California Energy Commission
DOCKETED
15-BSTD-01
TN 76442
DEC 14 2015

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75552.001	Administrative Definitions	The Engineering Enterprise	The definition of "Building" is any structure or space. I do not understand how or why the definition of building would include a space within a structure such as a tenant improvement space. This definition because very confusing for most people when taken in context of the code, for example, lighting power in buildings over 10,000 square feet shall have demand response capabilities. It would be much clearer to state that spaces over 10,000 square feet shall have demand response capabilities. Break out the definition of building and space.	Partially	Staff finds that the definition of "building" incorporating the phrase "any structure or space" is appropriate to its regulatory purpose and precludes arguments of semantics over regulated areas or aspects of buildings. For this reason, staff does not find that removing the term "space" from this definition or providing a separate definition for "space" would improve the clarity of the Standards. Staff has edited language relating to demand response requirements to make their application more clear, consistent with the commenter's comment..
75503.002	Administrative Lighting forms	kW Engineering	Commenter made numerous suggestions to the lighting forms	N/A	These comments related to compliance documents neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language.
75615.078	Administrative Definitions	George Nesbitt	We reference, of course, ASHRAE 6022 for mechanical ventilation. I think in the standards it should say which year of 6022 we're referencing, because I don't think we necessarily want to change that mid-code cycle, anyway.	No	Staff find that the year is specified in the definitions Section of the Standards.
75539.005	Nonresidential HVAC Air Handler	Taylor Engineering	120.2(i) - Commenter recommends revising the sentence to "Any newly installed cooling air handler that has a design total mechanical cooling capacity over 54,000 Btu/hr shall include a standalone or integrated Fault Detection and Diagnostics system in accordance with Subsections 120.2(i)1 through 120.2(i)8."	No	The scope of this section was limited to air side systems according to the 2013 rulemaking. The current 2016 rulemaking did not intend to widen this scope, and the commenter's proposed change would have the effect of apply this Section's requirements to new types of equipment (chilled water systems). For this reason, the commenters proposed change is found to be outside of the scope of the current rulemaking. The commenter is encouraged to submit a fully developed proposal for this change for the 2019 code cycle.
75622.048	Nonresidential (General)	George Nesbitt	I think we need to pay a lot more attention to alteration requirements for multi-family buildings. High-rise multi-family belongs fully within the low-rise part of the Standards. We already have water heating, the interior apartment, and exterior lighting that's controlled from within the apartment, falling under the low-rise mandatory requirements and/or prescriptive.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language.
75622.050	Nonresidential (General)	Cheryl English	I'm perplexed with the changes that are still occurring to the 45-Day Language. It is my understanding that changes will continue to be posted, which makes it difficult to provide comments by 3/17 as requested. I would encourage you to reevaluate the comment period.	N/A	Staff provided the following clarification at the hearing where the comment was made: *MR. SHIRAKH: So as I mentioned this morning, the commenting period for these hearings are March 30th, but we strongly encourage people to give us the writing by March 17th because that will give us more time to respond to this. But, you know, if you absolutely have to give it to us by the 20th or 22nd, you can do so, but again, we really want to have these comments by the 17th.* *MR. BREHLER: And Mazi, this is Pippin Brehler again from the Chief Counsel's Office. If staff and the Commission is absolutely proposing changes to the 45-Day Language like they're displaying in here, those will be subject to a minimum 15-Day formal comment period that people will be able to comment on at that time. But by making this available now, we're hoping to jumpstart that comment process. But it's not shortening any comment process.* *MR. SHIRAKH: We're not, yeah, what we're showing here is what would have been presented as part of the 15-day language. So we're basically providing the public an opportunity and advance notice of what's going to be part of the 15—day language. So we'll have actually more time to respond to the 15-day language, which will be presented in April. (P165-166)*
75622.051	Nonresidential (General)	Jeff Guild	Presuming the proposed language is implemented, how soon will it go into effect/will the public need to wait for AHJs to adopt the new language?	N/A	The 2016 Standards become effective on January 1, 2017.

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76302.001	Nonresidential (General)	Sid Pelston	I can tell you categorically that the structure of Title 24 was ill conceived, is detrimental to the best interests of the State of California, is extraordinarily costly to ratepayers without commensurate benefit, erodes the viability of energy efficiency and threatens many of the industry stakeholders. It cannot be allowed to continue in its present form. It will leave a terrible legacy of all those responsible for its design, implementation and those with the power to make change that allow it to continue in itspresent form.	No	The comment neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. Nonetheless, staff find that the Building Energy Efficiency Standards have consistently provided benefits to the State and its citizens from their original adoption in 1978 to the present day, by ensuring that cost-effective efficiency measures are included in new construction and, though that, minimizing the costs of energy consumption to both building owners and residents and to the State as a whole. Along with these benefits, reducing energy consumption though efficiency avoids unnecessary emmissions of pollutants and minimizes the environmental impacts of meeting California's energy needs, leaving a beneficial legacy of environmental stewardship.
75238.001	Nonresidential Administrative	California Department of General Services	DGS recommends adding architect to list of licenced professionals to perform certification on space cooling equipment	No	Staff finds that certification of complex mechanical systems are only able to be performed by a licenced engineer, and not an architect, under the Business and Professions Code. Given this, staff find that making the change requested by the commenter would not be appropriate.
75280.001	Nonresidential Administrative	California Department of General Services	DGS recommends adding architect to list of licenced professionals to perform certification on space cooling equipment	No	Staff finds that certification of complex mechanical systems are only able to be performed by a licenced engineer, and not an architect, under the Business and Professions Code. Given this, staff find that making the change requested by the commenter would not be appropriate.
75491.001	Nonresidential Administrative	American Institute of Architects	AIA requested better definitions for the building commissioning process and include architect along with registered professional engineers in the definitions of design engineer, design reviewer, engineer-in-house, and third party design engineer	Partially	Staff have added licenced architect to definition of "Design Review". Staff have incorporated similar language into the final language in section 10-103, 10-103.1, 10-103.2, and 100.1. Staff have not duplicated definitions in the Business and Professions Code in order to prevent issues of confusion or conflict with that Code.
75615.043	Nonresidential Administrative	Alex Bosenberg	I wanted to ask Mazi and the Commissioners if there will be any response to our numerous comments submitted over the last six to eight months. We made a lot of substantive comments and none of them appear to be reflected in the code language. And so, we are confused as to what, if any, there will be any response to those. . . . What is the timeline for your response on this code cycle?	N/A	The Energy Commission is required to publish a Final Response to Comments at the end of the rulemaking proceeding for comments submitted during the proceeding. Neither the Energy Commission nor its staff are ob+ligated to provide advance or draft copies of comment responses, nor to provide written responses to comments received during the pre-rulemaking period.
75615.044	Nonresidential Administrative	Alex Bosenberg	I appreciate that response. However, it doesn't afford us the ability to see if our comments were misunderstood until after adoption. We have some concerns about that. We've met with staff many times over the last 12 months and each time thought we were being understood, but now it appears that we weren't, and we want to rectify that.	N/A	The comments that were submitted by NEMA in the pre-rulemaking period and that staff found to have merit were reflected in the 45-day language. The ones that staff did not find to be appropriate were not included in this language.
75615.045	Nonresidential Administrative	Alex Bosenberg	I neglected early on to state that if folks look around they won't see very many people in industry present, myself included, and that's because the agenda didn't come out soon enough for us to be able to plan our travel. And that is a long-standing complaint and we've tried to work with the staff on that.	N/A	Staff finds that a full agenda was posted two weeks prior to the hearing, and that notice was provided on February 13th, 2015. Remote attendance via phone and internet (WebEx) was available to all attendees.
75615.046	Nonresidential Administrative	Mike Hodgson	The Energy Commission should clarify what constitutes a conflict of interest.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language.
75925.001	Nonresidential Administrative	Jay Martin	Commenter requested numerous small corrections of noted errors	Yes	Staff corrected the noted errors.
75945.001	Nonresidential Administrative	RNM Engineering	Commenter noticed a formating error in section 140.1	Yes	Staff corrected the noted error.
75955.001	Nonresidential Administrative	RNM Engineering	Commenter suggested adding the word "licensed" in front of engineers and add part 1 to top of page	No	Staff does not find that adding the word "licensed" improves the clarity of the requirement or its consistency with the language and phrasing of the Business and Professions Code, and risks duplicating a requirement from that Code or imposing a requirement separate from that Code. For this reason, staff did not find that adding this word would be appropriate.

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76095.086	Nonresidential Administrative	George Nesbitt	I really think when we have an issue with how something is written in the Code, if there is a problem, we really need to go back and correct it rather than sort of sweeping it under the rug, and so when you publish Errata you really need to republish manuals with the corrections so it's there for people to find.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language, in that they relate to compliance documents developed and published following adoption of updates to the Standards.
76095.088	Nonresidential Administrative	Manuel Alvarez	We support these Standards as you're having proposed, so we ask you to move forward.	N/A	Staff appreciates this comment of support.
76095.089	Nonresidential Administrative	Valerie Winn	Today I'm here to offer our support for adoption of both the Residential and Nonresidential Building Code Standards, and in offering our support, I really also wanted to thank the members of the Commission staff for all of the hard work they've done on this, and really recognize how they have balanced feedback from a number of different parties on these somewhat controversial issues. So from that perspective, the balance that is struck, what do they say, good public policy makes everyone a little unhappy? We think that there's a fair balance here, and so as a result, you know, we feel that we want to support the adoption of these Standards as they've been proposed. And we look forward to working with staff on the 2019 Codes and Standards.	N/A	Staff appreciates this comment of support.
76095.090	Nonresidential Administrative	Tamara Rasberry	I just want to thank staff for the time that they committed to the Sempra Utility Companies as we worked to close the gap on the Title 24 Regs. I know we were in discussions, I think the first one was in August and the last one was just I think three weeks ago, last month. So I just want to thank the staff for the time and making themselves available for the transparency that we've seen, and we've come a long way. So thank you for that. I just wanted to make sure that's on the record.	N/A	Staff appreciates the comment of support for the Standards and for the process.
76095.091	Nonresidential Administrative	David Jacot	We are concerned that 15-day language [relating to nonresidential lighting alterations] as it currently sits has been rushed. I think the fact that we've seen 30 versions, we're on Version 30X of 15-day language, has really limited the opportunity for us to quantify the potential benefits or impacts, and we're hearing that discussion from the other speakers. So we are concerned that it could undermine Title 24's intent to transform the lighting industry and we don't feel that it currently addresses the loss of energy savings that are being incurred by utility direct install programs, specifically ours. So we therefore respectfully request the Commission put off the adoption of Section 141 of the 2016 Standards, perhaps revert it to 45-day status so the stakeholders can have the opportunity to work through those issues in more detail that lead to a better solution.	Yes	The Commission followed the commenter's suggestion and adopted the 2016 Standards absent the changes to Sections 141.0(b)2I, J, K, and L at its June business meeting. Staff then developed two subsequent 15-Day Language documents drafted with active participation of various stakeholders, providing an additional four months to work through issues and arrive at language balancing stakeholder concerns. These Sections were then adopted at the November business meeting.
76095.092	Nonresidential Administrative	Jay Martin	Mr Martin requested another detail edit on the 15-day language due to minor errors he discovered. Specifically, references to 2010 Mechanical Code, and Table 100.0-A	Yes	The 2010 references to the California codes will fixed as errata.
74828.001	Nonresidential Administrative ATTCP	National Lighting Contractors Association of America	There are currently no requirements for Acceptance Test Technicians (ATT) to submit documentation to the Acceptance Test Technician Certification Provider (ATTCP) to which the ATT is certified. Therefore, an ATT can complete an acceptance test and submit Certificates of Acceptance to the Building Department without the ATTCP having any knowledge of work completed by their ATTs. For quality assurance, NLCAA recommends that all Acceptance Test Technician Certification Providers be required to serve as registration providers in accordance with the applicable requirements in Reference Appendix JA-7.	No	Commenter's request is understood to be requesting that the Energy Commission regulate the agreement between the ATTCP and its certified ATTs, and impose additional requirements on that relationship. Staff does not find that ATTCPs are unable to make provision of documentation a condition of their certification, and does not find that inserting the Energy Commission into the relationship between ATTs and ATTCPs in this way would be appropriate or within the scope of the current rulemaking.
75238.001	Nonresidential Administrative ATTCP	California Department of General Services	DGS recommends adding architect to list of licenced professionals to perform certification and design review	Yes	Staff agrees with comments regarding adding licenced architect to ATTCP regulations and definition of "Design Review". Staff have incorporated similar language into the final language in section 10-103, 10-103.1, 10-103.2, and 100.1

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75280.001	Nonresidential Administrative ATTCP	California Department of General Services	DGS recommends adding architect to list of licenced professionals to perform certification and design review	Yes	Staff agrees with comments regarding adding licenced architect to ATTCP regulations and definition of "Design Review". Staff have incorporated similar language into the final language in section 10-103, 10-103.1, 10-103.2, and 100.1
75323.001	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	The letter is a summary of a discussion that Energy Commission staff had with Tom Enslow concerning his comments; it does not contain new comments, but describes comments made in the commenter's prior comment letter.	N/A	Staff's responses to the comments referenced by this letter are presented with the prior letters submitted by the commenter.
75378.001	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter opposes the proposed changes to Section 10-103.2(c)3A and supports requiring an ATTCP to demonstrate that its training ensures technicians will have the ability to apply acceptance testing "to a comprehensive variety of mechanical systems and controls that is reflective of the range of systems currently encountered in the field." The purpose of this requirement is to ensure that technicians are able to apply their training to any of the systems he or she may encounter in the field. Proposed amendment is vague, reduces clarity and weakens existing requirements.	No	Staff finds that the original language provided no explanation or criteria for what would be, or fail to be, a "comprehensive variety", or what would or would not be "reflective of the range of systems currently encountered in the field." As the purpose of the ATTCP program is to ensure that qualified individuals are able to successfully complete specified acceptance tests, staff finds that defining the scope of the training in terms of these acceptance tests is more appropriate and less vague than retaining the undefined terms in the prior language. Staff does not find that doing so either weakens the requirements of the Standards or reduces their clarity.
75378.002	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	The original language of Section 10-103.2(c)3Biii should be kept in place. An applicant's professional experience in mechanical controls and systems should be verified and should relate to ability to understand and apply the acceptance test training. Furthermore, the criteria and review process used by an ATTCP should have to be disclosed by the ATTCP applicant so that the staff and the public can assess its adequacy.	No	Staff finds that the clause at the end of the first sentence was explanatory of the purpose of the Section's requirements but did not have any regulatory effect, and thus that removing the clause is appropriate. Staff finds that the second sentence is more appropriately understood as instructions for completing and submitting an application, which are more appropriately included in the Compliance Documents than the Standards: as the ATTCP application must demonstrate the applicant's compliance with this Section's requirements, it effectively already requires that the application includes this information without this sentence specifying its inclusion. Staff therefore find that removing this sentence is appropriate given its lack of separate regulatory effect, and will be including these directions in the Compliance Documents that accompany the Standards.
75378.003	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter supports setting a standard minimum rate for quality assurance audits, and suggests requiring a higher rate for the first three to five years of any new ATTCP program.	No	Staff finds that there is no evidence of a problem relating to ATT performance (or specifically the performance of ATTs from recently approved ATTCPs) for which additional audits would represent a potential solution. Staff therefore does not find that imposing higher audit rates on newer ATTCPs is necessary or appropriate.
75378.004	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	The interim approval provisions in Section 10-103.2(e) that will expire by the effective date of the 2016 code should be deleted, but the provisions regarding employer training requirements should be retained.	No	Staff finds that the language relating to employer training in former Section 10-103.2(e) is redundant with Section 10-103.2(c)3C, which imposes the same employer training requirements. Staff therefore finds that retaining the redundant language formerly in Section 10-103.2(e) would have no regulatory effect and would not be appropriate.
75378.005	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	This change to Section 10-103.2(f) (now Section 10-103.2(e)) eliminates the Commission's discretion to assess the merits of an application or the rigor or effectiveness of the proposed certification program. Merely submitting the requested application information isn't sufficient. Commission also needs to evaluate the merits of the application and the strength of the proposed Provider program.	Yes	Staff has edited the language in 10-103-A(e)1 to avoid implying that approval of a complete application is automatic or ministerial, consistent with the commenter's comment. This Section now specifies that "[c]omplete applications shall be evaluated by staff based on their contents."
75378.006	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter supports changes to several Sections within 10-103.1 and 10-103.2.	N/A	Staff appreciates these comments of support.

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75379.001	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	JCEEP respectfully asks the Commission to adopt the attached amendments to Section 10-103-B. Because these amendments are administrative in nature, the Commission has the discretion to adopt these outside of the normal building standards adoption process. JCEEP thus requests the Commission to adopt these amendments immediately in order to provide needed clarity to ATTCPs as they commence administration of the new acceptance test certification requirements.	N/A	Regarding the request to adopt the specified changes outside of the current rulemaking proceeding that adopts changes to building standards, staff does not find that regulatory changes with substantive material effects are able to be adopted outside of a rulemaking proceeding, and finds that considering the proposed changes by beginning a new, separate rulemaking proceeding would take additional time and lead to a later effective date than consideration within the current, in-progress rulemaking. Staff therefore considered the requested changes as a part of this rulemaking, consistent with the commenter's expressed need for expediency and the general ability to consider proposed changes to regulations during the public comment period.
75379.002	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that imposes new requirements on ATTCPs with multiple offices.	No	Staff considered the appropriateness of language specifying how Acceptance Test Employers (ATEs) are to logistically manage and staff multiple or remote offices, and found that it would not be appropriate to impose regulations on ATE business logistics at this time. Businesses may be successfully organized in any number of ways, without diminishing their effectiveness in performing their ATE duties. Modern communications tools enable a wide variety of effective arrangements between central and remote offices; imposing any set of specific, one-size-fits-all requirements on ATEs risks increasing costs without a commensurate benefit, and as there is no evidence of a problem relating to ATE logistics staff is not able to find that the proposed new regulations are necessary at this time.
75379.003	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that imposes new requirements on ATTCPs and ATEs regarding insurance practices.	No	Staff considered the appropriateness of language specifying insurance practices for ATTCPs and ATEs, and found that it would not be appropriate to impose regulations in this area at this time. Businesses may pursue many different risk management and insurance strategies, and imposing any set of specific, one-size-fits-all requirements risks increasing costs without a commensurate benefit. As there is no evidence of a problem relating to ATTCP or ATE risk management or insurance practices, staff is not able to find that the proposed new regulations are necessary at this time.
75379.004	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests the addition of language to Section 10-103.1(c)3A and 10-103.2(c)3A relating to hands-on training.	No	Staff reviewed Section 10-103.1(c)3A and 10-103.2(c)3A, and found that the existing language requires an ATT to complete training that includes both theoretical and hands-on components before they may be certified. Accordingly, staff finds that no change is needed for this Section to address the commenter’s concern regarding requirements for ATTs; staff finds that the proposed additional language would only serve to create redundancy and reduce clarity.
75379.005	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that imposes new requirements on ATTCPs and potential ATTs regarding verification of prior experience.	No	Staff considered the appropriateness of requiring specific documentation of prior experience, and found that it would not be appropriate to impose the proposed requirements at this time. ATTCPs are expected to develop criteria for determining that an applicant has sufficient knowledge and past experience to succeed in their training and certification program. The purpose of the experience requirement may be likened to class prerequisites for college courses: without a foundational level of knowledge and experience, the class will not be useful to the student. However, the purpose of this requirement is not to deem specific kinds of work documentation either “valid” or “invalid”, and staff understands that not all work performed on-site in the construction industry is subject to rigorous and individual documentation. The ATTCP is expected to state in their application the method they will use to determine that students possess the experience necessary to succeed in offered classes, which allows staff to review proposed methods and determine whether the applicant’s methods are sufficient as a part of reviewing received ATTCP applications.

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75379.006	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that imposes new requirements on ATTCPs regarding written exams for ATTs.	No	Staff considered the appropriateness of language requiring validation of tests for "rigor, reliability and lack of bias" along with requiring multiple versions of tests, and found that it would not be appropriate to impose regulations in this area at this time. The proposed regulations for psychometric evaluation, statistical analysis and pilot testing would impose significant costs, and the comment letter is not accompanied by any analysis showing that the costs are balanced by benefits. It is also not clear to staff that it is appropriate to hold examinations for Acceptance Test Technicians to standards applying to examinations for licensing of professional engineers. In principle there is a benefit to test question randomization and to maintaining a bank of potential test questions, but staff finds that specifying a particular number or amount of test questions and the percentage that must reflect a passing score for an exam is overly prescriptive and may not be appropriate to all examination types or approaches. The ATTCP is expected to state in their application the methods they will use to provide rigorous, unbiased examination of ATTs and to prevent tests from becoming compromised or being vulnerable to publication of questions, which allows staff to review proposed methods and determine whether the applicant's methods are sufficient as a part of reviewing received ATTCP applications.
75379.007	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that imposes new requirements on ATTCPs regarding auditing of ATTs, and specifically that requires a higher audit percentage for newer ATTCPs.	No	Staff considered the proposed increased Quality Assurance (QA) audit criteria, and found that it would not be appropriate to impose the proposed requirements at this time. An increase to requiring a 6% QA audit rate for ATTs imposes significant costs, and the comment letter is not accompanied by any analysis showing that the costs are balanced by benefits. As there is no evidence of a problem relating to ATT performance (or specifically the performance of ATTs from recently approved ATTCPs) for which additional audits would represent a potential solution, staff is not able to find that the proposed regulations are necessary at this time.
75379.008	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that imposes new requirements on ATTCPs, specifically to have an ethics policy and an equipment policy.	No	Staff considered the appropriateness of language requiring an ethics policy and, separately, an equipment policy, and found that it would not be appropriate to impose regulations in this area at this time. It is unclear whether a business with a written ethics policy necessarily behaves more ethically than a business without a written policy, and therefore unclear what benefit the regulation would ultimately provide. Equipment handling and maintenance are specified in the Reference Appendices as well as the industry standards, test methods and procedures that are incorporated by reference in the regulations; requirements and policies related to equipment handling by ATTs are expected to be included by ATTCPs in their agreements with their ATTs. As there is no evidence of a problem relating to ATTCP ethics or equipment handling, staff is not able to find that the proposed new regulations are necessary at this time.
75379.009	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that imposes new requirements on ATTCPs related to qualifications and experience.	No	Staff considered the appropriateness of language requiring ATTCP applicants to have ISO/IEC 17024 certification or, alternatively, to demonstrate past experience, and found that it would not be appropriate to impose regulations in this area at this time. Adding these criteria would risk unfairly limiting applicants to currently approved ATTCPs, which is contrary to the purpose of the regulations. As there is no evidence of a problem relating to ATTCP success or reliability that is dependent on these criteria, staff is not able to find that the proposed regulations are necessary at this time.
75379.010	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that corrects language in Section 130.1(d).	Yes	Staff has corrected the language of the Section.

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75379.011	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that specifies criteria for determinations relating to ATTCP applications.	Partially	Staff finds that the proposed language would introduce ambiguity in not defining criteria for applications to be considered sufficiently "rigorous", "detailed", or "reliable". In so doing, the proposed language only communicates that applications will be reviewed and evaluated; staff therefore finds it more appropriate to embody this intent by unambiguously stating that "Complete applications shall be evaluated by staff based on their contents."
75379.012	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment providing 180 days for ATTCPs to demonstrate compliance with any substantive changes made to Title 24, Part 6 that would affect their program.	Partially	Staff have substantively incorporated this request into Sections 10-103.1(d)2 and 10-103.2(d)2, which specifies (in part) that "[t]he ATTCP shall have not less than six months following the adoption of an update to the Building Energy Efficiency Standards to prepare an Update Report." Staff found incorporating the specification into this Section to be more appropriate than creating a separate, subsequent Section as suggested by the text provided by the commenter.
75380.001	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	The commenter opposes the amendment to Section 10-103.1(c)3A because it deletes the requirement that ATTCP's demonstrate that their training ensures technicians will have the ability to apply acceptance testing "to a comprehensive variety of lighting control systems and networks that are reflective of the range of systems currently encountered in the field." The intent of the current language is to ensure that technicians are not trained on only one type of system, but rather are able to apply their training to the comprehensive variety of systems he or she may encounter in the field. This is a critical requirement to ensure the success of the acceptance test technician certification program and should not be deleted.	No	Staff find that there has been no relief of the requirement to apply acceptance testing to a comprehensive variety of lighting control systems and networks that are reflective of the range of systems currently encountered in the field. Staff deleted this phrasing because it is redundant to the requirement to train to certify ATT/ATE competency in the technologies and skills necessary to perform the acceptance tests. With this amendment, staff greatly clarified the regulation and simplified the language. Additionally, taken with the requirements laid out in Section 10-103-A(c)(3)(B) "Lighting Controls Acceptance Test Technician Training", in staff's opinion, there is no interpretation of these proposed regulations that can relieve the ATTCP of training ATT/ATEs on a comprehensive variety of lighting control systems and networks that are reflective of the range of systems currently encountered in the field.
75380.002	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	The commenter opposes the amendment to Section 10-103.1(c)3Biii because it deletes the requirement that an applicant's professional experience in lighting controls and systems must be relevant and verifiable and deletes the requirement to disclose the criteria and review process used by an ATTCP for determining relevant experience. An applicant's professional experience in lighting controls and systems should be verified in order to ensure that he or she has the experience necessary to fully understand and successfully apply the acceptance test training. Furthermore, the criteria and review process used by an ATTCP should be disclosed by the ATTCP applicant so that the staff and the public can assess its adequacy and fairness.	No	There has been no relief of the requirements to either the ATT/ATE applicant professional experience requirements (a minimum of three years) or to the ATTCP to disclose the criteria and review process used by for determining relevant experience. Staff has eliminated only that verbiage that had no effect on the requirements. When staff originally included the "…to demonstrate their ability to understand and apply the Lighting Controls Acceptance Test Technician certification training", there was a necessary need for description of the intent of the regulation. However, this has no effect on the regulation itself. The ATTCP must still limit their applications to those with the necessary experience. The requirement to submit the criteria and review process for prequalification is contained within the paragraph under Section 10-103-A (c)(3).
75380.003	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	The commenter opposes the amendment to Section 10-103.1(f) because it eliminates the discretion of the Commission to assess the merits of the application or the rigor or effectiveness of the proposed certification program when approving an ATTCP. The proposed change would bar the Commission from refusing to approve an ATTCP applicant for reasons other than failure to submit a complete application. Under this change, the Commission would not have discretion to assess the merits of the application or the rigor or effectiveness of the proposed certification program. The Commission should retain full discretion to deny approval to low quality certification programs.	No	Staff has edited the language in 10-103-A(e)1 to avoid implying that approval of a complete application is automatic or ministerial, consistent with the commenter's comment. This Section now specifies that "[c]omplete applications shall be evaluated by staff based on their contents." The Energy Commission thus maintains the same authorities to review and approve ATTCP applications as it did prior to these proposed changes. Staff finds that the proposed changes would NOT bar the Energy Commission from refusing to approve an ATTCP applicant for reasons other than failure to submit a complete application.

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75380.004	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that imposes new requirements on ATTCPs with multiple offices.	No	Staff considered the appropriateness of language specifying how Acceptance Test Employers (ATEs) are to logistically manage and staff multiple or remote offices, and found that it would not be appropriate to impose regulations on ATE business logistics at this time. Businesses may be successfully organized in any number of ways, without diminishing their effectiveness in performing their ATE duties. Modern communications tools enable a wide variety of effective arrangements between central and remote offices; imposing any set of specific, one-size-fits-all requirements on ATEs risks increasing costs without a commensurate benefit, and as there is no evidence of a problem relating to ATE logistics staff is not able to find that the proposed new regulations are necessary at this time.
75380.005	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that imposes new requirements on ATTCPs and ATEs regarding insurance practices.	No	Staff considered the appropriateness of language specifying insurance practices for ATTCPs and ATEs, and found that it would not be appropriate to impose regulations in this area at this time. Businesses may pursue many different risk management and insurance strategies, and imposing any set of specific, one-size-fits-all requirements risks increasing costs without a commensurate benefit. As there is no evidence of a problem relating to ATTCP or ATE risk management or insurance practices, staff is not able to find that the proposed new regulations are necessary at this time.
75380.006	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests the addition of language to Section 10-103.1(c)3A and 10-103.2(c)3A relating to hands-on training.	No	Staff reviewed Section 10-103.1(c)3A and 10-103.2(c)3A, and found that the existing language requires an ATT to complete training that includes both theoretical and hands-on components before they may be certified. Accordingly, staff finds that no change is needed for this Section to address the commenter's concern regarding requirements for ATTs; staff finds that the proposed additional language would only serve to create redundancy and reduce clarity.
75380.007	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that imposes new requirements on ATTCPs and potential ATTs regarding verification of prior experience.	No	Staff considered the appropriateness of requiring specific documentation of prior experience, and found that it would not be appropriate to impose the proposed requirements at this time. ATTCPs are expected to develop criteria for determining that an applicant has sufficient knowledge and past experience to succeed in their training and certification program. The purpose of the experience requirement may be likened to class prerequisites for college courses: without a foundational level of knowledge and experience, the class will not be useful to the student. However, the purpose of this requirement is not to deem specific kinds of work documentation either "valid" or "invalid", and staff understands that not all work performed on-site in the construction industry is subject to rigorous and individual documentation. The ATTCP is expected to state in their application the method they will use to determine that students possess the experience necessary to succeed in offered classes, which allows staff to review proposed methods and determine whether the applicant's methods are sufficient as a part of reviewing received ATTCP applications.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75380.008	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that imposes new requirements on ATTCPs regarding written exams for ATTs.	No	Staff considered the appropriateness of language requiring validation of tests for "rigor, reliability and lack of bias" along with requiring multiple versions of tests, and found that it would not be appropriate to impose regulations in this area at this time. The proposed regulations for psychometric evaluation, statistical analysis and pilot testing would impose significant costs, and the comment letter is not accompanied by any analysis showing that the costs are balanced by benefits. It is also not clear to staff that it is appropriate to hold examinations for Acceptance Test Technicians to standards applying to examinations for licensing of professional engineers. In principle there is a benefit to test question randomization and to maintaining a bank of potential test questions, but staff finds that specifying a particular number or amount of test questions and the percentage that must reflect a passing score for an exam is overly prescriptive and may not be appropriate to all examination types or approaches. The ATTCP is expected to state in their application the methods they will use to provide rigorous, unbiased examination of ATTs and to prevent tests from becoming compromised or being vulnerable to publication of questions, which allows staff to review proposed methods and determine whether the applicant's methods are sufficient as a part of reviewing received ATTCP applications.
75380.009	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that imposes new requirements on ATTCPs regarding auditing of ATTs, and specifically that requires a higher audit percentage for newer ATTCPs.	No	Staff considered the proposed increased Quality Assurance (QA) audit criteria, and found that it would not be appropriate to impose the proposed requirements at this time. An increase to requiring a 6% QA audit rate for ATTs imposes significant costs, and the comment letter is not accompanied by any analysis showing that the costs are balanced by benefits. As there is no evidence of a problem relating to ATT performance (or specifically the performance of ATTs from recently approved ATTCPs) for which additional audits would represent a potential solution, staff is not able to find that the proposed regulations are necessary at this time.
75380.010	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that imposes new requirements on ATTCPs, specifically to have an ethics policy and an equipment policy.	No	Staff considered the appropriateness of language requiring an ethics policy and, separately, an equipment policy, and found that it would not be appropriate to impose regulations in this area at this time. It is unclear whether a business with a written ethics policy necessarily behaves more ethically than a business without a written policy, and therefore unclear what benefit the regulation would ultimately provide. Equipment handling and maintenance are specified in the Reference Appendices as well as the industry standards, test methods and procedures that are incorporated by reference in the regulations; requirements and policies related to equipment handling by ATTs are expected to be included by ATTCPs in their agreements with their ATTs. As there is no evidence of a problem relating to ATTCP ethics or equipment handling, staff is not able to find that the proposed new regulations are necessary at this time.
75380.011	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that imposes new requirements on ATTCPs related to qualifications and experience.	No	Staff considered the appropriateness of language requiring ATTCP applicants to have ISO/IEC 17024 certification or, alternatively, to demonstrate past experience, and found that it would not be appropriate to impose regulations in this area at this time. Adding these criteria would risk unfairly limiting applicants to currently approved ATTCPs, which is contrary to the purpose of the regulations. As there is no evidence of a problem relating to ATTCP success or reliability that is dependent on these criteria, staff is not able to find that the proposed regulations are necessary at this time.
75380.013	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that specifies criteria for determinations relating to ATTCP applications.	Partially	Staff finds that the proposed language would introduce ambiguity in not defining criteria for applications to be considered sufficiently "rigorous", "detailed", or "reliable". In so doing, the proposed language only communicates that applications will be reviewed and evaluated; staff therefore finds it more appropriate to embody this intent by unambiguously stating that "Complete applications shall be evaluated by staff based on their contents."

