then put into a big brown box with limited information (usually just the part's type, filter number, and quantity). Would this master pack box need to be identified as per CEC's proposed requirement (i.e., using info from Table Z-1 or Z-2), provided that each filter inside would be individually packaged and would include such information on its individual packaging?	After review of all the comments and the unintended complexity added from requiring the marking to be on the package, staff clarified it was never the intent to require marking for the boxes used for shipment. CEC has corrected the language to require the marking to appear on the edge or the pleats of each filter and that such be visible through the retail package. The regulations specify that the label must be visible through or on retail packaging, which does not include the master pack box the filters are shipped in.

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5.2	Laboratory qualifications: The express terms require filters to be tested in accordance with AHRI 680 or ASHRAE 52.2. Please clarify what, if any, criteria exist for a laboratory to conduct tests in accordance with these standards. For example, are manufacturers permitted to test in their own labs? If laboratory accreditation is required, what are the criteria for accreditation (e.g., are laboratories that are approved by an ISO 17065 accredited certification body approved by CEC to conduct these tests)?	The laboratories used must be capable of performing the required test method. There are no specific accreditations required. And yes, manufacturers are permitted to test in their own labs. Before the test data can be submitted for certification, the lab must be listed as an approved test lab in our MAEDbS database as described in sections 1603 and 1606 of Title 20. To become approved, the test lab needs to submit a short application through MAEDbS. The application contains a declaration stating that the lab can perform the required test, will keep copies of test reports, and a few other items.
5.3	Scope of air filter definition: Are air filters serving unitary residential supply ventilation fans or unitary residential heat or energy recovery ventilators included within the scope of the definition as shown below? The express terms' definition of air filter applies to "residential ducted forced-air ventilation, heating or cooling systems." Would "forced-air" systems include unitary residential supply ventilation fans or unitary residential heat or energy recovery ventilators? Following are links included for context and reference: a. An example of a unitary residential supply ventilation fan: https://www.broannutone.com/enus/product/freshairsystems/fin-180b-hw. b. Examples of unitary residential heat or energy recovery ventilators: https://www.broannutone.com/enus/fresh-air-systems/residential.	See response 2.1 above.

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5.4	For reference, following is the definition of air filter proposed by the draft express terms. “Air filter” means a disposable or reusable air-cleaning device with air filtering media encased in a frame of a nominal depth of no greater than 6.0 inches used for removing particulate matter from the air and designed for installation in residential ducted forced-air ventilation, heating or cooling systems. (1) Air filter does not include: (A) Electronic air cleaners; (B) Filter media sold as rolls, i.e. not encased in a frame; (C) Air filters designed and sold exclusively for installation in products other than residential ducted forced-air systems.	See response 2.1 above.
6.1	Background In order to improve HVAC system performance and efficiency, a manufacturer product label was needed to provide: 1. Information needed by HVAC system designers to enable proper sizing of air filters to ensure the air filters would not choke the system airflow. 2. Information needed for dwelling occupants to select air filter replacement products that conform to the specification determined by the HVAC system designer. 3. And to the extent that Title 24 part 6 specifies any requirement for air filter particle size efficiency and air filter sizing design (pressure drop performance), the manufacturer product label was needed to provide information to enable compliance with Title 24 Part 6 design, and to enable field verification procedures for installed systems. Note: Title 24 Part 6 Section 150.0(m)12 and (m)13 language and an extract from the single-family compliance manual are attached for reference to support the following descriptions/discussions. The same information is found in the multifamily regulations/manuals, but for simplicity I am composing my comments referencing only the residential single family dwelling regulations/manual. Section 150.0(m)12Ai requires space conditioning systems to have air filters that comply with Sections 150.0(m)12B, 150.0(m)12C, 150.0(m)12D and 150.0(m)12E.	See responses 3.3, 4.1, and 5.1 above. CEC staff concurs that an important component of this rulemaking is ensuring the air filters are labeled in such a way to enable verification that Title 24 Part 6 requirements are being met. In summary the regulations require the marking to be on the edge (frame) or the pleats of the air filter and for it to be visible through the retail packaging. The proposal does not hinder the manufacturer from including the information as part of the retail package in addition to the required one to appear on the frame and/or pleats of the filter. In addition, after review of all the comments received during the four public review periods, the proposed regulation will become effective July 1, 2024. This provides sufficient time for implementation of the new requirements by manufacturers; therefore, allowing for the choice of packaging locations through 2026, as suggested is unnecessary.

