

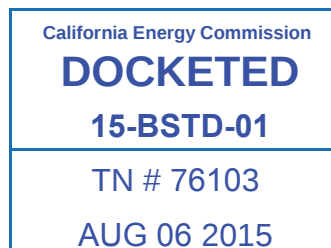


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Submitted via email: docket@energy.ca.gov

Mr. Andrew McAllister
Commissioner
California Energy Commission
1516 Ninth Street
Sacramento, California 95814



Docket No.15-BSTD-01

**Adoption of 15-Day Language for 2016 Energy Efficiency Building Standards
Proposed Revisions to CEC Title 24, Part 6; 2016 Lighting Alteration Provisions**

Dear Commissioner McAllister,

Acuity Brands appreciates the opportunity to provide comments regarding the Title 24 Building Energy Code. Acuity Brands has a long history of working with the Commission and contractors to promote the adoption of the state building code to promote high efficiency lighting installations.

Acuity Brands is the leading manufacturer of luminaries and lighting controls in North America. We operate facilities throughout California under the Peerless, Hydrel, Lighting Control & Design and Sunoptics product brands. In addition, our western region manufacturing and distribution center is located in Ontario, CA. The California building code has a direct impact on our investment of nearly 400 California based employees.

Please contact Cheryl or Tanya to discuss our comments in more detail.

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Acuity Brands remains committed to promoting energy efficient lighting alterations to achieve California's net zero goals. We continue to reinforce the commitment from manufacturers to support the 2013 code with wireless controls that provide significantly more energy savings than luminaire power reductions. These controls are easy to install and provide better adaptability to the visual needs than static lighting systems. While we remain concerned regarding the potential backsliding of the code, the proposed 15-day language for lighting alterations establishes a potential foundation for a reasonable compromise for lighting alteration and retrofit projects by providing alternate paths for compliance. The following recommendations are submitted to address specific concerns with the proposed code language.

Compliance option using reduced rated luminaire wattage

We appreciate the more stringent requirement in the proposed compliance method utilizing reduced luminaire power for entire luminaire alterations (141.0(b)2I), luminaire components modifications (141.0(b)2J) and alterations to existing outdoor lighting systems (141.0(b)2L). The increase from 30% to 35% will promote greater energy savings but does not maximize the energy savings potential.

- Because the 35% threshold is easily achieved with current lighting technology, we suggest that there is no need to increase the threshold to 70 luminaires for luminaire component modifications (Section 141.0(b)2J). We strongly recommend that this threshold remain at 40 luminaires.
- Based on discussion at previous workshops it was our understanding that the power reduction compliance method would apply only to small renovation projects. Therefore, we recommend that a threshold of 40 luminaires should be added for entire luminaire alterations (Section 141.0(b)2Iii). Upon further discussion with staff, it was indicated that the power reduction compliance is available for luminaire alterations regardless of the size of the project. In fact, CEC 2016 T-24 Lighting Alteration Savings Analysis (http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/15day_2016_LAP/additional_documents_relied_upon/Lighting%20alteration%20savings%20analysis.pdf) indicates that over 50% of lighting alteration projects will pursue a power reduction compliance path and those projects will only require area and shut-off control. This action will limit the Commission's ability to achieve net zero because a modest reduction in luminaire power does not enable buildings to implement more robust controls in the future that respond to occupancy, daylight, user needs or demand management. Furthermore, this will shift the market to a compliance solution that will be detrimental to the investments made by manufacturers in control solutions since many projects will now pursue the easier power reduction compliance path.
 - If the Commission chooses to allow the power reduction compliance option for any size renovation project, then we strongly urge the Commission to increase the power reduction threshold from 35% to 50%, which is easily achieved by current solid state renovation solutions. These proven technologies are widely available for commercial, retail and industrial applications with a variety of high quality optical and aesthetic solutions. (See Appendix A)
 - The projections of energy savings in the Lighting Alteration Savings Analysis raise a number of questions about the assumptions regarding market share of technology solutions. The total energy impact reduction on page 4 of the report does not seem accurate. The majority of the savings are shown to be from a power reduction, with no reference to non-controllable time of use. The study suggests that multilevel, shut-off and daylighting controls contribute no savings or have negative savings. However these strategies have significant energy savings potential when time of use is considered. The analysis does not seem to accurately represent the energy savings potential for controls and does not consider the negative impact on California in the future resulting from buildings that have very limited control or response capability.
- Sections of the code related to new construction define how the power of a luminaire is determined in section 130.0(c). In order to ensure that a lighting alteration or luminaire component modification achieves the intended power reduction, we recommend that the altered or modified luminaire power be determined in accordance with 130.0(c) based on the maximum rated power rather than the installed power. This will ensure

that the intended power reduction is achieved and maintained if the light source is replaced with a higher wattage source after the inspection. This power determination also provides consistency to other sections of the code to eliminate confusion for inspectors.