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75380.014	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment providing 180 days for ATTCPs to demonstrate compliance with any substantive changes made to Title 24, Part 6 that would affect their program.	Partially	Staff have substantively incorporated this request into Sections 10-103.1(d)2 and 10-103.2(d)2, which specifies (in part) that "[t]he ATTCP shall have not less than six months following the adoption of an update to the Building Energy Efficiency Standards to prepare an Update Report." Staff found incorporating the specification into this Section to be more appropriate than creating a separate, subsequent Section as suggested by the text provided by the commenter.
75380.016	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter states that the proposed amendments should be adopted and made effective immediately by the Commission, rather than waiting for the effective date of the 2016 Code. The ATTCP regulations at issue are contained in Part 1 administrative section of the California Building Standards Code. Because these are administrative regulations related to the Commission's process for approving certification bodies, they are not building standards as defined under Public Resources Code section 18909. Accordingly, the proposed amendments may be adopted outside of the normal California Building Standards Code update process.	N/A	Staff does not find that regulatory changes with substantive material effects are able to be adopted outside of a rulemaking proceeding, and finds that considering the proposed changes by beginning a new, separate rulemaking proceeding would take additional time and lead to a later effective date than consideration within the current, in-progress rulemaking. Staff therefore considered the requested changes as a part of this rulemaking, consistent with the commenter's expressed need for expediency and the general ability to consider proposed changes to regulations during the public comment period.
75484.001	Nonresidential Administrative ATTCP	National Lighting Contractors Association of America	NLCAA Response to Tom Enslow; rebuttal to all comments submitted by Tom Enslow for LMCC.	N/A	None; this letter is a response to a comment submitted by another stakeholder, and is not a comment on the proposed 45- or 15-day language. The Energy Commission has not included JCEEP's proposal, to which the commenter objects, in its proposed amendments to the regulations.
75503.001	Nonresidential Administrative ATTCP	kW Engineering	Commenter recommends revision to the code compliance review to be done by the permitting requirement rather than by the acceptance tester	No	The intent of the language is to require acceptance tester to verify that the installed lighting controls match the plan. It would be beneficial for acceptance tester to engage in design review, however it is not a requirement for acceptance tester to do code compliance review
75562.001	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	The commenter opposes the amendment to Section 10-103.1(c)3A because it deletes the requirement that ATTCP's demonstrate that their training ensures technicians will have the ability to apply acceptance testing "to a comprehensive variety of lighting control systems and networks that are reflective of the range of systems currently encountered in the field." The intent of the current language is to ensure that technicians are not trained on only one type of system, but rather are able to apply their training to the comprehensive variety of systems he or she may encounter in the field. This is a critical requirement to ensure the success of the acceptance test technician certification program and should not be deleted.	No	Staff find that there has been no relief of the requirement to apply acceptance testing to a comprehensive variety of lighting control systems and networks that are reflective of the range of systems currently encountered in the field. Staff deleted this phrasing because it is redundant to the requirement to train to certify ATT/ATE competency in the technologies and skills necessary to perform the acceptance tests. With this amendment, staff greatly clarified the regulation and simplified the language. Additionally, taken with the requirements laid out in Section 10-103-A(c)(3)(B) "Lighting Controls Acceptance Test Technician Training", in staff's opinion, there is no interpretation of these proposed regulations that can relieve the ATTCP of training ATT/ATEs on a comprehensive variety of lighting control systems and networks that are reflective of the range of systems currently encountered in the field.
75562.002	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	The commenter opposes the amendment to Section 10-103.1(c)3Biii because it deletes the requirement that an applicant's professional experience in lighting controls and systems must be relevant and verifiable and deletes the requirement to disclose the criteria and review process used by an ATTCP for determining relevant experience. An applicant's professional experience in lighting controls and systems should be verified in order to ensure that he or she has the experience necessary to fully understand and successfully apply the acceptance test training. Furthermore, the criteria and review process used by an ATTCP should be disclosed by the ATTCP applicant so that the staff and the public can assess its adequacy and fairness.	No	There has been no relief of the requirements to either the ATT/ATE applicant professional experience requirements (a minimum of three years) or to the ATTCP to disclose the criteria and review process used by for determining relevant experience. Staff has eliminated only that verbiage that had no effect on the requirements. When staff originally included the "…to demonstrate their ability to understand and apply the Lighting Controls Acceptance Test Technician certification training", there was a necessary need for description of the intent of the regulation. However, this has no effect on the regulation itself. The ATTCP must still limit their applications to those with the necessary experience. The requirement to submit the criteria and review process for prequalification is contained within the paragraph under Section 10-103-A (c)(3).

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75562.003	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	The commenter opposes the amendment to Section 10-103.1(f) because it eliminates the discretion of the Commission to assess the merits of the application or the rigor or effectiveness of the proposed certification program when approving an ATTCP. The proposed change would bar the Commission from refusing to approve an ATTCP applicant for reasons other than failure to submit a complete application. Under this change, the Commission would not have discretion to assess the merits of the application or the rigor or effectiveness of the proposed certification program. The Commission should retain full discretion to deny approval to low quality certification programs.	No	Staff has edited the language in 10-103-A(e)1 to avoid implying that approval of a complete application is automatic or ministerial, consistent with the commenter's comment. This Section now specifies that "[c]omplete applications shall be evaluated by staff based on their contents." The Energy Commission thus maintains the same authorities to review and approve ATTCP applications as it did prior to these proposed changes. Staff finds that the proposed changes would NOT bar the Energy Commission from refusing to approve an ATTCP applicant for reasons other than failure to submit a complete application.
75562.004	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	The commenter proposes deleting the “controls installation and startup contractor” category and replacing it with “lighting control manufacturer representatives.”	No	Staff do not find that company representatives for product manufacturers are likely to seek, or need, certification as an ATT. Staff find that controls installation contractors and equipment startup contractors are potentially likely to need or seek ATT certification, as it relates to installing controls for lighting and mechanical equipment that are subject to acceptance testing. For this reason, staff does not find that making the proposed change in terminology would be appropriate.
75562.005	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that imposes new requirements on ATTCPs with multiple offices.	No	Staff considered the appropriateness of language specifying how Acceptance Test Employers (ATEs) are to logistically manage and staff multiple or remote offices, and found that it would not be appropriate to impose regulations on ATE business logistics at this time. Businesses may be successfully organized in any number of ways, without diminishing their effectiveness in performing their ATE duties. Modern communications tools enable a wide variety of effective arrangements between central and remote offices; imposing any set of specific, one-size-fits-all requirements on ATEs risks increasing costs without a commensurate benefit, and as there is no evidence of a problem relating to ATE logistics staff is not able to find that the proposed new regulations are necessary at this time.
75562.006	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that imposes new requirements on ATTCPs and ATEs regarding insurance practices.	No	Staff considered the appropriateness of language specifying insurance practices for ATTCPs and ATEs, and found that it would not be appropriate to impose regulations in this area at this time. Businesses may pursue many different risk management and insurance strategies, and imposing any set of specific, one-size-fits-all requirements risks increasing costs without a commensurate benefit. As there is no evidence of a problem relating to ATTCP or ATE risk management or insurance practices, staff is not able to find that the proposed new regulations are necessary at this time.
75562.007	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests the addition of language to Section 10-103.1(c)3A and 10-103.2(c)3A relating to hands-on training.	No	Staff reviewed Section 10-103.1(c)3A and 10-103.2(c)3A, and found that the existing language requires an ATT to complete training that includes both theoretical and hands-on components before they may be certified. Accordingly, staff finds that no change is needed for this Section to address the commenter’s concern regarding requirements for ATTs; staff finds that the proposed additional language would only serve to create redundancy and reduce clarity.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75562.008	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that imposes new requirements on ATTCPs and potential ATTs regarding verification of prior experience.	No	Staff considered the appropriateness of requiring specific documentation of prior experience, and found that it would not be appropriate to impose the proposed requirements at this time. ATTCPs are expected to develop criteria for determining that an applicant has sufficient knowledge and past experience to succeed in their training and certification program. The purpose of the experience requirement may be likened to class prerequisites for college courses: without a foundational level of knowledge and experience, the class will not be useful to the student. However, the purpose of this requirement is not to deem specific kinds of work documentation either "valid" or "invalid", and staff understands that not all work performed on-site in the construction industry is subject to rigorous and individual documentation. The ATTCP is expected to state in their application the method they will use to determine that students possess the experience necessary to succeed in offered classes, which allows staff to review proposed methods and determine whether the applicant's methods are sufficient as a part of reviewing received ATTCP applications.
75562.009	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that imposes new requirements on ATTCPs regarding written exams for ATTs.	No	Staff considered the appropriateness of language requiring validation of tests for "rigor, reliability and lack of bias" along with requiring multiple versions of tests, and found that it would not be appropriate to impose regulations in this area at this time. The proposed regulations for psychometric evaluation, statistical analysis and pilot testing would impose significant costs, and the comment letter is not accompanied by any analysis showing that the costs are balanced by benefits. It is also not clear to staff that it is appropriate to hold examinations for Acceptance Test Technicians to standards applying to examinations for licensing of professional engineers. In principle there is a benefit to test question randomization and to maintaining a bank of potential test questions, but staff finds that specifying a particular number or amount of test questions and the percentage that must reflect a passing score for an exam is overly prescriptive and may not be appropriate to all examination types or approaches. The ATTCP is expected to state in their application the methods they will use to provide rigorous, unbiased examination of ATTs and to prevent tests from becoming compromised or being vulnerable to publication of questions, which allows staff to review proposed methods and determine whether the applicant's methods are sufficient as a part of reviewing received ATTCP applications.
75562.010	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that imposes new requirements on ATTCPs regarding auditing of ATTs, and specifically that requires a higher audit percentage for newer ATTCPs.	No	Staff considered the proposed increased Quality Assurance (QA) audit criteria, and found that it would not be appropriate to impose the proposed requirements at this time. An increase to requiring a 6% QA audit rate for ATTs imposes significant costs, and the comment letter is not accompanied by any analysis showing that the costs are balanced by benefits. As there is no evidence of a problem relating to ATT performance (or specifically the performance of ATTs from recently approved ATTCPs) for which additional audits would represent a potential solution, staff is not able to find that the proposed regulations are necessary at this time.
75562.011	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that imposes new requirements on ATTCPs regarding auditing of ATTs, and specifically that requires a mandatory number of additional audits after a failed audit.	No	Staff considered the proposed increased Quality Assurance (QA) audit criteria, and found that it would not be appropriate to impose the proposed requirements at this time. An increase in audit rate for ATTs following a failed audit imposes significant costs, and the comment letter is not accompanied by any analysis showing that the costs are balanced by benefits. As there is no evidence of a problem relating to ATT performance for which additional audits would represent a potential solution, staff is not able to find that the proposed regulations are necessary at this time.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75562.012	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that imposes new requirements on ATTCPs, specifically to have an ethics policy and an equipment policy.	No	Staff considered the appropriateness of language requiring an ethics policy and, separately, an equipment policy, and found that it would not be appropriate to impose regulations in this area at this time. It is unclear whether a business with a written ethics policy necessarily behaves more ethically than a business without a written policy, and therefore unclear what benefit the regulation would ultimately provide. Equipment handling and maintenance are specified in the Reference Appendices as well as the industry standards, test methods and procedures that are incorporated by reference in the regulations; requirements and policies related to equipment handling by ATTs are expected to be included by ATTCPs in their agreements with their ATTs. As there is no evidence of a problem relating to ATTCP ethics or equipment handling, staff is not able to find that the proposed new regulations are necessary at this time.
75562.013	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that imposes new requirements on ATTCPs related to qualifications and experience.	No	Staff considered the appropriateness of language requiring ATTCP applicants to have ISO/IEC 17024 certification or, alternatively, to demonstrate past experience, and found that it would not be appropriate to impose regulations in this area at this time. Adding these criteria would risk unfairly limiting applicants to currently approved ATTCPs, which is contrary to the purpose of the regulations. As there is no evidence of a problem relating to ATTCP success or reliability that is dependent on these criteria, staff is not able to find that the proposed regulations are necessary at this time.
75562.014	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that specifies criteria for determinations relating to ATTCP applications.	Partially	Staff finds that the proposed language would introduce ambiguity in not defining criteria for applications to be considered sufficiently "rigorous", "detailed", or "reliable". In so doing, the proposed language only communicates that applications will be reviewed and evaluated; staff therefore finds it more appropriate to embody this intent by unambiguously stating that "Complete applications shall be evaluated by staff based on their contents."
75562.015	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment that specifies inclusion of summaries of audit results in annual reports.	Yes	Staff has substantively incorporated this request into Sections 10-103.1(d)2 and 10-103.2(d)2, which specifies (in part) that "[t]he annual report shall include a summary of all actions taken against any Acceptance Test Technician or Employer as a result of the complaint or quality assurance procedures described by the ATTCP as required under Section 10-103.1(c)(3)(D) and 10-103.1(c)(3)(F)."
75562.016	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Commenter requests an amendment providing 180 days for ATTCPs to demonstrate compliance with any substantive changes made to Title 24, Part 6 that would affect their program.	Partially	Staff has substantively incorporated this request into Sections 10-103.1(d)2 and 10-103.2(d)2, which specifies (in part) that "[t]he ATTCP shall have not less than six months following the adoption of an update to the Building Energy Efficiency Standards to prepare an Update Report." Staff found incorporating the specification into this Section to be more appropriate than creating a separate, subsequent Section as suggested by the text provided by the commenter.
75622.019	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	We want to ensure that the Commission has full ability to approve Acceptance Test Providers based on the quality of the program and not just based on their putting in a full application; the way that they revised it makes it sound like if you put in a full application you'd be approved, not that the Commission would then view the quality of that application and then decide if there would be a likelihood of having a successful program.	No	Staff has edited the language in 10-103-A(e)1 to avoid implying that approval of a complete application is automatic or ministerial, consistent with the commenter's comment. This Section now specifies that "[c]omplete applications shall be evaluated by staff based on their contents."

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75622.020	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	Most critical for us is the requirement that any provider program that's going to certify Acceptance Testers, and trend them and test them, that their testing has to be professionally verified for validity, lack of bias, and reliability.	No	Staff considered the appropriateness of language requiring validation of tests for "rigor, reliability and lack of bias" along with requiring multiple versions of tests, and found that it would not be appropriate to impose regulations in this area at this time. The proposed regulations for psychometric evaluation, statistical analysis and pilot testing provided in the commenter's written comments would impose significant costs, and the comment letter is not accompanied by any analysis showing that the costs are balanced by benefits. It is also not clear to staff that it is appropriate to hold examinations for Acceptance Test Technicians to standards applying to examinations for licensing of professional engineers. The ATTCP is expected to state in their application the methods they will use to provide rigorous, unbiased examination of ATTs and to prevent tests from becoming compromised or being vulnerable to publication of questions, which allows staff to review proposed methods and determine whether the applicant's methods are sufficient as a part of reviewing received ATTCP applications.
75622.021	Nonresidential Administrative ATTCP	Adams Broadwell Joseph & Cardozo	We'd also like to see the percentage of acceptance tests that are field tested go up.	No	Staff considered the proposed increased Quality Assurance (QA) audit criteria, and found that it would not be appropriate to impose the proposed requirements at this time. An increase in the required QA audit rate for ATTs imposes significant costs, and the comment is not accompanied by any analysis showing that the costs are balanced by benefits. As there is no evidence of a problem relating to ATT performance for which additional audits would represent a potential solution, staff is not able to find that the proposed regulations are necessary at this time.
75622.023	Nonresidential Administrative ATTCP	National Lighting Contractors Association of America	All ATTCPs should serve as registration providers, and require submittal of forms by ATTs.	No	Staff find that ATTCPs currently operate in the manner suggested by the commenter, thus it is not necessary to make changes to the regulatory language at this time. To the extent that the commenter has specific changes to regulatory language that are more nuanced than indicated by their comment, they are encouraged to submit a fully developed proposal for the 2019 rulemaking.
75622.024	Nonresidential Administrative ATTCP	Rick Miller	Commenter recommends harmonizing ATTCP with Commissioning; specify when tests are required (or where tester is in-house or third party) based on criteria similar to Commissioning thresholds.	No	Staff finds that ATTCP is not intended to be a third-party program, and the Commissioning thresholds relate, in part, to needs for third-party work. Additionally, Commissioning is a design review, not a testing of installed equipment. Staff thus finds that making the change requested by the commenter would not be appropriate, and imposing a new requirement for an independent third-party would be outside the scope of the current rulemaking.
75622.026	Nonresidential Administrative ATTCP	Rick Miller	There needs to be some improvement on the level of enforcement of the Standards.	N/A	The comment neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language. Nevertheless, staff find that the inclusion of code cleanup changes aligns with this commenter's concern: by making the Standards cleaner, more streamlined, and more readable, it makes it easier for an inspector or for an enforcement person to read, understand and apply its requirements.
75622.028	Nonresidential Administrative ATTCP	Mr. Mchugh	Program has an inherent conflict-of-interest: commit perjury or lose your job. Would be better for building official to select instead of builder.	No	Staff has not proposed a change to this aspect of the ATTCP and HERS programs; these comments neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. Staff encourages the commenter to submit a fully developed proposal for the 2019 rulemaking/
75622.031	Nonresidential Administrative ATTCP	Dave Dias	Commenter is unsure whether they support the specified percent of audits for ATTCPs under Sections 10-103.1 and 10-103.2..	N/A	The comment neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language.
75622.032	Nonresidential Administrative ATTCP	Mr. Costa	There is a void in enforcement tools; commenter would like online permitting	N/A	Staff agrees with facilitating online permitting, though finds the topic to be outside the scope of the current rulemaking.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75726.001	Non-Residential Administrative ATTCP	Taft Electric	Commenter opposes both the existing and proposed lighting alteration requirements, stating that the program "puts another huge burden on us legitimate contractors" and that "I hope this program just goes away, the sooner the better".	Partially	The language in the final express terms is specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Staff does not find that completely removing requirements for lighting alteration projects would be appropriate or responsive to both comments seeking cost relief and those concerned about losing required energy savings.
75615.035	Nonresidential Administrative Definitions	Meg Waltner	Removing the definitions of computer room/data center may create loopholes.	Yes	Staff has reviewed the proposed definition of data center(s) and have made the recommended change to include computer rooms. Although the definition of data center(s) could be interpreted as including computer rooms, staff made the change to improve clarity of the Standards.
75622.043	Nonresidential ASHRAE	Meg Waltner	NRDC would like the Energy Commission to be more active in setting nonresidential standards.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language.
75918.001	Nonresidential ASHRAE	Taylor Engineering	Delete the proposed requirement for isolation valves in instantaneous water heaters. Requirement is not energy related	No	Staff determined that regular maintenance is important to maintaining the performance of an instantaneous water heater and prolonging the lifespan of the water heater. Installation of isolation valves facilitates maintenance and therefore efficiency of the water heater, as regular maintenance prevents build up of scale that would otherwise reduce the efficiency of the water heater over time.
75237.003	Nonresidential ASHRAE Elevators	California Business Properties Association	The proposed elevator requirements could result in excessive cycling and premature wear of equipment and components. In addition to the added initial cost, this could lead to costly maintenance and servicing.	No	Elevator lighting is currently regulated by Title 24: elevator lighting power must be included in the LPD calculations or meet ASHRAE 90.1 2010 (which is 35 lpw). The proposal takes the lighting power a step further and reduces the maximum lighting power density to .6 watts per square foot. The analysis done on this measure showed it to be cost effective. The four principal elevator manufacturers (Otis, Kone, Schindler, and Thyssenkrupp) all have readily available products that satisfy the LPD and control requirements. Additionally, shut off occurs after 15 minutes of inactivity, meaning that equipment will only cycle when calls are made more than 15 minutes apart. This will not cycle the lighting and fan often enough to cause excessive wear or reduce component lifespan.
75501.001	Nonresidential ASHRAE DDC	ConSol	This new requirement may have significant impact to smaller buildings with operable windows and doors. Commenter also does not believe that existing buildings have window switches. Commenter asks several questions about how the requirement will be implemented, applied, and enforced.	Yes	Staff has amended the capacity threshold for air-side systems to be 300KBTU/hour instead of 10 brake horsepower, consistent with the capacity threshold for water-side systems. 10 brake horsepower is not as indicative of mechanical cooling capacity as a KBTU/hour rating, and would be difficult to determine in advance of a project.
75501.002	Nonresidential ASHRAE Elevators	ConSol	Elevator manufacturing standards for lighting and fans will need to be changed to meet the new requirements. New costly controls will be needed to turn the interior lighting and fans off when the elevators are not occupied. This could result in excessive cycling and premature wear of these equipment and components. In addition to the initial added cost this could lead to costly maintenance and servicing.	No	Staff finds that the CASE report addresses the concern: the elevator manufacturers identified in the report already have the capabilities needed for compliance included in their offered elevator models. The standards specify a 15-minute standy time before the automatic shutoff is applied, which will prevent cycling during busy call periods. Staff therefore do not find that the proposed standards will cause costs in excess of those stated in the CASE report, or cause excessive component wear.
75622.036	Nonresidential ASHRAE Elevators	Matthew Hargrove	The proposed elevator requirements could result in costly maintenance and servicing.	No	Staff does not find that the requirements for elevators would cause any undue or excessive wear on components, and does not find that any increased risk of maintenance or servicing is created by the requirements.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75622.038	Nonresidential ASHRAE Elevators	Yoolanda Williams	Section 120.2(f)2. "Exception 3 references an override signal. For clarification, can you provide the definition and the function of an override signal in the applications referenced?"	N/A	Staff reverted the proposed changes to the language to accommodate another commenter. The intent of these proposed changes were to clarify existing requirements, not to impose new requirements. Additional guidance will be provided in the compliance manuals and other forthcoming education and outreach activities.
75622.041	Nonresidential ASHRAE Elevators	George Nesbitt	15 minutes is a long time for a light to stay on after nobody is there. I like short off periods rather than long.	No	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. Mr. Nesbitt mentions that he perfers a shorter period of inactivity for shutoff controls but did not provide any justification or identify a new time limit.
75622.042	Nonresidential ASHRAE Escalators	George Nesbitt	Escalators should turn completley off when not used.	No	Commenter mentions that given today's technology, escalators should be capable of shutting off when not in use. However, no justification was provided for this reasoning; the design or operation of some escalators may make them more costly to fully stop and start than to keep them in motion at a low rate of speed. The Standards require that the escalator slows down to a minimum speed but not completly to a stand still, consistent with the American Society of Mechanical Engineers' (ASME) standard A17.1/CSA B44 Handbook (2013).
75622.068	Non-Residential Demand Response	Matthew Hargrove	Commenter (Matthew Hargrove) notes that disaggregation of loads is rare in many types of commercial settings, and this might be a burdensome mandatory code and we also think that putting in monitoring equipment doesn't in any way impact energy efficiency.	Partially	The metering recording requirement is removed from the proposed language. Monitoring equipment is not a requirement for disaggregation of circuits, instead the electrical power distribution system must be designed so that loads are separated and therefore monitoring the electricity use of load types is possible rather than impossible.
75622.07	Non-Residential Demand Response	Jim Benya	Commenter notes that the cost of electrical energy monitoring is significant. Secondly, he notes it is important to evaluate the impact of the disaggregation of electrical circuit requirement on tenant improvements.	N/A	The comment neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language. Nonetheless, staff has considered the impact of the disaggregation of electrical circuit requirement on tenant improvements, and the final language in Section 141 is developed with this in mind.
75622.071	Non-Residential Demand Response	PG&E	Commenter notes that the Title 24 submetering requirement is not a utiltity provided function.	N/A	Staff notes that submetering is not required by the Final Express Terms.
75622.072	Non-Residential Demand Response	PG&E	Commenter notes that it is important for a building operator to know where and how much energy is used in the building.	N/A	Staff appreciates the support of the requirements relating to separation of electrical loads.
75622.073	Non-Residential Demand Response	RNM Engineering	Mr. Miller noted the requirement of Section 130.5 for Service Meters especially the word "resettable". He noted that most utility meters are not resettable and therefore this requirement forces the owner into installing a second meter in series with the utility meter to get the resettable capability.	Yes	Staff removed the word "resettable".
75622.074	Non-Residential Demand Response	RNM Engineering	Mr. Miller also notes that the new paragraph on disaggregation of loads that allows additive and subtractive measures, also includes a portion of a sentence that allows a 10 percent aggregation of load. These are two totally different concepts, and I suggest those be in separate paragraphs.	Partially	Staff has revised the language to more simply allow 10% of a given load to be of any type, consistent with the commenter's comment. The additive and subtractive method is removed from the language.
75622.075	Non-Residential Demand Response	Matthew Hargrove	Commenter (Matthew Hargrove) requests the Energy Commission to look into this (Service Metering and Disaggregation of Loads requirements) with the PUC. The commenter's understanding is that there are certain circumstances where a building owner is not allowed under some of the regulations to submeter certain tenants	No	Staff notes that submetering is not required by the Final Express Terms; staff have clarified the language in Section 130.5(a) to better clarify its requirements, consistent with the commenter's comment.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75501.004	Non-Residential Demand Response Alterations	Requirements for installing shut-off all lighting controls in small offices, and classrooms can actually increase the cost of lighting retrofits. In many of these (existing) occurrences, people are doing very well in manually turning off lights. The proposed regulation should be changed to a performance measure not a mandatory measure to let building owners decide how well their people are using manual controls.	Requirements for installing shut off all lighting controls in small offices, and classroom can actually increase the cost of lighting retrofits. In many of these occurrences, people are doing very well in manually turning off lights. With the new lighting shut off control, there will be a time delay for the sensors to turn off the lights which will have the opposite effect of savings. Since sensor control are being required, there are no or very few incentives or rebates for them which will make installing these sensors costly. The proposed regulation should be changed to a performance measure not a mandatory measure to let building owners decide how well their people are using manual controls.	No	The comment talks about new construction and alterations. For lighting alterations, there are different triggers for lighting control requirements. People can still manually turning off lights by using the required manual control to turn off the light. In case people are in a hurry or forget to turn off lights manually, the occupant sensing device will turn off lights 20 minutes after the space is vacant. If there is only a manual control and people forget to turn off lights manually, the lights will stay on until the next person turns it off. If there is only an automatic control, then the commenter is correct that an additional 20 minutes of wasteful lighting would occur each time folks left the room. This is why both manual and automatic controls are required in the regulations: they support each other. The shut-OFF controls requirement has been proven to be cost effective at saving energy, per its adoption in past revisions of the Standards.
75501.005	Non-Residential Demand Response Alterations	In addition, turn OFF occupant sensing controls now require to turn OFF after 20 minutes which conflicts with Title 20, which require shut OFF within 30 minutes.	In addition,] T[t]urn OFF occupant sensing controls now require to turn OFF after 20 minutes which conflicts with Title 20, which requires shut off within 30 minutes.	No	Staff does not find the commented conflicts of the Title 24 requirement to Title 20. The 20 minute is a setting requirement on setting up the sensor during installation, and the other is a maximum time delay product feature and capability allowed by Title 20. Setting up 20 minutes instead of using the maximum factory setting of 30 minutes can save 10 minutes of the connected lighting energy, which was shown to be cost effective at saving energy.
75501.006	Non-Residential Demand Response Alterations	130.1(c) Shutoff Controls. This section states that all lighting is to be controlled for shutoff. Occupancy sensors alone will not meet the intent as only part of the exit path could be illuminated. If timing is used and lights are off, how to you get to the reset?	This section states that all lighting is to be controlled for shut off. The California Building Code states that as long as the building is occupied, the entire exit path is to be illuminated. Occupancy sensors alone will not meet the intent as only part of the exit path could be illuminated.	Yes	Staff removed the phrase "during occupied times" from Exception 1 to Section 130.1(a)1; this Exception specifically allows for continuous lighting of means of egress. Section 130.1(c), which specifies shutoff control requirements, has a matching Exception for continuous lighting of means of egress.

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75501.007	Non-Residential Demand Response Alterations	CBPA	[Regarding Exception 2 to Section 141.0(b)2I in Version 9,] this change allows both one-to-one and many-to-few whole fixture replacements to avoid triggering Code as long as the total wattage is at least 20% below that of the original fixtures. Typical high bay jobs along with many other retrofit types will greatly benefit from this Exception. [Regarding Exception 2 to Section 141.0(b)2J in Version 9,] this language applies regardless of the number of fixtures that are modified. It allows delamping, kits that convert fixtures from fluorescent or HID to LED or other, and virtually all the other fixture retrofits that we typically perform to be installed without triggering Code so long as the new wattage is at least 20% below the original wattage. This should be easily accomplished in the vast majority of cases; 20% savings is possible in almost every circumstance.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff notes that this means that projects achieving the percent reduction threshold will no longer completely avoid triggering code; finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings.
75501.008	Non-Residential Demand Response Alterations	CBPA	[Regarding the clarifying language in Section 141.0(b)2J related to lamp-only and ballast-only replacements,] this simply means that Code is not triggered for lamp-only replacements (e.g., screw-in or pin-based incandescent or other to LED or other technology) as well as ballast-only replacements. This covers a large percentage of the retrofits we do and gives relief to lighting maintenance companies as well.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
75501.009	Non-Residential Demand Response Alterations	CBPA	[Regarding changes to Section 141.0(b)2K,] retrofitters typically do very few actual wiring alterations so we believe these changes should have minimal impact. There's also an Exception for modifications strictly limited to the addition of lighting controls.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
75501.002	Non-Residential Demand Response Metering	CPBA	Mandatory requirements for electrical usage recording equipment and how long the recorded data should be retained are new added requirements. This measure adds cost to metering if utility "smart meter" is not installed. Service electrical metering is costly without directly impacting energy savings since there are no direct savings from monitoring data especially when there are no qualified individuals to interpret the data. Disaggregation of loads is rare in existing building and adding monitoring equipment is very difficult and very expensive. With the advent of SMART meters and the continue increase in installation we believe this should be a function of the public utilities and not the commercial building industry.	Partially	The metering recording requirement is removed from the proposed language. Monitoring equipment is not a requirement for disaggregation of circuits, instead the electrical power distribution system must be designed so that loads are separated and therefore monitoring the electricity use of load types is possible rather than impossible.
75501.003	Non-Residential Demand Response Metering		This revision requires Demand Response controls if alterations larger than 10,000 sq. ft. This may add significant cost to alterations over 10,000 sq. ft.	Partially	Staff removed this language as redundant with the language relating to lighting alterations, which already specifies where DR controls are required, as this language was not intended to apply DR to projects beyond those already required to include demand response.
75552.008	Non-Residential Demand Response Metering	Engineering Enterprise	Section 130.5(d) requirement increases the cost to a project and from my experience provides little benefit.	No	Staff finds that several types of plug loads, including portable lighting, printers, copy machines and document scanners, televisions and projectors, fans and space heaters, coffee makers, etc. are likely to be found in an office environment and likely to either be left on or have standby power consumption, and in aggregate represent significant power consumption. Staff therefore finds that using controlled receptacles for these devices can provide significant benefit.

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75517.004	Non-Residential Demand Response OCST	NEMA	Suggest to change the wording of Section JA5.3.1 in Joint Appendix JA5 to reflect the understanding that networked systems may satisfy the requirements of JA5. The commenter also suggests CEC staff to review Section JA5.3.1 and make grammar and punctuation edits as needed because it has become somewhat difficult to follow due to the number of edits proposed.	Partially	Staff reviewed the grammar of Section JA 5.3.1 and incorporated the commenter's suggestion of allowing Ethernet as an allowed non-proprietary communications protocol for nonresidential, high-rise residential, and hotel-motel buildings. Staff did not find that Ethernet was an appropriate option for low-rise residential construction. Staff also did not find that adding the suggested language describing a reason for complying with the stated communications standards to be appropriate, as it reduces the clarity of the regulatory requirement stated within the Section without having any regulatory effect.
75517.003	Non-Residential Demand Response Thermostat	NEMA	NEMA believes the existing definition can be improved upon to clarify this allowance. Suggest to add "or networked system" to the "Thermostat" definition to Section 100.1	Partially	Staff edited the definiton of "thermostat" to add the phrase "or system", consistent with the commenter's request. Staff did not add the word "networked" to the definition, as staff found that doing so would unnecessarilly restrict the configurations of control systems to "networked" systems, as well as introduce ambiguity regarding what qualifies as a "networked" system.
75622.001	Nonresidential DHW Insulation	George Nesbitt	The section on plumbing insulation, Section 120.7, is pretty much redundant to everything that is in 110, so it seems like it's got the same table essentially with insulation requirements. Most of those requirements are pretty redundant to what's in the mandatory sections in 110.1 and I think .3, cover plumbing. it seems like there's no reason for something like that in the Code to be repeated in another section as opposed to just saying, you know, you need to meet the requirements of that other section.	No	Staff does not find the contents of Section 120.7 to be redundant with Section 110.
75529.001	Nonresidential DHW IWH	Air-Confitioning Heating & Refrigerating	Commenter asserts that the additional requirement for storage water heater over 55 gallons is unjustified as "CEC consider it equivalent to instantaneous water heaters", and that the ISOR did not explain why added requirements are imposed on storage Water Heaters over 55 gallons in size.	No	The CEC does not consider condensing storage water heater (over 55 gallons) and IWH to be equivalent, and it is not clear how AHRI arrives at this assertion, especially as their letter describes a typical storage water heater as possessing a 0.74 Energy Factor compared to the typical EF for instantaneous units of 0.82. In addition, the requirements for storage water heaters above 55 gallons in size are reduced compared to storage water heaters below this size, in recognition of the higher federal minimum standard that they are required to meet (compared to other storage water heaters). AHRI's assertion that the requirements are "increased" for these units can only be understood in relation to the incorrect assertion that they have been or would be treated as "equivalent" to an instantaneous heater.
75529.001	Nonresidential DHW IWH	Air-Confitioning Heating & Refrigerating	The CASE report did not consider the cost of over 55 gallon option, which is more complex than the standard storage water heater option.	No	The storage water heater prescriptive options are optional alternatives to the primary proposed prescriptive option of IWH; cost benefit analysis of additional, elective options is not required. However, staff also finds that the current regulations require installation of a drain and electrical outlet where a water heater will be installed regardless of the type of water heater that is ultimately chosen for the construction, and that the remaining requirements of either pipe insulation or compact distribution are no more complex for condensing water heaters than they are for "standard" storage water heaters: these elements are included in the CASE analysis of the proposed water heater measure.

