

ADAMS BROADWELL JOSEPH & CARDOZO

A PROFESSIONAL CORPORATION

ATTORNEYS AT LAW

520 CAPITOL MALL, SUITE 350
SACRAMENTO, CA 95814-4721

TEL: (916) 444-6201
FAX: (916) 444-6209

tenslow@adamsbroadwell.com

SO. SAN FRANCISCO OFFICE

601 GATEWAY BLVD., SUITE 1000
SO. SAN FRANCISCO, CA 94080

TEL: (650) 589-1660
FAX: (650) 589-5062

California Energy Commission

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VIA EMAIL ONLY

Mazi Shirakh, PE, MBA
Senior Mechanical Engineer
Project Manager, Building Energy Efficiency Standards
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814
mshirakh@energy.ca.gov

California Energy Commission
Attn: Docket 15-BSTD-01
Dockets Office
1516 Ninth Street, MS-4
Sacramento, CA 95814
Docket@energy.ca.gov

**Re: Opposition to Revised Proposed Lighting Control Exemptions:
New Proposed 2016 Code Amendments of Section 141.0(b)(2)
and Table 141.0-E**

Dear Mr. Shirakh:

On behalf of the California chapters of the National Electrical Contractors Association ("NECA"), the California International Brotherhood of Electrical Workers locals ("IBEW"), and the California State Labor Management Cooperation Committee for the International Brotherhood of Electrical Workers and the National Electrical Contractors Association ("LMCC"), I am writing to reiterate their opposition to any amendments to the 2016 Building Energy Efficiency Standards that would weaken, rollback or water down the lighting control and acceptance test requirements for alterations and modifications of indoor or outdoor luminaires in existing buildings from what is currently required by the 2013

Building Energy Efficiency Standards. NECA, IBEW and the LMCC represent over a 1,000 contractors and over 10,000 electricians who install lighting systems and lighting controls in California.

First, I'd like to thank staff for giving my clients an opportunity to review the latest iteration of the proposed amendments to Title 24 lighting retrofit control, power and acceptance test requirements. As discussed below, even with the recent changes to these proposals, IBEW, NECA and the LMCC still strongly oppose these changes.

While we understand that staff believes that this set of proposals saves (and slightly exceeds) as much energy as the current 2013 Standards lighting retrofit requirements, this assumption does not appear consistent with what is being proposed. Accordingly, we respectfully request an opportunity to review the energy savings/loss calculations that are being relied upon to justify this proposal.

My clients particularly object to the broad exemption that is being granted for acceptance testing and don't believe that staff has accurately evaluated the impact that this exemption will have on the energy savings actually achieved by Title 24 lighting control requirements.

Acceptance testing is a critical component to ensuring that paper energy savings translate to actual energy savings and have been required by Title 24 since 2005. Studies have found that the gap between the expected energy efficiency savings of HVAC and lighting control installations and the energy savings actually realized when evaluated has been as much as 51% and 63%.¹

This gap is particularly prevalent with the installation of advanced lighting controls. An evaluation of Title 24 acceptance testing effectiveness found that automatic day-lighting controls failed in 7 out of 7 tests, and occupancy sensors

¹ See Energy Division, California Public Utilities Commission, *Energy Efficiency Evaluation Report for the 2009 Bridge Funding Period* (January 2011). http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/EM+and+V/2009_Energy_Efficiency_Evaluation_Report.htm; Lutz, Al and Vishy Tirumalashett, ACEEE Summer Study Proceedings, *Measure by Measure: the Real Reasons for Gaps in Claimed and Evaluated Savings* (2012), <http://aceee.org/files/proceedings/2012/data/papers/0193-000134.pdf#page=1>.

failed in 2 out of 3 tests. All of the failures were due to design, installation, or calibration issues that would not have been identified without acceptance testing.²

As these studies show, without acceptance testing, the actual energy savings achieved by the installation of lighting controls may be less than half of what would be achieved with acceptance testing. While these studies are limited in size, they remain the best available evidence on the impact of acceptance testing.

A meaningful analysis of the impact of this exception must include a determination of what percentage of retrofits (and how many luminaires) this acceptance test exemption would cover. My clients are concerned that the proposal to exempt 20 or fewer controls from acceptance testing will effectively exempt the vast majority of lighting retrofit luminaires in the state.