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	150.0(m)12B requires systems to be designed to accommodate the clean-filter pressure drop imposed by the system air filter(s) and further requires the design airflow rate and maximum allowable clean filter pressure drop to be determined and reported on a “sticker” that the installer places at the return grille (or air filter installation location) according to Subsection iv. There is an important distinction between the manufacturer product/performance label and the “sticker” that the system installer/designer places in the return grille or adjacent to the filter rack for use by the dwelling occupant or the field verification technician. The dwelling occupant needs the installers design “sticker” in order to confirm that replacement air filters meet the intended performance determined by the system designer/installer. And the “sticker” is needed for field verification to determine compliance with the Title 24 Part 6 requirements for filter sizing (pressure drop and airflow). The single-family residential compliance manual provides additional information about this in Section 4.4.1.14.5. Examples of both the manufacturer product label and the installer’s sticker are shown and discussed. The same information is given in the nonresidential/multifamily compliance manual. **It is important to understand that Section 150.0(m)12Bii does not require all systems to comply with an air filter pressure drop of 0.1 inch w.c.**. 0.1 inch w.c. is only required when 1-inch depth filters are used, or if the return duct design alternative to fan efficacy measurement shown in Tables 150.0-B and Table 150.0-C are used. These system design/compliance alternatives are very restrictive and are unlikely to be used frequently since better system design options such as 2-inch depth air filters are allowed by the Title 24 Part 6 Standards. All systems other than those that use 1-inch air filters or Tables 150.0-B or C use design values of pressure drop determined by the system designer which may range from 0.05 to 0.3 inch w.c., or more.	

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	It is important to understand that the manufacturers' air filter label was deliberately required to be placed on the air filter frame because that is where the information is needed during field verification of the installed air filter. Expecting product packaging that shows performance information will be made available for field verification inspections is not a practical or reasonable expectation for use in a field verification/inspection protocol. **It is important to understand that in order to determine compliance with the many potential design pressure drop vs airflow criteria used by various system designers/installers, all of the ordered pairs of airflow vs pressure drop shown on the "Table Z-1 or Table Z-2" label must be shown on the air filter frame. A label that displays performance only at 0.1 inch w.c. is not sufficient for determining compliance for the vast majority of system installations.** Compliance at pressure drops other than 0.1 inch w.c. may be determined in several ways which are discussed in the compliance manuals. Since the values from the manufacturer air filter performance tests vary a lot due to the wide range of resistances to flow each air filter has, the airflow vs pressure drop performance listed on the manufacturers' air filter product labels will vary a lot and will not likely display a value exactly the same as the installer's "sticker" placed in the return grille. So in order to determine compliance for a specific installed system, with its unique system design airflow and pressure drop specifications, a graphical or statistical calculation technique is used as described in the SF Residential compliance manual in section 4.4.1.14.6. Additionally, the air filter label 15-day language provides an additional calculation method in Section 1604(c)(3)(B). These calculations rely on the ordered pairs of pressure drop vs airflow from the test procedures that are expected to be shown on the air filter label. These calculations are very easy to input into a spreadsheet or phone app, or the	

