

DOCKETED

Docket Number:	17-BSTD-02
Project Title:	2019 Title 24, Part 6, Building Energy Efficiency Standards Rulemaking
TN #:	222892
Document Title:	CARB staff comments on proposed 2019 building code changes
Description:	N/A
Filer:	System
Organization:	CARB/Qunfang (Zoe) Zhang
Submitter Role:	Public Agency
Submission Date:	3/5/2018 4:47:37 PM
Docketed Date:	3/5/2018

Comment Received From: Qunfang (Zoe) Zhang

Submitted On: 3/5/2018

Docket Number: 17-BSTD-02

CARB staff comments on proposed 2019 building code changes

Please see our comments in the attached letter.

Additional submitted attachment is included below.

March 2, 2018

California Energy Commission
Re: Docket No. 17-BSTD-02
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: California Air Resources Board Staff Comments
on Proposed 2019 Residential Standards

Thank you for providing an opportunity to comment on the California Energy Commission (CEC) staff's proposed revisions for the 2019 Title 24, Part 6, Building Energy Efficiency Standards, which focused on ventilation and indoor air quality for both residential and non-residential buildings.

We fully support your efforts to maintain and improve both indoor and outdoor air quality while pursuing increased energy efficiency in California buildings. We especially support your staff's proposal to require higher efficiency air filters for all new buildings statewide and for new HVAC systems installed in existing buildings. We also support the proposal for verification of Home Ventilating Institute (HVI) certified product ratings for kitchen range hoods. These measures are needed to protect public health and are consistent with research funded by the California Air Resources Board (CARB) and the CEC.

Regarding MERV 13 filtration, based on current research findings, this action is expected to reduce indoor particle levels by about 50 to 90 percent in new homes and buildings, depending on factors such as the tightness of the building, how often doors and windows are open, and how often the central heating and air conditioning system is operated^{1,2}. Even a 50 percent reduction in indoor concentrations will result in a significant reduction in exposure and potential health impacts, because Californians spend most of their time indoors and the greatest amount of that time in their homes. As state policies (such as Senate Bill 375, the Sustainable Communities and Climate Protection Act and State Planning Priorities found in California Government Code Section 65041.1) encourage new development in infill areas, this reduction in indoor particle levels will be especially timely in preventing increased exposures to particles in

¹ Bennett D., 2018. Benefits of high efficiency filtration to children with asthma. Available at https://www.arb.ca.gov/research/single-project.php?row_id=65101.

² Singer B.C., Delp W.W., Black D.R., and Walker I.S. 2016. Measured performance of filtration and ventilation systems for fine and ultrafine particles and ozone in an unoccupied modern California house. *Indoor Air*. doi:10.1111/ina.12359. Available at <http://onlinelibrary.wiley.com/doi/10.1111/ina.12359/full>.

new homes. In addition, Assembly Bill (AB) 617 was signed last year with the ultimate goal to reduce air pollution exposures in environmental justice communities, where the population often experiences higher exposures to air pollutants than others. The proposed code requirement for higher efficiency filters will help achieve the exposure reduction goals of AB 617.

Particulate pollution is especially burdensome in California; it accounts for the greatest percentage of health impacts attributable to air pollution. Those impacts include increased cardiovascular and respiratory disease, increased emergency room visits and premature deaths. Currently, it is estimated that PM_{2.5} exposures result in 7,200 premature deaths in California each year³. Your staff has done an excellent job in highlighting the seriousness of the particle pollution problem throughout California, with maps showing that a majority of our state, especially the most populated areas, do not yet fully meet national and state PM₁₀ and PM_{2.5} ambient air quality standards. This is despite CARB's extensive regulation of motor vehicles and local agencies' regulation of stationary sources that emit particle pollution. The use of higher efficiency filters statewide is a straightforward approach to reducing exposures to particles and their health impacts. In addition, we support the statewide application of this requirement proposed by your staff, rather than a regional requirement, for several reasons: in addition to infill considerations, most of the State experiences unhealthful levels of particles at some time during the year, and with changing climates and increasing disasters, we cannot always predict where exceedances will occur. A statewide requirement will provide equal protection to all citizens in new construction and make implementation and enforcement much easier.

Based on our review of CARB-funded study results, the scientific literature, and government reports, we issued guidance in 2017 recommending high efficiency filtration in new construction in infill areas and near busy roadways⁴. While we would prefer to see MERV 16 filters required in order to remove a greater percent of the smaller particles from the air, we support the proposed move to MERV 13 based on greater ease of implementation and enforceability. We also concur with the proposed requirement for 2-inch deep filter slots, or 1-inch slots for systems meeting specified airflow performance criteria. Research results we have seen as well as information obtained by CEC staff show that airflow resistance differences between MERV 13 filters and MERV 6 or 8 filters are minimal, and are readily dispensed with by, for example,

³ An estimate based on air quality data from 2009 to 2011 using a method described in: California Air Resources Board. 2010. Estimate of Premature Deaths Associated with Fine Particle Pollution (PM_{2.5}) in California Using a U.S. Environmental Protection Agency Methodology. Available at https://www.arb.ca.gov/research/health/pm-mort/pm-report_2010.pdf.

⁴ California Air Resources Board. 2017. Technical Advisory: Strategies to Reduce Air Pollution Exposure near High-Volume Roadways. Available at https://www.arb.ca.gov/ch/rd_technical_advisory_final.PDF

using a deeper filter. In a recent study conducted for CARB, Lawrence Berkeley National Laboratory scientists found that a 1-inch MERV 13 filter reduced airflow by 4.9 percent, and a deep pleat MERV 16 filter reduced airflow by just 2.7 percent⁵. In addition, we agree with the low costs estimated by CEC staff for compliance with these requirements.

We also supports the proposed requirement for Home Energy Rating System (HERS) verification of the HVI certified ratings for installed kitchen range hoods. Cooking and gas stoves can emit hundreds of chemicals, many of which are toxic. Range hoods are commonly used to remove air pollutants, odor, and moisture generated by cooking⁶. However, many installed kitchen range hoods cannot provide adequate protection, often because airflow is too low. It is critical to verify the HVI certified ratings for the installed kitchen range hoods in order to assure they have the capacity to provide sufficient protection. Note that since 2008 the building code has required the use of range hoods that meet the HVI requirements, which are an airflow of at least 100 cfm at a sound level of no more than 3 sones; the proposed action is simply to verify that installed hoods meet this longstanding state code requirement.

We also support provisions for multi-family dwellings that will provide the same level of protection from outdoor air pollution as provided for single-family homes in the proposed code.

If you have any questions regarding our comments, please contact me at (916) 323-4519, or bart.croes@arb.ca.gov. You may also contact Peggy Jenkins at (916) 323-1504 or peggy.jenkins@arb.ca.gov.

Sincerely,



Bart E. Croes, P.E.
Chief, Research Division

Attachment

cc: Peggy Jenkins
Manager, Indoor Exposure Assessment Section
Research Division

⁵ Singer and Walker. 2016. Reducing in-home exposure to air pollution. Available at https://www.arb.ca.gov/research/single-project.php?row_id=65080.

⁶ A list of references about air pollutants generated by cooking activities and the effectiveness of kitchen range hood can be found at https://www.arb.ca.gov/research/indoor/cooking/cooking_range_hoods.htm.