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75529.001	Nonresidential DHW IWH	Air-Confitioning Heating & Refrigerating	Commenter asserts that the proposal underestimates the complexity of pending federal changes in water heater efficiency ratings.	No	Staff acknowledged that there are concerns about the new Federal Water Heater testing procedure and the associated complexity in integrating the new efficiency descriptor Uniform Energy Factor (UEF) into the performance calculation. While these changes are underway, they are unrelated to the current proposal. The proposal does not include specification of UEF values, but states only that installed water heaters must comply with applicable appliance efficiency regulations. The Department of Energy is currently undergoing a rulemaking proceeding to develop factors that will convert the federally mandated Energy Factor into UEF metric that results from the new federal test procedures. The Energy Commission intends to utilize the conversion factors the Department of Energy has committed to publishing, while simultaneously developing new calculation methods using UEF for the CBECC-Res compliance software and ACM Reference Manual. Additionally, while there are multiple draw patterns in the new test procedure, the draw patterns that are relevant to predominately used residential water heaters are limited (≥4 gal/min GPM for instantaneous and 51≤FHR≤75 gallons for storage water heater), which greatly reduces the complexity in developing the new water heating calculation method.
75517.001	Non-Residential Electrical Power Distribution	NEMA	If projects use a utility meter to comply with the requirements in section 130.5, rate payers (or building owners) should be allowed to access the data so that the rate payer may take actions to address their energy use in real time (or near real time) rather than waiting until after receiving their utility energy bill. NEMA proposes modifying the first exception to this section to improve accessibility of the metering data the requirement is intended to yield.	No	Staff finds that the majority of utility smart meters provide this functionality, commonly through an app or other software installed on the customer's phone, tablet, or personal computer, diminishing the need for explicit regulation. Additionally, staff finds that using the term "readily accessable" introduces ambiguity and risks prohibiting placing metering equipment within lockable rooms or cabinets, which can lead to safety and security concerns. Staff find that the requirements of Table 130.5-A are sufficient for accomplishing the goal of data transparency to the user, and that the additional, more prescriptive requirements recommended by the commenter are not necessary at this time.
75517.002	Non-Residential Electrical Power Distribution	NEMA	Disaggregation of electrical circuits does not save energy or provide any value, unless monitoring of the loads is also provided or required. Additionally, disaggregation of circuits is more costly in most cases than submetering or monitoring of electrical loads. Therefore, it is suggested that the metering and measurement option be listed prior to the disaggregation options so that it is shown more prominently over the disaggregation options.	Partially	Staff edited the Section title to directly combine the noted topics, proposing the phrase "Separation of Electrical Circuits for Electrical Energy Monitoring". In doing so, this makes more clear the connection between the two topics and avoids implying a ranking or ordering. Staff did not find that requiring "[i]nstallation of a complete metering and measurement system [...] which at a minimum measures and reports the loads called for in Table 130.5-B" would be appropriate, as staff would need a cost analysis or similar data regarding installation of this additional equipment in order to consider adopting the requirement. If the commenter has data that would show this to be the case, staff encourages the commenter to submit a complete proposal for the 2019 code cycle.
75546.001	Non-Residential Electrical Power Distribution	Taylor Engineering	We recommend reducing the number of categories required to be disaggregated for electrical energy monitoring. For example, combine HVAC and plumbing electrical load types into one category. This requirement from the 2013 language and the proposed 2016 language will add cost if the loads that need to be disaggregated would otherwise be on the same panel, such as plumbing and HVAC. Eaton is expected to soon have a panel with removable bus-bar covers so that different parts of the same panel could be metered, but there are no known equals. For a large emergency power system, there may be up to 20 categories of load because the emergency side of the ATS would have to be disaggregated too.	No	As the categories in Table 130.5-B are not proposed to be changed in the 2016 Standards, staff find that the 2016 Standards do not "add cost" relative to the 2013 Standards, and the 2013 Standards were adopted based on findings that the benefits of the proposed requirements exceeded the costs. As the commenter does not provide or suggest any rationale for determining which load types would be appropriate to merge, staff finds that space heating and cooling and, separately, water heating are significant and distinct energy demands within buildings and therefore beneficial to be able to separately measure.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75546.002	Non-Residential Electrical Power Distribution	Taylor Engineering	We recommend relaxing the maximum total voltage drop requirement. The 2013 language limited the voltage drop in feeders to 2% and branch circuits to 3%. The proposed 2016 language combines the two into a single maximum of 5%. Limiting branch circuits to 3% is very difficult and may significantly increase wiring costs. For example, lighting circuits are often much longer than 117 feet. Oversizing that wiring beyond #10 AWG is not practical. Also, circuits are often not loaded to their full potential.	Yes	Staff understands the commenter to be supporting the proposed change to the voltage drop requirement, as the commenter notes that the proposed language no longer restricts branch circuits to 3% but instead provides an overall limit of 5% and does not otherwise suggest any way in which the requirements should be "relaxed". Staff appreciates this expression of support. If, instead, the commenter is requesting that the required 5% additionally be made larger, staff finds that the 5% requirement is feasible, cost effective, and consistent with other standards.
75546.003	Non-Residential Electrical Power Distribution	Taylor Engineering	We recommend reducing the requirement for controlled receptacles in office spaces. While we agree that, if used properly, switched receptacles may reduce energy use from plug loads at night, there is a significant associated cost increase and this requirement may not necessarily result in real energy savings if not used properly. The inconvenience of having power shut off for computers at night, for example, may lead users to simply circumvent the intent of this requirement, either by having the schedule changed to never turn off or by only using uncontrolled receptacles (and thereby possibly risking overloading those circuits). No energy would be saved if the controlled receptacles aren't used.	No	The commenter is not specific as to what way or by what amount the requirements for controlled receptacles should be reduced. Staff finds that the proposed requirements are feasible and cost effective, and are appropriate for enabling energy savings in an office setting. Staff also finds that appropriate configuration of equipment, including appropriately identifying which equipment should be connected to uncontrolled receptacles, is sufficient to avoid the circumstance noted by the commenter.
75552.007	Non-Residential Electrical Power Distribution	Engineering Enterprise	Why voltage drop is a requirement of Title 24? This is already a requiremetn in the NEC and CEC.	No	Voltage drop requirement for feeders and branch circuits is mandaroty in accordance with NEC and CEC. Furthermore, voltage drop requiremetn is a requirement in American National Standard, ASHRAE 90.1-2013. The voltage drop requirement of the Energy Standards is to ensure connected equipment is operated optimally and efficenctly within the design voltage level for a code compliant system, and to create consistency with other standards and code requirements.
75825.001	Non-Residential Electrical Power Distribution	Eaton	For the dry type transformer defintion, limit the output voltage to 600V and revise the cooling medium to liquid instead of oil.	No	Low-voltage dry-type distribution transformers are federally regulated appliances under 10 CFR 431.192, and are regulated in California under the Title 20 Appliance Efficiency Regulations. The definition of "low-voltage dry-type distribution transformer" in Title 24 necessarily duplicates the definitions in these applicable laws, as the Energy Commission is federally preempted from establishing an alternative definition. Staff therefore finds that editing this definition would not be appropriate.
75882.001	Non-Residential Electrical Power Distribution	Schneider Electric	Section 130.5(b) – Separation of Electrical Circuits for Electrical Energy Monitoring: add an exception that provides compliance for an installed metering system. We agree with the 15-Day language that clarifies the intent of this section is to require loads be separated for the convenience of measurement and the future addition of meters. However, we respectfully submit that metering systems installed at the time of construction also meet the intent of the section. In fact, an installed metering system goes beyond the intent of the requirement and will actually reduce energy usage by providing actionable and timely energy consumption data to the building owner and operator. Therefore, it is respectfully suggested that an exception be given to buildings that have a metering system installed.	No	Staff finds that installation of a complete metering and measuring system would meet the requirements of the existing Section language provided that loads were separated in accordance with Table 130.5-B, meaning that the proposed Exception only states what the current regulatory language already allows. That is, a system able to measure each of the loads demonstrates that each load can be separately measured, thereby showing that the building complies with this Section's requirements. Therefore, staff finds that adding a exception is unnecessary and would be redundant, and therefore is not appropriate.
75896.001	Non-Residential Electrical Power Distribution	Gary Fox	Neither of the terms "service" or "feeder" (in Section 130.5) is defined.	No	The term "service" is defined in Section 100.1. As noted at the end of Section 130.5, terms and phrases not found in Section 100.1(b) shall be defined as specified in the California Electrical Code. The definition of the term "feeder" is not in Section 100.1 but is found in the California Electrical Code.
75896.002	Non-Residential Electrical Power Distribution	Gary Fox	Assuming the definitions of (service and feeder of) the California Electrical Code, permanently installed metering would be required throughout a facility, much more than the true intent of this requirement.	No	The commenter misunderstands the effect of the regulatory language: the metering required under Section 130.5(a) can be installed either at the service or at the feeder . It is not mandatory to install the metering at both the service and the feeder. Staff therefore finds that no change to the language is needed to accommodate this comment.

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75896.003	Non-Residential Electrical Power Distribution	Gary Fox	For high-rise residential occupancies, the identity of which loads should be metered is not clear. It would be reasonable for the Commission to require metering of common building loads, maintained by the building owner. If that is the case, the requirements should be clarified to indicate that common building loads are to be metered.	No	The regulations allow for installation of metering either at the service or at feeders in order to leave decisions about which loads to aggregate for metering purposes to be left to the designers of the building's electrical system. Staff does not find it appropriate to require aggregating loads that building designers or owners may wish to keep separate. As the exising language otherwise provides the flexibility requested by the commenter, staff finds that no change to the language is needed.
75896.006	Non-Residential Electrical Power Distribution	Gary Fox	3. "Demand" refers to the amount of load averaged over a period of time. "Instantaneous kW" is not an average measurement. It makes no sense to combine these words. "Demand" should be deleted. Refer instead to "power" or "kW".	No	Staff finds that the term "instantaneous demand" is a common term as it relates to electricity and power, acknowledging that "demand", taken separately, is also a term that has a specific meaning in relation to electricity. Staff does not find that the term "instantaneous demand" is ambiguous in its context in Section 130.5(a), and thus that no change is needed.
75896.007	Non-Residential Electrical Power Distribution	Gary Fox	4. Exception to 130.5(a) refers to a "utility-defined period" whereas Table 130.5-A refers to "user-definable period". Both portions should refer to the same thing. “Utility-defined period” could refer to a demand interval, or one of many periods defined in the rate structure (e.g. “peak,” “partial-peak,” “off-peak,” “summer, “winter”); the user should be able to define the period for which he wants to use available energy information.	No	The Exception is intentional in specifying "utility-defined" instead of "user-defined", given that a utility-provided meter may have tailored functionality that matches the business arrangement between the utility and the customer or client. Staff does not find that changing the language to "user-defined" and removing the ability for utilities to negotiate and establish their relationships with their clients to be appropriate.
75896.008	Non-Residential Electrical Power Distribution	Gary Fox	5. Metering records are available from the utility, more so than something that "indicates" kW and kWh. A utility metering system that supplies measurements of energy and power is still useful and should satisfy the intent.	No	Staff finds that the language is already consistent with the commenter's request. The required minimum functionality is that the meter shows both the instantaneous demand, or power, and the electricity used over a period of time, or energy. Thus, a meter that provides both of these values satisfies the regulations.
75956.001	Non-Residential Electrical Power Distribution	RNM Engineering	Change "Electrical Power Distribution System" to all caps to match the format of this section.	Partially	Staff have made this correction.
75956.002	Non-Residential Electrical Power Distribution	RNM Engineering	Revise from "authorized person" to "authorized personnel" in the definition of Institutional Tuning.	Partially	Staff have made this correction.
75961.001	Non-Residential Electrical Power Distribution	Behzad Eghtesady	In Section 130.5(a) insert the word "or Feeder" before "Electrical Metering so the title will read: "Service or Feeder Electrical Metering". Also insert the word "feeder" after Service in the heading of each column in Tables 130.5-A and 130.5-B so it would read as "service or feeder".	No	The Section 130.5(a) requirement applies to Service metering. Metering installed at feeders is permitted to be used to meet the requirements for metering of the electrical service, but the requirement is still fundamentally a requirement that the electrical service be metered. For this reason, staff finds that adding the word "feeder" to the title of the Section would not be appropriate as it would not be accurate in characterizing the requirement. Similarly, Tables 130.5-A and B apply based on the total rated kVA of teh service provided to the building; adding the word "feeder" risks implying that the requirements can be avoided by separating the service to the building into individual, lower-rated feeders serving the same occupancy. Staff therefore finds that adding the word "feeder" to the table headings would not be appropriate.
75961.003	Non-Residential Electrical Power Distribution	Behzad Eghtesady	Commenter suggests to insert within the title and first paragraph of Section 141.0 the reference to "Electrical Power Distribution Systems".	No	The title and the first paragraph of Section 141.0 indicates the scope of the Section, specifying that alterations to buildings are covered by Section, and also alterations to outdoor lighting (which may not be part of a building) and illuminated signs (which also may not be part of a building). The title and scope do not separately specify covered parts or systems of the building, such as the buildings HVAC, water heating, or lighting systems; staff therefore does not find that separately specifying the electrical power distribution system would be appropriate, and finds that doing so would risk confusion regarding why this system is specified but other systems are not.
75961.004	Non-Residential Electrical Power Distribution	Behzad Eghtesady	Reinstate the reference to section 130.5 in section 141.0(b)2F, unless the intended revision to section 141.0(b)2Piv is to not require any compliance unless the entire building is to be rewired.	No	Section 141.0(b)2F specifies requirements for lighting systems, not power distribution systems. Staff therefore finds that removing reference to requirements for power distribution systems from this Section is appropriate, noting that the requirements for alterations of power distribution systems are specified in subsequent Section 141.0(b)2P.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75961.005	Non-Residential Electrical Power Distribution	Behzad Eghtesady	Commenter suggests inserting "or Feeder" into Section 141.0(b)2Pi.	No	Staff finds that a feeder line can be replaced without altering installed metering equipment, and thus that adding "or feeder" risks creating a circumstance where functional metering equipment would need to be removed, discarded, and replaced. Staff finds that the requirements are cost effective when a new meter is already part of the project, as the specifications only require that the new meter possess certain functions, but would not be cost effective for projects that would not otherwise include installation of new metering equipment. Staff therefore finds that adding the suggested language would not be appropriate.
75961.006	Non-Residential Electrical Power Distribution	Behzad Eghtesady	Commenter suggests inserting "feeders for the first time tenant or undeveloped space" and "or new feeder" into Section 141.0(b)2Pii.	No	Staff finds that a feeder line can be replaced without modifying the branch circuits further "downstream" of the feeder, whereas separaton of electrical circuits requires specific configuration of the entire building's circuitry. For this reason, staff does not find that applying requirements for separation of electrical circuits where new or replacement feeders are installed but the rest of the power distribution system is unaltered would be appropriate.
75961.007	Non-Residential Electrical Power Distribution	Behzad Eghtesady	Commenter asks, "The current language is not clear. Is the intent of this section to require compliance when a new receptacle circuit is installed or if the entire building wiring is replaced or is new? Please note that in existing nonresidential, high-rise residential or hotel/motel buildings it is rare to see replacement of the entire building power distribution system. It is common to install entirely new receptacle circuits, add a feeder, upgrade a panel or change the building service, but not replace the entire building power distribution system." Commenter suggests inserting "circuits" and "or new circuit" to Section 141.0(b)2Piv if the language is intended to apply in the former case.	Partially	Section 141.0(b)2Piv intentionally applies to installing an entirely new electrical power distribution system, or to the complete replacement of an electrical power distribution system. A partial or minor modification of the electrical power distribution system such as installing one new circuit or replacing one existing circuit is not intended to trigger power distribution system requirements. Staff finds that requirements for controlled receptacles would not be appropriate to apply controlled receptacle requirements to projects installing or modifying individual circuits, given that the configuration of existing buildings can be unpredictable and may make application of these requirements infeasible.
75396.001	Nonresidential Envelope	Steel Framing Alliance	The mandatory insulation requirements should be specific to each framing system. We should reduce the mandatory minimum insulation requirement for metal framed buildings to no longer have continuous insulation requirements. Our suggestion is to focus on the cavity since this is the least accessible part of the assembly after construction. In simplest terms, the language could be expressed separately for each assembly type so that the cavity is filled with insulation or the assembly meets an overall U-factor based on the type of framing. This would require adding language for a U-factor for steel equivalent to an R-13+0 or R-19+0 as the minimum required insulation level. Wood and steel would then have their own requirements (as do mass walls in the current standards). We suggest this same approach for Section 150 (c) and 120.7.	Partially	Metal is a conductor, and continuous insulation provides a thermal block which prevents the transfer of heat energy through the metal that would otherwise occur. Staff therefore reduced but did not eliminate the continuous insulation requirement: staff raised the u-factor for metal framed buildings from 0.105, which is equivalent to R13 cavity insulation with R5 continuous insulation, to a u-factor of 0.151, which is equivalent to R13 cavity plus R2 continuous insulation. This also establishes a requirement specific to metal-framed buildings, consistent with the commenter's request. Staff did not find that allowing a complete absence of a thermal break would be appropriate.
75872.001	Nonresidential Envelope	Steel Framing Alliance	Requesting to change the language in the Section 120.7(b)7 for Demising walls in the energy Standards. The claim is that there are different assemblies which can meet the demising walls other than what is described in the Energy Standards	Yes	Staff changed the language for demising walls to allow any assembly to be built for a demising wall as long as it meets the required U-factor.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75902.001	Nonresidential Envelope	Airex Manufacturing, Inc	Commenter requests adding language to prohibit use of adhesive tape products for insulation protection	No	Although the commenter asserts that this change would be a clarifying change, there is not currently a prohibition on adhesive products in the Standards nor a definition of "adhesive tape". The change would therefore be a substantive change to the regulations and would require proper vetting through appropriate stakeholders as well as a more robust demonstration of its impacts, consistent with other code proposals. It can be considered as part of the 2019 code update cycle. The rationale for the prohibition includes reference to language in 150.0(j)3: rather than prohibit adhesive products, staff have edited this language to remove the inconsistency in a manner consistent with simplifying and streamlining the Standards, as well as addressing other comments relating to pipe insulation. Language has been added to the compliance manual as a recommendation to not use adhesive tape as insulation protection for the reasons stated by the commenter, as Staff find that informing the public of the pros and cons of adhesive products is more appropriate than a complete prohibition of such products. Commenter's cost savings relies on retaining and re-using insulation after servicing pipes, and asserts that 1/7th of California homes have their piping serviced annually; other commenters have stated that it is common practice to completely replace pipe insulation when pipes are serviced or replaced, regardless of type or condition, and staff find the estimate of the number of homes serviced annually to be unreasonably high. Staff do not feel that the comment presents a sufficiently vigorous analysis to completely prohibit all products that use adhesives, and find that adding such a prohibition would add complexity to the standards that is unlikely to provide a commensurate benefit.
75904.001	Nonresidential Envelope	Metal Building Manufacturers Assosiation	Reinstate the existing 2013 Exception 2 to Section 140.3(a)1Aia which said "Metal building roofs in Climate Zones 3 and 5 are exempt from the requirements if the roof assembly has a U-factor of 0.048 or lower. "	No	This exception was removed because the new 2016 prescriptive requirement for metal building roofs (Table 140.3-B and Table 140.3-C) has a lower U-factor requirement. Metal building roofs with a U-factor of 0.048 were found to perform equivalently to a cool roof as specified in this Section, however as the prescriptive requirements for metal roofs has been updated, these roofs are now expected to use Exception 3 and Table 140.3 in the same manner as other roofs. This change also makes treatment of roofs more consistent within the regulations.
75904.001	Nonresidential Envelope	Metal Building Manufacturers Assosiation	JA-4 Table 4.2.7, add the Liner System from ASHRAE 90.1-2013 to the Table.	No	Energy Commission staff in contact with the industry was informed that the Liner System was not an insulation method which is used in California, and staff determined that it is therefore premature to add this products to these tables at this time. The product is able to be installed using the performance approach.
75904.001	Nonresidential Envelope	Metal Building Manufacturers Assosiation	For metal building walls, to be consistent with ASHRAE 90.1-2010 and to give as many validated options as possible in the Joint Appendices, there are two single layer systems, i.e. R-16 and R-19, that should be added to Table 4.3.9. The U-factors of these two systems given in Table A3.2 of ASHRAE 90.1-2010 are 0.093 and 0.084, respectively.	No	This comment was provided at the hearing for adoption of the Standards, and was provided with no substantiating analysis or materials. Rather than delay the rulemaking proceeding, the Energy Commission will use its authority in Section JA4.1.1 to consider this request to approve these alternative, equivalent U-factors for the two types of construction assemblies described in the comment, which will allow them to be included following appropriate review and analysis by staff to establish that they are equivalent to the insulation requirement.
75918.002	Nonresidential Envelope	Taylor Engineering	Section 120.2 - The sentence should be changed to reference Sections 120.2(a) through 120.2(k) to account for the sections on DDC and optimum start/stop controls.	Yes	Staff has made this correction.

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75622.055	Nonresidential Envelope Cool Roofs	George Nesbitt	in the Table B, Low Slope Cool Roofs are required in Climate Zones 1 through 16, and then I was noticing in the Table C, which is the Residential Nonresidential Table, that Low Slope Cool Roofs are only required in Climate Zone 9, 10, 11, and then 13 through 15. Climate Zone 12 seems to really be missing, which is a pretty heavy cooling climate. And then what I don't understand is, if you have a steep slope roof on the Residential Nonresidential Buildings, cool roofs are required in Zone 2 through 15. So I would say generally a low slope roof has a lot more solar access and solar gain than even a steep roof. So there seems to be maybe a slight disconnect or what?	No	Commenter is misunderstanding the differences between requirements for single-family residential, low-rise residential, and high-rise residential. These values were found to be appropriate for each scenario when they were adopted, per the documents relied upon identified for those rulemakings. As the commenter does not request any specific change to the regulations, staff has not made a change related to this comment.
75622.053	Nonresidential Envelope HPA/HPW	Meg Waltner	We should be adopting the highest [efficiency] levels found to be cost-effective in the case report.	No	Staff finds that the proposed standards strike an appropriate balance between efficiency, cost, impacts on business and small business, stakeholder concerns, and other effects required by law to be considered in the formulation of building energy efficiency standards, for the reasons stated in the Documents Relied Upon, the Initial Statement of Reasons, and the Final Statement of Reasons. Staff does not find that maximally pursuing efficiency based solely on cost effectiveness to be responsive to the other elements that law requires be considered in establishing standards, and thus is not able to find that making the change requested by the comment would be appropriate.
75622.054	Nonresidential Envelope HPW	George Nesbitt	For metal buildings some of the wall U-Values are like .113, yet most of the other climates are dramatically lower, and that just sort of strikes me as like that's a really bad wall. And that those values should be lower. I mean, I would say as a principle, relying on building heat loss to get rid of cooling loads is most of the time a bad practice. We're much better off reducing the loads and probably getting rid of them otherwise.	No	The commenter does not propose a specific, lower U-value nor provide data or analysis upon which staff could establish a lower U-value requirement. For this reason, staff does not find that amending required U-factor values based on this comment would be appropriate.
75622.056	Nonresidential Envelope Multifamily	Nehemiah Stone	I'd like to take this opportunity to point out that the previous section on U—Factor for the envelope is a good -- this is not a criticism at all of what you've got here -- but it's a good place to point out the differences between low—rise res and high—rise res and what happens when you have essentially the exact same building, even on the same project, and one of the buildings is three stories and one is four stories, and you have very different requirements that set what the baseline is. And when we took a look at this for a building in Climate Zone 12, what we found was that you get an estimate of over 100 KBTU per square foot if it's a four—story building, and an estimate of under 60 KBTU per square foot if it's a three—story building. So one of those obviously has to be wrong, and it's very confusing to design teams that are putting together projects that have multiple buildings, multi-family unit buildings in the same project. So just another piece of evidence that we need to address the Multi—Family Code.	N/A	These comments neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. Having said this, staff finds that high-rise residential buildings are generally held to requirements that are applicable to nonresidential buildings, with options to instead comply with requirements that apply to low-rise residential buildings. To the extent the comment can be understood as requesting that this approach be re-examined, staff encourage the commenter to submit a fully developed proposal for the 2019 rulemaking.
75490.001	Nonresidential Envelope U-factor	Birch Point Consulting	Commenter is concerned with the Mandatory Minimum Requirement in Section 120.7(b) for Spandrel Panels and Glass Curtain Walls having to meet a U-factor below 0.280. The issue is that visible glass prescriptively has to meet a 0.41 U-factor, which contradicts the Mandatory requirement.	Yes	Staff edited the requirement to read "Spandrel Panels and Opaque Curtain Wall" to make sure it is not talking about visible glass. "Spandrel" and "curtain wall" are defined in section 100.1: spandrel is already defined as opaque, and by specifying "opaque curtain wall" the Section now clearly does not apply to visible glass.
75539.001	Nonresidential Envelope U-Factor	Taylor Engineering	Commenter requests that the CEC reduce the mandatory insulation requirement for metal framed studs to cavity insulation. In some applications, the cost of continuous exterior insulation is high, so it becomes less cost effective than other energy saving measures that could be implemented instead. Designers should be able to trade off exterior insulation with other measures using the performance approach.	Partially	Metal is a conductor, and continuous insulation provides a thermal block which prevents the transfer of heat energy through the metal that would otherwise occur. Staff therefore reduced but did not eliminate the continuous insulation requirement: staff raised the u-factor for metal framed buildings from 0.105, which is equivalent to R13 cavity insulation with R5 continuous insulation, to a u-factor of 0.151, which is equivalent to R13 cavity plus R2 continuous insulation (as noted by the commenter). Staff did not find that allowing a complete absence of a thermal break would be appropriate.

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75557.001	Nonresidential Envelope U-Factor	Natural Recources Defense Council	NRDC strongly supports the high performance attics/ducts in conditioned space measure. NRDC also strongly supports increased wall efficiency requirements, but urges the CEC to adopt the highest levels found to be cost-effective in the CASE analysis.	No	Staff proposed the efficiency requirements present in the Draft Express Terms based on input from multiple stakeholders, and not based solely on the contents of the CASE reports. In particular, some of the values proposed by the CASE report were found to require challenging changes in common construction practices, which were considered by staff in their proposal of the draft standards.
75539.004	Nonresidential HVAC	Taylor Engineering	Commenter recommends revising the langauge of Section 120.2(f) so that it does not apply to unitary air conditioners.	N/A	These proposed changes to these sections were reverted based on a comment from CBPA, making these recommendations are no longer relavent. From comment 75501.001 - "Staff reverted the proposed changes to the language to accommodate this commenter. The intent of these changes were to clarify existing requirements, not to impose new requirements. The commenter has identified that a new requirement may be imposed by the proposed amendment, and staff therefore has reverted the change to this Section."
75237.001	Nonresidential HVAC	California Business Properties Association	CBPA believes Dampers for Air Supply and Exhaust Equipment is not cost effective.	Yes	The basis of the proposed changes was clarification of different occasions when the system fan shuts down. The intent was to describe, and not to expand, the requirement to situations where the fan would not normally be shut down. Based on the comments received on this issue, staff decided not to make the proposed changes given that fan shutdown is adequately described in the regulations and further descriptions and examples are more appropriate to provide in the Commission's published compliance manuals.
75237.002	Nonresidential HVAC	California Business Properties Association	Using the criteria of 10 brake horsepower as a metric may lead to misapplication of this requirement, and is burdensome to apply in practice.	Yes	This proposal was taken from ASHRAE 90.1 and shown to be cost effective using our metric for life cycle cost. However, we agree that using 10 brake horsepower as a trigger for airside systems could be burdensome to determine and is not consistent with the other triggers. We concluded that, since the trigger for water-side systems is mechanical cooling capacity, it is appropriate to set the same trigger for air-side systems. Mechancial cooling capacity is a better understood metric and a better descriptor of the cooling system size.
75554.001	Nonresidential HVAC	Goodman	Section 150.1(c)9 - CEC should ensure that residential and duct furnaces are exempted from this section's requirement.	No	The requirement in this Section ensures that moving HVAC equipment into conditioned spaces does not result in contaminating the breathable air within the conditioned space; staff do not find that furnaces are appropriate to exempt from this requirement. Furthermore, the requirements are not directly comparable to those in ANSI Z21.47: the proposed regulations apply to the builder of the building, whereas ANSI Z21.47 applies to the manufacturer and represents tests to be performed in a laboratory setting.
75554.002	Nonresidential HVAC	Goodman	CEC should allow the use of airflow values associated with AHRI's certified ratings, including values below 350 CFM per ton.	No	Staff has not proposed a change to the 350 CFM standard in either the 45-day or 15-day language. The proposed change is not related to a proposed change, does not clarify any existing requirements, and is outside of the scope of the current rulemaking; the commenter is encouraged to submit a fully developed proposal for this change for the 2019 code cycle.
75554.002	Nonresidential HVAC	Goodman	Commenter does not see any benefit from having the charge of pre-charged single-package systems verified in the field.	Yes	Staff clarified an existing exception for factory-charged packaged systems to make it clear that it applied to pre-charged single-package systems and meant that these systems are not required to have refrigerant charge confirmed through field verification and diagnostic testing.
75622.039	Nonresidential HVAC	Michael Jouaneh	Does the strikeout of unitary single code from Section 120.2(b)4 make all thermostats used in commercial buildings have to comply with JA5 and therefore have to have WiFi or Zigbee?	No	The proposed change does not impose the JA5 communicating thermostat requirements to all space conditioning systems. Alternativley, space conditioning systems can be equipped with direct digital controls as specified in Section 120.2(b)4. Staff provided the following answer at the hearing where the question was asked: *MR. ALATORRE: No. If the systems are controlled with DDC, then they don't have to comply with the JA5 requirement.*

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75918.003	Nonresidential HVAC	Taylor Engineering	Section 120.2(j) - We recommend deleting the added phrase "to the zone". The requirements in this section apply more generally than just zone-level controls. For example, the required controls for a new chilled water plant do not directly involve zone-level controls.	No	The context of this phrase is in reference to Table 120.2-A, which provides more detailed specifications of where controls are required to be zonal. Thus, it is accurate in describing this Table specifically, and appropriate to retain.
75529.001	Nonresidential HVAC Air Handlers	Air-Confitioning Heating & Refrigerating Institute (AHRI)	The requirement that combusion equipment in air handlers installed in conditioned spaces be direct vent is overly restrictive: air for combustion can be provided to gas-fired products from outside the conditioned space without the equipment being direct vent.	Yes	Staff deleted references to direct vent within this Section, and added a note referencing the combustion air requirements of Chapter 7 of the CMC. These changes clarify that although non-direct-vent products could potentially be installed in conditioned space, attention must be given to ensuring sufficient outside air to prevent backdrafting of the exhaust.
75875.001	Nonresidential HVAC ASHRAE 62.2 Alignment	Mike Moore	This comment focuses on significant residential energy savings that could be realized by permitting the use of one ventilation standard, ASHRAE 62.2, when specifying the mechanical ventilation requirements of all dwelling units, whether in low-rise or high-rise buildings; commenter states that "while it is likely too late in the 2016 process to make this change, I would like to request that CEC place this recommendation on its list of items to be considered during the next code revision."	No	Staff has not proposed a change to the residential ventilation requirements in either the 45-day or 15-day language. The commenters proposed change is is outside of the scope of the current rulemaking; the commenter is encouraged to submit a fully developed proposal for this change for the 2019 code cycle, cnosistent with their comment.
74625.001	Nonresidential HVAC Controls	Ella Sung	The definition of "Automatic demand shed control" is missing in section 100.1. We need to verify if the control needs a capability of receiving or responding to a signal automatically.	No	The specification requested by the commenter is stated in Section 120.2(h). Staff finds that the term "automatic demand shed control" is used as a section title for Section 120.2(h), not as a term of art, and use of this phrase in the Standards is consistent in referring to this Section. As such, adding a definition for the term to Section 100.1 would not be appropriate.
75539.002	Nonresidential HVAC Controls	Taylor Engineering	Section 110.2(c) - commenter recommends restoring the word unitary, as it's needed to prevent adding a requirement for setback where pneumatic VAV box thermostats are allowed.	Yes	Staff did not intend to expand the scope of the setback thermostat requirements. The commenter brings up an unforseen consequence for deleting the term unitary and we responded by restoring the term.
75539.003	Nonresidential HVAC Controls	Taylor Engineering	Commenter recommends revising Section 120.2(b) 4 to the following: "Thermostatic controls for all single zone air conditioners and heat pumps shall comply with the requirements of Reference Joint Appendix JA5." We recommend revising Exception 2 to Section 120.2(b) as follows "package terminal air conditioners, package terminal heat pumps"	Partially	Staff has taken these comment into consideration and has made some of the commenter's recommendation. Staff has restored "single zone" but kept specific references to 110.2(c) and 120.2(h) in order to benefit the clarity and consistency of the Standards. Staff also removed references to gas appliances in the exception and only kept Packaged Terminal Air Conditioners, Packaged Terminal Heat Pumps, Room Air Conditioners and Room Heat Pumps.
75539.006	Nonresidential HVAC Controls	Taylor Engineering	The proposed revisions ask for "historical thermal lag profiles of each controlled zone". This requirement is vague. It is not clear if any of the major HVAC controls manufacturers have this ability. 90.1 is clearer and is available from all major HVAC controls manufacturers.	Yes	This proposal was taken from ASHRAE 90.1 and proved to be cost effective using our metric for life cycle cost. However, we do agree that using the specific language found in 90.1 would be more appropriate given the availability from all major HVAC control manufacturers. The language in question has been ammended to more closely reflect the language in 90.1.
75501.003	Nonresidential HVAC Dampers	ConSol	The CEC staff proposed regulations to add requirements for dampers serving air supply and exhaust equipment. Dampers must now automatically close during unoccupied periods as well as during setback heating and cooling periods. The damper can remain open during pre-occupancy purge cycles or if the zone is enabled by an override signal from an occupancy sensor, automatic time switch control or a manually operated 4-hour time. This may trigger the requirement of expensive building automation systems where none were required. It may also require one when one is not in existence. This requirement may conflict with public health code for adequate ventilation and may lead to sick building syndrome. This damper requirement may be very expensive especially for smaller buildings. This is may not be cost effective.	Yes	Staff reverted the proposed changes to the language to accommodate this and other commenters. The intent of these changes were to clarify existing requirements, not to impose new requirements. The commenter has identified that a new requirement may be imposed by the proposed amendment, and staff therefore has reverted the change to this Section.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75516.001	Nonresidential HVAC Dampers	GE	Commenter asks for clarification of the operation of the proposed changes to this Section.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. Nevertheless, Staff reverted the proposed changes to the language to accommodate another commenter. The intent of these proposed changes were to clarify existing requirements, not to impose new requirements. Additional guidance will be provided in the compliance manuals and other forthcoming education and outreach activities.
75622.034	Nonresidential HVAC Dampers	Matthew Hargrove	CBPA believes Dampers for Air Supply and Exhaust Equipment is not cost effective.	Yes	The basis of the proposed changes was clarification of different occasions when the system fan shuts down. The intent was to describe, and not to expand, the requirement to situations where the fan would not normally be shut down. Based on the comments received on this issue, staff decided not to make the proposed changes given that fan shutdown is adequately described in the regulations and further descriptions and examples are more appropriate to provide in the Commission's published compliance manuals.
75622.040	Nonresidential HVAC Dampers	Beth Brady	I have a question regarding updated Section 120.2.f, it's related to the requirement that all dampers remain closed when unoccupied, or during setback heating and cooling. In some thermostat controlled applications, we have both exhaust and outdoor air dampers controlled independently of one another, and the exhaust damper is controlled directly related to a static pressure set point in the space, so certain applications would need to continue to operate and remain open, even when the unit is unoccupied or not in fully occupied mode. I don't know whether that's something that would be considered as an exception under Exception 1.	No	Staff reverted the proposed changes to the language to accommodate other commenters. The intent of these proposed changes were to clarify existing requirements, not to impose new requirements. Additional guidance will be provided in the compliance manuals and other forthcoming education and outreach activities.
75622.044	Nonresidential HVAC Dampers	Darryl DeAngelis	The proposed changes to section 140.4(e)1 may actually result in more energy consumption and not energy savings.	Yes	Staff reverted the proposed changes to the language to accommodate other commenters. The intent of these proposed changes were to clarify existing requirements, not to impose new requirements. Additional guidance will be provided in the compliance manuals and other forthcoming education and outreach activities.
75622.045	Nonresidential HVAC Dampers	Tony Moffett	The proposed changes to section 140.4(e)1 may actually result in more energy consumption and not energy savings.	Yes	Staff reverted the proposed changes to the language to accommodate another commenter. The intent of these proposed changes were to clarify existing requirements, not to impose new requirements. Additional guidance will be provided in the compliance manuals and other forthcoming education and outreach activities.
75622.046	Nonresidential HVAC Dampers	Tony Moffett	Mr. Moffett would like to have input on the changes to section 140.4(e)4C.	No	Staff did not receive additional comments from Mr. Moffett. Based on his oral comment, he neither objected to specific language in the proposed regulation nor make a recommendation to modify the proposed language.
75477.001	Nonresidential HVAC Duct Testing	ATCO Rubber Products, Inc.	ATCO strongly objects to JCEEP proposed amendments to the draft 2016 Building Energy Efficiency Standards (BEES) to limit the use of flexible duct in construction.	N/A	None; this letter is a response to a comment submitted by another stakeholder, and is not a comment on the proposed 45- or 15-day language. The Energy Commission has not included JCEEP's proposal, to which the commenter objects, in its proposed amendments to the regulations.
75478.001	Nonresidential HVAC Duct Testing	Pac-West Properties, LLC	We have been informed that comments by JCEEP into the 2016 Building Energy Efficiency Standards propose to severely limit the use of flexible ducts in new residential construction. We strongly object to the flex duct limiting proposal by JCEEP.	N/A	None; this letter is a response to a comment submitted by another stakeholder, and is not a comment on the proposed 45- or 15-day language. The Energy Commission has not included JCEEP's proposal, to which the commenter objects, in its proposed amendments to the regulations.
75479.001	Nonresidential HVAC Duct Testing	Thermaflex	Thermaflex notes tha the vast majority of residential and small commercial HVAC systems installed in California use flexible ducts. We strongly object to JCEEP proposed amendments to the draft 2016 BEES to limit the use of flexible duct in construction.	N/A	None; this letter is a response to a comment submitted by another stakeholder, and is not a comment on the proposed 45- or 15-day language. The Energy Commission has not included JCEEP's proposal, to which the commenter objects, in its proposed amendments to the regulations.
75480.001	Nonresidential HVAC Duct Testing	California Building Industry Association	CBIA strongly opposes the JCEEP proposal to limit felxible duct to five feet in residnetial and commercial contstruction.	N/A	None; this letter is a response to a comment submitted by another stakeholder, and is not a comment on the proposed 45- or 15-day language. The Energy Commission has not included JCEEP's proposal, to which the commenter objects, in its proposed amendments to the regulations.