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	manufacturer may provide graphical formats for air filter families for lookup in the field. It is reasonable to expect that field verification technicians will be equipped to use these data from the manufacturers' air filter product labels to verify that the air filter's installed performance complies with the design pressure drop and airflow rates shown on the "sticker" placed in the return grille by the system designer/installer. **It is important to understand that the newly proposed simplified label in Table Z-3 does not change or reduce the burden on the manufacturer to integrate a label into their manufacturing process, as compared to the requirement for the Table Z-1 and Z-2 manufacturer product label.** The burden on the manufacturer is due to the requirement for product testing to develop the data for the labels, and also with the burden that a change to the manufacturers product manufacturing process to add the label to the filter frame must be implemented. The burden due to revision of the manufacturer's manufacturing process is the same regardless of the appearance of the label the CEC requires. Also, in order to determine the information shown on the new simplified label, the same testing must be performed by the manufacturer as was needed for the Z-1, Z-2 labels, except that an additional calculation to determine the airflow rate at 0.1 inch w.c. must also be done for the Table Z-3 label. The CEC staff assertion (see TN245718 Section 1606) that the new simplified label has relieved some of the burden on the manufacturer to implement the label is apparently without merit. **Recommendations:** **At the end of this comment write-up I have attached a tracked change version of the 15-day language that provides my suggested changes.** Generally I have suggested rejecting most of the 15-day changes that introduced the new simplified label shown in Table Z-3 in the current 15 day language.	

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	For the period between April 01 2023 and January 01, 2026, instead of requiring that the information be placed only on the packaging, I suggest that the regulations allow the manufacturer to choose at least one of 2 alternative locations for the air filter label information: 1) on the product packaging, 2) on the edge of the filter frame. This tact allows the manufacturer to choose the method that suits their situation the best. For instance, 3M has continued to display the label from the 2015 air filter rulemaking on the air filter frame for their commercial products (I checked again at Lowes this morning – see picture in figure 1 below). Since 3M has made the label visible through the product packaging, the label does not need to also be shown on the product packaging. Thus if my suggestion was used, 3M would already be in compliance, and this rulemaking would not impose any change be made to their product labels or packaging. Figure 1. Picture of 3M air filter label from air filter product on the shelf at Lowes on September 07, 2022 **For the period beginning January 01, 2026, I suggest that the newly proposed simplified label NOT be used. And instead the label with the full set of performance data should be shown on the air filter frame (see tables Z-1 and Z-2 in the 15-day language and figure 1 above for examples of the label I propose be placed on the air filter frame).** The 3 year lead time staff has proposed is very generous in my view. As I recall, 3M was able to implement the label on the air filter frames of their products within the 1 year lead time allowed by the 2015 air filter label rulemaking. If the new simplified label shown in Table Z-3 is required to be placed on the filter frame instead of the Table Z-1 and Z-2 versions, it will defeat the ability to use the label for field verification for most installations which was major benefit that was expected to be gained from air filter labels.	

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	It would be a shame to require the "Table Z-2" version of the label to be removed from the 3M products and instead require the Table Z-3 label to be used (in my view). 3M is the highest sales volume air filter manufacturer in the California market as far as I know. I strongly recommend that you abandon the proposed simplified label shown in Table Z-3 in the 15-day language. It does not provide support for field verification for most installations and does not meet the requirement specified in Title 24 Part 6 Section 150.0(m)12E.	
6.2	Suggested language section 1606 Remove "Particulate Matter (PM) Efficiency for PM 1.0" text from the "Particle Size Efficiency for 0.3 to 1.0 µm particle size (percentage)".	Change was implemented in table X.
6.3	Suggested language to 1607: (11) Air Filters. Each unit of air filters manufactured on or after ~~December 1, 2022~~ April 1, 2023, shall be marked, permanently and legibly, on an accessible and conspicuous place on the edge of the filter itself or on the or on the air ~~edge of the filter itself or on the pleats~~, filter retail package in characters of font size 12 or larger, with the information specified in either section (A) or (B) below as applicable to the air filter unit. If the marking is placed on the air filter frame and it is not legible through its retail packaging, then the packaging shall also be marked with the same information and in the same format. In addition, each unit of air filters manufactured on or after January 1, 2026, shall be marked, permanently and legibly, on an accessible and conspicuous place on the edge of the filter frame in font size 12 or larger characters, with the information specified in either section (A) or (B) below as applicable to the air filter unit. If the marking on the air filter is not legible through its retail packaging, then the packaging shall also be marked with the same information and	CEC appreciates the changes suggested to the language. CEC staff edited the final language after considering all comments received. See response 3.3 above which explains the removal of table z-3.

