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Comment Received From: Michael Scalzo

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**Docket No. 17-BTSD-02 Non-Residential Lighting Measures for 2019 Standards
NLCAA comments**

Additional submitted attachment is included below.



California Energy Commission
Docket No. 17-BTSD-01
1516 Ninth Street
Sacramento, CA 95814-5512

RE: Docket No. 17-BTSD-01 – Non-Residential Lighting Measures for 2019 Standards

Thank you to the commission staff for your efforts and the opportunity to provide comments on this docket. These comments are based on feedback and experiences in the field from NLCAA's ATT's & ATE's.

1. §100.1 - DEFINITIONS AND RULES OF CONSTRUCTION

AREA and SPACE are not defined.

- §130.1 and §130.5 contain both terms, not to mention other code sections.
 - §130.5(d) states “kitchen areas in office spaces”
- ATT's must define the location of luminaires during functional testing, terminology becomes an issue with an unhappy designer after an ATT has determined an area/space is different than what the designer had determined, especially when the term is not defined.

2. §10-103-1(c)3(B)(iii) - NONRESIDENTIAL LIGHTING CONTROLS ACCEPTANCE TEST TRAINING AND CERTIFICATION

NOTE: ATTCPs may specify additional qualifications for participation in their programs, such as limiting participation to persons that are not currently listed as “decertified” by another ATTCP.

NLCAA approves of this new language with additional comments.

- This note allows the ATTCP to determine if the candidate is viable.
- A decertification of an ATT may not always be based upon poor quality or ineffective work, failure to perform acceptance tests, falsification of documents, or failure to comply with the documentation requirements of these regulations.
 - Because of this, it would seem unnecessary to prevent an ATT from joining another ATTCP due to a minor infraction such as a decertification due to an administrative issue with an ATTCP. We have concerns over a requirement that would prevent a decertified ATT to be certified by another ATTCP, this is especially true when an ATT is certified with two ATTCP's.
 - The language could be extended to include verbiage requiring the ATTCP to document the reasoning behind an ATT or ATE's decertification for review by another ATTCP when deciding to allow them to become certified or not.



3. §110.12(c) - DEMAND RESPONSE CONTROLS

Nonresidential buildings larger than 10,000 square feet shall be capable of automatically reducing lighting power in response to a Demand Response Signal. For compliance, the building shall demonstrate that the control is capable of reducing power in controlled spaces by reducing the lighting power by a minimum of 15 percent below the total installed lighting power. General lighting shall be reduced in a manner consistent with the uniform level of illumination requirements in TABLE 130.1-A.

- Language cleanup: Clarify projects over 10,000 ft² verses buildings over 10,000 ft².
- This was already clarified in a CEC Blue Print article.

4. §130.1(a)2 - MANUAL AREA CONTROLS

Be located in the same enclosed area with the lighting it controls; and

It is not always feasible to have the area control in the enclosed space.

- Consider “in the area” (depending on the definition of area)
 - During the testing process ATT’s have come across situations where the area control could not be placed in the enclosed space.
 - These situations could occur when an ATT is working in scientific labs, hazardous environments, industrial manufacturing areas, studio recording rooms, public areas, and fire hazards to name a few.
 - And/or add language “unless health and safety dictates otherwise”.

5. §130.1(a) - EXCEPTION to §130.1(a)

EXCEPTION to Section 130.1(a)1: Up to 0.2 watts per square foot of ~~indoor lighting in any area within a building~~ may be continuously illuminated to allow for means of egress illumination consistent with California Building Code Section 1008. Egress lighting complying with this wattage limitation is not required to comply with manual area control requirements if:

Can you clarify and state in the code that this exception applies to operational or non-operational hours?

- Exception to §130.1(a) and Exception 3 to §130.1(c)1 are misinterpreted by designers which creates design and installation issues.
- This is generally not discovered until the project is undergoing ATT functional testing.



6. §130.1(b) - MULTI-LEVEL CONTROLS

Consider adding an exception for commercial kitchens.

- Division 104-Environmental Health Part 7. California Retail Food Code has mandatory light levels requirements for kitchens.
 - “114252 - Lighting(c) Except in server stations where FOOD is prepared, at least 50-foot candles at a SURFACE where a FOOD EMPLOYEE is working with FOOD or working with UTENSILS and EQUIPMENT such as knives, slicers, grinders, or saws where EMPLOYEE safety is a factor.”
- In the majority of projects that we have seen of commercial kitchens, it would not be allowable to dim the lighting due to health code requirements.