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75483.001	Nonresidential HVAC Duct Testing	North American Insulation Manufacturers Association	NAIMA strongly objects to JCEEP's proposal which disregards the Commission's quality installation guidelines and test requirements. Limiting flexible duct runs in residential and small commercial buildings to a maximum length of 5 feet is completely aritrary and unjustified.	N/A	None; this letter is a response to a comment submitted by another stakeholder, and is not a comment on the proposed 45- or 15-day language. The Energy Commission has not included JCEEP's proposal, to which the commenter objects, in its proposed amendments to the regulations.
75545.001	Nonresidential HVAC Duct Testing	Silver Creek	Commenter supports the comments from DGS and AIA (75238.001 and 75280.001) with regards to adding licensed architect for the purposes of design review	N/A	Staff appreciate the expressed support for the proposed changes to this Section.
75545.002	Nonresidential HVAC Duct Testing	Silver Creek	Commenter supports the comments from CBIA (TN # 75480) and ATCO Rubber Products (TN #75477) in objection to JCEEP proposed amendment to limit flexible duct. Existing guidelines and procedures provide sufficient regulation for duct systems	N/A	Staff appreciate the expressed support for the proposed changes to this Section.
75622.047	Nonresidential HVAC Duct Testing	George Nesbitt	Section NA1, which is the HERS, which the only measure that applies in Nonres is duct testing, so that whole section is regurgitated exactly the same as what's in the Residential Appendices. So we should delete it all. And we should either, well, we should take the HERS out of the Residential Appendices and just call it the HERS Appendices.	No	Staff does not find that the reorganization proposed by the commenter would improve the clarity or consistency of the regulations, and for this reason does not find that making the proposed change would be appropriate.
75539.007	Nonresidential HVAC Economizer	Taylor Engineering	The original language required air economizers sized for the design supply airflow. The proposed revisions significantly change the meaning of this requirement. Instead of requiring that the economizer dampers be sized for the full airflow, any outside air damper, of any size, could meet the requirement, as long as it is capable of opening to 100% open (which every damper can do). So instead of stipulating a minimum economizer size, the revised language would allow an economizer of any size to meet this requirement. This is a big mistake.	Yes	Staff reverted the proposed changes to the language to accommodate this commenter. The intent of these changes were to clarify existing requirements, not to impose new requirements. The commenter has identified that a new requirement may be imposed by the proposed amendment, and staff therefore has reverted the change to this Section.
75622.035	Nonresidential HVAC FDD	Matthew Hargrove	CBPA believes Fault Detection and Diagnostic devices are not cost effective.	No	The commenter is questioning cost effectivness of a measure that was adopted as part of the 2013 Building Energy Efficiency Standards. During the 2013 rulemaking, the FDD device was found to be cost effective.
75622.037	Nonresidential HVAC FDD	Adrienne Thomle	For the FDD Certification, are products that are already certified going to be grandfathered or will the suppliers need to retest and recertify? If you don't need to retest and recertify, how do you report changes and/or enhancements?	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. Staff provided the following answer at the hearing where the question was asked: *MR. ALATORRE: They would carry over, the actual fault detection requirements haven't changed. So, yeah, the ones that are already certified would carry over. MR. ALATORRE: If they're changes to the model that they submitted, then they would need to resubmit and tell us what those changes are, yeah.* *MR. STRAIT: It might be worth specifying that if they've already been tested, but they have now made some additional change, even if it's as simple as updating a model number, they can recertify and say, "Hey, we updated this model number, please add it in your list like this and remove the old listing," without having to retest. So they can always communicate with us, they can always certify to us, but they don't need to test every time they do so. (P57-58)*
75501.001	Nonresidential HVAC Mechanical System Shut-off	ConSol	The new requirement for door and window interlocks may have significant impact to smaller buildings with operable windows and doors. Commenter also does not believe that existing buildings have window switches. Commenter asks several questions about how the requirement will be implemented, applied, and enforced.	No	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. Nevertheless, Staff has considered the comment made by CBPA. The regulation does not differentiate by the size of the buildings affected by the statute. Nothing in the record shows how a smaller building would be affected differently by this requirement compared to a larger building, or provides a basis for a change to the regulations that would be an appropriate response to such a difference. The regulations specify that the interlock requirement applies to new buildings and does not apply to alterations in existing buildings. Staff anticipates responding to questions like these in the compliance manuals and other forthcoming education and outreach activities.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75237.004	Nonresidential Interlocks	California Business Properties Association	The new requirements for mechanical system shutoff may have significant impacts on smaller buildings with operable windows and doors. Commenter also does not believe that existing buildings have window switches. Commenter asks several questions about how the requirement will be implemented, applied, and enforced.	No	Staff has considered the comment made by CBPA, but cannot determine in what way a smaller building would be affected differently by this requirement compared to a larger building, nor determine that a change to the regulations would be an appropriate response to such a difference. The regulations specify that the interlock requirement does not apply to alterations, which seems to be the commenter's area of concern; staff's reasoning matches the commenter in that appropriate switches or sensors may not be present in an existing building and would be costly to add. For this reason, the regulations do not require that they be added to existing buildings. Commenter's additional questions do not request or require a change to the proposed language.
75542.001	Non-Residential Lighting Acceptance Testing	RNM Engineering	In NA7.6.3, the percent reduction calculation should use (total initial power - total DR power)/total initial power. Make correction to Mehod 1 Line h and Method 2 Line g of Acceptance Test from NRCA-LTI-04-A.	Partially	While this comment relates to compliance materials published by the Energy Commission and does not relate to the proposed regulatory changes within the rulemaking, Staff has made appropriate changes to the form, NRCA-LTI-04-A, and a summary of the changes follows: Method 1: Line f: (b- d) / d x 100% Line h: [(f1xg1) + (f2xg2) + (f3xg3) + …] / [g1 + g2 + g3 + …] where f = (b – d); g is the area of each controlled space. Method 2: Line e: (b- d) / d x 100% Line g: [(e1 x f1) + (e2 x f2) + (e3 x f3) + …] / [f1 + f2 + f3 + …]
75547.001	Non-Residential Lighting Acceptance Testing	RNM Engineering	Captialize the word "tests" because it is even more important than the other words in the title because this whole section about testing.	Yes	Staff edits the text of NA7.6.1 and the word "tests" has been captialized.
75547.002	Non-Residential Lighting Acceptance Testing	RNM Engineering	The sample quantity should be based on the quantity of spaces in the building. Recommend following guidelines used in the commissioning industry such as the IPMVP.	No	Staff finds existing language is sufficient in providing directions for testing and sampling, and that requiring sampling consistent with IPMVP would increase requirements in many cases without providing any clear benefit: there is no evidence that small buildings are overly tested or that large buildings are being under tested. Keeping the sample size at 5 will mean the Standards are consistent with itself.
75547.003	Non-Residential Lighting Acceptance Testing	RNM Engineering	Change "the remaining building spaces in the sample group also pass" to read as "the remaining building spaces in the sample group will be assumed to also pass."	No	Lighting that passes functional testing based on representative sampling has passed the test. Staff therefore finds that the existing phrasing is both more clear and more accurate in describing the regulatory effect of this Section.
75547.004	Non-Residential Lighting Acceptance Testing	RNM Engineering	After the first failure the acceptance test should stop. The failed component shall be repaired, replaced, or adjusted. During this time, the rest of the system could also be verified. The acceptance testing would resume on a different space and it passes, then the remaining building spaces in the sample group will also be assumed to also pass.	No	The entire paragraph of the existing language of NA7.6.1.2 includes directions on what to do during acceptance testing and covers scenarios mentioned in the comments. The existing language mentions that any test failed device to be repaired, replaces, or adjusted until it passes. When a device fails the test, the existing language has spelled out the end goal that the device will be corrected and retested until it passes. Staff finds existing language is sufficient in providing directions for testing and sampling.

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75547.005	Non-Residential Lighting Acceptance Testing	RNM Engineering	The partial daylight test does not provide any valuable information, is very difficult to perform, and increases the cost of the automatic daylighting acceptance test by 50% without a legal justification.	No	Staff does not find tha deleting the test would be appropriate; staff does not find that the daylight test is "overly difficult" to perform, noting that there are several effective strategies for simulating daylight for a sensor in order to observe the behavior of the lighting system. Staff finds that the test provides a necessary demonstration either that the daylighting controls behave correctly, or that they do not behave correctly and need correction. Staff also notes that the Nonresidential Appendix is adopted as regulatory language and that mention within Section 130.1(d) is not necessary for its validity as a requirement: NA 7.6.1 specifies how compliance is to be demonstrated so that a building can be found to meet the regulatory requirements in Section 130.1(d).
75622.057	Non-Residential Lighting Acceptance Testing	Michael Jouaneh.	Michael Jouaneh of Lutron agrees with a previous commenter's note that the tester cannot certify design.	N/A	Staff notes that the commenter has a correct understanding that the tester cannot certify design. There is no proposed change on this to the existing language.
75622.057	Non-Residential Lighting Acceptance Testing	Michael Jouaneh.	Commenter (Michael Jouaneh of Lutron) asks if there would be new forms for the additional lighting control acceptance tests.	No	There are no new forms for acceptance testing of manual ON/OFF controls. ON/OFF controls are common control strategies used in almost all buildings and the risk of an erroneous installation going unnoticed is extremely low. Staff does not find it appropriate to add acceptance test requirement for manual ON/OFF controls.
75622.058	Non-Residential Lighting Acceptance Testing	RNM Engineering	Commenter (Rick Miller) requests to add acceptance testing of the on-off switch and the dimming capability, and also to add acceptance testing of the controlled receptacles.	No	Expanding acceptance testing requirements to new control types requires a cost analysis showing that the benefits of this testing outweigh the increase in costs. Staff does not find, and the commenter does not provide, any cost information or analysis that would allow staff to consider this proposal; the commenter is encouraged to submit a complete proposal that includes this information for the 2019 code cycle.
75622.059	Non-Residential Lighting Acceptance Testing	RNM Engineering	Commenter (Rick Miller) notes that the very first item on Acceptance Testing form says Acceptance Tester to certify that the design complies with Part 6 and that requirement puts the tester in a awkard position because it is not the tester's job to design the job.	No	The comment relates to compliance forms and thus neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language. Nonetheless, staff will review the compliance form for consistency with the Final Express Terms and the 2013 Standards, as staff finds that acceptance testers are not intended to provide design review or input at the design stage, consistent with the commenter's comment.
75622.06	Non-Residential Lighting Acceptance Testing	RNM Engineering	Automatic Daylight Harvesting, the testing procedure requires three separate tests, but only two of them are mentioned in part 6, so therefore the third test mentioned in the Appendices raises the cost of Acceptance Testing for Daylight Harvesting by 50 percent, without a Part 6 justification. Similar applies to Demand Response, the Appendices mentions two separate tests, Part 6 mentions only one set point, so that second test raises the cost of demand response testing by 100 percent.	No	Staff finds that Section 130.4 makes reference to the Sections of NA 7 related to acceptance testing in their entirety, and thus does specify that all of the tests be performed. Staff finds that the test procedures are appropriate for ensuring the correct functioning of the daylighting and demand responsive controls; for example, demand responsive controls must provide the same reduction capability both when lighting is on at full power and when lighting is on at some lower value, and thus must be tested both at full output and at reduced output to show that any dimming already engaged in by the operator is not "counted against" the demand response the building is called upon to perform.
75622.062	Non-Residential Lighting Acceptance Testing	RNM Engineering	Commenter (Rick Miller) asks if it is the intent of the (this) Commission to require every certified lighting controls testing technician to purchase a $16,000 test kit (for OpenADR 2.0)?	No	Staff finds that a test set is not a mandatory tool for for demand responsive control acceptance testing. Use of a lighting control system dry contact as an interface to demand responsive control signals is allowed.
75622.092	Non-Residential Lighting Acceptance Testing	RNM Engineering	Commenter (Rick Miller) asks if acceptance testing is still required for lighting alterations.Commenter also ask if there has been any analysis whether Acceptance testing is cost—effective on renovation projects.	Partially	The comment neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language. Nonetheless, staff can provide the following answers: acceptance testing is required for lighting alteraion projects that include more than 20 luminaires, and the cost analysis performed for this requirement can be found in the documents relied upon identified in the rulemaking under which it was adopted.
75835.001	Non-Residential Lighting Acceptance Testing	Robert Shearer	A change in the specification to the required daylight level for Power reduction, (“Full Daylight Testing”), is incorrect. It is recommended that the change to Section 130.1 (d) 2. D. iv. be reversed.	Partially	Staff find that the errata correction noted for this Section corrects the error noted by the commenter, and makes the language consistent with the operation specified by the commenter. Staff therefore finds that reversing the change is unnecessary, noting that the change has no regulatory effect (the change replaces the phrase "illuminance received from the daylight" with the phrase "daylight illuminance" to enhance clarity).

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76095.031	Non-Residential Lighting Acceptance Testing	RNM Engineering	Commenter (Rick Miller) suggests to increase the scope of the Lighting Controls Acceptance Tester and to include those related to power adjustment factors.	Yes	The Final Express Terms includes specifications for acceptance testing of controls used to claim Power Adjustment Factors.
74563.001	Non-Residential Lighting Alterations	Lighting Wizards	Please at least maintain the current 45 day language of the 2016 Title 24. It would even be better to have less or no restrictions for lighting retrofits.	Partially	The language in the final express terms is specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Staff does not find that completely removing requirements for lighting alteration projects would be appropriate or responsive to both comments seeking cost relief and those concerned about losing required energy savings.
74563.002	Non-Residential Lighting Alterations	Lighting Wizards	Please use terms that lighting professionals and end-customers understand, such as retrofitting and replacing fixtures. These make a lot more sense than alterations or modifications.	Partially	Staff find that the term "retrofit" is used to refer to processes that modify an existing luminaire, but is also used generically to refer to any project that updates the lighting regardless of whether it includes replacing fixtures or modifying internal components of fixtures. Staff also find that the term "replacing fixtures" is not consistent in applying to projects that remove and reinstall the same fixtures rather than replacing them with new fixtures. For this reason, staff have retained the term "luminaire component modification" as a section title that refers to projects that modify the components of existing, installed luminaires, and "entire luminaire alteration" as a section title that refers to projects that replace entire luminaires. Staff has instead clarified the language that describes what actions these titles apply to.
74626.001	Non-Residential Lighting Alterations	Lighting Wizards	Please let the market decide what is cost effective for lighting retrofits.	Partially	The language in the final express terms is specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Staff does not find that completely removing requirements for lighting alteration projects would be appropriate or responsive to both comments seeking cost relief and those concerned about losing required energy savings.
74660.001	Non-Residential Lighting Alterations	Lighting Wizards	If the CEC will allow lamp for lamp replacement without triggering code, please also allow delamping without triggering code.	Partially	The revisions to the proposed language in Section 141.0(b)2I-L include revisions to the language specifying when these Sections are required to be met and what exceptions apply, based on this comment and comments from other stakeholders.
74678.001	Non-Residential Lighting Alterations	AMBAG	AMBAG Energy Watch fully supports the proposed changes that are outlined in the 45-Day Language for 2016 Title 24 Part 6 and thanks the California Energy Commission for these proposed changes.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. The language in the final express terms is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to concerns about project costs while also responding to concerns from other commenters relating to energy savings.

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74683.001	Non-Residential Lighting Alterations	Lumenature	Lumenature wholeheartedly supports the proposed changes that are outlined in the 45-Day Language for Title 24, Part 6. We urge the CEC to make said modifications retroactive to January 1st, 2015	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements, and for including outdoor lighting in this revision. The language in the final express terms is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to concerns about project costs while also responding to concerns from other commenters relating to energy savings. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code. Staff des not find that conducting an emergency rulemaking immediately following the current rulemaking would be appropriate.
74684.001	Non-Residential Lighting Alterations	ABI Services	I Fully Support the Below Exemption and moving forward the date of Approving the Change as soon as is reasonably possible.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. The language in the final express terms is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to concerns about project costs while also responding to concerns from other commenters relating to energy savings. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code. Staff des not find that conducting an emergency rulemaking immediately following the current rulemaking would be appropriate.
74685.001	Non-Residential Lighting Alterations	Royal Wholesale Electric	ROYAL WHOLESALE ELECTRIC wholeheartedly supports the proposed changes that are outlined in the 45-Day Language for 2016 Title 24 Part 6.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
74686.001	Non-Residential Lighting Alterations	American Lighting	I ASK AND BEG THAT YOU CONSIDER REVISING THE STANDARDS [relating to lighting alterations].	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.

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74690.001	Non-Residential Lighting Alterations	CREE	On behalf of Cree worldwide, we fully support the new T24 language which provides exemptions from Code compliance in [specified cases]. The current requirements have stifled growth in many industry sectors, these changes would clearly boost energy efficiency with retrofit projects and bring us closer to our 2020 state goals.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. The language in the final express terms is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to concerns about project costs while also responding to concerns from other commenters relating to energy savings. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code. Staff des not find that conducting an emergency rulemaking immediately following the current rulemaking would be appropriate.
74827.001	Non-Residential Lighting Alterations	Enlight	A simple addition to the law that exempts retrofits or energy efficiency replacements that reduce energy use from complying with the intricacies of Title 24 2013 would solve the problem of a law doing the opposite of its intended goal.	Partially	The language in the final express terms is specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to concerns about project costs while also responding to concerns relating to energy savings. Staff does not find that completely removing requirements for lighting alteration projects would be appropriate or responsive to both comments seeking cost relief and those concerned about losing required energy savings.
74829.001	Non-Residential Lighting Alterations	American Lighting	The actual impact of the new Title 24 standards has been counter to what it may be been intended to achieve. This has only incentivized customers not to complete energy efficiency projects due to the much higher cost and payback periods. The confusion and misinformation in the marketplace has hurt our industry as a whole dramatically. The intentions may have been good but the manner in which this was rolled out had a devastating affect on this industry as well as any efforts in achieving the State of California energy reduction goals.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
74830.001	Non-Residential Lighting Alterations	Morehouse	Commenter is distressed by the performance of daylighting controls installed in a new office, and suggests that control requirements be removed in favor of requiring LED lighting.	No	The commenter's concern seems related to an incorrectly configured daylighting control; staff understand the comment to be requesting that the Energy Commission "repeal this stupid ineffective requirement for expensive automated lighting and plugs" and instead "should ... just require LED lighting". As shown in the rulemaking record, lighting controls are feasible and cost effective ways to save energy, and the Energy Commission has adopted acceptance testing requirement for lighting control installations to prevent the circumstance described in the commenter's letter. Correctly configured daylighting controls do not shut off lighting when insufficient natural light is available, which seems to be what is occurring here. While staff are sympathetic to the commenter's circumstance, staff do not find it to be a sufficient justification for amending the regulations.
74831.001	Non-Residential Lighting Alterations	American Lighting	Commenter requests that we "take the time to re-evaluate the California Building Energy Standards of Title 24 as they relate to existing business property retrofit lighting."	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
74847.001	Non-Residential Lighting Alterations	Regency Lighting	Commenter requests that we review and adjust the lighting alteration measures in Section 141.0(b)2.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.

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74848.001	Non-Residential Lighting Alterations	Stanford University	Lighting Alterations. Support of the proposed regulations granting exemptions for one-for-one luminaire or luminaire component replacement.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. The language in the final express terms is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to concerns about project costs while also responding to concerns from other commenters relating to energy savings.
74849.001	Non-Residential Lighting Alterations	Alamo Lighting	Support the proposed regulations which provide exemptions for replacement of luminaires or luminaire components where there is lower power consumption. Oppose to the proposed languages in Section K, wiring alteraions. Recommend to implement it ASAP.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. The language in the final express terms is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to concerns about project costs while also responding to concerns from other commenters relating to energy savings. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code. Staff des not find that conducting an emergency rulemaking immediately following the current rulemaking would be appropriate.
74850.001	Non-Residential Lighting Alterations	citizen	Title 24 is killing my lighting retrofit job. It is no longer economically viable to reduce lighting energy use and the associated greenhouse gasses by as much as 70% in California.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
75231.001	Non-Residential Lighting Alterations	Controlled Energy	We support the proposed changes to Part 6, Section 141.0 and we urge the CEC to make them effective on July 1, 2015 or sooner.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code. Staff des not find that conducting an emergency rulemaking immediately following the current rulemaking would be appropriate.
75234.001	Non-Residential Lighting Alterations	Quick Light Recycling	I am writing to state our support for the proposed changes to Part 6, Section 141.0, that will simplify energy efficiency retrofits to existing lighting systems. We also ask that these changes happen sooner rather than later, because the financial pain to suppliers like us and others in this industry have been going on for more than a year. The change in regulations needs to be made now, not next year.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code. Staff des not find that conducting an emergency rulemaking immediately following the current rulemaking would be appropriate.
75239.001	Non-Residential Lighting Alterations	New Light Energy Design	New Light Energy Design wholeheartedly supports the proposed changes that are outlined in the 45-Day Lanugage for 2016 Title 24 Part 6. The draft language would correct critical oversights in the current Code and will resuscitate the lighting retrofit market that has all but stopped in response to the cost and complexity of implementing the current regulations.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
75241.001	Non-Residential Lighting Alterations	Dana Electric	Commener supports the proposed changes to Section 141.0 and strongly urges the CEC to make those changes effective July 1, 2015 or sooner.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code. Staff des not find that conducting an emergency rulemaking immediately following the current rulemaking would be appropriate.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75242.001	Non-Residential Lighting Alterations	American Lighting	I hope you take the time to re-evaluate the California Building Energy Standards of Title 24 as they relate to existing business property retrofit lighting.	Yes	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
75243.001	Non-Residential Lighting Alterations	American Lighting	I hope that you carefully consider the impact of continuing as-is, and what will happen to the lighting industry if the rules are not changed.	Yes	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
75279.001	Non-Residential Lighting Alterations	Ecology Action	Ecology Action is gratified that the proposed 2016 45 Day Language is addressing the most problematic aspects of the 2013 Code. [Commenter also provides comments on an interim draft of the language between publication of the 45-Day and 15-Day Draft Express Terms.]	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements, and for including outdoor lighting in this revision. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
75281.001	Non-Residential Lighting Alterations	ABM Electrical and Lighting Solutions	ABM Electrical and Lighting Solutions, Inc. wholeheartedly supports the proposed changes that are outlined in the 45-Day Language for 2016 Title 24 Part 6.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
75381.002	Non-Residential Lighting Alterations	Oracle	Commenter "support[s] the proposed changes by the CEC to the Title 24 Energy Efficiency Code to remove disincentives to the energy efficiency retrofit industry for carrying out energy retrofits", and specifically highlights the proposed "one for one replacement" language proposed for Section 141.0(b)2I and J.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements, and for including outdoor lighting in this revision. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings.
75395.001	Non-Residential Lighting Alterations	TruTechEnergy	Please also consider eliminating the requirements of Demand Response, as it creates a drastic increase in cost, with a minimal benefit to Californians compared to larger scale measures like battery banks to deal with demand events.	No	The demand response requirement is an existing requirement of the current Standards that has been shown to cost effectively enable energy savings; the commenter does not quantify the asserted increase in cost in a way that would allow it to be compared to the CASE report on which this measure was previously adopted. Staff therefore do not find that completely eliminating demand response requirements would be appropriate.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75398.001	Non-Residential Lighting Alterations	My Lighting Company	Commenter supports an interim draft of the proposed changes to Section 141.0(b)2I-L shown at our public workshop on March 3, 2015.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements, and for including outdoor lighting in this revision. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings.
75399.001	Non-Residential Lighting Alterations	American Lighting	Add Exceptions for Alterations and Modifications such that Code is not triggered as long as the new or modified fixtures have at least 20 percent lower power consumption compared to the original fixtures, add an Exception for exterior fixture replacements such that Code is not triggered so long as replacement luminaires have at least 40 percent lower power consumption compared to the original luminaires, and make the changes effective now.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements, and for including outdoor lighting in this revision. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
75400.001	Non-Residential Lighting Alterations	American Lighting	The rules for exterior lighting are viewed as unreasonable and not well thought out as well. Most exterior lighting applications are there for security reasons. Customers want the areas fully illuminated, even if there is no human presence. They simply want their lots to be secure.	No	For indoor lighting, the proposed requirements relating to automatic shutoff controls specify that the controls must be capable of automatic shutoff behavior; they do not compel any particular behavior on the part of the occupant. For outdoor lighting, the controls similarly specify capability and are further required to detect occupants and turn the lighting on to full power when the space is occupied. This allows the building to be responsive both to occupants that do not need full illumination and those that do. For this reason, staff does not find that changing the requirement would be appropriate.
75405.001	Non-Residential Lighting Alterations	Enlight	Commenter supports the proposed exceptions to lighting alteration requirements presented in interim language, and supports adding a similar exception for exterior lighting alterations.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements, and for including outdoor lighting in this revision. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings.
75406.001	Non-Residential Lighting Alterations	AERC Recycling Solutions	Support the proposed changes to Section 141.0.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.

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75407.001	Non-Residential Lighting Alterations	Ecology Action	Ecology Action fully supports Version 9 of the proposed language for Indoor Lighting Alterations in its entirety. In particular, we feel the [proposed] Exceptions are critically important and should not be subject to further modification.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements, and for including outdoor lighting in this revision. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
75407.002	Non-Residential Lighting Alterations	Ecology Action	Ecology Action's proposal is to add an Exception for exterior fixture replacements such that Code is not triggered so long as replacement luminaires have at least 40 percent lower power consumption compared to the original luminaires.	Partially	Staff proposed an exception to determining lighting power allowances when a 40 percent reduction in power is achieved, consistent with the commenter's recommendation. A complete exemption from triggering code in its entirety was determined to be inappropriate: staff find that BUG requirements and control requirements are still appropriate and provide cost effective benefits for projects meeting this criteria.
75407.003	Non-Residential Lighting Alterations	Ecology Action	Ecology Action is also proposing an Exception so that existing controls are allowed when 5 or fewer luminaires are replaced, and so that Time Clocks will not be required when 12 or fewer luminaires are replaced. Photocells and Occupancy-Off or Partial-Off controls would still be required. We believe this would help lessen the burden on small exterior jobs.	Partially	Staff proposed a 5 luminaire threshold in the 15-Day Language consistent with the commenter's recommendation; a separate 12-luminaire threshold specifically for time clocks was determined to be an unneeded complication provided that the 5-luminaire threshold was added.
75408.001	Non-Residential Lighting Alterations	EnerPath	Commenter supports the proposed amendments to Section 141.0(b)2, and requests that they be made effective immediately.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
75411.001	Non-Residential Lighting Alterations	Alamo Lighting	The commenter "fully support[s] Version 9 of the proposed language for Indoor Lighting Alterations in its entirety. In particular, [commenter] feel[s] the following Exceptions are critically important and should not be subject to further modification", referring to Exception 2 for Sections 141.0(b)2I and J.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings.

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75412.001	Non-Residential Lighting Alterations	Quick Light Recycling	I fully support Version 9 of the proposed language for Indoor Lighting Alterations in its entirety. In addition, I believe the proposed Wiring Alterations language in Section 141.0(b)2K properly applies daylighting controls to large projects only, while not creating barriers for small and medium projects where the associated costs are unacceptable to the retrofit market. It is also critical to add an Exception for exterior fixture replacements such that Code is not triggered so long as replacement luminaires have at least 40 percent lower power consumption compared to the original luminaires.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements, and for including outdoor lighting in this revision. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
75414.001	Non-Residential Lighting Alterations	ABM	Commenter supports Version 9 of the proposed language for Indoor Lighting Alterations, supports the proposed Wiring Alterations language in Section 141.0(b)2K, requests an Exception for exterior fixture replacements such that Code is not triggered so long as replacement luminaires have at least 40 percent lower power consumption compared to the original luminaires.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements, and for including outdoor lighting in this revision. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
75415.001	Non-Residential Lighting Alterations	Amersco	Commenter supports Version 9 of the proposed language for Indoor Lighting Alterations, supports the proposed Wiring Alterations language in Section 141.0(b)2K, requests an Exception for exterior fixture replacements such that Code is not triggered so long as replacement luminaires have at least 40 percent lower power consumption compared to the original luminaires.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements, and for including outdoor lighting in this revision. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.

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75416.001	Non-Residential Lighting Alterations	Lighting Wizards	Commenter supports Version 9 of the proposed language for Indoor Lighting Alterations, supports the proposed Wiring Alterations language in Section 141.0(b)2K, requests an Exception for exterior fixture replacements such that Code is not triggered so long as replacement luminaires have at least 40 percent lower power consumption compared to the original luminaires.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements, and for including outdoor lighting in this revision. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings.
75417.001	Non-Residential Lighting Alterations	Savemorenergy.com	Commenter supports Version 9 of the proposed language for Indoor Lighting Alterations, supports the proposed Wiring Alterations language in Section 141.0(b)2K, requests an Exception for exterior fixture replacements such that Code is not triggered so long as replacement luminaires have at least 40 percent lower power consumption compared to the original luminaires.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements, and for including outdoor lighting in this revision. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
75419.001	Non-Residential Lighting Alterations	Amersco	Commenter supports Version 9 of the proposed language for Indoor Lighting Alterations, supports the proposed Wiring Alterations language in Section 141.0(b)2K, requests an Exception for exterior fixture replacements such that Code is not triggered so long as replacement luminaires have at least 40 percent lower power consumption compared to the original luminaires.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements, and for including outdoor lighting in this revision. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
75424.001	Non-Residential Lighting Alterations	Lutron	Concerned that the current language takes the standards back to pre-2005 levels. Commenter supports the proposed exception but would like the percent savings increased from 20% to 25%, and would like for luminaire modifications to incorporate more controls.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path requiring a 35% or 50% reduction, which is consistent with the commenter's request for a higher reduction threshold. The revised language also incorporates additional controls into this compliance pathway, equivalent to the requirements in Table 141.0-E at the 85% of LPD specification with the exception of not requiring bi-level lighting. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings.

