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Staff Supplement to CASE Report #2019-NR-LIGHT2-F

Date: 11/13/2017

Pages: 2

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Subject: Nonresidential Indoor Lighting Power Densities, 2019-NR-LIGHT2-F

DESCRIPTION OF PROPOSED REGULATORY CHANGES

CASE report #2019-NR-LIGHT2-F, titled Indoor Lighting Power Densities – Final Report, proposes to make the following changes to the Standards:

1. This report proposes to use light emitting diodes (LEDs) as the basis for calculating allowable lighting power densities (LPDs) values (watts of lighting per square foot of room floor area) for all interior applications where technically feasible. The proposed measure revises the indoor lighting allowances found in Tables 140.6-B, 140.6-C, 140.6-D and Table 140.6-G. The CASE Team is proposing new indoor LPD requirements based on currently available cost-effective LED luminaires. This proposal is based on LED sources that have color temperature and CRI comparable to legacy light sources.
2. A new use-it-or-lose-it additional LPDs for task work, display, ornamental and other special lighting application is provided under Area Category Method. There are also additional lighting wattage allowed for providing extra light to areas occupied by elderly or visually impaired. These additional LPDs are specified in Table 140.6-C.
3. Installed lighting wattage is reduced to account for areas with high display lighting mounting height, or where the lighting is small aperture and color-tuning. Installed lighting power for these luminaires is reduced by using a multiplier. These proposed changes can be found in Section 140.6(a)4.
4. This report also proposes to remove existing language in Section 130.0(c) that discourages the use of screw-base LED lamps and also to eliminate the alternate minimum watts per linear foot of track when a current limiter is used. This aligns with ASHRAE 90.1-2016 requirements on current limiters.
5. The Report proposes two options in regard to Power over Ethernet (PoE) technology. Under Option 1, lighting system power is equal to the power supply or current limiter power. Under Option 2, lighting system power is luminaire power plus losses.
6. Replaced the term “Actual Indoor Lighting Power” by the term “Adjusted Indoor Lighting Power” throughout Section 140.6
7. Simplify the code language in Section 110.9.

Staff agrees with the proposed changes as indicated in Item #1, 2, 3, 4, and 7. Staff has incorporated substantively similar changes into the proposed Express Terms.

Staff does not agree with the proposed changes to Option 2 (luminaire power plus losses) under Item #5, concerning Section 130.0(c)5 and Power over Ethernet (PoE) systems, and have instead proposed to make the following changes, similar to Option 1, to Section 130.0(c)6:

- The wattage of all other lighting equipment not addressed by Section 130.0(c)1 through 5 shall be the maximum rated wattage of the lighting equipment, or operating input wattage of the system, labeled in accordance with Section 130.0(c)1, or published in manufacturer's catalogs, based on independent testing lab reports as specified by UL 1574 or UL 1598.

Staff is proposing this alternative because there are other power demands not accounted for in the proposed Option 2, such as the power required for operating the Ethernet Switch and any power sourcing equipment. Staff's proposed alternative ensures all wattage is accounted for in operating the lighting system.

Staff does not agree with the proposed change of Item #6 to replace the term "Actual Indoor Lighting Power" with the term "Adjusted Indoor Lighting Power" in Section 140.6, and have not adopted the proposed changes. Staff finds that the term "Actual" accurately reflects that the term is about the anticipated wattage demand of all planned lighting systems. Some, but not all, planned lighting systems could qualify for adjustment to lighting power for specific applications as specified in other parts of Section 140.6, and it could be misleading to use the term "Adjusted Indoor Lighting Power" when an adjustment is not applied.

STAFF ANALYSIS AND CONCLUSION

Staff has analyzed the submitted CASE report and reached the following conclusions for the measures included in the Express Terms:

- Based on the evidence presented in the CASE Report, the measures, as proposed, appear to be cost effective and the author appears to have appropriately followed the Energy Commission's Life Cycle Cost methodology.

- Measure costs premiums presented in the CASE Report appear reasonable and appropriate for the measure proposed.

- Measure energy savings presented in the CASE Report appear to have been appropriately modeled and appear credible.