

DOCKETED

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Alignment of Title 20 with Title 24 Domestic Range Hood Lamp Performance Requirements

Please see attachment.

Additional submitted attachment is included below.



May 14, 2018

California Energy Commission
1516 Ninth Street, MS-34
Sacramento, CA 95814

Re: Docket 18-AEER-10, Coordination with Title 24 Range Hood Lighting Efficacy Requirements

Dear CEC Staff:

This comment recommends coordination of Title 20 and Title 24 to ensure that Title 20 also provides an exception for lamp performance requirements for range hoods based on unavailability of high-performance lamps that are rated for use in the domestic cooking environment.

Domestic range hoods serve a critical function of protecting California residents from exposure to some of the highest pollutant concentrations in the residential indoor environment. Most range hoods are equipped with task lighting that uses state-regulated light emitting diode lamps (SLEDs) or state-regulated small diameter directional lamps (SDDLs) to improve cooking safety and appliance utility. Unfortunately, the SLED and SDDL lamp performance requirements of Title 20 were developed without consideration for the special application of the domestic cooking environment. Consequently, there are no domestic range hoods that comply with the lamp performance requirements of Title 20. To ensure that domestic range hoods with task lighting can continue to be installed in California, we respectfully request that CEC modify Title 20 to align with the Title 24 exception for range hood lamp performance.

Domestic range hoods typically use state-regulated small diameter directional lamps (SDDLs) or state-regulated light emitting diode lamps (SLEDs) to provide task lighting for cooking. Unlike other SDDLs in residential spaces, these lamps must perform in a harsh environment characterized by air temperature that can exceed 100 degrees Celsius. In speaking with the Home Ventilating Institute's range hood manufacturers, we were not able to find one manufacturer that has been able to source either SDDLs or SLEDs that are compliant with Title 20 requirements for rated life and luminous efficacy or the combined luminous efficacy/CRI compliance score. Further, none of the lamps listed in the MAEDBS are known to be tested or approved for use in range hoods that can be exposed to air temperature meeting or exceeding 100 degrees Celsius. According to range hood manufacturers, their conversations with lamp manufacturers have produced the same outcome – zero SDDLs or SLEDs are available that comply with Title 20's performance requirements and also withstand temperatures meeting or exceeding 100 degrees Celsius. In performing this outreach, we learned that one lamp supplier tested a SLED with a GU-10 base in air temperatures as high as 75 degrees Celsius and found that the expected life ranged from 4,000 – 5,000 hours, which is far short of the 25,000 hours required by Title 20. Higher temperatures are expected to result in further reductions in useful life. A list of temperatures reached under various cooking scenarios is provided in Table 1.

	Blower Inlet Temperature (°C)
Gas range at 60k BTUs low speed 18 in. Recirculation :	140
Gas range at 60k BTUs low speed 18 in. Ducted :	130
Gas range at 60k BTUs low speed 24 in. Ducted:	130
Gas range at 50k BTUs low speed 24 in. Ducted:	110
Gas range at 40k BTUs low speed 24 in. Ducted:	100

Table 1. Air temperatures experienced at the blower inlet of a domestic range hood under different testing conditions. Data provided by Venmar Ventilation.

The most obvious potential consequence of specifying lamps for range hoods that are not designed for high temperatures is a severe limitation to lamp life, resulting in large costs for consumers who will need to replace lamps at shorter intervals. Even more importantly, there could be safety concerns with lamp failure in high temperature environments. Other challenges with respect to using MAEDBS listed SDDLs and SLEDs that are not rated for use in range hoods are the compatibility of the lamps with multi-level lighting controls and the potential lack of labels on lamps to assist with enforcement (e.g., if lamps are shipped from the lamp manufacturer with compliance info on the packaging, is labeling of the lamp itself still required, and if not, how can this provision be enforced in the field?). Finally, unlike SDDLs and SLEDs used for general service lighting applications, lamps in range hoods are meant for task lighting only and so are not likely to be used as long or to consume as much energy as general service lamps; hence, the benefit of requiring higher performance lamps is diminished for the application of range hoods.

There is currently a disconnect between the Title 24-2019 and Title 20 requirements for range hood lamp performance. Recognizing the current limitations to the availability of high performance lamps for range hoods, both the 2016 and 2019 versions of Title 24 provide an exception to lamp performance requirements for range hoods (see Title 24-2019 Section 150.0(k)1F). However, Title 20 provides no such exception. For the reasons outlined in this letter, and to align California’s requirements for domestic range hood lamps across new and existing buildings, the CEC should update Title 20 range hood SDDL and SLED lamp efficacy requirements to echo the exception in Title 24.

Thank you for the opportunity to comment.

Sincerely,



Mike Moore, P.E.
ASHRAE 62.2 Indoor Air Quality Subcommittee Chair