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75425.001	Non-Residential Lighting Alterations	LADWP	The LADWP supports the Energy Commission's efforts to make the 2016 Code more retrofit friendly. The LADWP supports the [version 9] changes presented on March 3, 2015, with a suggested grammatical change. LADWP would support and encourage that the final language be adopted by emergency adoption to replace the requirements of the 2013 code.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code. Staff des not find that conducting an emergency rulemaking immediately following the current rulemaking would be appropriate.
75425.002	Non-Residential Lighting Alterations	LADWP	The commenter suggest the following changes and clarifications. 1.Split Section 141.0(b)2J sentence into two in order to improve clarity. 2. Add "Entire Luminaire Alterations" to Table 141.0-E title.	Partially	The sentence referred to in Section 141.0(b)2J is no longer present in the 15-Day Language, as the Section has been rewritten. Staff have updated the title of Table 141.0-E consistent with the commenter's request.
75429.01	Non-Residential Lighting Alterations	NEMA	NEMA disagrees with the Commission's decision to remove the 2005 and 2008 Title 24 requirements which required Lighting Controls systems for retrofits. While we sympathize with the confusion expressed by lighting retrofit companies on the March 2nd webinar and in written comments, we agree with Commission staff's verbal response to these complaints during webinar that these difficulties can be mitigated with compliance training and other informative measures. Modifying Table 141.0-E to be more inclusive and allow strategies beyond the use of dimming ballasts/drivers, removing the word "mandatory", and changing "luminaire" to "enclosed space" are appreciated. However, we do not believe that increasing the threshold for triggering compliance with Section 141.0 from 10% to 20% will have a demonstrable effect. With these comments in mind, NEMA proposes that CEC redact the proposed adjustment to the Exception 2 to Section 141.0(b)2I and the proposed adjustment to Exception 2 to Section 141.0(b)2J both as presented at the March 3rd Hearing at CEC14. We also propose that CEC redact the proposed change15 to the heading of the left hand column of Table 141.0E which strikes the word "Mandatory" and changes "20%" to "10%". We feel the longstanding existing requirements are adequate and confusion in the field can be mitigated with training and outreach as noted in the March 3rd hearing.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised language does not alter the percent threshold, which remains at 10%. The word "mandatory" no longer occurs in Table 141.0-E, though staff notes that this is a grammatical change for consistency with Section 141.0(b)2 and does not change when or how the Table applies. Staff does not find that all of the concerns noted by commenters are able to be addressed through education, and that the changes made to address their concerns are appropriate. Consequently, stafffinds that the final language provides appropriate cost relief without diminishing expected energy savings.
75432.001	Non-Residential Lighting Alterations	SCPPA	We greatly appreciate the Energy Commission staff's efforts to "simplify and streamline" the nonresidential lighting control requirements. We strongly support the proposed Part 6 Section 141(b)2 revisions regarding non-residential lighting exceptions. We further recommend that the effective date of this change not be delayed until 2017. Making the change effective the same date as the 2016 Title 24 Building Energy Efficiency Standards revisions are adopted – or, better still, retroactive to January 1, 2015 – would encourage development of a significant number of important energy efficiency projects across the State that may otherwise be stymied with the existing retrofit requirements left in place.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.

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75434.001	Non-Residential Lighting Alterations	CMUA	Commenter supports CEC's proposed changes to the 2016 Title 24 Codes & Standards, nonresidential lighting alterations focus on Part 6, Section 141.0(b)2I that simplifies and streamlines the requirements for lighting alterations, and recommends that the CEC also consider a "reach-back" provision that modifies the 2013 Title 24 Code & Standards language to include the proposed language edits you have outlined for the 2016 Title 24 amendments.	No	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
75438.001	Non-Residential Lighting Alterations	Sierra Business Council	Commenter supports Version 9 of Section 141.0, and specifically calls out three sections: "Exception 2 to Section 141.0(b)2I", "Exception 2 to Section 141.0(b)2J", and "Section 141.0(b)K" as being important to their business. Commenter recommends against any further changes to these two Exceptions and one Section, and further recommends that the proposed changes take effect immediately. The commenter recommends adding an Exception for exterior fixture replacements such that Code is not triggered so long as replacement luminaires have at least 40 percent lower power consumption compared to the original luminaires.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements, and for including outdoor lighting in this revision. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
75439.001	Non-Residential Lighting Alterations	Stanford University	Commenter supports the lighting alteration language granting exemptions where the new luminaries or components have at least 20 percent lower power consumption than the existing condition. Commenter also supports early implementation of adopted changes.		Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements, and for including outdoor lighting in this revision. The language in the final express terms uses the same percent-reduction approach but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.

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75441.001	Non-Residential Lighting Alterations	Richard Heath and Associates	Commenter supports Version 9 of the Indoor Lighting Alterations 2016 45-day language dated March 10, 2015, and specifically calls out three sections: “Exception 2 to Section 141.0(b)2I”, “Exception 2 to Section 141.0(b)2J”, and “Section 141.0(b)K” as being important to their business. Commenter recommends against any further changes to these two Exceptions and one Section, and further recommends that the proposed changes take effect as soon as possible. The commenter recommends adding an Exception for exterior fixture replacements such that Code is not triggered so long as replacement luminaires have at least 40 percent lower power consumption compared to the original luminaires, and supports an “…exemption that would allow existing controls when 5 or fewer luminaires are replaced, so that Time Clocks would not be required when 12 or fewer luminaires are to be replaced.”	No	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements, and for including outdoor lighting in this revision. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
75442.001	Non-Residential Lighting Alterations	Controlled Energy	Commenter supports Version 9 of the Indoor Lighting Alterations 2016 45-day language dated March 10, 2015, and specifically calls out three sections: “Exception 2 to Section 141.0(b)2I”, “Exception 2 to Section 141.0(b)2J”, and “Section 141.0(b)K” as being important to their business. Commenter recommends against any further changes to these two Exceptions and one Section, and further recommends that the proposed changes take effect immediately. The commenter recommends adding an Exception for exterior fixture replacements such that Code is not triggered so long as replacement luminaires have at least 40 percent lower power consumption compared to the original luminaires.	No	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements, and for including outdoor lighting in this revision. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
75444.01	Non-Residential Lighting Alterations	Richard Heath and Associates	The commenter "fully support[s] Version 9 of the proposed language for Indoor Lighting Alterations in its entirety. In particular, [commenter] feel[s] the following Exceptions are critically important and should not be subject to further modification", referring to Exception 2 for Sections 141.0(b)2I and J. The commenter further believes Section 141.0(b)2K should remain as proposed and an exception for exterior fixture replacements should be added. Lastly, the commenter is in favor of adding an excepton that allow existing controls to remain when 5 or fewer luminaries are replaced.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements, and for including outdoor lighting in this revision. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.

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75444.01	Non-Residential Lighting Alterations	Richard Heath and Associates	The commenter is in favor of adding an excepton that allow existing controls to remain when 5 or fewer luminaries are replaced.	Partially	Staff added an exemption for alterations that impact two or fewer luminaries per enclosed space (see Exemption 2 for both Section 141.0(b)2J and (b)2K in the proposed 15-day language). Staff determined that an exemption for enclosed spaces with more than two luminaires could lead to excessively large projects being exempted from the regulatory requirements.
75472.001	Non-Residential Lighting Alterations	Opterra	Commenter supports Version 9 of the Indoor Lighting Alterations 2016 45-day language dated March 10, 2015, and specifically calls out three sections: "Exception 2 to Section 141.0(b)2I", "Exception 2 to Section 141.0(b)2J", and "Section 141.0(b)K" as being important to their business. Commenter recommends against any further changes to these two Exceptions and one Section, and further recommends that the proposed changes take effect immediately. The commenter recommends adding an Exception for exterior fixture replacements such that Code is not triggered so long as replacement luminaires have at least 40 percent lower power consumption compared to the original luminaires.	No	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements, and for including outdoor lighting in this revision. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
75493.001	Non-Residential Lighting Alterations	PG&E	PG&E proposes alternate measures for Sections 141.0(b)2I, J, and K to address a concern of lost savings related to daylighting controls.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations retain the daylighting control requirements for luminaire alterations and modifications, and specify daylighting controls for wiring alterations where a minimum number of luminaires is reached. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings.
75514.001	Non-Residential Lighting Alterations	NRDC	NRDC writes in support of the revisions proposed by PG&E in their March 19, 2015 Codes and Standards Enhancement Initiative (CASE) Report. These proposed changes strike the right balance between allowing for the continuation of retrofit programs and maintaining code stringency, maximizing overall energy savings. The CEC should adopt a two-part approach that provides near-term relief, while continuing to capture the potential energy savings from dimmable LEDs in the future code. We urge the CEC to require a savings of 30 percent or greater compared to existing luminaires in the 2017 code, which would better reflect the potential savings from LEDs. We support the language submitted by PG&E that states that the exception should be limited to "projects consisting of only luminaire replacements."	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. The language in the final express terms is more specific than the language in the CASE report in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of affected luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code, even through a "two-part approach" as suggested by the commenter.
75514.001	Non-Residential Lighting Alterations	NRDC	Commenter agreed that the exemption threshold of 20 percent energy savings compared to the existing luminaires is appropriate from the 2013 code. However we urge the CEC to require a savings of 30 percent or greater. Also commenter remains concerned that the savings compared to previously installed luminaires is not audible and suggested, as a minimum, the CEC should require projects using the exemption to maintain some record of the previously installed lighting.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path requiring a 35% or 50% reduction, which is consistent with the commenter's request for a higher reduction threshold. The revised language also incorporates additional controls into this compliance pathway, equivalent to the requirements in Table 141.0-E at the 85% of LPD specification with the exception of not requiring bi-level lighting. Staff finds that the final language provides appropriate cost relief without diminishing energy savings.

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75518.001	Non-Residential Lighting Alterations	New Light Energy Design	The commenter "fully support[s] Version 9 of the proposed language for Indoor Lighting Alterations in its entirety. In particular, [commenter] feel[s] the following Exceptions are critically important and should not be subject to further modification", referring to Exception 2 for Sections 141.0(b)2I and J. The commenter believes Section 141.0(b)2K should remain as proposed and an exception for exterior fixture replacements should be added. Also the commenter urges implementation of these changes right away.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements, and for including outdoor lighting in this revision. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
75552.012	Non-Residential Lighting Alterations	Engineering Enterprise	The commenter stated that the Section (141.0(b)2 for lighting alterations) is poorly written and the commenter was unclear what the 10% requirement is now.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. Staff worked to further clarify and refine the language of these Sections.
75556.001	Non-Residential Lighting Alterations	SCE	This document contains comments on the nonresidential lighting portions of the 2013 version of Title 24, Section 141 - Additions, Alterations, and Repairs to Existing Buildings and proposed language for inclusion in the 2016 version of the code. SCE's submits this proposal for interpreting the 2013 code and modifications for the 2016 code. SCE uses the following three categories to define the scope of lighting retrofit and renovation work in this proposal: 1. Luminaire Modification 2. Luminaire Replacement 3. Full Renovation; including electrical modifications, luminaire reconfiguration, etc. SCE wishes to maintain the stringency of Title 24 Part 6 Section 141 under circumstances where it can be applied in a manner commensurate with the scope and scale of the work that is being performed and the potential energy savings opportunities.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path requiring a 35% or 50% reduction, which is consistent with the commenter's request for a higher reduction threshold. The revised language also incorporates additional controls into this compliance pathway, equivalent to the requirements in Table 141.0-E at the 85% of LPD specification with the exception of not requiring bi-level lighting. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings.
75558.001	Non-Residential Lighting Alterations	Ecology Action	On March 27, 2015 the Commission postponed the April 8, 2015 Hearing to consider adoption of revisions to Title 24 to a later date to be announced. Accordingly, we believe the Commission must also extend the official comment period, which is currently slated to end today, by a commensurate period.	N/A	Staff does not find that moving the date of an adoption hearing necessitates, as a matter of law, formally extending the public comment period beyond the required 45 or 15 days. Staff notes that comments submitted pursuant to such hearings are treated as public comments submitted during the public comment period regardless of the date of the hearing.
75558.002	Non-Residential Lighting Alterations	Ecology Action	The commenter submitted proposed changes to the lighting alteration language.	No	Staff considered specifying "controls" rather than "luminaires" in the Exception for acceptance testing, and found that controls in interconnected systems may not be able to be discretely counted. For example, a centralized Energy Management Control System may control all of the lighting in a building and be described as "one" central control. Staff therefore finds that specifying luminaires is more appropriate than specifying controls. The additional suggested language relates to portions of a working draft of the Standards (version 13) that were completely rewritten in the15-Day Language.

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75566.001	Non-Residential Lighting Alterations	San Francisco Department of the Environment	The commenter believed certain exceptions within the proposed lighting alterations are critically important.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings.
75567.002	Non-Residential Lighting Alterations	Acuity	The proposed revisions for areas with lighting modifications in sections 141.0(b)2I, J and K do not appear to keep California on a track to achieve the energy reduction goals by relaxing requirements for renovations. We recommend that the CEC reevaluate the negative implications of the relaxed requirements relative to the state energy goals. If it is determined that there is a need to exempt certain installations, they should be small areas and achieve significantly lower power density relative to the code power allowance if controls will be exempted.	Yes	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings.
75567.002	Non-Residential Lighting Alterations	Acuity	We recommend that the CEC consider relaxing the quality attributes mandated for integrated LED luminaires to continue to promote the market adoption of these high efficiency and cost effective lighting solutions. We also recommend that the quality attributes should be relaxed for OLED luminaires to promote continued R&D and cost reductions.	No	Staff does not find that making special allowances for differing technologies would be appropriate, as it is not consistent with the technology-neutral, performance-based approach taken by the Standards generally.
75574.001	Non-Residential Lighting Alterations	Alamo Lighting	It is frustrating and sad to learn that the energy commission is considering imposing further project-killing requirements beyond those proposed recently in version 9 for title 24. It is critical that you stick to that language regarding interior new fixtures and alterations, and for exterior fixtures, make exceptions for replacements reducing energy by 40%, including, critically, removing mandated sensor requirements, with third party verification. All of this was already a compromise on our part.	No	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements, and for including outdoor lighting in this revision. The language in the final express terms uses the same percent-reduction approach shown in the Version 9 working draft language but is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings.

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75582.001	Non-Residential Lighting Alterations	Athens Enterprises	Commenter had a six story parking structure with a pharmacy on the ground floor and an office for the sixth floor. Commenter stated that the following controls are not only burdensome an oppressive, but they are not technically feasible. Manual Area Controls; Multi-level Controls; Automatic shut-off Controls; Demand Response Controls; Disaggregation of Electrical Loads.	Partially	The commenter appears to be making a broad comment about the 2013 Standards. The full set of requirements specified by the commenter apply only to newly contructed buidings: lighting control measures are shown to be cost effective in the CASE report studies identified as Documents Relied Upon when the measures were adopted. The commenter does not specify in what ways or for what reasons the requirements are not feasible; staff is not able to find any evidence that this is the case. Alternatively, if this comment is intended as a comment on the proposd changes to the Lighting Alteration provisions of Section 141.0(b)2, staff does not find that the Final Express Terms impose any new requirements for nonresidential lighting controls (compared to the existing requirements in the 2013 Standards). Staff notes that alteration projects in existing buildings have a compliance pathway under the 2013 Standards that does not require installation of daylighting or demand response controls, and that requires only bi-level lighting in place of multi-level lighting requirements. The Final Express Terms include an additional path that is equivalent to this path, and that does not require installation of bi-level lighting. Alteration projects also do not require disaggregation of electrical loads unless the entire electrical distribution system is being replaced. To the extent the commenter misunderstands the requirements that apply to alterations, staff have made extensive edits to the regulations relating to lighting controls to make the regulatory language more clear and consistent. Staff otherwise are not able to find that removing control requirements in full (both for newly constructed buildings and for alterations) would be appropriate.
75595.001	Non-Residential Lighting Alterations	Lighting Wizards	Although Proposed 2016 Code: Version 16.x (interior) and 6.x (exterior) is a significant improvement compared to the existing and original 2016 codes, it is not enough, especially in this age of diminishing returns, to save the most energy in lighting retrofits. The only part that is really okay in Version 16.x is Luminaire Component Modifications (Section 141.0(b)2J). Many stakeholders provided input and could survive with the compromise of the previous draft language, which basically included what is in Version 16.x (Section 141.0(b)2J). In all other ways the previous draft language is better. Permits, even simple ones, controls, CLCATTs and/or other requirements increase costs significantly without necessarily saving extra energy. Allow lighting professionals and end-customers to make decisions for each specific project.	Partially	The language in the final express terms is specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Staff does not find that completely removing requirements for lighting alteration projects would be appropriate or responsive to both comments seeking cost relief and those concerned about losing required energy savings.
75596.001	Non-Residential Lighting Alterations	Lighting Wizards	Commenter suggests that "Except for existing CFLs, all other interior and exterior lighting retrofits or replacements, which are at least 40% less wattage than existing, would not trigger Title, so no permits, LPD, CLCATT, dimming, bilevel lighting or controls would be required. For existing interior and exterior CFLs, if the lighting retrofit or replacement reduces wattage by at least 20%, would not trigger T24, etc."	Partially	The language in the final express terms is specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Staff does not find that completely removing requirements for lighting alteration projects meeting specified thresholds would be appropriate or responsive to both comments seeking cost relief and those concerned about losing required energy savings.
75602.001	Non-Residential Lighting Alterations	Lighting Wizards	Title 24 is an obstacle for lighting retrofits, because it increase time and costs without saving extra energy.	Partially	Staff revised the requirements for lighting alterations to help reduce costs and streamline compliance. Staff finds that Title 24 saves energy, and that the requirements that apply to lighting retrofits are cost effective.

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75621.001	Non-Residential Lighting Alterations	Lighting Wizards	Commeter stated that in general a 15-year payback (a 15-year period of analysis) does not make any practical sense (for lighting alterations measures) because controls may not last that long.	No	The 15-year period life cycle cost-effectiveness analysis is a state statutory requirement for energy efficiecny measures, and is based on the lifespan of the building, not on preferences of specific tenants or consumers for short payback times. Calculations of life cycle cost include replacement costs for equipment with estimated lifespans of less than 15 years.
75622.064	Non-Residential Lighting Alterations	CBPA	Commenter (Matthew Hargrove) notes that they are still trying to catch up with the 2013 Standards. Some of the cost-effectiveness assumptions that went into those Standards they are not sure are bearing out right now	No	Whie the current rulemaking does not revisit the cost effectiveness analysis performed for the prior rulemaking, staff amended the requirements for lighting alterations to address three identified sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed.
75622.065	Non-Residential Lighting Alterations	RNM Engineering	Commenter (Rick Miller) notes that he had a project and the specified dimming ballasts came in at a cost ten times than what he had originally estimated. He thinks what is happening is that the middle man between the manufacturer and the owner seeing that it's now legally required, and the owner doesn't have a choice, they have to put it in, therefore the marketplace has the opportunity to put whatever price on it they want to.	No	Staff finds that dimming ballasts are available at a variety of price points; while staff do find evidence of the effect noted by the commenter, staff also find that other sellers are offering these products at ordinary prices and therefore find that buyers are able to select sellers that are not attempting to artificially inflate product prices. For this reason, staff do not find that a change to the regulations is necessary at this time.
75622.066	Non-Residential Lighting Alterations	ConSol	Commenter offers to help in providing construction cost of a lighting project.	N/A	Staff appreciates the commenter's offer to provide assistance in gathering construction cost data for future development of energy efficiency measures and requirements.
75622.067	Non-Residential Lighting Alterations	CBPA	The commenter notes that any proposed changes to the lighting alteration requirements should be cost effective and should provide energy savings.	N/A	The Energy Commission is required under statute to find that proposed requirements are cost effective, in order to adopt them into regulation. Staff finds that extensive analysis was performed relating to cost effectiveness for the measures included in this rulemaking, and that no changes are needed to address this comment; staff are, nonetheless, receptive to any cost information that stakeholders or commenters are able to provide, including information showing that measures previously understood to be cost effective may no longer be so due to changing market conditions or other factors.
75622.068	Non-Residential Lighting Alterations	CBPA	We have a concern there that disaggregation of loads is rare in many types of commercial settings, and this might be a burdensome mandatory code and we also think that putting in monitoring equipment doesn't in any way impact energy efficiency, you know, it gives us information that potentially could impact energy efficiency, so that might not be a cost—effective measure. And we also would make the argument that this type of disaggregation of loads should be a function of the utilities and not the building owner in many cases. So thank you very much.	No	Staff notes that the requirements do not specify or require installation of monitoring equipment: the requirements are limited to ensuring that the building's wiring is designed in such a way that loads are able to be separately monitored (as opposed to wiring designs that preclude monitoring specific loads). Staff therefore finds that no change to the code is needed, as the code does not impose the cost of installing monitoring equipment that the commenter is concerned about.
75622.079	Non-Residential Lighting Alterations	Ecology Action	The exceptions to (i) and (j) need to remain closer to how they were in the 45—Day Language. For exception 2, you had taken out the one—for—one in front of the word "replacement of luminaires," I think that really is important that that needs to be stricken because it's killing many of the few retrofits which often makes a lot of sense, and by keeping that one—for—one replacement in there, you're taking a lot of situations where there's 10 luminaires because it was spec'd 20 years ago and they don't need to be that many, you want to cut that back to eight, but it really just needs to be replacement of luminaires.	Yes	The final language allows for many-to-few retrofits, consistent with the commenter's comment.
75622.08	Non-Residential Lighting Alterations	Ecology Action	The other thing we strongly oppose the most recent proposed changes to the wiring alterations section. Invoking 130.1(b) and (d), dimming and automatic daylighting, for really simple wiring alterations is illogical and highly counterproductive. Retrofitters will simply avoid potential jobs with a need for these type of wiring alterations, rather than turn them into unsellable proposals due to the unsupportable and unwanted cost of adding multi-level and daylighting to the project.	Yes	The final language matches the specifications in the 2013 Standards and requires only bi-level controls, not dimming controls or automatic daylighting controls, for projects following the percent reduction path, consistent with the commenter's comment.

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75622.081	Non-Residential Lighting Alterations	Ecology Action	The other thing is the addition of "at least 20 percent lower". Previously it was the same or lower, we could live without the "same," but really we don't think putting an arbitrary percentage in there is necessary because retrofitters are going to come in substantially below the existing wattage. There is also a potential unintended effect of discouraging certain LED upgrades based on the available product wattage differential. So it could be that you're in a CFL to LED or something and it doesn't quite have that 20 percent margin because of the kind of product that's available. We think that could come and bite you. We just -- it's arbitrary, we don't think it's necessary to achieve the desired effect.	No	Staff finds that specifying a percentage threshold for projects following the percent reduction pathway is necessary to ensure that the new pathway is equivalent to the existing pathway of installing 85% or less of the space's Lighting Power Allowance.
75622.082	Non-Residential Lighting Alterations	Jim Benya	Getting square footage for an existing building is very difficult. And so we ought to continue to consider a unitary reduction in wattage.	Yes	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements, and notes that the Final Express Terms includes a compliance pathway consistent with the commenter's request.
75622.083	Non-Residential Lighting Alterations	Jim Benya	Commenter notes that the some inspecting authorities would like to see Section 141 to be simplified. Also, the inspecting authotities do not want to be issuing permits and checking retrofit projects unless they require a reconstruction or a major renovation.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
75622.084	Non-Residential Lighting Alterations	Jim Benya	Commenter notes that simple payback is something that should be part of the equation.	No	Staff finds that the life cycle cost approach used for the rulemaking is consistent with State policy and with statutory requirements, and that moving to simple payback would not address the factors that the Energy Commission is required to consider. For that reason, staff finds that moving to simple payback would not be appropriate.
75622.085	Non-Residential Lighting Alterations	Ecology Action	You shouldn't be compelled into the most onerous parts of the Code (referring to daylighting and multi-level lighting controls) just because you're doing some simple wiring changes under that job.	Partially	The final language does not require multi-level lighting for wiring alteration projects, instead requiring only bi-level controls, and requires daylighting for wiring alteration projects only when there are ten or more luminaires in the primary or skylit daylit zone. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings.
75622.086	Non-Residential Lighting Alterations	SCE	In some of the concerns I've heard, it's not necessarily the Code that's the issue, it may be the way that the programs are administered, or the baseline that's used for the basis for energy savings.	N/A	The comment neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language.
75622.087	Non-Residential Lighting Alterations	Jon McHugh	Commenter (Jon McHugh) concerns about Exception 2 of the Lighting Alterations requirements and also cautions on the changes considered for luminaire component replacements.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised language avoids creating circumstances where comprehensive TI projects would be able to avoid meeting specifications for lighting controls. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings.
75622.088	Non-Residential Lighting Alterations	Jon McHugh	Commenter (Jon McHugh) states the other code requirements to be met in order for getting a construction permit for lighting alterations.	No	Staff is aware of the other code requirements described by the commenter, however these other code requirements are beyond the scope of the Building Energy Efficiency Standards. Staff therefore does not find that addressing these issues within this regulatory language would be appropriate.
75622.089	Non-Residential Lighting Alterations	Jon McHugh	Commenter (Jon McHugh) suggests to find out key obstacles for lighting alterations - luminaire component replacements. Also to make sure to achieve savings for all existing buildings.	Yes	Staff worked with stakeholders to identify three key obstacles: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed. The final language is specific in addressing these issues, consistent with the commenter's request.
75622.09	Non-Residential Lighting Alterations	Jon McHugh	Commenter (Jon McHugh) states that energy saving information prepared by lighting retrofitters for CPUC use, may also be used for showing Title 24 compliance.	Partially	The contents of forms or other compliance documents is not specified in regulation, and thus is outside the scope of the current rulemaking. Nonetheless, as staff develop appropriate compliance forms for the 2016 Standards staff will consider what information is already collected for lighting alteration projects and will align data requirements if and when appropriate to do so.

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75622.091	Non-Residential Lighting Alterations	Jon McHugh	A concern I still have is how are we coming back to this with a gut remodel if indeed that gut remodel allows you, as long as you don't move any of the junction boxes, you could just put in a lower wattage fixture and you're done, there's no control requirement, there's not even an LPD requirement at that point.	Yes	The final language specifies that projects moving walls or ceilings must comply with requirements appropriate for "gut-rehab" types of projects, including LPA and control requirements.
75622.093	Non-Residential Lighting Alterations	ABI	Commenter (Mark Spahn) notes that the one for one replacement is a little bit archaic; commenter would prefer that reduction specifications not be per-luminaire.	Yes	The Final Express Terms does not include the one-for-one replacement language, and the percent reduction pathway is no longer per-luminaire, consistent with the commenter's comments.
75622.094	Non-Residential Lighting Alterations	ABI	20 percent can be a problem in some cases, not because they're not reaching the LPD, but because the light levels aren't high enough in those specific cases.	No	The existing standards based on establishing lighting power allowances do not specify a minimum light output for the installed lighting. As the proposed percent reduction compliance path is equivalent to this existing compliance path, and the existing compliance path does not include the requested requirement, staff does not find that establishing minimum light output levels for this pathway would be appropriate. As establishing minimum light levels would be a new requirement under the Building Energy Efficiency Standards, staff encourage the commenter to submit a complete proposal for the 2019 code cycle.
75622.095	Non-Residential Lighting Alterations	NCPA	Commenter (Jonathan Changis) states that he is very pleased and relieve see this coming forward (see the proposed lighting alterations language).	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
75622.096	Non-Residential Lighting Alterations	PG&E	Commenter (Pat Eilett) notes that there should be a threshold for requiring building permits for lighting alterations and not a complete abandonment (of permit process for lighting alterations).	Yes	Staff edited the Final Express Terms to include percentile and numeric thresholds in the same manner as the 2013 Standards.
75622.097	Non-Residential Lighting Alterations	George Nesbitt	Commenter (George Nesbitt) questions if performance method is allowed for meeting lighting alterations requirement.	N/A	Staff find that the performance compliance approach is available for lighting alteration projects, but notes that the cost of modeling the building solely for a change to the building's lighting is not generally taken for small projects.
75622.098	Non-Residential Lighting Alterations	George Nesbitt	Commenter (George Nesbitt) notes that a lot of lighting retrofits are about replacing bulbs and ballasts and not even fixtures.	No	The comment neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language.
75622.099	Non-Residential Lighting Alterations	AES	Commenter (Nathan of AES) provides an example where there are more power savings when changing the number of luminaires than there would be with one for one replacement of luminaires.	Yes	The final language does not include the prior "one-to-one" specification, and allows projects that provide energy savings by changing the number of installed luminaires.
75622.1	Non-Residential Lighting Alterations	Dave Pfund	Commenter (Dave Pfund) asks if "either/or 20 percent per luminaire or LPD compliance as the code trigger threshold for lighting alterations.	No	The Final Express Terms maintain the existing requirements of Sections 141.0(b)2I through L, with an added, optional compliance path to help streamline certain projects. As the stated goal of the effort is cleanup and streamlining of existing code, staff finds that retaining the existing requirements of Section 141.0(b)2I (and therefore keeping separate the new percent reduction compliance path) is appropriate.
75622.101	Non-Residential Lighting Alterations	California Municipal Utilities Association	We have many smaller and medium utilities throughout the State of California that looked very closely to these improvements, and so we are definitely happy to hear that the Energy Commission is considering some of the changes, especially regarding lighting. We request that the proposed lighting alteration language be effective retroactively.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
75622.103	Non-Residential Lighting Alterations	Michael Jouaneh	Commenter (Michael Jouaneh) suggests that for a major lighting retrofit, more than 20 percent of Luminaires in the space, should have to meet the same control requirements as new construction. Further, he suggests to require all lighting alterations, one for one are not, that have to be met in the table, for simplification of the language.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path requiring a 35% or 50% reduction, which is consistent with the commenter's request for a higher reduction threshold. Staff finds that the final language provides appropriate cost relief without diminishing energy savings. Staff does not find that applying the complete requirements for new construction to projects where potentially 80% of the lighting system is untouched would be appropriate, noting the testimony of stakeholders and commenters that alteration projects are very different from new construction. Staff considered incorporating the requirements of the percent reduction pathway into Table 141.0-E, but found that retaining the requirements of 2013 in this Table without incorporating the new, optional pathway would provide greater clarity for professionals that are familiar with the 2013 requirements.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75622.104	Non-Residential Lighting Alterations	Energy Coalition	Commenter (Marc Costa) questions what is required for the documentation of existing conditions for the Exception 2 of the proposed lighting alteration language.	N/A	The contents of forms or other compliance documents is not specified in regulation, and thus is outside the scope of the current rulemaking. Nonetheless, staff has been and will continue to work with stakeholders in developing appropriate compliance forms, including forms for documenting existing lighting conditions.
75622.105	Non-Residential Lighting Alterations	Dave Pfund	Commenter (Marc Costa) questions what is required for the documentation of existing conditions for the Exception 2 of the proposed lighting alteration language.	N/A	Compliance forms are not adopted into regulation; the comment therefore neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language. Staff will develop appropriate forms following adoption of the 2016 Standards, based on the adopted changes in the Final Express Terms.
75622.106	Non-Residential Lighting Alterations	NRDC	Commenter (Meg Waltner) supports the proposed lighting alteration language. She also notes that have not been updates (correction) for Tables 140.6—B and C, there are several lighting categories that don't respond to ASHRAE.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. Regarding Tables 140.6-B and C, the following answer was provided at the business meeting: MR. LEE: Yeah, the Case Team does a very good job, they have looked into these different scenarios, they have compared the ASHRAE requirements and to the Title 24. And so based on their analysis, that is not either feasible, or it's not cost—effective to match up to the ASHRAE in those few spaces or lighting function areas. (P175)
75647.001	Non-Residential Lighting Alterations	NECA/IBEW/LMCC	Commenter's letter asserts that proposed changes to lighting alteration requirements allow increased energy use, and that changes should be provided an additional 45-day public comment period.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Separately, staff finds that potential changes to streamline and simplify the lighting alterations sections are explicitly specified in the Notice of Proposed Action, and that 15-day public comment periods were therefore appropriate.
75654.001	Non-Residential Lighting Alterations	CASE Team for PG&E	Commenter asserts that proposed changes to lighting alteration requirements allow increased energy use.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings.
75655.001	Non-Residential Lighting Alterations	ProAutomated	ProAutomated supports increasing the standards for lighting controls implementation and acceptance testing as a way to improve the environment, provide additional jobs, and reduce electricity usage in the State of California. The new standard of only 20% improvement in power consumption over existing fixtures is too low, and will not support changes beyond what existing economics incentivizes. We strongly support raising this to a minimum of a 50% improvement in lighting efficacy in order to push the state forward as a leader in energy efficiency.	Partially	Staff established a 50% power reduction threshold for three specific occupancy types, in order to guarantee that the "worst performing" buildings of these types would achieve power reductions under this option equivalent to those achieved by installing 85% or less of the lighting power allowance for the space, and established a 35% requirement for all other occupancy types. Staff finds that for the other occupancy types a 50% reduction would require savings beyond what is required by the 85% of lighting power allowance path, and thus would no longer be equivalent to that path.
75655.002	Non-Residential Lighting Alterations	ProAutomated	The current language regarding "20 or fewer controls" should be modified to reflect a measurement that is less ambiguous. As currently stated, would a lighting panel with 24 dimming zones and only 1 wall control be classified as 24 controls or only 1? We recommend switching to a measurement based on wattage affected.	Yes	Staff edited the threshold to refer to 20 luminaires, rather than controls, to address issues of ambiguity regarding how integrated control systems would be counted.

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75666.001	Non-Residential Lighting Alterations	Walton Electric Corporation	Commenter opposes the proposed rollback of lighting control and acceptance test requirements for alterations and modifications of indoor and outdoor luminaires in existing buildings. Commenter also opposes any other proposals that the Commission may be considering that would weaken lighting control or acceptance test requirements for alterations and modifications of indoor or outdoor luminaires, including any changes to the wiring alteration requirements that would reduce current control requirements.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Regarding lighting wiring, staff note that the 2013 Standards specified only that lighting wiring alterations "shall meet the applicable requirements in Sections 110.9, 130.1, and 130.4" without specifying which requirements in those Sections would be applicable to a wiring-only project or providing any criteria for a provision's applicability. As the requirements of these Sections relate to lighting, not wiring, staff amended the language to make express reference to the criteria that would be applicable to a wiring project irrespective of the installed lighting served by the wiring, and provided criteria for the applicability of daylighting control requirements. Staff therefore finds that the final language preserves the stringency of the 2013 Standards.
75670.001	Non-Residential Lighting Alterations	Alternative Energy Solutions	Commenter does not support the idea that controls regulations should be scaled back or watered down, and opposes the changes proposed as of April 30, 2015. Commenter expressly does not support exempting luminaire alterations or modifications from existing lighting control or lighting power allowance requirements where the modified luminaires have at least 20 percent lower power consumption compared to the original luminaires; does not support any type of rolling back of acceptance test requirements or reducing lighting controls for alterations and modifications in existing buildings of either indoor and/or outdoor lighting fixtures; and does not support any changes to the wiring alteration requirements that would scale back the current Title 24 Part 6 lighting control, or acceptance test requirements.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Regarding lighting wiring, staff note that the 2013 Standards specified only that lighting wiring alterations "shall meet the applicable requirements in Sections 110.9, 130.1, and 130.4" without specifying which requirements in those Sections would be applicable to a wiring-only project or providing any criteria for a provision's applicability. As the requirements of these Sections relate to lighting, not wiring, staff amended the language to make express reference to the criteria that would be applicable to a wiring project irrespective of the installed lighting served by the wiring, and provided criteria for the applicability of daylighting control requirements. Staff therefore finds that the final language preserves the stringency of the 2013 Standards.
75671.001	Non-Residential Lighting Alterations	Stockman's Water and Energy	Lighting controls can double the energy savings over just putting in more efficient luminaires. By doubling the percentage of replacements that trigger lighting control requirements and allowing wholesale exemptions for lighting luminaires that reduce power consumption by 20 percent, the Commission is losing a huge amount of energy savings that would be achieved under the current code. Providing a blanket exception for acceptance testing for certain installations is also shortsighted.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings.

