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Response to CASE Submission TN 221679

Additional submitted attachment is included below.

From: Wayne Alldredge <walldredge@vca-green.com>
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To: Energy - Docket Optical System
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Response to the submission from the Statewide Utility Codes and Standards Team Comments on Lighting Topics in 2, Docket Number: 17-BSTD-01, Project Title: 2019 Building Energy Efficiency Standards PreRulemaking, TN Number: 221679

I appreciate and thank the CEC for the opportunity to participate in the effort to update California's Building Energy Efficiency Standards (Title 24, Part 6).

In response to the CASE team's submission, I agree with most of their proposed changes. However there are a two areas where I think their proposals will stagnate efficiency rather than promote it.

My first response is to CASE's "2. Lighting Alterations".
Alterations apply to existing buildings. Having over 25 years of experience in building operations, maintenance, and energy efficiency, has led me to believe that most building owners/managers approach lighting alterations/modifications by first asking, "will this trigger Title 24?" If the answer is yes, the alteration is frequently cancelled.
CASE is suggesting that the 70 luminaire exception be applied per building and not per floor/tenant space. They also put forth an assumption that a "luminaire" covers 100 square feet of space and therefore, up to 35% of alterations would not be subject to the code. Let me address these:

70 Luminaires limitation: While I agree, alterations need to be limited, it must be agreed that nothing happens without the building owner spending money. Their decision is quite simple, "will I make my money back quickly enough to warrant the retrofit?" If Title 24 efficiency and control requirements are triggered, lighting upgrade costs increase dramatically, doubling, tripling, or even more. This turns even a two year payback into a non-starter project. Owners will then opt to throw in replacement lamps (typically fluorescent) and forgo the energy savings. I have seen this over and over. The correct philosophy should be to provide a code compliance path that incents owners to upgrade even at the time when they would typically re-lamp. Setting the alteration limit to 70 per building is a hammer, not a carrot.
I know I don't have all the answers, but a preferred approach for adoption, would be if the altered luminaire exemption were to include performance targets. For instance, 70 luminaires per floor, or 140 per floor if the maximum wattage is reduced by 40% or more.
To illustrate why, take a 100 luminaire suite getting re-leased for example. An owner under CASE's proposal would be more likely to relamp because of the high cost of controls for a job this small, particularly, if they have another space up for lease anywhere in the building in the same year.
On the other hand, under a performance exception, the owner could alter all 100 luminaires with new, fashionable LEDs if they save 40% or more on energy. With LEDs, they also can chose control compatible (like 0-10v dimming) retrofit kits to enhance future serviceability without triggering the full complement of controls and testing under Title 24. The benefit to the owner is that the suite looks better, operates better, and is therefore easier to lease. The benefit to the state is that yet another suite is more efficient.

2.1.2 Recommended Revisions to the Express Terms
Section 141.0(b)2I:
EXCEPTION 6 to Section 141.0(b)2I. For each building or tenant space, alteration of components in up to 70 luminaires per floor of the space without increasing lighting power, per annum , or 140 luminaires per floor of the space while decreasing lighting power at least 40% compared to the system prior

to the alteration, per annum.

My second response is to CASE's "2.2 The "Reduction of Existing Wattage" Compliance Option"
CASE states, "*Given the proposed 70-luminaire exception and assuming each luminaire is serving approximately 100 square feet, the spaces that are about 7,000 square feet in size will not be subject to the lighting alteration requirements. In this case, Option 3 that is available for buildings or tenant spaces that are less than 5,000 square feet becomes irrelevant.*"
I have conducted numerous surveys and energy audits and this assumption, in my opinion, is way off. Buildings like ware houses cover vast areas with few fixtures and buildings like offices, medical buildings, entertainment, etc., frequently have far more fixtures per foot – and a variety as well. While a 2x4 troffer might cover 100 square feet, we have to remember that a luminaire could be a 'can' light, a 2x2 or a strip fixture as well. In my office right now, we have 1 fixture for about 60 square feet. This indicates to me that CASE's calculation of "*28-35 percent of lighting alterations that are currently regulated under 2016 Title 24, Part 6 would not be subject to code*" is generous considering it is these properties with higher lighting densities that are more frequently affected by the code.

My opinion is that no revision from the 2019 Draft standard is necessary in Section 141.0(b)2I, subsection I. Altered Indoor Lighting Systems: iii.

I do not disagree with other points brought forth by CASE in their submission. In particular, I fully support their assessment of the Correlated Color Temperature and Dimmability Requirements.

Simply as an informational comment of what I am seeing in the field… This is in regard to the 24 foot parking pole or area light motion detection language in outdoor lighting.
20 foot poles frequently are manufactures as 4"x4" of 11 gauge steel and the taller 25 foot poles are frequently 5"x5" of 7 gauge and therefore more expensive. While I don't know the exact reason for the CEC to select 24' for motion detection installation, I can tell you that I am seeing projects mount the smaller 20 foot poles on concrete sonotube pours slightly over 4' tall to circumvent the control requirement. I can't imagine that actually saves much money, but it is indicative of the public or contractor sentiment of 'getting around' code or code language.

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