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Submitted via email to Docket@energy.ca.gov

California Energy Commission
Docket No. 12-BSTD-1
Dockets Office
1516 Ninth Street, MS-4
Sacramento, CA 95814

Re: **WattStopper Comments for Docket 12 BSTD-1 Revisions to California Code of Regulations, Title 24, Part 1 and Part 6**

WattStopper respectfully submits the following comments for the 45-day language for revisions to the California Building Energy Efficiency Standards, California Code of Regulations, Title 24, Part 1 and Part 6.

Section 130.1.b.4. Multi-Level Lighting Controls

Current Text
4. Each luminaire shall be controlled by at least of one of the following methods:
   A. Manual dimming meeting the applicable requirements of Section 130.1(a)
   B. Lumen maintenance as defined in Section 100.1
   C. Tuning as defined in Section 100.1
   D. Automatic daylighting controls in accordance with Section 130.1(d)
   E. Demand responsive lighting controls in accordance with Section 130.1(e)
   EXCEPTION 1 to Section 130.1(b): Classrooms, with a connected general lighting load of 0.7 watts per square feet and less, shall have at least one control step between 30-70 percent of full rated power.
   EXCEPTION 2 to Section 130.1(b): An area enclosed by ceiling height partitions that has only one luminaire with no more than two lamps.

WattStopper Comment:
. If this list is meant to reinforce how lighting can be controlled to meet the requirements in T130.1-A, then it should add occupancy sensors and time scheduling. This list adds little value, aside from implying that occupancy sensors and time scheduling aren't acceptable methods for complying with the multi-level lighting control requirements, because they aren't specifically listed. The control strategy should be irrelevant (i.e. switching or dimming), as long as the design meets the requirements in T130.1-A.

WattStopper Recommendation:
Delete subsection A in the list requiring manual dimming. This is already stated as an allowed means in 130.2. It either needs to be removed from this section, or manual switching and occupancy sensing need to be added to this list.

130.1.c.2. Shut-Off Controls

Current Text
2. Countdown timer switches shall not be used to comply with the automatic shut-OFF control requirements in Section 130.1(c)1.

WattStopper Comment:
WattStopper disagrees with this requirement. Timer switches are excellent for some larger spaces too. Our standard solution for data server rooms is a recommend a timer switch since there is so much hardware, and significant air flow that an occupancy sensor would likely not work properly. CEC should reconsider this requirement, and use the compliance manual for guiding designers to the best solutions.

WattStopper Recommendation:
Ideally would like this section struck in its entirety. If this is not acceptable, then add language allowing timer switches to be used in applications where other means of controlling the lights automatically won't function reliably.

130.1.d.1.A and B and C. Automatic Daylighting Control for Skylit, Primary and Secondary Sidelit Daylit Areas

Current Text
1. Daylit Zones shall be defined as follows:
A. SKYLIT DAYLIT ZONE is the rough area in plan view under each skylight, plus 0.7 times the average ceiling height in each direction from the edge of the rough opening of the skylight, minus any area on a plan beyond a permanent obstruction that is taller than the following: A permanent obstruction that is taller than one-half the distance from the floor to the bottom of the skylight. The bottom of the skylight is measured from Use the bottom of the skylight well for skylights having wells, or to the bottom of the skylight if no skylight well exists. For the purpose of determining the skylit daylit zone, the geometric shape of the skylit daylit zone shall be identical to the plan view geometric shape of the rough opening of the skylight; for example, for a rectangular skylight the skylit daylit zone plan area shall be rectangular, and a circular skylight the skylit daylit zone plan area shall be circular.

B. PRIMARY SIDELIT DAYLIT ZONE is the area on a plan directly adjacent to each vertical glazing, one window head height deep into the area, and window width plus 0.5 times window head height wide on each side of the rough opening of the window, minus any area on a plan beyond a permanent obstruction that is 6 feet or taller as measured from the floor.

C. SECONDARY SIDELIT DAYLIT ZONE is the area on a plan directly adjacent to each vertical glazing, two window head heights deep into the area, and window width plus 0.5 times window head height wide on each side of the rough opening of the window, minus any area on a plan beyond a permanent obstruction that is 6 feet or taller as measured from the floor.

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Comment

The definitions section has the definitions for all other terms. Inserting the definitions at this location in the document interrupts the text flow, and makes it hard to read.

WattStopper Recommendation:

Move to the definitions section

130.1.D.1.D.ii. Automatic Daylighting Control Installation and Operation

Current Text

ii. Automatic daylighting controls shall provide functional multi-level lighting, including continuous dimming, and have at least the number of control steps specified in Table 130.1-A.

Comment

This is requiring continuous dimming for all daylighting control. I think the intent of the code is to allow multi-level daylighting controls thru switching, and to encourage dimming when most appropriate. The requirements for multi-level lighting controls already state that dimming is an acceptable method for meeting the criteria, and therefore, dimming doesn't have to be repeated here. If it's not removed, then the CEC will be requiring continuous dimming in warehouse and storage areas, when multi-level daylighting control is acceptable in these applications.

WattStopper Recommendation:

Delete "including continuous dimming"

140.6.d. Automatic Daylighting Controls in Secondary Daylight Zones

Current Text

Luminaires providing general lighting that are in, or partially in, the Secondary Sidelit Daylit Zones, and not included in the Primary Sidelit Daylit Zones shall be controlled independently by an automatic daylighting control that meets the applicable requirements of Section 110.9, is installed in accordance with Section 130.1(d)2C, and shall meet the following requirements as applicable…

Comment

WattStopper has some issue with the mandatory Automatic Daylighting Controls in Primary and Skylight Daylights Zones, but believe that those issues are negligible when compared to the above requirement. We don't believe that the advocates ever made their case that installing Automatic Daylighting Controls in a 120W zone of secondary daylighting will ever pay for themselves. This is a case where the code stretches so far to the extreme that it puts at risk the savings that could be delivered in the Primary and Skylight daylighting zones.

WattStopper Recommendation:

Delete this entire section.

150.0.k.7. Lighting other than in Kitchens, Bathrooms, Garages, Laundry Rooms, and Utility Rooms.

Current Text

Lighting installed in rooms or areas other than in kitchens, bathrooms, garages, laundry rooms, and utility rooms shall be high efficacy or shall be controlled by either dimmers or vacancy sensors.

EXCEPTION 1 to Section 150.0(k)7: Luminaires in closets less than 70 square feet.

Comment

Small closets are idea spaces for self-contained automatic shut-off devices. Don't exclude these spaces, and include timer switch as acceptable control method. Also allow automatic on using occupancy sensors in closets.

Recommendation:

Revise the exception to require luminaires in closets less than 70 square feet to be controlled using either electronic timer switches or vacancy or occupancy sensors

A.4.2.1.C. High efficacy indoor lighting.

Current Text

All permanently installed indoor lighting shall be high efficacy as defined in <u>and controlled as required by Title 24, Part 6.</u> Permanently installed lighting shall be installed in kitchens, bathrooms, utility rooms, and garages at a minimum. Every room which does not have permanently installed lighting shall have at least one switched receptacle installed;

Comment

Previous version required that all permanently installed lighting be on vacancy sensor controls, then this was removed in the latest version. The Reach Code should require lighting controls beyond what's required in the base code. Requiring that all lighting in the home be on an automatic shut-off will save more energy.

Recommendation:

All permanently installed lighting shall be high efficacy as defined in Title 24, Part 6 and shall be on an automatic shut-off device.

Thank you for your consideration of these comments.

Respectfully submitted,

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