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75672.001	Non-Residential Lighting Alterations	Pacific Ridge Electric Inc.	Commenter opposes the proposed rollback of lighting control and acceptance test requirements for alterations and modifications of indoor and outdoor luminaires in existing buildings. Commenter also opposes any other proposals that the Commission may be considering that would weaken lighting control or acceptance test requirements for alterations and modifications of indoor or outdoor luminaires, including any changes to the wiring alteration requirements that would reduce current control requirements.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Regarding lighting wiring, staff note that the 2013 Standards specified only that lighting wiring alterations "shall meet the applicable requirements in Sections 110.9, 130.1, and 130.4" without specifying which requirements in those Sections would be applicable to a wiring-only project or providing any criteria for a provision's applicability. As the requirements of these Sections relate to lighting, not wiring, staff amended the language to make express reference to the criteria that would be applicable to a wiring project irrespective of the installed lighting served by the wiring, and provided criteria for the applicability of daylighting control requirements. Staff therefore finds that the final language preserves the stringency of the 2013 Standards.
75674.001	Non-Residential Lighting Alterations	InterMountain Electric Company	Commenter opposes four proposed provisions "and any other similar concepts that the CEC may be looking at." Commenter also states that increasing the percent threshold for alterations increases the risk that owners will stagger their lighting upgrades to avoid triggering code.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Staff note that the final language retains the 10% threshold for entire luminaire alterations.
75676.001	Non-Residential Lighting Alterations	DEK Electric	Commenter opposes the proposed rollback of lighting control and acceptance test requirements for alterations and modifications of indoor and outdoor luminaires in existing buildings. Commenter also opposes any other proposals that the Commission may be considering that would weaken lighting control or acceptance test requirements for alterations and modifications of indoor or outdoor luminaires, including any changes to the wiring alteration requirements that would reduce current control requirements.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Regarding lighting wiring, staff note that the 2013 Standards specified only that lighting wiring alterations "shall meet the applicable requirements in Sections 110.9, 130.1, and 130.4" without specifying which requirements in those Sections would be applicable to a wiring-only project or providing any criteria for a provision's applicability. As the requirements of these Sections relate to lighting, not wiring, staff amended the language to make express reference to the criteria that would be applicable to a wiring project irrespective of the installed lighting served by the wiring, and provided criteria for the applicability of daylighting control requirements. Staff therefore finds that the final language preserves the stringency of the 2013 Standards.

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75677.001	Non-Residential Lighting Alterations	Weber Electric Company	Commenter opposes the proposed rollback of lighting control and acceptance test requirements for alterations and modifications of indoor and outdoor luminaires in existing buildings. Commenter also opposes any other proposals that the Commission may be considering that would weaken lighting control or acceptance test requirements for alterations and modifications of indoor or outdoor luminaires, including any changes to the wiring alteration requirements that would reduce current control requirements.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Regarding lighting wiring, staff note that the 2013 Standards specified only that lighting wiring alterations "shall meet the applicable requirements in Sections 110.9, 130.1, and 130.4" without specifying which requirements in those Sections would be applicable to a wiring-only project or providing any criteria for a provision's applicability. As the requirements of these Sections relate to lighting, not wiring, staff amended the language to make express reference to the criteria that would be applicable to a wiring project irrespective of the installed lighting served by the wiring, and provided criteria for the applicability of daylighting control requirements. Staff therefore finds that the final language preserves the stringency of the 2013 Standards.
75679.001	Non-Residential Lighting Alterations	Morrow-Meadows Corporation	Commenter opposes the proposed rollback of lighting control and acceptance test requirements for alterations and modifications of indoor and outdoor luminaires in existing buildings. Commenter also opposes any other proposals that the Commission may be considering that would weaken lighting control or acceptance test requirements for alterations and modifications of indoor or outdoor luminaires, including any changes to the wiring alteration requirements that would reduce current control requirements.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Regarding lighting wiring, staff note that the 2013 Standards specified only that lighting wiring alterations "shall meet the applicable requirements in Sections 110.9, 130.1, and 130.4" without specifying which requirements in those Sections would be applicable to a wiring-only project or providing any criteria for a provision's applicability. As the requirements of these Sections relate to lighting, not wiring, staff amended the language to make express reference to the criteria that would be applicable to a wiring project irrespective of the installed lighting served by the wiring, and provided criteria for the applicability of daylighting control requirements. Staff therefore finds that the final language preserves the stringency of the 2013 Standards.
75680.001	Non-Residential Lighting Alterations	Morrow-Meadows Corporation	Commenter opposes the proposed rollback of lighting control and acceptance test requirements for alterations and modifications of indoor and outdoor luminaires in existing buildings. Commenter also opposes any other proposals that the Commission may be considering that would weaken lighting control or acceptance test requirements for alterations and modifications of indoor or outdoor luminaires, including any changes to the wiring alteration requirements that would reduce current control requirements.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Regarding lighting wiring, staff note that the 2013 Standards specified only that lighting wiring alterations "shall meet the applicable requirements in Sections 110.9, 130.1, and 130.4" without specifying which requirements in those Sections would be applicable to a wiring-only project or providing any criteria for a provision's applicability. As the requirements of these Sections relate to lighting, not wiring, staff amended the language to make express reference to the criteria that would be applicable to a wiring project irrespective of the installed lighting served by the wiring, and provided criteria for the applicability of daylighting control requirements. Staff therefore finds that the final language preserves the stringency of the 2013 Standards.

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75681.001	Non-Residential Lighting Alterations	Morrow-Meadows Corporation	Commenter opposes the proposed rollback of lighting control and acceptance test requirements for alterations and modifications of indoor and outdoor luminaires in existing buildings. Commenter also opposes any other proposals that the Commission may be considering that would weaken lighting control or acceptance test requirements for alterations and modifications of indoor or outdoor luminaires, including any changes to the wiring alteration requirements that would reduce current control requirements.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Regarding lighting wiring, staff note that the 2013 Standards specified only that lighting wiring alterations "shall meet the applicable requirements in Sections 110.9, 130.1, and 130.4" without specifying which requirements in those Sections would be applicable to a wiring-only project or providing any criteria for a provision's applicability. As the requirements of these Sections relate to lighting, not wiring, staff amended the language to make express reference to the criteria that would be applicable to a wiring project irrespective of the installed lighting served by the wiring, and provided criteria for the applicability of daylighting control requirements. Staff therefore finds that the final language preserves the stringency of the 2013 Standards.
75682.001	Non-Residential Lighting Alterations	Contra-Costa Electric	Contra Costa Electric, Inc. is opposed to the proposed revisions and any others that the Commission may be considering that would lessen lighting control or acceptance test requirements for alterations and modifications of outdoor or indoor luminaires. We also oppose any changes to the wiring alteration requirements that would reduce current lighting control requirements.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Regarding lighting wiring, staff note that the 2013 Standards specified only that lighting wiring alterations "shall meet the applicable requirements in Sections 110.9, 130.1, and 130.4" without specifying which requirements in those Sections would be applicable to a wiring-only project or providing any criteria for a provision's applicability. As the requirements of these Sections relate to lighting, not wiring, staff amended the language to make express reference to the criteria that would be applicable to a wiring project irrespective of the installed lighting served by the wiring, and provided criteria for the applicability of daylighting control requirements. Staff therefore finds that the final language preserves the stringency of the 2013 Standards.
75699.001	Non-Residential Lighting Alterations	NECA	Commenter opposes the proposed rollback of lighting control and acceptance test requirements for alterations and modifications of indoor and outdoor luminaires in existing buildings. Commenter also opposes any other proposals that the Commission may be considering that would weaken lighting control or acceptance test requirements for alterations and modifications of indoor or outdoor luminaires, including any changes to the wiring alteration requirements that would reduce current control requirements.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Regarding lighting wiring, staff note that the 2013 Standards specified only that lighting wiring alterations "shall meet the applicable requirements in Sections 110.9, 130.1, and 130.4" without specifying which requirements in those Sections would be applicable to a wiring-only project or providing any criteria for a provision's applicability. As the requirements of these Sections relate to lighting, not wiring, staff amended the language to make express reference to the criteria that would be applicable to a wiring project irrespective of the installed lighting served by the wiring, and provided criteria for the applicability of daylighting control requirements. Staff therefore finds that the final language preserves the stringency of the 2013 Standards.

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75700.001	Non-Residential Lighting Alterations	Morrow-Meadows Corporation	Commenter opposes the proposed rollback of lighting control and acceptance test requirements for alterations and modifications of indoor and outdoor luminaires in existing buildings. Commenter also opposes any other proposals that the Commission may be considering that would weaken lighting control or acceptance test requirements for alterations and modifications of indoor or outdoor luminaires, including any changes to the wiring alteration requirements that would reduce current control requirements.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Regarding lighting wiring, staff note that the 2013 Standards specified only that lighting wiring alterations "shall meet the applicable requirements in Sections 110.9, 130.1, and 130.4" without specifying which requirements in those Sections would be applicable to a wiring-only project or providing any criteria for a provision's applicability. As the requirements of these Sections relate to lighting, not wiring, staff amended the language to make express reference to the criteria that would be applicable to a wiring project irrespective of the installed lighting served by the wiring, and provided criteria for the applicability of daylighting control requirements. Staff therefore finds that the final language preserves the stringency of the 2013 Standards.
75709.001	Non-Residential Lighting Alterations	HMT Electric	Commenter opposes the proposed rollback of lighting control and acceptance test requirements for alterations and modifications of indoor and outdoor luminaires in existing buildings. Commenter also opposes any other proposals that the Commission may be considering that would weaken lighting control or acceptance test requirements for alterations and modifications of indoor or outdoor luminaires, including any changes to the wiring alteration requirements that would reduce current control requirements.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Regarding lighting wiring, staff note that the 2013 Standards specified only that lighting wiring alterations "shall meet the applicable requirements in Sections 110.9, 130.1, and 130.4" without specifying which requirements in those Sections would be applicable to a wiring-only project or providing any criteria for a provision's applicability. As the requirements of these Sections relate to lighting, not wiring, staff amended the language to make express reference to the criteria that would be applicable to a wiring project irrespective of the installed lighting served by the wiring, and provided criteria for the applicability of daylighting control requirements. Staff therefore finds that the final language preserves the stringency of the 2013 Standards.
75710.001	Non-Residential Lighting Alterations	Albright Electric	Commenter opposes the proposed rollback of lighting control and acceptance test requirements for alterations and modifications of indoor and outdoor luminaires in existing buildings. Commenter also opposes any other proposals that the Commission may be considering that would weaken lighting control or acceptance test requirements for alterations and modifications of indoor or outdoor luminaires, including any changes to the wiring alteration requirements that would reduce current control requirements.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Regarding lighting wiring, staff note that the 2013 Standards specified only that lighting wiring alterations "shall meet the applicable requirements in Sections 110.9, 130.1, and 130.4" without specifying which requirements in those Sections would be applicable to a wiring-only project or providing any criteria for a provision's applicability. As the requirements of these Sections relate to lighting, not wiring, staff amended the language to make express reference to the criteria that would be applicable to a wiring project irrespective of the installed lighting served by the wiring, and provided criteria for the applicability of daylighting control requirements. Staff therefore finds that the final language preserves the stringency of the 2013 Standards.

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75711.001	Non-Residential Lighting Alterations	JO Electric	Commenter opposes the proposed rollback of lighting control and acceptance test requirements for alterations and modifications of indoor and outdoor luminaires in existing buildings. Commenter also opposes any other proposals that the Commission may be considering that would weaken lighting control or acceptance test requirements for alterations and modifications of indoor or outdoor luminaires, including any changes to the wiring alteration requirements that would reduce current control requirements.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Regarding lighting wiring, staff note that the 2013 Standards specified only that lighting wiring alterations "shall meet the applicable requirements in Sections 110.9, 130.1, and 130.4" without specifying which requirements in those Sections would be applicable to a wiring-only project or providing any criteria for a provision's applicability. As the requirements of these Sections relate to lighting, not wiring, staff amended the language to make express reference to the criteria that would be applicable to a wiring project irrespective of the installed lighting served by the wiring, and provided criteria for the applicability of daylighting control requirements. Staff therefore finds that the final language preserves the stringency of the 2013 Standards.
75712.001	Non-Residential Lighting Alterations	Mann Electric	Commenter opposes the proposed rollback of lighting control and acceptance test requirements for alterations and modifications of indoor and outdoor luminaires in existing buildings. Commenter also opposes any other proposals that the Commission may be considering that would weaken lighting control or acceptance test requirements for alterations and modifications of indoor or outdoor luminaires, including any changes to the wiring alteration requirements that would reduce current control requirements.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Regarding lighting wiring, staff note that the 2013 Standards specified only that lighting wiring alterations "shall meet the applicable requirements in Sections 110.9, 130.1, and 130.4" without specifying which requirements in those Sections would be applicable to a wiring-only project or providing any criteria for a provision's applicability. As the requirements of these Sections relate to lighting, not wiring, staff amended the language to make express reference to the criteria that would be applicable to a wiring project irrespective of the installed lighting served by the wiring, and provided criteria for the applicability of daylighting control requirements. Staff therefore finds that the final language preserves the stringency of the 2013 Standards.
75713.001	Non-Residential Lighting Alterations	CSAEW	Commenter opposes any rollback of lighting control and acceptance test requirements for alterations and modifications of indoor and outdoor luminaires in existing buildings. Commenter also opposes any other proposals that the Commission may be considering that would lessen lighting control or acceptance test requirements for alterations and modifications of indoor or outdoor luminaires, including any changes to wiring alteration requirements that would reduce current control requirements.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Regarding lighting wiring, staff note that the 2013 Standards specified only that lighting wiring alterations "shall meet the applicable requirements in Sections 110.9, 130.1, and 130.4" without specifying which requirements in those Sections would be applicable to a wiring-only project or providing any criteria for a provision's applicability. As the requirements of these Sections relate to lighting, not wiring, staff amended the language to make express reference to the criteria that would be applicable to a wiring project irrespective of the installed lighting served by the wiring, and provided criteria for the applicability of daylighting control requirements. Staff therefore finds that the final language preserves the stringency of the 2013 Standards.

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75714.001	Non-Residential Lighting Alterations	NECA/IBEW/LMCC	Commenter opposes the proposed rollback of lighting control and acceptance test requirements for alterations and modifications of indoor and outdoor luminaires in existing buildings. Commenter also opposes any other proposals that the Commission may be considering that would weaken lighting control or acceptance test requirements for alterations and modifications of indoor or outdoor luminaires, including any changes to the wiring alteration requirements that would reduce current control requirements.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Regarding lighting wiring, staff note that the 2013 Standards specified only that lighting wiring alterations "shall meet the applicable requirements in Sections 110.9, 130.1, and 130.4" without specifying which requirements in those Sections would be applicable to a wiring-only project or providing any criteria for a provision's applicability. As the requirements of these Sections relate to lighting, not wiring, staff amended the language to make express reference to the criteria that would be applicable to a wiring project irrespective of the installed lighting served by the wiring, and provided criteria for the applicability of daylighting control requirements. Staff therefore finds that the final language preserves the stringency of the 2013 Standards.
75715.001	Non-Residential Lighting Alterations	San Francisco Electrical Contruction Industry	Commenter opposes four proposed provisions "and any other similar ideas that the CEC may be looking at for 2016." Commenter also opposes reductions in lighting wiring requirements.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Regarding lighting wiring, staff note that the 2013 Standards specified only that lighting wiring alterations "shall meet the applicable requirements in Sections 110.9, 130.1, and 130.4" without specifying which requirements in those Sections would be applicable to a wiring-only project or providing any criteria for a provision's applicability. As the requirements of these Sections relate to lighting, not wiring, staff amended the language to make express reference to the criteria that would be applicable to a wiring project irrespective of the installed lighting served by the wiring, and provided criteria for the applicability of daylighting control requirements. Staff therefore finds that the final language preserves the stringency of the 2013 Standards.
75724.001	Non-Residential Lighting Alterations	Joint Electrical Industry Fund	Commenter opposes the proposed rollback of lighting control and acceptance test requirements for alterations and modifications of indoor and outdoor luminaires in existing buildings. Commenter also opposes any other proposals that the Commission may be considering that would weaken lighting control or acceptance test requirements for alterations and modifications of indoor or outdoor luminaires, including any changes to the wiring alteration requirements that would reduce current control requirements.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Regarding lighting wiring, staff note that the 2013 Standards specified only that lighting wiring alterations "shall meet the applicable requirements in Sections 110.9, 130.1, and 130.4" without specifying which requirements in those Sections would be applicable to a wiring-only project or providing any criteria for a provision's applicability. As the requirements of these Sections relate to lighting, not wiring, staff amended the language to make express reference to the criteria that would be applicable to a wiring project irrespective of the installed lighting served by the wiring, and provided criteria for the applicability of daylighting control requirements. Staff therefore finds that the final language preserves the stringency of the 2013 Standards.

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75725.001	Non-Residential Lighting Alterations	NECA - Orange County Chpater	Commenter opposes the proposed rollback of lighting control and acceptance test requirements for alterations and modifications of indoor and outdoor luminaires in existing buildings. Commenter also opposes any other proposals that the Commission may be considering that would weaken lighting control or acceptance test requirements for alterations and modifications of indoor or outdoor luminaires, including any changes to the wiring alteration requirements that would reduce current control requirements.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Regarding lighting wiring, staff note that the 2013 Standards specified only that lighting wiring alterations "shall meet the applicable requirements in Sections 110.9, 130.1, and 130.4" without specifying which requirements in those Sections would be applicable to a wiring-only project or providing any criteria for a provision's applicability. As the requirements of these Sections relate to lighting, not wiring, staff amended the language to make express reference to the criteria that would be applicable to a wiring project irrespective of the installed lighting served by the wiring, and provided criteria for the applicability of daylighting control requirements. Staff therefore finds that the final language preserves the stringency of the 2013 Standards.
75761.001	Non-Residential Lighting Alterations	NECA/IBEW/LMCC	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. 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.	Yes	Staff amended "20 controls" to instead specify "20 luminaires" to address circumstances where a limited number of controls are capable of controlling large sections of buildings, and the ambiguity of whether a single whole-building system such as an Energy Management Control System would count as one "control" and thus not be subject to acceptance testing regardless of its size.
75761.001	Non-Residential Lighting Alterations	NECA/IBEW/LMCC	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. [Commenter asserts that the specific provisions in the proposed language will cause a loss in energy savings, and therefore opposes the proposed changes.]	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language retains the control requirements of the 2013 Standards and provides appropriate cost relief without diminishing expected energy savings.
75762.001	Non-Residential Lighting Alterations	Guillen Electric	Commenter opposes the proposed rollback of lighting control and acceptance test requirements for alterations and modifications of indoor and outdoor luminaires in existing buildings. Commenter also opposes any other proposals that the Commission may be considering that would weaken lighting control or acceptance test requirements for alterations and modifications of indoor or outdoor luminaires, including any changes to the wiring alteration requirements that would reduce current control requirements.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings. Regarding lighting wiring, staff note that the 2013 Standards specified only that lighting wiring alterations "shall meet the applicable requirements in Sections 110.9, 130.1, and 130.4" without specifying which requirements in those Sections would be applicable to a wiring-only project or providing any criteria for a provision's applicability. As the requirements of these Sections relate to lighting, not wiring, staff amended the language to make express reference to the criteria that would be applicable to a wiring project irrespective of the installed lighting served by the wiring, and provided criteria for the applicability of daylighting control requirements. Staff therefore finds that the final language preserves the stringency of the 2013 Standards.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75767.001	Non-Residential Lighting Alterations	NLCAA	National Lighting Contractors Association of America and its Lighting Retrofit Contractors approves the proposed rollback of lighting control and acceptance test requirements for alterations and modifications of indoor and outdoor luminaires in existing buildings.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. The language in the final express terms is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings.
75801.001	Non-Residential Lighting Alterations	Ecology Action	We believe it is essential that the Commission adopt the proposed 2016 15-Day Language. An entire industry and thousands of jobs hang in the balance. (The commenter also provided opinions (rebuttals) on a batch of letters written by installers including union electricians and union contractors.)	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
75815.001	Non-Residential Lighting Alterations	Lighting Wizards (Stan Walerczyk)	Commenter generally opposes regulation of lighting retrofit projects, and provides the following specific assertions directly relevant to proposed language: "There would be considerably more KWH and peak KW saved from lighting retrofits with no Title 24 or at least how the previous one was used than with this 15 day language," "If some end-customers only want a 'shallow' retrofit with limited cost that should be their right. Some energy savings is better than no energy savings," "Occupancy sensors can increase annual hours of operation in various types of applications. So it would be better not to mandate them, but allow them to be installed when cost effective and get rebates for them," and "Since Title 24 provides no benefit for non-residential lighting retrofits, and actually is a detriment, it should be totally eliminated"	No	Staff finds that the regulations in general, and regulations related to lighting and lighting controls specifically, provide significant energy savings in California as shown by the successful history of the Building Standards Program. The commenter does not provide any data in support of his assertions that energy savings would be greater without regulations, and staff's analysis of lighting alteration requirements shows both that significant savings is accomplished by the regulations, and that the savings is potentially lost if the regulations are eliminated. Staff does not see any evidence of occupancy sensors increasing hours of operation, and finds that the absence of an automatic shutoff control only allows lighting to remain on that could have been automatically shut off, which would be an increase in energy use. Staff finds that the prior Documents Relied Upon for adoption of prior standards shows that Title 24 provides benefits for lighting in non-residential buildings, and that these benefits exist both in the context of a newly constructed building and when an existing building is retrofitted.
75815.001	Non-Residential Lighting Alterations	Lighting Wizards (Stan Walerczyk)	Title 24 should allow extra wattage for the biologic or non-visual part of the visual system for Human Centric Lighting benefits.	No	Staff finds that emittance of light outside the visual spectrum that may be beneficial to human health can be accomplished while staying within prescribed maximum lighting power allowances, given that installations often use significantly less than their maximum allowance.
75866.001	Non-Residential Lighting Alterations	ABI Services	We feel that the 15-Day Language represents an acceptable compromise that will enable us to survive and rebuild the Industry, so that the jobs and energy savings that have been lost since last July can be realized. We therefore support the 15-Day Language. We also strongly disagree with the inaccurate and misleading allegations voiced by Big Labor that understates the severe consequences imposed by the 2013 Code and that disparages the good work being done by non-union lighting retrofit contractors and the program implementers and customers who employ them.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
75867.001	Non-Residential Lighting Alterations	American Lighting Association	Our only hope for survival is that the 15iDay Language is approved. I believe that it is a huge compromise on everyone's part, but if that is what it takes to give us some remote chance of staying in business I am willing to endorse it.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
75868.001	Non-Residential Lighting Alterations	Building Valley Energy Solutions	I am writing to express support for adoption of 15-Day Language for the 2016 Energy Efficiency Building Standards. The changes, while they do not go far enough to realize the full potential of the retrofit market, will definitely improve the situation on the ground and lead to an increase in jobs being completed and kWh reduction achieved.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.

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75869.001	Non-Residential Lighting Alterations	Enlight	I am writing in support of adoption of the Title 24 15-day language for the 2016 Energy Efficiency Building Standards. Although we feel that some of the requirements that are in the language as written will restrict our ability as lighting retrofit design-build contractors to save energy at the greatest rate, we feel that a workable compromise has been reached with the 15 day language as written. Please adopt the proposed 2016 language and allow it to be implemented as soon as possible (July 1, 2015?) so that we can continue to provide the energy savings that the State of California so desperately needs.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
75883.001	Non-Residential Lighting Alterations	CESC	We would much prefer a 2016 Code that has fewer mandatory controls requirements for lighting retrofits than those proposed in the 15-Day Language. However, Title 24 is a consensus-driven document involving extensive give and take among multiple parties and it should not be further modified at this late date. As such, we feel that the 15-Day Language represents an acceptable compromise that will enable us to survive and regain the jobs and energy savings that have been lost since last July. We therefore support the 15-Day Language, and encourage its adoption.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
75884.001	Non-Residential Lighting Alterations	NLCAA	NLCAA is in favor of rolling back the lighting control and acceptance test requirements for alterations and modification of both indoor and outdoor luminaries of existing buildings.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
75885.001	Non-Residential Lighting Alterations	Friel Energy Solutions	I am happy about the elimination of the need for Acceptance Testing for small projects. We would like for the language to exempt lighting retrofits entirely from Title 24 because we are in the business of energy savings and have been for years without any new rules.	Partially	The language in the final express terms is specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Staff does not find that completely removing requirements for lighting alteration projects would be appropriate or responsive to both comments seeking cost relief and those concerned about losing required energy savings.
75886.001	Non-Residential Lighting Alterations	Michael Doherty	The commenter states that the 35 percent more efficient lighting system option is practically impossible for enforcement personnel to verify and enforce since the baseline value of the existing luminaires could not be established due to the scheduling demands on building inspectors. The commenter also states Advanced lighting controls such as daylighting and multi-level dimming should not be optional for lighting alteraions in the proposed language.	Partially	Staff finds that the language in the Final Express Terms retains the same requirements for daylighting and multi-level lighting for projects exceeding 85% of their lighting power allowance or exceeding the equivalent 35 or 50 percent power reduction; staff notes that these pathways only differ in the requirement for bi-level lighting that applies to projects at or below 85% of their lighting power allowance and does not apply to projects meeting the percent reduction threshold. Staff does not find that enforcement of the percent reduction compliance path would be either more difficult or subject to greater risk than enforcement of other provisions of the Standards. Building officials are able to require diagrams or schedules describing the removed lighting, or pictures of the lighting prior to commencing the project, etc. appropriate to verify existing conditions, and written attestations relating to lighting are no different than written attestations relied upon for other building systems. Staff therefore finds that appropriate and effective compliance processes and forms can be developed, consistent with the other processes and forms developed for compliance with Part 6; staff have committed to working with stakeholders to develop these processes following this rulemaking.

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75887.001	Non-Residential Lighting Alterations	Stanford University	We are in support of the 15-Day language for the 2016 Energy Efficiency Building Standards. We have found it difficult to make the economics work on group reballasting projects and other lighting upgrades where we have to absorb the cost of non cost-effective control strategies. In other words, the current requirements of the 2013 standard as it applies to reballasting projects increases the paybacks to a point where we are more likely to opt for "do nothing" than to make investments in upgrading the efficiency of lighting systems on campus.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
75889.001	Non-Residential Lighting Alterations	Mike Stone	I am writing in opposition to the proposed new language in Section 141.0(b)21(ii). This provision would be impossible for enforcement personnel to verify and enforce since the baseline value of the existing luminaires could not be established. When a retrofit building permit is issued, the first site visit by an inspector is to inspect the rough installation, including any new wiring. At this stage of a construction project, all demolition is typically completed and the debris is gone.	No	Staff does not find that enforcement of the percent reduction compliance path would be either more difficult or subject to greater risk than enforcement of other provisions of the Standards. Building officials are able to require diagrams or schedules describing the removed lighting, or pictures of the lighting prior to commencing the project, etc. appropriate to verify existing conditions, and written attestations relating to lighting are no different than written attestations relied upon for other building systems. Staff therefore finds that appropriate and effective compliance processes and forms can be developed, consistent with the other processes and forms developed for compliance with Part 6; staff have committed to working with stakeholders to develop these processes following this rulemaking.
75906.001	Non-Residential Lighting Alterations	Controlled Energy	We approve the 15-Day Language, while holding our noses. We approve them only because doing nothing will be calamitous for the industry and for energy saving in California. Make the changes effective on June 10, 2015, to avoid the continued hemorrhaging of the energy conservation industry that has produced results for 30 years running.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
75910.001	Non-Residential Lighting Alterations	Hinkley Lighting	The 45-day language represented great improvement in many of the consumer perceived shortfalls of LED lighting as it compares in features and ease of use to incandescent. Unfortunately it also dictated standards such as NEMA SSL-7A which is not the only method manufacturers have to improve dimming. Many of us continue to implement smarter drivers that emulate 7A, plus support additional compatibility. Making SSL-7A a checkbox option for compliance, while yet requiring the luminaire performance otherwise explicitly, is the best path forward.	No	The commenter misunderstands the regulations: this requirement applies specifically to "forward phase cut dimmers used with LED light sources", and a smart driver that does not use forward phase cut dimming is not required to comply with NEMA SSL-7A. Staff therefore finds that the existing language is responsive to the commenter's concern, and that no change is needed to allow alternate approaches to dimming.
75922.001	Non-Residential Lighting Alterations	Lumenature	Lumenature wholeheartedly supports the proposed changes that are outlined in the 45-Day Language for 2016 Title 24 Part 6. The proposed language is reasonable and consistent and is a huge improvement over the 2013 Code which has made customers reluctant to install energy efficient lighting because the burden and expense of the code requirements. We urge the CEC to make said modifications retroactive to January 1st. 2015.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
75924.001	Non-Residential Lighting Alterations	Advanced Energy Services	The proposed changes would be very beneficial to the retrofitting industry in which Advanced Energy Services, Inc. (AES) has been working for the past eight years. As the Operations Manager of AES, I fully support these proposed changes.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
75926.001	Non-Residential Lighting Alterations	LADWP	The commenter's organization supports the direction (of the proposed 15-day language) for the industry in general to push the lighting retrofit industry towards deeper, more comprehensive energy efficiency savings.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
75926.002	Non-Residential Lighting Alterations	LADWP	The commenter's organization concerns that the 15-day language is evolved in a non-transparent manner and through a process not sufficiently informed by rigorous data and analysis.	N/A	Staff finds that the publication of proposed changes to the Nonresidential Lighting Alteration requirements and additional documents relied upon have met the requirements of the Administrative Procedures Act.

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75926.003	Non-Residential Lighting Alterations	LADWP	The commenter's organization is further concerned that the 15-day language has been rushed through major and substantive changes since the 45-day language with minimum opportunity for the potential consequences to be fully assessed and quantified.	Partially	Staff finds that the language in the Final Express Terms is the product of three rounds of revisions over six months, and that the process provided ample opportunity for assessment of proposed changes by stakeholders and the public.
75926.004	Non-Residential Lighting Alterations	LADWP	The commenter's organization is concerned that the 15-day language threatens to derail the 2013 T24 code's intent to transform the lighting retrofit industry through a focus on advanced controls.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised language maintains the control requirements of the 2013 Standards, with the exception of bi-level lighting for projects meeting the percent reduction requirement rather than the equivalent 85% of lighting power allowance requirement. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings.
75926.005	Non-Residential Lighting Alterations	LADWP	The commenter's organization is concerned that the 15-day language will be administratively difficult for building department staff to enforce.	Partially	Staff does not find that enforcement of the percent reduction compliance path would be either more difficult or subject to greater risk than enforcement of other provisions of the Standards. Building officials are able to require diagrams or schedules describing the removed lighting, or pictures of the lighting prior to commencing the project, etc. appropriate to verify existing conditions, and written attestations relating to lighting are no different than written attestations relied upon for other building systems. Staff therefore finds that appropriate and effective compliance processes and forms can be developed, consistent with the other processes and forms developed for compliance with Part 6; staff have committed to working with stakeholders to develop these processes following this rulemaking.
75926.006	Non-Residential Lighting Alterations	LADWP	The advanced lighting requirements introduced in the 2013 Standards cannot currently be met in a manner cost-effective for ratepayers, and the LADWP has thus been truncating our Small Business Direct Install projects at a maximum of 39 modified luminaires in order to avoid triggering the advanced controls and pin-based socket retrofit requirements. This has resulted in the loss of potential savings on average of about 15-20% for the LADWP's SBDI program, but it should be noted that the LADWP currently only offers SBDI to our small business customers up to 30 kW in size. Utility programs serving larger customers may be experiencing significantly higher losses of savings. The 15-day language does not directly address the loss of savings currently being incurred by utility direct programs, and therefore also seeks a blanket exemption for ratepayer-funded utility DI programs from the entire luminaire alteration requirements and the luminaire component modification requirements for the effective duration of the 2016 Code.	Partially	The language in the Final Express Terms addresses specific, identified cost concerns, and staff finds that the requirements in the Final Express Terms are cost effective. Staff therefore does not find that an exception from these requirements is appropriate.
75927.001	Non-Residential Lighting Alterations	AMBAG	The AMBAG Energy Watch Program at the Association of Monterey Bay Area Governments supports the adoption of Title 24- Part 6 2016 15-Day Language that is currently being considered. We realize that Title 24 is a consensus-driven document involving extensive review and comments among multiple parties and we support the position that the Language should not be further modified at the current time. The 15-Day Language represents an acceptable compromise that will enable programs like AM BAG Energy Watch to comprehensively serve customers and harvest project related energy savings that have been stalled since last July. Since the 2016 code for lighting immediately improves upon the 2013 code it is incumbent on CEC to allow the 2016 Code to be implemented by stakeholders as soon as possible after it is adopted rather than waiting until January 1, 2017.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.

