

DOCKETED

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October 6, 2020

To: California Energy Commission

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Re: NLCAA comments on the Case Report Nonresidential Daylighting

NLCAA is one of the two approved Lighting Controls Acceptance Test Technician Certification Providers (LC-ATTCP) that train, certify and provide oversight of Acceptance Test Technicians (LC-ATT) and their employers. NLCAA appreciates all the efforts that the CEC staff has consistently strived for to improve the ATTCP program. Equally, NLCAA enjoys working with the CEC staff to support all their efforts to improve the energy codes.

1. The Statewide CASE Team recommends: **Daylight Dimming to 10 Percent**

- This proposed code change would update the mandatory automatic daylight dimming controls provisions to require deeper reductions in lighting power when illuminance levels are met with daylight.

NLCAA comments on **Daylighting Dimming to 10 Percent:**

NLCAA has concerns of reducing the mandatory automatic daylight dimming controls lighting power down to 10%. NLCAA recommends a reduction to 20%.

- One concern is that not all LEDs are created equal, we have come across LED luminaires that were listed as a luminaire that would achieve a 10% level, but during the functional testing process for daylighting, they only were capable of nearing the 10% level before shutting off or starting to flicker. In these scenarios the luminaires would fail the functional test.
- Another concern is that you could create an unappealing light level with the lack of uniformity having the light levels reduce so low in daylight areas, the possibility of other light levels associated with occupancy based reductions required by energy code and full on light levels.

By mandating the reduction to only 20% you would address our first concern and our second comment with the daylighting level lowered to 20% could also align with the CASE Teams proposed code change for Multi-zone Occupancy Sensing in Large Offices which is recommending a reduction to 20% when the area is unoccupied. With the efficiency requirements for LEDs mandated by the energy code, would adding another 10% in energy have much of an impact?



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2. The Statewide CASE Team recommends: **Mandatory Controls in Secondary Sidelit Daylit Zones**
- This proposed code change would move the prescriptive requirements for automatic daylighting controls in secondary sidelit daylit zones (SDZs) to Section 130.1, the mandatory indoor lighting controls section of Title 24, Part 6. Currently, the requirement for automatic daylighting controls in SDZs is the only prescriptive lighting control requirement.

NLCAA comments on **Mandatory Controls in Secondary Sidelit Daylit Zones:**

NLCAA completely agrees with this proposal.

NLCAA finds it is very rare to come across a project using the performance method for the lighting, especially one that has traded away the secondary zone. It is often that ATTs come across projects that have daylit areas that lack the mandatory secondary daylit zone in the design or installation. This proposal would help California to achieve its energy efficiency goals for the state.

3. The Statewide CASE Team recommends: **Daylighting Controls Acceptance Test Cleanup**
- The proposed code change would update the Advanced Daylighting Controls Acceptance Tests to fix editorial errors and improve the technical feasibility of completing the test.
 1. Adjust procedures to verify and document that the lighting power reduction of controlled luminaires is at least 90 percent instead of 65 percent.
 2. Fix numbering errors.
 3. Adjust language and formatting to clearly depict the step where the “Reference Location” is identified. This is helpful because the Reference Location is mentioned multiple times throughout the remainder of the test procedure.
 4. Allow the full daylight condition to be simulated by shining a bright light into the photosensor, which makes it easier for the technicians to complete the test.
 5. Clarification that the automatic daylighting controls acceptance test is intended to be applied to the secondary sidelit daylit zone.

NLCAA comments on **Daylighting Controls Acceptance Test Cleanup:**

NLCAA is recommending that all lighting testing procedures in the Nonresidential Reference Appendices (NA7) be replaced with the testing process that is detailed in the acceptance testing forms (NRCAs) that is used for testing. Not all information in the NA7 is testing procedures and this information should remain as appropriate.

- Many inconsistencies exist in the acceptance testing procedures of NA7.6, NA7.7 and NA7.8 when compared to the lighting testing forms (NRCAs) which is primarily what an ATT uses to perform the testing.
- NLCAA works with the CEC to help ensure the NRCAs are free of errors. NLCAA and our ATTs are continuously working with the NRCAs which has assisted in making the NRCAs the more accurate documents compared to the NA7s that are not reviewed as much.



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- At times when an ATT is performing an acceptance test and the test does not pass, the ATT will identify why a test did not pass to the client. If the test did not pass due to a testing procedure used (in the NRCAs) the ATT will provide the code section found in the NA7s to the client so they can make the appropriate changes to pass the functional testing. If the NA7s do not match the forms, then this could lead to various other issues as the client makes their changes.

Utilizing the NRCA forms' process in lieu of the testing procedures that exist in the NA7s will ensure that both documents will match exactly and will minimize the efforts needed to maintain two different sets of procedures.

Has the CEC considered using or aligning with the MFG testing procedures if the MFG provides testing procedures for their specific daylight control product? This is similar how Section 130.0 speaks to the MFG installation instructions are to be followed and verified.

4. The Statewide CASE Team recommends: **Alternative Partial Daylight Test:**

- The Statewide CASE Team is recommending adding an Alternative Partial Daylight Test that could be used for continuous dimming control systems. This additional optional test does not place any limitation on using the current Partial Daylight Test. Rather, it provides an additional option that technicians can use in any building and may be particularly useful for daylit spaces with dark glazings or small window areas.

NLCAA comments on **Alternative Partial Daylight Test:**

NLCAA appreciates the efforts that were put into a solution for test in low light environments. This additional test method should be helpful as an optional testing method.

- NLCAA has performed various tests using this alternate method at our facility where we have an artificial skylight area and a sidelit daylit zone with natural daylight that we use for training. As a result of our findings, we found it would be helpful to have a greater maximum output allowance to provide some additional leeway for the device and/or the calibration. As we tested using very low natural daylit levels we found that the formula only allows for a small margin between the Reference Illuminance and the Max Output which may require a sensor to be more stringently calibrated to pass under the proposed requirements. Daylight sensor calibration can be challenging and many factors like sensor location, glazing size, location, cardinal orientation and MFG programming can impact the calibration to list a few.
- We also recommend reducing the Interior Daylight illuminance at Reference Location to no greater than 80 percent of Reference Illuminance (Design Illuminance) to prevent over-dimming of the daylit zone.

This alternative method is an excellent solution for testing on bright days when you have other conditions like North facing fenestration and tinted windows.