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	in the same format. ~~the calculated airflow rate value at an Initial Resistance of 0.1 inches water column (cubic feet per minute), and with either the filter's particle size efficiency in the 0.3 to 1.0 micrometer range or the filter's MERV rating.~~ ~~If the marking on the air filter is not legible through its retail packaging, then the packaging shall also be marked with the same information and in the same format.~~ Sample air filter ~~markings~~ ~~package labels and air filter frame~~ markings are shown in Tables Z-1 ~~and~~, and Z-2, ~~and Z-3.~~	
6.4	Change to section 1607: Edition to Tables Z-1 and Table Z-2 by removing word "Package" and include "Marking". Deletion of table Z-3	After review of all the comments received during the four public review periods, Table Z-1 and Z-2 will reflect the word "marking" for the examples to the proposed listed requirements listed in section 1607. In response to comments received, Table Z-3 has been removed. See response to comment 3.3 above.
7.1	In the intervening years, and in the wake of the COVID-19 pandemic that brought both heightened interest in air filtration along with massive supply chain shortages, we have identified several ways to strengthen this proposal to ensure that California consumers have access to high quality air filters and appropriate information on product efficacy. To ensure air filters remain available for consumers, AHRI requests that CEC consider the need for flexibility in materials used to manufacture air filters, as the current proposal is prohibitive and will hinder Californian access to products. AHRI thanks CEC for considering the requests to move the proposed effective date of the amendments from December 1, 2022, to April 1, 2023, but emphasizes the need for the full one-year compliance date extension. Complexities in the sale of these products require that CEC not deviate from requirements by enacting a shortened compliance window.	See response 3.1 above, explaining the proposed effective date for the proposed regulation. The marking requirements proposed will require for air filters manufactured after July 1, 2024, to have a marking explained in section 1607 of the proposal on the edge or pleats of the filter visible through the retail packaging or marked separately on the packaging itself. This requirement does not prohibit manufacturers from also having the information printed on the retail packaging or in more than one side of the filter frame to comply with the proposed regulation.

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	AHRI requests that CEC offer additional clarification for the 2026 labeling requirements discussed in the NOPA 15-day language. AHRI also asks that CEC clarify whether filters delivered within a unit need to comply with the stated labeling requirements.	CEC staff clarifies that all filters that are within the scope of the regulation and that are manufactured after the effective date of July 1, 2024, are subject to the proposed regulation even if it is sold within an appliance. See response 3.1 above.
7.2	**AHRI thanks CEC for considering our request to make a slight modification to the "Basic Model" definition to allow manufacturers to source materials from different suppliers for products sold under the same model number, and we ask that CEC consider our amended recommendation for the definition of "basic model".** AHRI appreciates that CEC's proposed definition for basic model of an air filter aligns with what had previously been discussed; however, we suggest an alternative modification (**bolded** below): "Basic model" of an air filter means all units of a given type of air filter, irrespective of the face area dimensions, that have **similar type and pleat spacing and** the same depth and the same construction, including type and grade of air filter media, pleat spacing, pleat height, pleat support, and filter frame pattern. Air filters have been studied extensively during the pandemic, confirming that different materials, with slightly different pressure drops, still have the same level of efficacy. Unfortunately, due to pandemic-related supply chain issues, dual-sourced raw materials and components have become paramount to ensuring access to finished goods such as air filters. Labeling requirements that are performance-based rather than based on the inclusion of specific parts will allow for multiple sources of components without negatively impacting needed filtration efficacy. This will allow for swapping filter media, if needed, for different Particle Size Efficiency Ranges 1, 2, and 3 (PSE1, PSE2, and PSE3) and pressure drops, with differences of up to 30%, even for the same efficacy.	CEC staff finds that the language proposed in the comment is ambiguous and unclear – the phrase "similar type and pleat spacing" does not make it clear when two models should be grouped together or treated separately. Allowing too much variation in what a basic model is, as would result from the comment proposal, impedes the ability to extrapolate test results from the model tested to other filters within that classification and makes it less certain that the basic model's test results will accurately predict in-situ performance. CEC staff would like to point out that the example given in the comment is one of the many reasons why CEC believes the requirements adopted are crucial for the efficient replacement and acquisition of the same, or similar filter, based on marking of the filter. The example illustrates how the data provided per filter will assist a consumer in replacing with the exact same filter or choose a filter that has similar results in case the exact filter is unavailable due to a shortage in raw materials.