The Commission also needs to evaluate the number of luminaires controlled by the lighting controls that may be exempted and the total energy consumption of these luminaires. A single lighting control may control hundreds of luminaires. Twenty controls could thus control thousands of luminaires without any verification that the expected energy savings from these controls would actually be achieved.

The studies cited above show that the actual energy savings achieved without acceptance testing may be less than half of what would be achieved with acceptance testing. The lost energy savings from this acceptance testing exception is thus likely to be enormous – potentially dwarfing any savings achieved elsewhere in the code update. Due to this potential impact, the proposal to roll back acceptance test requirements that have been in place since 2005 should not be allowed to go forward until a reliable determination of this proposal's impact is available for the Commissioners and the Administration to assess.

My clients also remain opposed to the proposal to exempt certain lighting alterations from area control, multi-level control and daylighting control requirements. These control requirements substantially increase energy savings in lighting retrofits. It is unclear on what basis staff is assuming that exempting alterations from these requirements will not result in decreased energy savings.

² Tyler, Matthew, John Farley and Eliot Crowe. Evaluation of Title 24 Acceptance Testing Enforcement and Effectiveness. PECI, September 2011.
http://www.cacx.org/PIER/documents/T24_Acceptance_Testing_Final_Report.pdf.

Under current 2013 standards, alterations of more than 10% of luminaires must include, at a minimum, area controls, automatic shut-off controls and two-level lighting controls; and in certain circumstances must also include daylighting and multi-level controls. The new proposal exempts lighting alterations from all area control, multi-level control and daylighting control requirements if the replacement luminaires have at least 30 % lower rated power. On its face, this exemption would reduce energy savings from what would occur under the 2013 standards. This proposal should not move forward without clear, substantial evidence that it would increase, rather than decrease energy savings.

The same criticisms apply to the proposed exemptions applicable to all modification requirements. The current 2013 Code exempts lighting modifications from Title 24 requirements if the number of modified luminaires on a single story is less than 40. The proposal increases the number of lighting modifications that can be made without complying with Title 24 requirements from 40 to 70, substantially increasing the number of projects that would be exempted. The assumption that this would not result in lost energy savings defies credibility.

Staff is also proposing to allow a modification project to avoid complying with the current 2013 requirement to meet the power allowance of Section 140.6. Under the new language, a modification project may exceed the power allowance of Section 140.6, as long as it has at least 30 % lower rated power as compared to the original luminaires. In addition, staff is proposing to entirely eliminate the current 2013 requirement for large modification projects to install automatic daylight controls and multi-level (or bi-level) controls. Both of these exemptions would further reduce energy savings from what would occur under the 2013 standards.

Before moving forward with these proposals, the Commission needs to determine the impact on energy efficiency that each of these proposals would create. If insufficient information is available to accurately determine these impacts, these proposals should be held back for further study until such information is available. These proposals should not be moved forward without clear, substantial evidence that they would increase, rather than decrease energy savings.

In his inaugural address earlier this year, the Governor set forth a mandate to double the efficiency of existing buildings over the next 15 years. This mandate is not achievable if buildings are allowed to evade current lighting system efficiency and acceptance test requirements through these exemptions. The proposed rollback

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of these requirements is also contrary to the Commission's own statutory mandate to adopt building standards that "increase" energy efficiency in buildings. Simply put, there is no way to meet California's aggressive energy efficiency goals unless its energy efficiency standards substantially advance every triennial cycle. Rolling back existing acceptance testing and lighting control requirements that in some cases have been part of the Code since 2005 is the exact opposite direction from what California needs and the Governor has ordered.

Sincerely,

A handwritten signature in blue ink that reads "Thomas A. Enslow". The signature is written in a cursive style with a long horizontal line extending to the right.

Thomas A. Enslow

TAE:lj1

cc: andrew.mcallister@energy.ca.gov, Rob.Oglesby@energy.ca.gov,
Joe.Loyer@energy.ca.gov, Bill.Pennington@energy.ca.gov, Peter.Strait@energy.ca.gov,
Eurlyne.Geiszler@energy.ca.gov, joan.walter@energy.ca.gov,
Pippin.Brehler@energy.ca.gov