7. §130.1(c) - EXCEPTION 3 to §130.1(c)1

EXCEPTION 3 to Section 130.1(c)1: Up to 0.1 watts per square foot of lighting in any area within a building may be continuously illuminated, provided that the area is designated for means of egress on the plans and specifications submitted to the enforcement agency under Section 10-103(a)2 of Part 1.

Can you clarify and state that this exception applies to operational or non-operational hours?

- Exception to §130.1(a) and Exception 3 to §130.1(c)1 are misinterpreted by designers which creates design and installation issues.
- This is generally not discovered until the project is undergoing ATT functional testing.

8. §130.1(d)2 – AUTOMATIC DAYLIGHTING CONTROLS

Luminaires in the Skylit Daylit Zone shall be controlled separately from those in the Primary Sidelit Daylit Zones. The automatic daylighting controls shall provide separate control for luminaires in each type of daylit zone. ~~C. Luminaires that fall in both a Skylit and Primary Sidelit Daylit Zone shall be controlled as part of the Skylit Daylit Zone.~~

This does not explain the hierarchy of all the daylit zones.

- The Secondary Zone is not included.
- Designers and ATT’s are savvy to the hierarchy, but installers and AHJ inspectors that are now looking in the Standards may not be.

9. §130.1(d)3(A) – AUTOMATIC DAYLIGHTING CONTROLS

For spaces required to install multilevel controls under Section 130.1(c), adjust lighting via continuous dimming or Automatic daylighting controls shall provide functional multilevel lighting



having at least the number of control steps specified in TABLE 130.1-A provided by the multilevel controls.

Consider leaving TABLE 130.1-A as a requirement in this code section.

- The verbiage, “or the number of control steps provided by the multilevel controls” allows any multilevel control to be installed.
- This change will not require an ATT to ensure that requirements of TABLE 130.1-A are met during functional testing.
- You may see photo cells installed instead of multilevel controls.

10. §130.1(d)3(A) - EXCEPTION 1 to §130.1(d):

EXCEPTION 1 to Section 130.1(d): Areas under skylights where it is documented that existing adjacent structures or natural objects block direct sunlight for more than 1,500 daytime hours per year between 8a.m. and 4p.m.

How will this be documented and verified?

- We have concerns on how this will be documented and verified. As it stands now, quite often ATT’s and installers are working with plans where the daylit zones are not correctly documented on the plans that have passed plan check, which the ATT is required to verify and document during the testing procedures. Relying on the AHJ Plan Check or Inspection teams to verify the shading is not realistic in all jurisdictions. Some/most AHJ’s are already relying on the ATT’s for anything T24 related compliance. There are designers that use every tool available to reduce the amount of controls on projects for cost reduction and this could just become another tool for them to remove energy conservation controls that should be required.
- This should also apply to Sidelit fenestrations.
- It needs to be clearly documented to the installers and ATT’s, otherwise there may be confusion during the installation and functional testing.

11. §130.1(d)3(A) - EXCEPTION 2 to §130.1(d)

EXCEPTION 2 to Section 130.1(d): Areas adjacent to vertical glazing below an overhang, where there is no vertical glazing above the overhang and where the ratio of the overhang projection to the overhang rise is greater than 1.5 for South, East and West orientations, or where the ratio of the overhang projection to the overhang rise is greater than 1 for North orientations.

How will this be documented and verified?

- We feel that this exception will resolve many issues when it comes to the testing of daylit zones that have this condition. The design of daylit zones seem simple enough during the
- design phase utilizing the code requirements. The issue will be during the testing procedures when verifying the overhang. It may not match the designed overhang and will need to be



- verified and documented by the ATT during the testing procedures. It will be critical how the code clarifies the requirements of this condition.
- I recommend providing requirements for the max elevation that the overhang can be from the top of the fenestration. If the overhang is on the tenth floor and the fenestration ends at the first floor, the overhang would not have any impact on the daylit zone.