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	For example, pre-pandemic MERV 13 filters were electrostatic. Now nanofiber filters compete, which impacts results (PSE1, PSE2, PSE3). AHRI notes that efficiency and pressure drop are not correlated in the regulation's language for mechanical air filters. Consequently, conservative ratings indicate a preference for pressure drop. AHRI suggests that altering product labeling and certification requirements would allow multiple versions of the basic model to be labeled alike, eliminating waste on pre-printed frames and label inserts. This is important due to supply chain issues on media. Product test results can be managed within a manufacturer's database. If there is a need for multiple versions of a filter model to fall under the same scope, then a corresponding number of test reports may be uploaded. This would allow the filter labeling to be printed with the highest pressure drop in the report, or the manufacturer's pressure drop specification for that model number (whichever value is higher). If an efficiency value must be printed on the frame in place of or in addition to the MERV rating (MERV ratings indicate efficiency), then it should be the lowest number of the test report, or the minimum required to meet the MERV rating. To provide an example, due to supply chain shortages a product may have the following three versions and have a single difference in the filter media. The frame, pleat number, size, and spacing are all the same in this example: Example: A B C Pressure drop 0.254 0.286 0.30 E1 57.9 52.1 59.1 E2 86.5 85.9 89.3 E3 96.1 95.4 98.0 The manufacturing specification for the item is MERV 13 at 492 FPM and 0.32" maximum pressure drop, which each of these	CEC finds that allowing the flexibility regarding the reporting of highest pressure drop and lowest efficiency will only add ambiguity and un-needed complexity. It will not provide needed information to consumers so that they can make an informed decision for the best replacement option if the air filter they are replacing is not available.

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	examples would pass. Media A is preferred but is unavailable in this example. It is suggested that manufacturers be allowed to report the highest pressure drop and lowest efficiency combination or their own specification while collecting and submitting necessary supporting data. In this case, the label would have a pressure drop of 0.32" maximum or 0.30" as reported on the highest test value from example C, and would be labeled as MERV 13 minimum or minimum efficiency for each size bucket (E1 50%, E2 85%, E3 90%) or the actual value reported on the lowest test example B, like this: **Table Z-2: Sample Air Filter Marking (ANSI/ASHRAE Standard 52.2-2017)** MERV: 13 PSE (%): Report Minimum required or example B data (µm): 0.30-1.0 / 1.0-3.0 / 3.0-10 Initial Resistance (IWC): Report maximum manufacture specification or example C data Airflow Rate (CFM): [val1] / [val2] / [va3] / [val 4] / [val5]* / *Max Rated Airflow In this example and using the proposed modification to the basic model group definition, all three test reports could be submitted to the database under the same model number. As such, the filter could be printed to cover all three versions. This would provide manufacturers with the option to change the pleat spacing of the product to make up the pressure drop for higher resistance medias. With this example, the concept of the basic model remains unaltered while the labeling and documentation for products is adjusted to simplify the supply chain process and keep production lines moving. As seen during the height of the pandemic, this is an important and difficult task.	

