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International Association of Lighting Designers

Additional submitted attachment is included below.

Memorandum

To:	California Energy Commission Dockets Office, MS-4 1516 Ninth Street Sacramento, CA 95814-5512	**Date:**	13 July 2017
		From:	Michael Lindsey IALD Representative
		Pages:	3
cc:		**Project:**	Nonresidential Lighting Measures for 2019 Standards Docket No. 17-BSTD-01
		Sent via:	Email

Regarding: T-24 2019 Building Energy Efficiency Standards – Preliminary Comments

Dear California Energy Commission,

On behalf of the IALD Energy & Sustainability Committee, I'm pleased to submit the following comments regarding the various preliminary proposals for consideration in the upcoming 2019 California Building Energy Efficiency Standards.

Please review the items listed below organized by the various Case proposals up for consideration.

Outdoor Lighting Sources

There are many positive steps and identified processes' in the calculations and supporting information to the recommended revisions such as modeling assuming a 3000K light source along with the baseline studies utilizing common LED sources. However, in cross checking the recommendations with the provided calculations, there were some areas requiring further clarification as well as recognizable discrepancies and modeling assumptions that we disagree with.

- To confirm, IES RP 20 is recognized in the standard development but the proposed revisions to the 2014 version are not being assumed in the calculation studies, is that correct? We believe that the currently adopted IES RP 20 - 14 should remain the standard and if the updated version is adopted, code language should only then be modified.

- Have external temperature / climate been considered or accounted for in any of the studies? For example, parking lot fixtures in Palm Springs will operate and have a life expectancy that differs greatly from Portland. If this has been considered, can you please outline how?

- Section 4.1 – This section references Appendix F noting the average lumen depreciation at 60,000 for various LED sources. Table 98 notes an average lumen depreciation to 0.9 of initial output, while Table 100 notes an average of 0.831. Please clarify as Table 100 appears to account for a higher variety of fixture and we believe should be the lumen depreciation value used in calculations.

- Section 5.3 – It is noted that *"the savings were achieved as a result of improved light loss factors, allowing a lower initial wattage to maintain the same light levels over time."* It appears that only a 0.9 overall LLF was applied to the modeling studies. Is that correct?

- Section 5.4 – It is noted that in the 15 year modeling period, *"no maintenance is expected for any of the LED lighting equipment because the products are still within their life expectancy at that time."*

  While we agree and hope that remains true with LED products, that would also imply that there is no cleaning of the exterior fixtures. Referencing IES-RES-1-16, it is recommendation that dirt depreciation of 1% - 3% be assumed per year.

  Assuming no maintenance specifically implies, then, that the total dirt depreciation over 15 years could be as high as 45% and should be no less than 15%. It appears that dirt has not been appropriately recognized in the studies and would affect the necessary output / wattage required to meet light levels over a 15 year period.

- Section 7.1, 130.2 (b) - Setting the threshold of BUG compliance from 150W to 30W appears to be a drastic reduction. Understanding the baseline being an LED source, this reduction does not seem to reflect equal lumen output when compared to the previous ceramic metal halide baseline. A 150W metal halide is often ~13,000 lumens while even the highest performing 150 lumens/W LED is only delivering 4500 lumens. Accounting for both reflector efficiency and mean lumen values of a metal halide, the previous baseline appears to account for a higher lumen value than the recommended revision.

Overall, the main concern we have is with the main justification for lowering LPAs relying on light loss factors that we believe apply both incorrect lumen depreciation factors and incorrect dirt depreciation factors, which leads to a significant disparity. Using the 0.831 lumen depreciation factor reported in Table 100 and the 0.85 dirt depreciation factor that would be drawn as the most aggressive conclusion of IES research, the overall light loss factor considered should be no greater than 0.706

Indoor Lighting Contols

Many recommendations here look to be positive steps forward in developing technology and design. We agree with the revised requirement for fluorescent light sources to be required for continual dimming but would recommend considering a 10% minimum threshold as industry availability seems greater at that range then 20%.

We would also request that consideration be placed regarding daylighting dimming to 5% instead of requiring an "off" condition when design light levels are 150% above recommended practice. Often in designs, owners and maintenance staffs are presented with a challenge of identifying when light fixtures are not functioning properly or simply accounting for natural light. Providing the option of keeping on at 5% has shown significant energy savings, while also identify for maintenance staff if fixtures are operating properly

Indoor Lighting Sources

We are please to see many positive developments in code language and simplification of compliance which we believe critical to the design community effectively meeting and improving upon code.

Positive developments that we agree with are:

- Movement to utilize LED sources as the baseline in CASE studies
- The use of dim-to-warm and high CRI sources for design areas in which those characteristics are utilized (Hospitality, museum, etc.)

- Simplification of wattage allowances related to track lighting
- Removing the requirement related to replacement LED lamps in screw-base sockets.
- Reduction of LPD values in Whole Building Method in an effort to direct designers to the more application specific Area Category Method.

We do share concerns however with the continued dramatic reduction of LPD values within the area category method that begin limiting designers opportunities for added layers of light in a design which dramatically impact the perception and feel of space.

- Overall, 44% of the listed applications in the Area Category Method show LPA reductions of 30% or greater. There is concern in the design community that this becomes overly aggressive and will impact critical layers of light. We look for opportunities to share recent completed designs using advanced LED technology to compare and justify if the dramatic reduction is achievable.

- It was not readily apparent how hotel guestrooms were being handled with an allowed wattage standpoint. Are hotel guestrooms still considered exempt?

- Please provide definition of a “Civic Center”.

Thank you as always for allowing our team the opportunity to be involved in this critical opening stage of the code making process. We believe that with our organizations continued and active involvement, we can continue to work as partners in influencing energy legislation in a positive manner. We look forward to engaging with the CEC further as the code process continues.

Feel free to contact me directly should you have any questions regarding the submitted comments.

Regards,

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