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75928.004	Non-Residential Lighting Alterations	Acuity	The allowance for a 30% lower rated power at full light output should be based on the maximum rated power of the luminaire alteration, not necessarily what is installed. Also, it is unclear how this allowance will be enforced since an inspector won't know what was previously installed and would be forced to rely on someone with a vested interest in getting inspection approval to confirm the power reduction.	No	Staff finds that the maximum rated power of the existing lighting is the baseline for determining the required percent reduction; the language already behaves in the manner suggested by the commenter. Staff does not find that reporting of installed lighting is different than reporting any other aspect of the project for compliance purposes, and thus does not find that any unique enforcement challenge is created by the requirement.
75930.001	Non-Residential Lighting Alterations	Advanced Energy Services	The commenter hopes that the Energy Commission will see past the negative influence of the special interest groups in the lighting arena that are pushing their agenda and do what is best for both the state and the people that live in it.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
75932.001	Non-Residential Lighting Alterations	Advanced Energy Services	I [am] strongly in favor of the the revisions proposed.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
75934.001	Non-Residential Lighting Alterations	City-County Association of Government of San Mateo County	Ecology Action's research on the impact of Title 24 Code includes projects and proposed projects from San Mateo County. The collection of projects shows concretely the severe consequences imposed by the 2013 code, especially as it impacts the small business sector. We feel that the 15-Day Language represents an acceptable compromise, and would like to see it implernented as soon as possible after it is adopted rather than waiting until January 7,2077.	No	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
75937.004	Non-Residential Lighting Alterations	NEMA	Commenter opposes the proposed changes to Section 141.0 as it would remove existing requirements for installation of lighting controls during Luminaire Modifications in place as there are solutions available such as wireless controls products that do not require pulling new wires for alterations.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings.
76010.001	Non-Residential Lighting Alterations	NECA/IBEW/LMCC	Commenter asks several clarifying questions regarding proposed changes to the nonresidential lighting alteration provisions.	N/A	The comment requests information, and thus neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language. Staff worked with this stakeholder to provide the requested information.
76023.001	Non-Residential Lighting Alterations	Greg Mahoney	Having a simple way for people to comply is much better than making the upgrades so complicated that owners do not perform the upgrade or they do not get a permit to perform the upgrade. This is a simple solution to a complicated problem, as an AHJ, I am in support of this option.	No	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76024.001	Non-Residential Lighting Alterations	Gabel Associates	Commenter states that the percent more efficient lighting system option is not enforceable as there is no way to properly document existing lighting fixture types and wattages in many cases.	No	Staff does not find that enforcement of the percent reduction compliance path would be either more difficult or subject to greater risk than enforcement of other provisions of the Standards. Building officials are able to require diagrams or schedules describing the removed lighting, or pictures of the lighting prior to commencing the project, etc. appropriate to verify existing conditions, and written attestations relating to lighting are no different than written attestations relied upon for other building systems. Staff therefore finds that appropriate and effective compliance processes and forms can be developed, consistent with the other processes and forms developed for compliance with Part 6; staff have committed to working with stakeholders to develop these processes following this rulemaking.
76084.001	Non-Residential Lighting Alterations	Serrano Electric	The commenter disagrees with the cost analysis for the amount of time to perform an acceptance test on an occupancy sensor.	No	The commenter did not provide any occupancy sensor acceptance test time information to the Energy Commission for staff to analyze or consider. Staff therefore could not evaluate the validity of the comment, and as the commenter does not suggest any alternate values for staff to consider, staff is also unable to arrive at suggested changes to regulatory language.
76085.001	Non-Residential Lighting Alterations	ABI Services	I fully Support the Passage of Docket Number 15-BSTD-01 which will be voted on August 12th. I appreciate that you are able to make these changes to support the Retrofit Industry in California.	No	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.

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76086.001	Non-Residential Lighting Alterations	NLCAA	The cost analysis for Acceptance Testing of occupancy sensors, by a certified acceptance testing technician, is not accurate according to my experience. I am also not aware of anyone in my industry that was surveyed about these costs.	No	Acceptance test cost information was provided by Ecology Action and is identified in the Documents Relied Upon. The commenter did not provide any alternate acceptance test cost information to the Energy Commission for staff to analyze or consider. Staff therefore could not evaluate the validity of the comment, and as the commenter does not suggest any alternate values for staff to consider, staff is also unable to arrive at suggested changes to regulatory language.
76086.002	Non-Residential Lighting Alterations	NLCAA	The Energy Commission has not provided a cost effectiveness analysis for acceptance testing for daylighting controls.	No	The proposed acceptance testing for daylighting system is an existing requirement and there is no proposed changes to the acceptance testing. Since the daylighting acceptance testing requirement is not a new measure, no cost effectiveness analysis is required for this rulemaking.
76086.003	Non-Residential Lighting Alterations	NLCAA	The billing rate for an electrician in many California cities is more than $80/hour.	No	The commenter makes an assumption that acceptance test technician is making an electrician rate but this is not necessarily be the case. Acceptance test technicians performs acceptance tests and are not performing electrician's task of installation . Staff does not find the cost analysis for acceptance testing to be unreasonable or without basis.
76086.004	Non-Residential Lighting Alterations	NLCAA	Testing of occupancy sensors cannot be performed when there are other construction workers in the same area, hence, much of this testing must be done during off hours such as nights and weekends when the pay rate is in the 'overtime' category.	No	Staff does not find that the logistics of performing acceptance testing differ from the logistics of performing other types of construction, including other lighting work. The need to either close or limit business or to work after-hours is not unique to this operation, and such logistical decisions are at the discretion of the builder or owner.
76086.005	Non-Residential Lighting Alterations	NLCAA	What does "(internal)" mean for labor cost?	No	The billing rate information is provided by Ecology Action and internal means that it is an internal-sourced information from within the organization of Ecology Action. Staff does not find the cost analysis for acceptance testing to be unreasonable or without basis.
76086.006	Non-Residential Lighting Alterations	NLCAA	The cost of an audit inspection would be more than $300. Many CLCATTs charge a minimum fee of $1,000, therefore, estimated fees of less than $1,000 are unrealistic.	No	This cost data of audit inspection is pulled from project database of Ecology Action, a lighting retrofit firm. The commenter does not provide an alternative value, other than asserting that some companies charge a minimum $1000 fee. As staff is not able to relate a minimum fee with a per-hour or per-unit charge, staff is unable to extrapolate an alternative proposal for regulatory language or thresholds from this comment.
76086.007	Non-Residential Lighting Alterations	NLCAA	The time it takes to perform a thorough 'plans review' before going to the site needs to be included.	No	It is not within the scope of the acceptance tester technician's responsibilities to perform a plan review. The primary objective for the technician is to perform acceptance tests on installed equipment, which does not require evaluation of plans.
76086.009	Non-Residential Lighting Alterations	NLCAA	What is the quantity of sensors below which the cost of testing is not cost justified?	No	Staff found that fixed versus per-unit costs flatten at 20 controls; the proposed threshold of 20 luminaires is based on a worst-case of one control per luminaire.
76086.01	Non-Residential Lighting Alterations	NLCAA	A similar analysis is needed for testing of daylight harvesting.	No	Staff is unsure what this comment is requesting: acceptance testing procedures for daylighting controls are included in Section 130.4, and the analysis of acceptance testing costs is intended to establish the break between fixed and per-unit costs on a general basis. Staff does not find that a separate analysis is needed to establish the threshold for the Exception, and the commenter does not propose an alternate threshold for the value or suggest that the adopted value is incorrect.
76095.002	Non-Residential Lighting Alterations	CBIA	Commenter (Bob Raymer) indicate on behalf of Matthew Hargrove of CBPA that they support the Nonresidential requirement adoption.	No	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.

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76095.003	Non-Residential Lighting Alterations	NECA/IBEW/LMCC	We're here in opposition to the Nonresidential package principally on the new exemptions being included for advanced lighting control systems. Staff earlier today represented to the Commission that those particular items were being specifically targeted to small business. There's no restrictions on size on the modification and alteration exemption for Advanced Lighting Controls. So those exemptions would be able to apply to buildings as large as you can imagine. That gives us and my members great great concern and pause.	Yes	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The Final Express Terms do not include the Exceptions referred to by the commenter; the Final Express Terms include a percent reduction compliance path equivalent to the existing 85% of Lighting Power Allowance path which is available to all projects, and that retains the control requirements of the 2013 Standards with the sole exception of not requiring bi-level lighting. The Final Express Terms contain exceptions for acceptance testing that are limited based on project size, and contain a threshold relating to daylighting controls for wiring alterations that is also limited by project size. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings, and addresses the commenter's concern about exceptions to control requirements that are not limited by project size.
76095.004	Non-Residential Lighting Alterations	NECA/IBEW/LMCC	There are items relative to those exemptions, specifically to alterations, as well as to some of the acceptance testing exemptions, they were added to the 15-day language that we do not believe rise to the level of issues that had been considered or even alluded to in the previous workshops and public processes. So there lies a great concern. I think some of those issues could be resolved with a little more interaction and time between some of the stakeholders and staff, but because they were put into the 15-day language and we're now here on the precipice of adopting the entire package, [the commenter objects to their adoption].	Yes	Proposed revisions to the nonresidential lighting alterations provisions were not adopted at this hearing, but were held and further revised over the following five months with input from this commenter and other stakeholders, consistent with the commenter's comment.
76095.006	Non-Residential Lighting Alterations	International Association of Electrical Inspectors	Commenter (Mike Stone on behalf of the International Association of Electrical Inspectors, Northern California Chapter) opposes the proposed lighting alterations language. He states that it is impossible to enforce the proposed measure of allowing exemption of lighting controls for lighting systems with 30 percent power reduction or more.	No	Staff does not find that enforcement of the percent reduction compliance path would be either more difficult or subject to greater risk than enforcement of other provisions of the Standards. Building officials are able to require diagrams or schedules describing the removed lighting, or pictures of the lighting prior to commencing the project, etc. appropriate to verify existing conditions, and written attestations relating to lighting are no different than written attestations relied upon for other building systems. Staff therefore finds that appropriate and effective compliance processes and forms can be developed, consistent with the other processes and forms developed for compliance with Part 6; staff have committed to working with stakeholders to develop these processes following this rulemaking.
76095.007	Non-Residential Lighting Alterations	International Association of Electrical Inspectors	Commenter (Mike Stone) states that the existing buildings is low hanging fruit for energy conservation (efficiency), and that wireless control options can be cost-effective.	N/A	The comment neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language
76095.01	Non-Residential Lighting Alterations	NECA	Commenter (Brett Barrow) opposes the proposed lighting alteration language, and expresses concerns about the rulemaking process and he states that there are additions to the 15-Day language that had not been considered in the previous workshops and public processes.	Partially	Staff finds that the publication of proposed changes to the Nonresidential Lighting Alteration requirements have met the requirements of the Administrative Procedures Act.
76095.011	Non-Residential Lighting Alterations	NECA	Commenter (Brett Barrow) states that the proposed lighting alterations changes could result in a substantial loss in possible energy savings going forward and possibly making the 2013 Standards more stringent and applicable than possibly the 2016 Standards.	Yes	The language was revised to address stakeholder concerns of lost savings and reduced stringency. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings, and does not find that the final language results in any loss in energy savings.
76095.012	Non-Residential Lighting Alterations	Valerie Winn	Commenter (Ms. Winn) supports the proposed lighting alterations language.	No	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.

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76095.013	Non-Residential Lighting Alterations	NECA/IBEW/LMCC	Commenter (Tom Enslow) opposes the adoption of the proposed amendments to the nonresidential lighting alteration requirements, stating that "[T]his is the opposite of what the Governor is telling us to do with existing buildings. We're going backwards to just shallow retrofits, changeouts of lamps and non-advanced simple controls. And this is going to result in less savings when you look at what's required under the 2013 Code and if someone complies with that, and someone complies with what's being proposed, there's going to be less energy savings, there's no question about that."	Yes	The language was revised to address stakeholder concerns of lost savings and reduced stringency. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings, and does not find that the final language results in any loss in energy savings.
76095.014	Non-Residential Lighting Alterations	NECA/IBEW/LMCC	this applies to not just small buildings, there's no limit on how this applies. For example, for modifications they got rid of all requirements for any daylighting on multi-lighting controls completely. You know, it's not limited to any particular project. For Alterations, they provided a pathway where you don't have to do most advanced controls if you do a change-out through a more efficient LED lamp. And again, there's no limitations on the number of alterations you can make. You can alter all the lamps in an entire 100-story building, you would still have this exemption. So this is not a small matter.	Yes	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The Final Express Terms do not include the Exceptions referred to by the commenter; the Final Express Terms include a percent reduction compliance path equivalent to the existing 85% of Lighting Power Allowance path which is available to all projects, and that retains the control requirements of the 2013 Standards with the sole exception of not requiring bi-level lighting. The Final Express Terms contain exceptions for acceptance testing that are limited based on project size, and contain a threshold relating to daylighting controls for wiring alterations that is also limited by project size. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings, and addresses the commenter's concern about exceptions to control requirements that are not limited by project size.
76095.015	Non-Residential Lighting Alterations	NECA/IBEW/LMCC	There just hasn't been enough time, this hasn't been vetted through the normal process. These things weren't raised during the pre-rulemaking, there's never been any case support or published analysis to support the findings, or look at the energy losses, and most of these proposals, including the exemptions to lighting alterations were proposed for the first time in 15-day language a couple weeks ago, and so there hasn't been the vetting and there hasn't been the compliance with APA necessary, particularly with something that could move us back in the findings.	N/A	Staff finds that the provision of changes to the Nonresidential Lighting Alteration requirements have met the requirements of the Administrative Procedures Act, noting that this Section is explicitly identified in the Notice of Proposed Action as undergoing revision to simplify and streamline its requirements. Staff also notes that stakeholder concerns regarding the requirements for nonresidential lighting alterations in the 2013 Standards were communicated to the Energy Commission both during the pre-rulemaking and formal rulemaking phases of this proceeding.
76095.016	Non-Residential Lighting Alterations	NECA/IBEW/LMCC	We had an engineering forum take its own preliminary look at these findings and they found that there would be substantial losses and that the findings made by staff's preliminary analysis, which again hasn't been fully published, was based on really optimistic assumptions and didn't look at all potential energy losses, and even with those optimistic assumptions, they just found that this would just be about equivalent to the 2013 Codes. Well, if their optimistic assumptions are at all wrong, we're going to lose a lot of energy from this change. This needs to go through a true stakeholder review process. It's been pushed forward too fast and it's just not ready to go forward. We urge you to delete this from the package and keep the original 2013 Requirements.	Yes	Proposed revisions to the nonresidential lighting alterations provisions were not adopted at this hearing, but were held and further revised over the following five months with input from this commenter and other stakeholders, consistent with the commenter's comment. The language in the Final Express Terms was revised to address stakeholder concerns of lost savings and reduced stringency, and staff finds that the final language addresses the commenter's concern in that it provides appropriate cost relief without diminishing expected energy savings, and does not result in any loss in energy savings.
76095.017	Non-Residential Lighting Alterations	Morrow Meadows Corporation	Commenter (Mr. Ochoa) opposes the adoption of the proposed amendments to Section 141 and their pertinent subdivisions. Commenter states that ihe proposed change is a rollback of retrofit standards. He also states that the proposed exemptions will result in a substantial loss of savings (energy savings).	Yes	The language was revised to address stakeholder concerns of lost savings and reduced stringency. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings, and does not find that the final language results in any loss in energy savings.
76095.02	Non-Residential Lighting Alterations	Ecology Action	Commenter (Gene Thomas) supports the 15-day language. [Commenter also rebuts some comments made by a prior commenter.]	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76095.025	Non-Residential Lighting Alterations	Collins Electrical	Commenter (Marc Muzzo) opposes amendments to Sections 141(B)(ii)(jj)(kk) and (ll), stating that it is not correct that the 2013 Code is somehow reducing lighting energy savings.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings, and does not find that the final language results in any loss in energy savings. Staff does not find that disregarding the volume of comments from lighting retrofit companies describing experiences of hardship would be appropriate, when cost relief can be provided without causing a loss of energy savings.

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76095.026	Non-Residential Lighting Alterations	Collins Electrical	Commenter (Marc Muzzo) states that the biggest issue is the proposed option of 30 percent more efficient lamps or luminaires without the need for multi-step or daylighting controls. He also states the proposals have not given adequate in-depth consideration.	No	Staff finds that the existing 2013 Standards already provide a compliance path that does not require installation of multi-step or daylighting controls. The proposed new pathway is equivalent to this existing pathway; staff therefore finds that providing this alternate pathway is appropriate.
76095.027	Non-Residential Lighting Alterations	NECA/IBEW/LMCC	Commenter (Bernie Kotlier) opposes the adoption of the proposed Lighting Efficiency Amendments to Section 141.0. "They're not going to get us where the Governor and the Legislature want us to go in Energy Efficiency, they're a step backwards, and I urge the Commission to reject them."	Yes	The language was revised to address stakeholder concerns of lost savings and reduced stringency. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings, and does not find that the final language results in any loss in energy savings.
76095.028	Non-Residential Lighting Alterations	NECA/IBEW/LMCC	Commenter (Bernie Kotlier) states that the proposed 2016 amendments would pull the rug out from under this progress path of better, less expensive, and even more energy efficient devices (lighting control devices).	Yes	Staff revised the requirements to address this and other stakeholder concerns of reduced stringency. The percent reduction compliance path requires a reduction in lighting power equivalent to meeting the 85% or less threshold when using the Lighting Power Allowance compliance path, and that the control requirements for these two paths are identical with the sole exception of not requiring bi-level controls for projects using the percent reduction compliance path. Staff therefore finds that requirements for lighting alterations related to advanced controls are identical between the 2013 Standards and the final express terms, which addresses the commenter's concern.
76095.029	Non-Residential Lighting Alterations	NECA/IBEW/LMCC	Commenter (Bernie Kotlier) states that the 2016 lighting proposal with its 30 percent more efficient lamp, luminaire opt out amendments will knock out advanced ADR capable controls for much of the retrofit market. This will severely handicap utility efforts to expand this valuable program and will increase grid vulnerability.	Yes	Staff revised the requirements to address this and other stakeholder concerns of reduced stringency. The percent reduction compliance path requires a reduction in lighting power equivalent to meeting the 85% or less threshold when using the Lighting Power Allowance compliance path, and that the control requirements for these two paths are identical with the sole exception of not requiring bi-level controls for projects using the percent reduction compliance path. Staff therefore finds that requirements for lighting alterations related to demand responsive controls are identical between the 2013 Standards and the final express terms, which addresses the commenter's concern.
76095.03	Non-Residential Lighting Alterations	NECA/IBEW/LMCC	Commenter (Bernie Kotlier) states that his polled contractors say that they're doing much more lighting efficiency work, especially since the 2013 Code was implemented.	N/A	The comment neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language.
76095.032	Non-Residential Lighting Alterations	Stanford University	Commenter (Ms. Kramer) supports the proposed language, the 15-day language that's been presented.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76095.036	Non-Residential Lighting Alterations	Stanford University	Commenter (Mr. Fritch) supports the the 15-day language for Nonresidential 141 on behalf of his organization.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76095.037	Non-Residential Lighting Alterations	Association of Monterey Bay Area Governments	Commenter (Mr. Russell) supports the adoption of the proposed 15-day language.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76095.038	Non-Residential Lighting Alterations	LADWP	The 2013 Building Standards that just went into effect last year for the first time included requirements upon retrofit for Advanced Lighting Controls when certain thresholds were met. The Advanced Lighting Controls requirements introduced in those Standards could not a year ago, and still cannot currently be met in a cost-effective manner for utility ratepayers under this model. Because our program uses a different cost-effectiveness metric for utility ratepayer customers given the rate of return they achieve off these projects, we have been truncating our small business direct install projects at a level below the threshold for triggering the Advanced Controls, which is an unintended effect.	Partially	The language in the Final Express Terms addresses specific, identified cost concerns, and staff finds that the requirements in the Final Express Terms are cost effective.

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76095.04	Non-Residential Lighting Alterations	Enlight	Commenter (Matt Tracy) supports of immediate adoption of the 15-day language for Nonresidential Lighting as it's written.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. The language in the final express terms is more specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings.
76099.001	Non-Residential Lighting Alterations	ALBD Electric and Cable	The commenter disagrees with the cost analysis for the amount of time to perform an acceptance test on an occupancy sensor, finding it to be too low.	No	The commenter did not provide any occupancy sensor acceptance test time information to the Energy Commission for staff to analyze or consider. Staff therefore could not evaluate the validity of the comment, and as the commenter does not suggest any alternate values for staff to consider, staff is also unable to arrive at suggested changes to regulatory language.
76100.001	Non-Residential Lighting Alterations	Zeller Electric	The commenter disagrees with the cost analysis for the amount of time to perform an acceptance test on an occupancy sensor.	No	Acceptance test cost information was provided by Ecology Action and is identified in the Documents Relied Upon. The commenter did not provide any alternate acceptance test cost information to the Energy Commission for staff to analyze or consider. Staff therefore could not evaluate the validity of the comment, and as the commenter does not suggest any alternate values for staff to consider, staff is also unable to arrive at suggested changes to regulatory language.
76101.001	Non-Residential Lighting Alterations	Controlled Energy	We endorse the 15 day language while holding our noses, and request that the changes become effective immediately because of the damage already done to the retrofit industry.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76102.001	Non-Residential Lighting Alterations	Ecology Action	Ecology Action supports the proposed 2016 Lighting Alterations language, albeit with reservations. Under the proposed language most lighting retrofits will still trigger Code and require obtaining a permit of some kind. Our greatest concern now is how the compliance issue is handled. Ecology Action believes it is absolutely vital that the permitting process for lighting retrofits uses a simplified, over-the-counter approach, and that compliance forms and documentation requirements should be highly streamlined and automated. Some opponents have commented that the proposed language is "unenforceable". In reality, enforcement can be very simple.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.

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76103.001	Non-Residential Lighting Alterations	Acuity	The commenter recommends the Energy Commission to maintain a 40 luminaire threshold for luminaire alteration in Section 141.0(b)2J rather than the relaxed threshold of 70 luminaires as proposed.	No	Staff finds that increasing the threshold to 70 is necessary and appropriate for addressing small spaces that use significant amounts of display or task lighting, or that use other numerous small luminaires such as recessed can lighting, rather than fluorescent troffers. Staff notes that the 2013 CASE report that was relied upon for the adoption of the threshold also refers the threshold as a number of "ballasts" and a number of "office luminaires"; staff finds that keeping the threshold numerically at 40 but changing "luminaires" to "ballasts" to address task, display, and other small, typically non-fluorescent lighting would create a requirement that is no longer technology neutral and that allows a potentially unlimited retrofitting of non-fluorescent lighting without triggering Title 24 requirements. Staff therefore finds that the 40 luminaire threshold was estimated based on consideration of fluorescent troffers in office settings and that increasing the threshold is necessary to account for, and apply to, small projects occuring in other types of spaces, consistent with the purpose and intent of setting this minimum threshold. Staff does not find that returning this threshold to 40 would be appropriate, given that doing so would discard valid stakeholder concerns over the appropriateness of this numeric value in applying to the small projects for which it was intended.
76103.002	Non-Residential Lighting Alterations	Acuity	Because the 35% threshold is easily achieved with current lighting technology, we suggest that there is no need to increase the threshold to 70 luminaires for luminaire component modifications (Section 141.0(b)2J). We strongly recommend that this threshold remain at 40 luminaires.	No	Staff finds that increasing the threshold to 70 is necessary and appropriate for addressing small spaces that use significant amounts of display or task lighting, or that use other numerous small luminaires such as recessed can lighting, rather than fluorescent troffers. Staff notes that the 2013 CASE report that was relied upon for the adoption of the threshold also refers the threshold as a number of "ballasts" and a number of "office luminaires"; staff finds that keeping the threshold numerically at 40 but changing "luminaires" to "ballasts" to address task, display, and other small, typically non-fluorescent lighting would create a requirement that is no longer technology neutral and that allows a potentially unlimited retrofitting of non-fluorescent lighting without triggering Title 24 requirements. Staff therefore finds that the 40 luminaire threshold was estimated based on consideration of fluorescent troffers in office settings and that increasing the threshold is necessary to account for, and apply to, small projects occuring in other types of spaces, consistent with the purpose and intent of setting this minimum threshold. Staff does not find that returning this threshold to 40 would be appropriate, given that doing so would discard valid stakeholder concerns over the appropriateness of this numeric value in applying to the small projects for which it was intended.
76103.003	Non-Residential Lighting Alterations	Acuity	If the power reduction compliance method Is intended for projects with luminaire alterations of any size, the power reduction threshold should be increased from 35% to 50% in order to maximize energy savings with proven solid state renovation technologies.	Partially	Staff established a 50% power reduction threshold for three specific occupancy types, in order to guarantee that the "worst performing" buildings of these types would achieve power reductions under this option equivalent to those achieved by installing 85% or less of the lighting power allowance for the space. Staff finds that for other occupancy types this reduction would require savings beyond what is required by the 85% of lighting power allowance path, and thus would no longer be equivalent to that path. For this reason, staff finds that applying a 50% threshold in all cases would not be appropriate.
76103.004	Non-Residential Lighting Alterations	Acuity	For sections associated with the reduced rated power compliance options (Section 141.0(b)2I, J, and L), require the post-installation power to be determined based on the definition in Section 130.0(c).	No	The commenter misunderstands the regulations: Section 130.0(c) specifies how luminaire power is determined, including for alterations. Thus, the regulations already operate in the way the commenter recommends: Section 130.0(c) is used to determine the existing and altered lighting power, based on the maximum rated wattage of the installed luminaires. No change is necessary to address the comment.

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76103.005	Non-Residential Lighting Alterations	Acuity	The commenter recommends the Energy Commission to require all lighting alterations using the power reduction compliance method to verify that post-installation illuminance levels meet IES recommendations.	No	The regulations do not currently impose any requirement to meet IES illuminance levels for either newly constructed buildings or for additions or alterations. The commenter would need to provide information or analysis showing that imposing this new requirement is both feasible and cost effective, in order for staff to consider incorporating the new requirement into the Standards. Staff encourages the commenter to submit a complete proposal for the 2019 code cycle.
76103.006	Non-Residential Lighting Alterations	Acuity	The commenter recommends the Energy Commission to require the installer to obtain an independent certification for the collective luminaire power prior to any lighting alterations or modifications for interior or outdoor lighting pursing the reduced rated luminaire wattage compliance path.	No	Staff finds that requiring independent verification of existing conditions imposes an additional cost while providing an unclear benefit. While third party verification is specified for fenestration and windows in projects using the performance approach, this is at the builder's option and is not required for compliance. Staff does not find that incorporating independent verification into this prescriptive option as a requirement for accessing the option would be appropriate, given that there is not yet any evidence that it will be necessary to ensure compliance.
76103.007	Non-Residential Lighting Alterations	Acuity	The commenter recommends the Energy Commission to invest in training resources to clarify the code requirements and technology solutions in order to reach a boarder audience of installers for lighting alterations and retrofits.	N/A	The commenter's recommendation about investment in training resources is about outreach and education, not about the regulatory language being considered within this rulemaking proceeding: it neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language.
76103.008	Non-Residential Lighting Alterations	Acuity	The commenter recommends the Energy Commission to maintain an effective date for lighting alterations that is consistent with the rest of the 2016 code to avoid the potential for confusion in the industry and among the inspection community.	N/A	The effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
76107.001	Non-Residential Lighting Alterations	Mammoth Sierra Electric Comments	Commenter notes that the cost analysis for acceptance testing for lighting controls in the report is understated and obscure.	No	Acceptance test cost information was provided by Ecology Action and is identified in the Documents Relied Upon. The commenter did not provide any alternate acceptance test cost information to the Energy Commission for staff to analyze or consider. Staff therefore could not evaluate the validity of the comment, and as the commenter does not suggest any alternate values for staff to consider, staff is also unable to arrive at suggested changes to regulatory language.
76107.002	Non-Residential Lighting Alterations	Mammoth Sierra Electric Comments	Commenter also notes that the acceptance testing and related cost have huge cost variables not studied in the docket report. Travel costs need to be considered as there are not enough ATT (Acceptance Test Technicians) scattered in all the different locations throughout the State.	No	Acceptance test cost information was provided by Ecology Action and is identified in the Documents Relied Upon. The commenter did not provide any alternate acceptance test cost information to the Energy Commission for staff to analyze or consider. Staff therefore could not evaluate the validity of the comment, and as the commenter does not suggest any alternate values for staff to consider, staff is also unable to arrive at suggested changes to regulatory language.
76108.001	Non-Residential Lighting Alterations	Stanford University	The commenter supports the 15-Day Language of the lighting alterations. The commenter also notes the permitting process to be simplified, compliance forms and documentation should be streamlined. Lastly, the commenter states simplified retrofit-specific compliance forms should be developed.	Partially	Staff appreciates the support of the proposed language for lighting alterations. Specific forms or other documents used to demonstrate compliance with the Standards are not, themselves, part of the regulations and are not included in this rulemaking; staff will nonetheless look for opportunities to simplify and streamline forms and processes, consistent with the efforts to simplify and streamline the regulations themselves.

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76110.001	Non-Residential Lighting Alterations	Lighting Wizards (Stan Walerczyk)	Commenter submits a series of comments requesting that lighting alteration requirements either be completely eliminated, or rolled back to pre-2013 requirements, stating that lighting alteration requirements are not cost effective generally or not cost effective within a short enough period. Commenter also suggests that lighting power allowances should be increased to account for emitting light outside of the visual spectrum that nonetheless has positive effects on health.	No	Staff finds that lighting control requirements are cost effective both in newly constructed buildings and in additions or alterations to existing buildings, and finds that eliminating efficiency requirements that are feasible and cost effective would be contrary to the statutory direction under which the Standards are adopted. Staff therefore finds that either fully removing or fully rolling back the requirements for lighting alterations would not be appropriate. Separately, staff finds that the current Lighting Power Allowances provide sufficient flexibility to allow for lighting designed to provide an enhanced spectrum that exceeds the visual spectrum. Staff does not find that the additional energy needed for a broadened spectrum would be such that the Lighting Power Allowance would not allow for an adequate amount of lighting to be installed.
76111.002	Non-Residential Lighting Alterations	Lighting Wizards (Stan Walerczyk)	Commenter submits a series of comments requesting that lighting alteration requirements either be completely eliminated, or rolled back to pre-2013 requirements, stating that lighting alteration requirements are not cost effective generally or not cost effective within a short enough period. Commenter also suggests that lighting power allowances should be increased to account for emitting light outside of the visual spectrum that nonetheless has positive effects on health.	No	Staff finds that lighting control requirements are cost effective both in newly constructed buildings and in additions or alterations to existing buildings, and finds that eliminating efficiency requirements that are feasible and cost effective would be contrary to the statutory direction under which the Standards are adopted. Staff therefore finds that either fully removing or fully rolling back the requirements for lighting alterations would not be appropriate. Separately, staff finds that the current Lighting Power Allowances provide sufficient flexibility to allow for lighting designed to provide an enhanced spectrum that exceeds the visual spectrum. Staff does not find that the additional energy needed for a broadened spectrum would be such that the Lighting Power Allowance would not allow for an adequate amount of lighting to be installed.
76112.001	Non-Residential Lighting Alterations	Lighting Wizards (Stan Walerczyk)	Commenter submits a series of comments requesting that lighting alteration requirements either be completely eliminated, or rolled back to pre-2013 requirements, stating that lighting alteration requirements are not cost effective generally or not cost effective within a short enough period. Commenter also suggests that lighting power allowances should be increased to account for emitting light outside of the visual spectrum that nonetheless has positive effects on health.	No	Staff finds that lighting control requirements are cost effective both in newly constructed buildings and in additions or alterations to existing buildings, and finds that eliminating efficiency requirements that are feasible and cost effective would be contrary to the statutory direction under which the Standards are adopted. Staff therefore finds that either fully removing or fully rolling back the requirements for lighting alterations would not be appropriate. Separately, staff finds that the current Lighting Power Allowances provide sufficient flexibility to allow for lighting designed to provide an enhanced spectrum that exceeds the visual spectrum. Staff does not find that the additional energy needed for a broadened spectrum would be such that the Lighting Power Allowance would not allow for an adequate amount of lighting to be installed.
76113.001	Non-Residential Lighting Alterations	SF Dept of the Environment	SF Environment supported earlier revisions to the 2013 code which allowed for exceptions to controls requirements, in cases where new fixtures provide significant reductions in power consumption. The current language requiring a 35% reduction in power consumption, still addresses our concerns. Other changes, such as the short form allowance for certain luminaire component modifications, will also help reduce cost for small retrofit projects. The proposed changes and exceptions to Section 141.0(b) 2 will allow our program and others across the State to accelerate energy efficiency retrofits in buildings where major alterations are not planned. This change is pragmatic, and supports continued delivery of real energy savings.	Yes	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.

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76115.001	Non-Residential Lighting Alterations	Richard Heath and Associates	While recommending some additional attention to a workable compliance solution, RHA declares its full support of the proposed changes that are outlined in the 15-Day Language for 2016 Title 24 Part 6. We believe that the recommended language is reasonable and consistent with the goals for retrofit energy efficiency improvements, and realigns the intent of the 2013 Code with the state's efficiency goals. As such, the proposed 2016 Lighting Alterations and Modifications language should be adopted in its current form. To prevent further delay, RHA urges the Commission to consider rapid implementation of the revised 2016 language in order to promote energy savings in the lighting retrofit marketplace and allow existing retrofit programs to continue without further interruption.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76117.001	Non-Residential Lighting Alterations	LADWP	A number of stakeholders in the process have voiced concerns about the advanced controls requirements and their effect on the larger lighting retrofit industry in California. LADWP understands these concerns and agrees that elements of the 2013 Standards pertaining to the advanced lighting controls requirements are ambiguous or unclear and will benefit from clarification in the 2016 Standards language.	N/A	Staff appreciates the comment of support for clarifying and streamlining nonresidential lighting requirements.
76117.002	Non-Residential Lighting Alterations	LADWP	LADWP opposes raising the trigger for advanced controls from 40 modified fixtures to 70.	Partially	Staff finds that increasing the threshold to 70 is necessary and appropriate for addressing small spaces that use significant amounts of display or task lighting, or that use other numerous small luminaires such as recessed can lighting, rather than fluorescent troffers. Staff notes that the 2013 CASE report that was relied upon for the adoption of the threshold also refers the threshold as a number of "ballasts" and a number of "office luminaires"; staff finds that keeping the threshold numerically at 40 but changing "luminaires" to "ballasts" to address task, display, and other small, typically non-fluorescent lighting would create a requirement that is no longer technology neutral and that allows a potentially unlimited retrofitting of non-fluorescent lighting without triggering Title 24 requirements. Staff therefore finds that the 40 luminaire threshold was estimated based on consideration of fluorescent troffers in office settings and that increasing the threshold is necessary to account for, and apply to, small projects occuring in other types of spaces, consistent with the purpose and intent of setting this minimum threshold. Staff does not find that returning this threshold to 40 would be appropriate, given that doing so would discard valid stakeholder concerns over the appropriateness of this numeric value in applying to the small projects for which it was intended.
76117.003	Non-Residential Lighting Alterations	LADWP	LADWP opposes the alternative compliance method of exempting from the advanced controls requirements projects which achieve a 30 percent or more reduction in installed lighting power density in the altered space. On the latter point LADWP believes this provision to be unenforceable in practice by building departments due to project timing issues and resource availability for extra site inspections and the necessary verification calculations.	Partially	Staff notes that the language in the Final Express Terms applies the same control requirements to the percent reduction path as are applied to the equivalent 85% of lighting power allowance path, with the sole exception of the bi-level lighting requirement. Staff does not find that enforcement of the percent reduction compliance path would be either more difficult or subject to greater risk than enforcement of other provisions of the Standards. Building officials are able to require diagrams or schedules describing the removed lighting, or pictures of the lighting prior to commencing the project, etc. appropriate to verify existing conditions, and written attestations relating to lighting are no different than written attestations relied upon for other building systems. Staff does not find that extra site inspections or verification calculations would be needed. Staff therefore finds that appropriate and effective compliance processes and forms can be developed, consistent with the other processes and forms developed for compliance with Part 6; staff have committed to working with stakeholders to develop these processes following this rulemaking.