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7.3	**AHRI continues to request that CEC extend the compliance date for revised labeling requirements within *20-AAER-02* to June 1, 2023.** AHRI Members have concerns with the proposed effective date for this rulemaking. The new labeling requirement adds a layer of complexity to the labeling process, requiring more time for manufacturers to comply. Manufacturers of private label products, (i.e., Home Depot, or ACE Hardware etc.), which are products manufactured by a third-party that are sold under a retailer's brand name, must have all revisions to die-cut graphics *reviewed and approved* before use. While this may appear to be a straightforward process, these added steps would create a subsequent delay in updating die-cuts, and therefore manufacturers' collective ability to comply with the timeline set forth in the regulation. Another concern with transitioning to altered labeling requirements is the quantity of waste generated as any excess, unusable material and packaging must be discarded. Having the full year from the compliance date will provide adequate time for the approval of packaging and will allow manufacturers and retailers a smooth transition for all products. This additional time will allow products to be labeled correctly and will avoid unnecessary waste. Filter labels are purchased in bulk (approximately 6-month supplies) on a rolling basis. A one-year compliance period will allow manufacturers to obtain approvals and transition each product line to new packaging without waste. Without adequate time to transition to new labeling requirements, it is more cost-effective for manufacturers to dispose of product that is not already in compliance than it is to generate and apply corrected labeling. AHRI advises CEC that although it has been made evident that manufacturers may meet labeling requirements by adding a sticker or including a paper insert with air filters, this does not adequately address concerns, and in fact creates a lengthened production process. The process of adding a sticker or insert would require significant employee time and would invariably increase the cost of	See response 3.1 above.

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	production. The additional time that AHRI is requesting would create a window for manufacturers, allowing them to distribute virtually all filters that would otherwise have to be disposed of due to incompliance with labeling requirements. AHRI members will reach out to CEC directly to set up individual meetings to offer supplemental data regarding manufacturer costs and the quantity of waste generated. On March 27, 2022, CEC gave notice of the proposed regulation. Even for manufacturers who immediately began the complex process of retesting their materials and proposing the necessary changes to *retail chains*1 selling their products, it would be difficult, if not impossible, to be compliant with new labeling requirements by December 1, 2022. *Retail chains* must discuss labeling redesign at length and approve any changes made prior to manufacturers sending updated designs to the die-cut. This approval process requires multiple meetings between manufacturers and *retail chains* and is time-consuming. As *retail chains* generally have a 90-day supply of air filters on hand, motivating a more efficient transition is difficult and could require disposing of products ready for retail. Currently this timeline is expected to start after the publication of the final rule, at which point manufacturers who have not already started the process of transitioning to new labeling standards will find it impossible to comply. It is not a straightforward or effortless process for manufacturers to incorporate a redesign into their products, and as such they need an appropriate length of time to collaborate with chain retailers to complete a redesign and to bring their products into compliance. Separately, air filter manufacturers compete with the beverage industry for die-cut time, and the entire supply chain has been impacted by the pandemic, making supplies tight and die cut	

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	time scarce. Consequently, if a *retail chain* delays the change to their label, and the compliance date for the updated labeling requirements is immovable, requiring replacement of packaging in the 270-day supply chain, there is currently no excess capacity to replace this supply, and there is insufficient time to meet the schedule and replace the entire supply chain. AHRI requests that DOE offer clarification regarding labeling requirements for products which are exclusively sold online. We ask that DOE confirm that if a product is not sold in a physical store, the packaging is not required to be labeled as long as the filter itself bears the required label. Finally, AHRI reminds CEC of Public Resources Code section 25402(c)(1)(A) which requires an effective date of “no sooner than one year after the date of adoption or revision” and asks that CEC modify the revised labeling standard effective date accordingly to June of 2023 instead of December 1, 2022. This rule is being promulgated under the authority of Public Resources Code sections 25213(a), 25218(e), 25402(c)(1), and 25402.5 and should comply with 25402(c)(1)(A) and should have a one-year effective date, at minimum.	