Other conditions that should be considered for an exception:

- North facing fenestration that cannot receive enough daylight (reference illuminance) should pass the functional testing which is typically all North facing fenestrations. This could be added to NA7.
- Fenestration that is completely blocked; i.e. buildings directly up against other buildings, very close nearby buildings, stained glass windows.
- It needs to be clearly documented to the installers and ATT's, otherwise there may be confusion during the installation and functional testing.

12. §130.1(f)4 - CONTROL INTERACTIONS

The multi-level lighting control shall permit the automatic daylighting control to adjust the electric lighting level as the amount of daylighting increases or decreases, so that the total amount of light remains stable.

Stable is not defined in §100.0

- I am not sure what stable refers to.
 - Maintains reference illuminance?
 - Does not flicker?

13. §130.1(f)6 - CONTROL INTERACTIONS

The automatic daylighting control shall permit the multi-level lighting control to make further adjustments to the level of lighting.

This seems vague, does this refer to multilevel controls in §130.1(b)?

- Is this referring to a dimmer lowering the light level and/or raising the light level?
- If raising the light level is there a time limit before it must return to normal operation?

14. §130.2(c)2(B) - OUTDOOR LIGHTING CONTROLS AND EQUIPMENT

For automatic scheduling controls, acceptance tests of outdoor lighting controls shall be conducted as specified in Section 130.4(a) and 130.4(a)6 to verify the scheduled occupied and unoccupied periods.

“130.4(a) is redundant with 130.4(a)6 in the sentence.



15. §130.2(c)3 - EXCEPTION 3 to §130.2(c)3

Luminaires located where trees or other obstructions block motion sensing between the luminaire and the area illuminated by the luminaire.

We have concerns on how this will be documented and verified.

- Relying on the AHJ Plan Check or Inspection teams to verify the blockage is not realistic in all jurisdictions; some/most AHJ's are already relying on the ATT's for anything T24 related compliance. There are designers that use every tool available to reduce the amount of controls on projects for cost reduction and this could just become another tool for them to remove energy conservation controls that should be required.
- It needs to be clearly documented to the installers and ATT's, otherwise there may be confusion during the installation and functional testing.

16. §140.6(d) - EXCEPTION 3 to §140.6(d)

Areas adjacent to vertical glazing below an overhang, where there is no vertical glazing above the overhang and where the ratio of the overhang projection to the overhang rise is greater than 1.5 for South, East and West orientations, or where the ratio of the overhang projection to the overhang rise is greater than 1 for North orientations.

How will this be documented and verified?

- We feel that this exception will resolve many issues when it comes to the testing of daylit zones that have this condition. The design of daylit zones seem simple enough during the design phase utilizing the code requirements. The issue will be during the testing procedures when verifying the overhang, it may not match the designed overhang and will need to be verified and documented by the ATT during the testing procedures. It is critical how the code clarifies the requirements of this condition.
- I recommend providing requirements for the max elevation that the overhang can be from the top of the fenestration. If the overhang is on the tenth floor and the fenestration ends at the first floor the overhang would not have any impact on the daylit zone.

Other conditions that should be considered for an exception:

- North facing fenestration that cannot receive enough daylight (reference illuminance) to pass the functional testing which is typically all North facing fenestrations. This could be added to NA7.
- Fenestration that is completely blocked; i.e. buildings directly up against other buildings, very close nearby buildings, stained glass windows.

It needs to clearly be documented to the installers and ATT's, otherwise there may be confusion during the installation and functional testing



17. §141.0(b)2(I) - ALTERATIONS

Alterations to lighting wiring are considered alterations to the lighting system. Alterations to indoor lighting systems are not required to separate existing general, floor, wall, display, or ornamental lighting on shared circuits or controls. New or completely replaced lighting circuits shall comply with the control separation requirements of Section 130.1(a)4 and 130.1(c)1D.

“completely replaced”, this needs to be defined, it can be interpreted differently.

This term is repeated in Table 141.0-E.

- Altered luminaires to unaltered luminaire
 - Completely replacing the lighting circuit for only the altered luminaires.
- Luminaires to lighting control device (switch/dimmer/lighting control relay).
 - Completely replacing the lighting circuit with or without unaltered luminaires.
- Luminaires to Power source (junction box)
 - Completely replacing the lighting circuit with or without unaltered luminaires.
- Luminaires to power source (circuit breaker)
 - One circuit supplying power to the altered area may also supply power to another area that is not altered using a junction box.

Thank you for any and all considerations,

Michael Scalzo

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