- Many renovation projects will reduce the amount of light provided by the luminaires since older installations are likely to provide much higher illuminance levels than what is currently recommended by IES for the visual tasks. However, the code should not encourage light levels that are lower than IES recommended illuminance values simply to achieve the power reduction threshold. We suggest that the Commission include a requirement that installations using the power reduction compliance method meet recommended IES illuminance for the maintained light level and shall be verified by a third party or the inspector after the renovation is completed.
- There is currently no mechanism that we are aware of to confirm the compliance of reduced rated luminaire wattage since the inspector has no knowledge of what was installed prior to the inspection. To ensure compliance, we recommend that the Commission require the installer to obtain an independent certification of the collective luminaire power prior to any lighting alterations or modifications for interior or outdoor lighting using the reduced rated luminaire wattage compliance path. While there may be a cost to the installer to obtain this certification, it is appropriate when utilizing a relaxed compliance option and minimal as compared to the equipment cost to comply with controls. This certification will eliminate a significant loophole in the inspection process, facilitate effective inspections and will help ensure that the intended power reduction is achieved.

Controls technologies for lighting alterations

It is clear that many contractors and installers have an interest in utilizing lighting controls for lighting alterations, but may not be familiar with some of the newer technologies. At previous workshops, many of these contractors indicated the importance of their investment in the CALCTP training and certification. While manufacturers such as Acuity Brands have conducted training for many contractors in California, we encourage the Commission to invest in training resources to reach a broader audience. The California Lighting Technology Center at UC Davis developed various training programs to support the 2013 code and would be an excellent resource to assist with the training for 2016 lighting alteration requirements.

Effective date of the lighting alteration code revisions

At previous Commission workshops, it has been suggested that the 2016 code revisions for lighting alterations become effective immediately upon adoption. We strongly discourage this action by the Commission. It is not reasonable to require industry and building stakeholders to prepare and react to the code changes without the standard implementation timing and it would be inappropriate for the Commission to carve out specific sections for early effective dates. This action will cause significant confusion for the industry and inspectors, especially related to projects that are currently planned or in progress. We are concerned that an accelerated effective date will lead to ineffective inspections and non-compliance.

RECOMMENDATIONS:

We recommend that the CEC:

- 1. Maintain a 40 luminaire threshold for luminaire alterations in Section 141.0(b)2J rather than the relaxed threshold of 70 luminaires as proposed.*
- 2. Add a luminaire threshold of 40 luminaires for entire luminaire alterations (Section 141.0(b)2Iii).*
- 3. If the power reduction compliance method is intended for projects with luminaire alterations of any size, the power reduction threshold should be increased from 35% to 50% in order to maximize energy savings with proven solid state renovation technologies.*
- 4. For sections associated with the reduced rated power compliance option (Sections 141.0(b)2I, 141.0(b)2J and 141.0(b)2L), require the post-installation power to be determined based on the definition in Section 130.0(c).*
- 5. Require all lighting alterations using the power reduction compliance method to verify that post-installation illuminance levels meet IES recommendations.*
- 6. Require the installer to obtain an independent certification for the collective luminaire power prior to any lighting alterations or modifications for interior or outdoor lighting pursuing the reduced rated luminaire wattage compliance path.*
- 7. Invest in training resources to clarify the code requirements and technology solutions in order to reach a broader audience of installers for lighting alterations and retrofits.*
- 8. Maintain an effective date for lighting alterations that is consistent with the rest of the 2016 code to avoid the potential for confusion in the industry and among the inspection community.*

Appendix A-1

Power Comparison of LED versus Fluorescent Systems

Power Comparison - 2x4 LED vs. T12 & T8				
System	Light Source	Input Watts	Watts saved	% reduction
4000 lumen LED	LED	38	Baseline	Baseline
4-lamp T12	F40T12	144	106	74%
4-lamp T8	F32T8	110	72	65%
3-lamp T12	F40T12	108	70	65%
3-lamp T8	F32T8	90	52	58%
2-lamp T12	F40T12	72	34	47%
2-lamp T8	F32T8	60	22	37%

Appendix A-2

Examples of Acuity Brands LED Lighting Alteration Solutions for Commercial and Industrial Applications



**ES8R - High
Performance
Relighting for
Parabolics**



**RT5R - Relighting
for Parabolics**



**MRT Retrofit Kit -
Troffer Retrofit Kit**



**MRS Retrofit Kit -
Strip and
Industrial Retrofit
Kit**



**RT5RT -
Relighting for
Lensed Troffers**



**RT8R - Relighting
for Parabolics**



**RT8RT -
Relighting for
Lensed Troffers**



**AVRK Retrofit Kit
- Industrial
Retrofit Kit**



**AGRK Retrofit Kit
- Strip Conversion
Kit**



**RTLRL LED - LED
Relighting for
Parabolics**



**VT5R - Relighting
for parabolic
fixtures**



**VT8R - Relighting
for parabolic
fixtures**



**VTLRL LED - LED
RELIGHT
Assembly System
for Lensed &
Parabolic Troffers
(VTLR/VTLRT)
featuring eldoLED**



**VT8RT -
Relighting for T8
Lensed Troffers**



**VT5RT -
Relighting for T5
Lensed Troffers**