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76117.004	Non-Residential Lighting Alterations	LADWP	The commenter's organization is concerned that the 15-day language threatens to derail the 2013 T24 code's intent to transform the lighting retrofit industry through a focus on advanced controls.	Partially	Staff finds that the 2013 Standards already provide a compliance path that does not require "advanced" lighting controls such as multi-level controls and daylighting controls when the installed lighting power is less than 85% of the applicable lighting power allowance, and that the new percent reduction compliance path is equivalent to this existing compliance path.
76117.005	Non-Residential Lighting Alterations	LADWP	The commenter's organization is concerned that the 15-day language will be administratively difficult for building department staff to enforce.	Partially	Staff does not find that enforcement of the percent reduction compliance path would be either more difficult or subject to greater risk than enforcement of other provisions of the Standards. Building officials are able to require diagrams or schedules describing the removed lighting, or pictures of the lighting prior to commencing the project, etc. appropriate to verify existing conditions, and written attestations relating to lighting are no different than written attestations relied upon for other building systems. Staff therefore finds that appropriate and effective compliance processes and forms can be developed, consistent with the other processes and forms developed for compliance with Part 6; staff have committed to working with stakeholders to develop these processes following this rulemaking.
76119.001	Non-Residential Lighting Alterations	Lutron	Entire Luminaire Alterations: The commenter states that the 35% power reduction from existing luminaires is not enough to eliminate all the energy-saving lighting control requirements that have been in the Standard since 2005, and that the power reduction compliance option therefore encourages energy hogs to remain while it makes it hard for already efficient installations for compliance.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path requiring a 35% or 50% reduction, which is consistent with the commenter's request for a higher reduction threshold. The revised language also incorporates additional controls into this compliance pathway, equivalent to the requirements in Table 141.0-E at the 85% of LPD specification with the exception of not requiring bi-level lighting. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings.
76119.003	Non-Residential Lighting Alterations	Lutron	Entire Luminaire Alterations: The commenter states that the exceptions for controls should be based on LPD not existing lighting power.	No	The language was revised to address stakeholder concerns of lost savings and reduced stringency and no longer contains the exceptions to control requirements referred to by the commenter. Having said this, the percent reduction compliance path is intended to allow an alternative to calculating lighting power densities, and staff finds that removing the ability to comply by showing a percent reduction (in lieu of calculating a lighting power density) would not be appropriate.
76119.004	Non-Residential Lighting Alterations	Lutron	Entire Luminaire Alterations: The commenter states that Exception 2 that exempts enclosed spaces with two or fewer fixture eliminate any requirements, should be changed to exempting space with one fixture.	No	Staff does not find that the purpose of exempting incidential repositioning or temporary removal of luminaires is adequately served if the Exception is reduced to a single luminaire, and therefore does not find that making this change would be appropriate.
76119.005	Non-Residential Lighting Alterations	Lutron	Luminaire Component Modifications: The commenter states that the proposed 70 luminaires threshold is too large and urges the Commission to maintain the 40 luminaire threshold.	No	Staff finds that increasing the threshold to 70 is necessary and appropriate for addressing small spaces that use significant amounts of display or task lighting, or that use other numerous small luminaires such as recessed can lighting, rather than fluorescent troffers. Staff notes that the 2013 CASE report that was relied upon for the adoption of the threshold also refers the threshold as a number of "ballasts" and a number of "office luminaires"; staff finds that keeping the threshold numerically at 40 but changing "luminaires" to "ballasts" to address task, display, and other small, typically non-fluorescent lighting would create a requirement that is no longer technology neutral and that allows a potentially unlimited retrofitting of non-fluorescent lighting without triggering Title 24 requirements. Staff therefore finds that the 40 luminaire threshold was estimated based on consideration of fluorescent troffers in office settings and that increasing the threshold is necessary to account for, and apply to, small projects occuring in other types of spaces, consistent with the purpose and intent of setting this minimum threshold. Staff does not find that returning this threshold to 40 would be appropriate, given that doing so would discard valid stakeholder concerns over the appropriateness of this numeric value in applying to the small projects for which it was intended.

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76119.005	Non-Residential Lighting Alterations	Lutron	The commenter states the 35% power reduction option is too low and easily gamed.	Partially	Staff have increased the 35% requirement to 50% for spaces where this was found to be appropriate, consistent with the commenter's comment; staff notes that this pathway only differs in the requirement for bi-level lighting that applies to projects at or below 85% of their lighting power allowance, and that all other control requirements are retained. Staff does not find that enforcement of the percent reduction compliance path would be either more difficult or subject to greater risk than enforcement of other provisions of the Standards. Building officials are able to require diagrams or schedules describing the removed lighting, or pictures of the lighting prior to commencing the project, etc. appropriate to verify existing conditions, and written attestations relating to lighting are no different than written attestations relied upon for other building systems. Staff therefore finds that appropriate and effective compliance processes and forms can be developed, consistent with the other processes and forms developed for compliance with Part 6; staff have committed to working with stakeholders to develop these processes following this rulemaking.
76119.006	Non-Residential Lighting Alterations	Lutron	Lighting Wiring Alterations: The commenter states that the 20 or more luminaire per space threshold before automatic daylight control requirments shall be met is no realistic.	Yes	Staff reduced this threshold to 10 luminaires.
76120.001	Non-Residential Lighting Alterations	NECA/IBEW/LMCC	NECA, IBEW and the LMCC strongly support the energy efficiency goals of the Commission and the administrations. However, the shallow and unverified retrofits proposals now being considered are contrary to these goals and will result in substantial lost energy savings. We urge the Commission to reject the efforts to weaken current standards. [Commenter provides a detailed analysis and breakdown of estimated losses in energy savings associated with the then-proposed 15-Day Language.	Yes	The language was revised to address stakeholder concerns of lost savings and reduced stringency. Staff finds that the final language provides appropriate cost relief without the loss of expected energy savings described in the analysis accompanying the commenter's letter, and thus addresses the commenter's concern.
76121.001	Non-Residential Lighting Alterations	Eaton	Lighting Alterations: The commenter requests clarification on the time frames between luminaire alterations and luminaire component modifications when considering 70 luminaires threshold.	No	Staff have edited the language to specify the time frame for the luminaire modification threshold, incorporating the "per annum" specification in the 2013 Standards. Staff notes that the 70 luminaire threshold and associated specification apply only to luminaire modifications and not to entire luminaire alterations.
76121.002	Non-Residential Lighting Alterations	Eaton	The commenter disagrees with the proposed changes from 40 luminaires to 70 luminaires and requests the 40 luminaires should be maintained as a very minimum.	No	Staff finds that increasing the threshold to 70 is necessary and appropriate for addressing small spaces that use significant amounts of display or task lighting, or that use other numerous small luminaires such as recessed can lighting, rather than fluorescent troffers. Staff notes that the 2013 CASE report that was relied upon for the adoption of the threshold also refers the threshold as a number of "ballasts" and a number of "office luminaires"; staff finds that keeping the threshold numerically at 40 but changing "luminaires" to "ballasts" to address task, display, and other small, typically non-fluorescent lighting would create a requirement that is no longer technology neutral and that allows a potentially unlimited retrofitting of non-fluorescent lighting without triggering Title 24 requirements. Staff therefore finds that the 40 luminaire threshold was estimated based on consideration of fluorescent troffers in office settings and that increasing the threshold is necessary to account for, and apply to, small projects occuring in other types of spaces, consistent with the purpose and intent of setting this minimum threshold. Staff does not find that returning this threshold to 40 would be appropriate, given that doing so would discard valid stakeholder concerns over the appropriateness of this numeric value in applying to the small projects for which it was intended.

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76121.003	Non-Residential Lighting Alterations	Eaton	The commenter notes the proposed 35% power reduction threshold should be different values based on light source technology, and proposes associated values.	No	Staff does not find that having specific, differing percentages for different lighting technologies would be equivalent to the current technology-neutral Lighting Power Allowance requirement. Staff also notes that the commenter provides no explanation or justification for the specific values they are proposing. Staff therefore does not find that requiring varying percentages for differing technologies would be appropriate as an equivalent alternative to the existing technology-neutral standard.
76121.004	Non-Residential Lighting Alterations	Eaton	The commenter states that Exception 1,2 and 4 to Section 141.0(b)2I do not support the drive toward zero net energy. The commenter also suggests that Exception 4 should be revised to 10% of an enclosed space.	Partially	Staff finds that Exception 1 is clarifying in nature, as these types of lighting are already excluded by prior Sections; staff therefore finds that the Exception is unrelated to zero net energy. Staff finds that Exception 2 is necessary to account for non-lighting projects that may require incidental or temporary changes to installed lighting, as well as to preclude routine maintenance or repair of installed luminaires inadvertently triggering requirements applicable to alteration projects; staff therefore does not find finds that this Exception either supports or hinders zero net energy. Staff finds that Exception 4 is appropriate in specifying a minimum project size for acceptance testing, and that moving to a percentile value would have the effect of making the Exception inapplicable to small projects, contrary to its express purpose. Staff does not find that specifying a minimum project size for acceptance testing either supports or hinders zero net energy.
76121.005	Non-Residential Lighting Alterations	Eaton	The commenter recommends the wiring alterations (the wiring alteraions requirement) be revised from 20 luminaires to 10% per enclosed space.	Partially	Staff finds that a numeric threshold is more appropriate in accounting for small spaces adjacent to windows, such as small, enclosed offices, and that moving to a percentile threshold risks making the threshold inapplicable to the types of small spaces it is intended to account for. Staff therefore does not find that making this change would be appropriate.
76121.006	Non-Residential Lighting Alterations	Eaton	The commenter concerns about the process for verifying compliance.	No	Staff does not find that enforcement of the percent reduction compliance path would be either more difficult or subject to greater risk than enforcement of other provisions of the Standards. Building officials are able to require diagrams or schedules describing the removed lighting, or pictures of the lighting prior to commencing the project, etc. appropriate to verify existing conditions, and written attestations relating to lighting are no different than written attestations relied upon for other building systems. Staff therefore finds that appropriate and effective compliance processes and forms can be developed, consistent with the other processes and forms developed for compliance with Part 6; staff have committed to working with stakeholders to develop these processes following this rulemaking.
76123.001	Non-Residential Lighting Alterations	Lighting Wizards	If the CEC mandates controls when they are not cost effective and contractors have to do the Title 24 paperwork, both union and non-union jobs will be killed	Partially	Staff finds that the lighting alterations requirements in the Final Express Terms retain cost effective control strategies while mitigating identified sources of increased costs.
76149.001	Non-Residential Lighting Alterations	Lighting Wizards	Commenter submits a series of comments requesting that lighting alteration requirements either be completely eliminated, or rolled back to pre-2013 requirements, stating that lighting alteration requirements are not cost effective generally or not cost effective within a short enough period. Commenter also suggests that lighting power allowances should be increased to account for emitting light outside of the visual spectrum that nonetheless has positive effects on health.	No	Staff finds that lighting control requirements are cost effective both in newly constructed buildings and in additions or alterations to existing buildings, and finds that eliminating efficiency requirements that are feasible and cost effective would be contrary to the statutory direction under which the Standards are adopted. Staff therefore finds that either fully removing or fully rolling back the requirements for lighting alterations would not be appropriate. Separately, staff finds that the current Lighting Power Allowances provide sufficient flexibility to allow for lighting designed to provide an enhanced spectrum that exceeds the visual spectrum. Staff does not find that the additional energy needed for a broadened spectrum would be such that the Lighting Power Allowance would not allow for an adequate amount of lighting to be installed.

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76149.002	Non-Residential Lighting Alterations	Lighting Wizards	Commenter notes that IBEW has cancelled the lighting fixture maintenance (LFM) classification in Northern California in August 2015. He concludes that the bundled hourly rate of lighting retrofit projects for schools will rise to $85, which is too high for the projects to be cost effective. He request that with LFM cancelled, the regulations should not include any restrictions to lighting retrofit projects (lighting retrofitters).	No	The job classification is not a factor for the cost analysis relied upon in developing the proposed lighting alteration language. Since it is not a factor, any changes to the job classification have no impact to the cost analysis. Staff does not find the lighting alteration requirements prohibiting the use of union and nonunion workers as well as the use of any specific union job classifications for lighting alterations.
76150.001	Non-Residential Lighting Alterations	Lighting Wizards	Commenter proposes to use smart chargers of electric vehicles and HVAC units for automatic demand reduction.	No	Existing Energy Standards contain a measure allowing usage of HVAC units for automatic demand reduction. The proposal suggested by the commenter of using electric vehicle chargers, has to include details of feasibility and cost effectiveness in order to be considered as a new measure for Title 24 Energy Standards. Commenter did not provide the required details for staff to evaluate; staff encourages the commenter to submit a complete proposal for the 2019 code cycle.
76157.001	Non-Residential Lighting Alterations	Ecology Action	Ecology Action believes the proposed language, while imperfect, will unquestionably save more energy than the failed 2013 regulations. It provides enough balance to enable the retrofit industry to return to health and once again deliver the energy savings that is critical to California's future. Ecology Action strongly urges the Commission to approve the proposed 15-Day Language as written.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76216.001	Non-Residential Lighting Alterations	BeyondFire	Commenter supports maintaining the 2013 Title 24 lighting control requirements and to require validated and substantial data for making any of the proposed reductions to the advance lighting controls in the draft 2016 Title 24 language. Commenter states that any reductions in the lighting control requirement would eliminate any possibility of meeting the CPUC Lighting Plan goals of reducing California lighting energy use by 60% to 80% by 2020.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. The revised regulations specify an optional percent reduction compliance path equivalent to the requirements in Table 141.0-E at the 85% of LPD specification, and provide an exception to acceptance testing limited to projects altering 20 or fewer luminaires. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings.
76232.001	Non-Residential Lighting Alterations	Stoel Rives	Commenter states that the propossed language would essentially eliminate the installation of advanced lighting controls in existing buildings. Commenter urges the Commission to reject the proposal to rollback existing advanced lighting control requirements for alterations and modifications, stating that it conflicts with SB 350.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings, and does not find that the final language results in any loss in energy savings. Staff therefore finds that this resolves any conflict with SB 350.
76237.001	Non-Residential Lighting Alterations	Revolution Lighting Technologies	The commenter urges the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76239.001	Non-Residential Lighting Alterations	Silicon Valley Leadership Group	The Silicon Valley Leadership Group supports the proposed language relating to exemptions for lighting retrofits in the Title 24 Building Energy Efficiency Standards.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76240.001	Non-Residential Lighting Alterations	ABI Services	The commenter urges CEC to hear and vote upon the proposed Code changes (the proposed 2016 Title 24 lighting alteration language).	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76241.001	Non-Residential Lighting Alterations	Fronteer Illumination	The commenter urge the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.

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76242.001	Non-Residential Lighting Alterations	enLight	The commenter advocates the need for an exemption for lighting retrofits and the need for a vote of the 15 day language (the proposed 2016 Title 24 15-day language on lighting alterations).	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76243.001	Non-Residential Lighting Alterations	AMBAG	The commenter urges the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76244.001	Non-Residential Lighting Alterations	enLight	The commenter advocates the need for an exemption for lighting retrofits and the need for a vote of the 15 day language (the proposed 2016 Title 24 15-day language on lighting alterations).	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76246.001	Non-Residential Lighting Alterations	Fronteer Illumination	The commenter urge the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76247.001	Non-Residential Lighting Alterations	East Bay Energy Watch	The commenter urge the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76248.001	Non-Residential Lighting Alterations	EcoCosm, Inc.	The commenter urges Commissioner Karen Douglas to lend her support to the changes to the 2016 Title 24 lighting alterations language.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76249.001	Non-Residential Lighting Alterations	EcoCosm, Inc.	The commenter urge the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76250.001	Non-Residential Lighting Alterations	Silicon Valley Leadership Group	The Silicon Valley Leadership Group supports the proposed language relating to exemptions for lighting retrofits in the Title 24 Building Energy Efficiency Standards.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76251.001	Non-Residential Lighting Alterations	Marshall Electric	The commenter urge the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76253.001	Non-Residential Lighting Alterations	EcoCosm, Inc.	The commenter urges Commissioner Karen Douglas to lend her support to the changes to the 2016 Title 24 lighting alterations language.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.

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76254.001	Non-Residential Lighting Alterations	GFI Electrical and General Contractors	The commenter urge the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76255.001	Non-Residential Lighting Alterations	LightArc Lighting	The commenter urge the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76256.001	Non-Residential Lighting Alterations	Jerico Energy	The commenter notes the existing regulations (Title 24 Part 6) need significant modification. He also requests to put this as an item for the Energy Commission's November Business Meeting.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76257.001	Non-Residential Lighting Alterations	Lighting Efficiency and Design	The commenter requests for allowing Title 24 it's place and apply to new construction only.	No	The language in the final express terms is specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Staff does not find that completely removing requirements for lighting alteration projects would be appropriate or responsive to both comments seeking cost relief and those concerned about losing required energy savings.
76258.001	Non-Residential Lighting Alterations	H&S Electric, Inc.	The commenter urge the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76259.001	Non-Residential Lighting Alterations	Lighting Wizards	The commenter urge the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76263.001	Non-Residential Lighting Alterations	C/CAG of San Mateo County	The commenter requests the Energy Commission to adopt the proposed 2016 15-day language on lighting alterations.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76264.001	Non-Residential Lighting Alterations	Illuminer Inc.	The commenter requests the Energy Commission to adopt the proposed 2016 15-day language on lighting alterations.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.

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76265.001	Non-Residential Lighting Alterations	Lighting Right, LLC	The commenter urges to roll back the restrictive measure requirements of T24 (Title 24).	No	The language in the final express terms is specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Staff does not find that completely removing requirements for lighting alteration projects would be appropriate or responsive to both comments seeking cost relief and those concerned about losing required energy savings.
76266.001	Non-Residential Lighting Alterations	Ecology Action	The commenter urge the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76267.001	Non-Residential Lighting Alterations	QuEST	The commenter urge the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76268.001	Non-Residential Lighting Alterations	Stanford University	The commenter urge the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76269.001	Non-Residential Lighting Alterations	Staples Energy, Inc.	The commenter urge the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76270.001	Non-Residential Lighting Alterations	Controlled Energy	The commenter urges the Energy Commission to vote on and to adopt the proposed 2016 Title 24 language on lighting alterations. He alo notes that the proposed language are a modest compromise.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76270.002	Non-Residential Lighting Alterations	Controlled Energy	[There is a copy of letter dated October 8, 2015 being attached.} The commenter's company supports the modifications in the Title 24 lighting regulations.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76271.001	Non-Residential Lighting Alterations	Lighting Systems	The commenter urges Chairman Weisenmiller and Commissioner McAllister to hear and vote upon the proposed code changes (the proposed 2016 Title 24 lighting aleraions language).	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
76272.001	Non-Residential Lighting Alterations	Stoel Rives	Commenter states that the propossed language would essentially eliminate the installation of advanced lighting controls in existing buildings. Commenter urges the Commission to reject the proposal to rollback existing advanced lighting control requirements for alterations and modifications, stating that it conflicts with SB 350.	Partially	The language was revised to address stakeholder concerns of lost savings and reduced stringency. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings, and does not find that the final language results in any loss in energy savings. Staff therefore finds that this resolves any conflict with SB 350.
76273.001	Non-Residential Lighting Alterations	ABM Electrical and Lighting Solutions	The commenter urges the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76274.001	Non-Residential Lighting Alterations	EnerPath Services, Inc.	The commenter urges the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76275.001	Non-Residential Lighting Alterations	Fluoresco Services	The commenter supports the revisions to 2016 Title 24 lighting modifications and alterations language. Further the commenter urges the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76276.001	Non-Residential Lighting Alterations	Fluoresco Services	The commenter urges the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76277.001	Non-Residential Lighting Alterations	Fluoresco Services	The commenter urges the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76278.001	Non-Residential Lighting Alterations	Fluoresco Services	The commenter urges the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
76279.001	Non-Residential Lighting Alterations	Fluoresco Services	The commenter urges the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76280.001	Non-Residential Lighting Alterations	Fluoresco Services	The commenter urges the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76281.001	Non-Residential Lighting Alterations	Fluoresco Services	The commenter urges the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76282.001	Non-Residential Lighting Alterations	PowerDown Lighting Systems, Inc. and LightPro Software, LLC	The commenter supports the Title 24 Section 6 adjustments for energy upgrades to existing buildings (the proposed 2016 Title 24 15-day language on lighting alterations).	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76283.001	Non-Residential Lighting Alterations	Lime Energy	The commenter urges the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76285.001	Non-Residential Lighting Alterations	Lighting Wizards (NOTE: Appears to be a form letter - first one is 76237.001)	The commenter urges the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
76293.001	Non-Residential Lighting Alterations	FESS Energy, Inc.	The commenter notes that Title 24 lighting requirements should not apply to retrofit projects and should be relegated to new construction only.	No	The language in the final express terms is specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Staff does not find that completely removing requirements for lighting alteration projects would be appropriate or responsive to both comments seeking cost relief and those concerned about losing required energy savings.
76303.001	Non-Residential Lighting Alterations	California Comfort Systems USA	The commenter urges the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76304.001	Non-Residential Lighting Alterations	Lighting Systems (NOTE: Appears to be a form letter - first one is 76237.001)	The commenter urges the approval of the proposed lighting alteration language during the November meeting. The commenter notes that the proposed language is a consensus document that incorporates stakeholder involvement and compromise and the language is broadly acceptable to the lighting retrofit industry. The commenter also notes that CEC's thorough engineering analysis and calculations demonstrates that the proposed language will deliver more energy savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76305.001	Non-Residential Lighting Alterations	California Comfort Systems USA (Separately docketed from 76303.001 however, apprears to have been the cover email to it?)	The commenter urges the Energy Commission to correct the oversight of the current Energy Code on lighting alterations.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76306.001	Non-Residential Lighting Alterations	Lighting Systems (Separately docketed from 76304.001 however, apprears to have been the cover email to it?)	The commenter urges Chairman Weise miller and Commissioner McAllister to hear and vote to adopt the proposed 2016 15-day language (on lighting alterations)..	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76307.001	Non-Residential Lighting Alterations	Vista Universal, Inc.	The commenter appeals to the commission for changing the language (the 2013 lighting alterations language).	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76310.001	Non-Residential Lighting Alterations	Lighting Wizards	The commenter proposes addressable HVAC units and electric car charging stations as grid loads for automatic demand reduction (ADR). The commenter also notes on the subject of plug loads, energy storage technologies, lighting control trends.	No	Staff finds that the commenter's proposal of automatic demand reduction (ADR) is outside of the scope of the current rulemaking.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
76310.002	Non-Residential Lighting Alterations	Lighting Wizards	Commenter submits a series of comments requesting that lighting alteration requirements either be completely eliminated, or rolled back to pre-2013 requirements, stating that lighting alteration requirements are not cost effective generally or not cost effective within a short enough period. Commenter also suggests that lighting power allowances should be increased to account for emitting light outside of the visual spectrum that nonetheless has positive effects on health.	No	Staff finds that lighting control requirements are cost effective both in newly constructed buildings and in additions or alterations to existing buildings, and finds that eliminating efficiency requirements that are feasible and cost effective would be contrary to the statutory direction under which the Standards are adopted. Staff therefore finds that either fully removing or fully rolling back the requirements for lighting alterations would not be appropriate. Separately, staff finds that the current Lighting Power Allowances provide sufficient flexibility to allow for lighting designed to provide an enhanced spectrum that exceeds the visual spectrum. Staff does not find that the additional energy needed for a broadened spectrum would be such that the Lighting Power Allowance would not allow for an adequate amount of lighting to be installed.
76311.001	Non-Residential Lighting Alterations	Controlled Energy	The commenter's company supports the 15-day 2016 lanauge for modifications in the Title 24 lighting regulations.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76313.001	Non-Residential Lighting Alterations	Stanford University	The commenter encourage adoption of the 15-day language for the 2016 Energy Efficiency Building Standards. The commenter notes that the proposed code language represents a hard-won compromise between conflicting interests.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76314.001	Non-Residential Lighting Alterations	Calfornia Retrofit Incorporated	We have strongly suggest to keep Title 24 (lighting requirements) for new construction, and relieve the lighting retrofit industry from compliance with it.	Partially	The language in the final express terms is specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Staff does not find that completely removing requirements for lighting alteration projects would be appropriate or responsive to both comments seeking cost relief and those concerned about losing required energy savings.
76319.001	Non-Residential Lighting Alterations	All Industrial Electric Supply	The commenter supports the proposed 2016 Title 24 15-day language (on Lighting Alterations) and strongly urges the Commission to adopt.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76320.001	Non-Residential Lighting Alterations	EcoCosm	The commenter strongly supports adoption of the proposed 15-day lighting alteration language. The commenter notes that the proposed 15-day language embodies a hard-won compromise that balances the concerns of the various parties and has the board support of the stakeholders who actually engage in the business of lighting upgrades in existing buildings. He strongly urges the Commissioners to break the logjamp that has stalled the retrofit marker by approving the proposed 15-day language.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76321.001	Non-Residential Lighting Alterations	Philips	The commenter endorses the 15-Day Language for Section 141.0(b)2 and urges Energy Commission to approve and adopt it.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76322.001	Non-Residential Lighting Alterations	Regency Lighting	The commenter's organization supports the proposed 2016 Title 24 15-day language on lighting alterations.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76323.001	Non-Residential Lighting Alterations	Regency Lighting	The commenter's organization supports the proposed 2016 Title 24 15-day language on lighting alterations.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76324.001	Non-Residential Lighting Alterations	Regency Lighting	The commenter's organization supports the proposed 2016 Title 24 15-day language on lighting alterations.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
76325.001	Non-Residential Lighting Alterations	Ecology Action	The commenter and his organization strongly support adoption of the proposed 15-day lighting alteration language. The commenter notes the proposed 15-day lighting alteration language is a consensus document that balances the concerns of the various parties and has the board support of stakeholders engaging in lighting upgrades in existing buildings. He also notes that CEC's extensive analysis confirms the proposed changes (of the lighting alteration language) will deliver more energy savings than the 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76325.001	Non-Residential Lighting Alterations	Regency Lighting	The commenter's organization supports the proposed 2016 Title 24 15-day language on lighting alterations.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76327.001	Non-Residential Lighting Alterations	Regency Lighting	The commenter's organization supports the proposed 2016 Title 24 15-day language on lighting alterations.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76329.001	Non-Residential Lighting Alterations	Regency Lighting	The commenter's organization supports the proposed 2016 Title 24 15-day language on lighting alterations.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76330.001	Non-Residential Lighting Alterations	Northern California Commerical Association of REALTORS®	The commenter supports the proposed 2016 Title 24 15-day language on lighting alterations.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76332.001	Non-Residential Lighting Alterations	Joint IOU Letter	The IOU Statewide Codes and Standards program supports the revised 2016 lighting alteration language (provisions).	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76333.001	Non-Residential Lighting Alterations	Lumenature	The commenter's organization supports the proposed 2016 Title 24 15-day language on lighting alterations.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76334.001	Non-Residential Lighting Alterations	Lighting Wizards	Commenter questions whether persons working on lighting alteration regulations should keep their jobs.	N/A	The comment neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language.
76335.001	Non-Residential Lighting Alterations	Lighting Wizards	Commenter submits a series of comments requesting that lighting alteration requirements either be completely eliminated, or rolled back to pre-2013 requirements, stating that lighting alteration requirements are not cost effective generally or not cost effective within a short enough period. Commenter also suggests that lighting power allowances should be increased to account for emitting light outside of the visual spectrum that nonetheless has positive effects on health.	No	Staff finds that lighting control requirements are cost effective both in newly constructed buildings and in additions or alterations to existing buildings, and finds that eliminating efficiency requirements that are feasible and cost effective would be contrary to the statutory direction under which the Standards are adopted. Staff therefore finds that either fully removing or fully rolling back the requirements for lighting alterations would not be appropriate. Separately, staff finds that the current Lighting Power Allowances provide sufficient flexibility to allow for lighting designed to provide an enhanced spectrum that exceeds the visual spectrum. Staff does not find that the additional energy needed for a broadened spectrum would be such that the Lighting Power Allowance would not allow for an adequate amount of lighting to be installed.
76336.001	Non-Residential Lighting Alterations	Association of Montery Bay Area Governments	The commenter and his organization encourage the CEC Commissioners to approve and adopt the proposed 2016 Title 24 revised 15-day language on lighting alterations and modifications. The commenter notes the proposed 15-day lighting alteration language is a consensus document that incorporates stakeholder involvement and compromise and it is broadly acceptable to the lighting retrofit industry. He also notes that CEC's thorough engineering analysis and calculations demonstrates the proposed (lighting) alteration language will deliver substantially more real world savings than 2013 Code.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76337.001	Non-Residential Lighting Alterations	Regency Lighting	The commenter and his organization support the proposed 2016 Title 24 15-day language on lighting alterations.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76338.001	Non-Residential Lighting Alterations	Coalition of 5 Business Property-Related Associations	The commenter and his refereence groups support the proposed 2016 Title 24 language on lighting alterations.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76339.001	Non-Residential Lighting Alterations	Advanced Energy Services	The commenter notes the effect of the lighting alteration requirements of existing Energy Standards.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.

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76340.001	Non-Residential Lighting Alterations	Lutron	The 50% power reduction is a step in the right direction. However, the CEC should address how this power reduction will be enforced. Once the old fixtures are removed an inspector can't verify the previous lighting load. They can, however, verify the new lighting load and they know what the LPD allowances are per the Standard. This is why we believe the power reduction should be based on new LPD compared to the maximum allowed LPD for the space per the Standard.	Partially	Staff finds that basing additional compliance paths on lighting power density calculations would not address stakeholder concerns related to difficulty and cost of determining square footage necessary for calculating lighting power density, and therefore that changing the percent reduction threshold to a lighting power density threshold would not be appropriate. Staff does not find that enforcement of the percent reduction compliance path would be either more difficult or subject to greater risk than enforcement of other provisions of the Standards. Building officials are able to require diagrams or schedules describing the removed lighting, or pictures of the lighting prior to commencing the project, etc. appropriate to verify existing conditions, and written attestations relating to lighting are no different than written attestations relied upon for other building systems. Staff therefore finds that appropriate and effective compliance processes and forms can be developed, consistent with the other processes and forms developed for compliance with Part 6; staff have committed to working with stakeholders to develop these processes following this rulemaking.
76340.001	Non-Residential Lighting Alterations	Lutron	Exception 2 that exempts enclosed spaces with two or fewer fixtures eliminates any requirements from most private office spaces. This should be changed to exempting space with one fixture so that a renovation of an office building doesn't exclude requirements from private offices.	Partially	Staff does not find that the purpose of exempting incidential repositioning or temporary removal of luminaires is adequately served if the Exception is reduced to a single luminaire, and therefore does not find that making this change would be appropriate.
76340.002	Non-Residential Lighting Alterations	Lutron	Luminaire Component Modifications The commenter urges the Commission to maintain the 40 luminaire threshold as the proposed 70 luminaire threshold is too large and represents backsliding.	No	Staff finds that increasing the threshold to 70 is necessary and appropriate for addressing small spaces that use significant amounts of display or task lighting, or that use other numerous small luminaires such as recessed can lighting, rather than fluorescent troffers. Staff notes that the 2013 CASE report that was relied upon for the adoption of the threshold also refers the threshold as a number of "ballasts" and a number of "office luminaires"; staff finds that keeping the threshold numerically at 40 but changing "luminaires" to "ballasts" to address task, display, and other small, typically non-fluorescent lighting would create a requirement that is no longer technology neutral and that allows a potentially unlimited retrofitting of non-fluorescent lighting without triggering Title 24 requirements. Staff therefore finds that the 40 luminaire threshold was estimated based on consideration of fluorescent troffers in office settings and that increasing the threshold is necessary to account for, and apply to, small projects occuring in other types of spaces, consistent with the purpose and intent of setting this minimum threshold. Staff does not find that returning this threshold to 40 would be appropriate, given that doing so would discard valid stakeholder concerns over the appropriateness of this numeric value in applying to the small projects for which it was intended.
76340.003	Non-Residential Lighting Alterations	Lutron	Lighting Wiring Alterations The 10 or more luminaire per space threshold before automatic daylighting control requirements shall be met is too high. Instead, the exception should be based on wattage of lighting power in a daylight zone rather than a number of luminaries or, if wattage cannot be used, the threshold should be "per floor" rather than "per space".	No	Staff does not find, and the commenter does not provide, a reason why the 10 luminaire threshold is "too high" or a rationale by which a different threshold could be determined. Staff does not find, and the commenter does not provide, information that would allow for estimation of an appropriate wattage threshold, and staff finds that doing so risks exempting a greater number of spaces due to the low wattage of LED products or, alternatively, forcing the use of specific technologies to fit beneath the threshold. Staff therefore does not find that changing this threshold to a wattage threshold would be appropriate. Staff does not find that specifying "per floor" rather than "per space" is appropriate, given that each enclosed space may need a separate control or sensor due to different availability of daylight, and requiring installation of daylighting controls that apply to extremely small numbers of luminaires would not be cost effective.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
76341.001	Non-Residential Lighting Alterations	San Francisco Department of Environment	The commenter and commenter's organization support the Energy Commission's work in the 2016 Building Energy Efficiency Standards. The commenter also notes that the latest 15-day language addresses the commenter's organization concerns.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76342.001	Non-Residential Lighting Alterations	Alameda Municipal Power	The commenter supports adoption of the proposed 15-day lighting alterations language.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76343.001	Non-Residential Lighting Alterations	Rural Hard to Reach Local Government Partnerships' Working Group	The commenter supports adoption of the proposed 15-day lighting alterations language.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76344.001	Non-Residential Lighting Alterations	Energy Solutions	The commenter supports the proposed 2016 Title 24 15-day language on lighting alterations.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76404.001	Non-Residential Lighting Alterations	Lighting Wizards	Commenter submits a series of comments requesting that lighting alteration requirements either be completely eliminated, or rolled back to pre-2013 requirements, stating that lighting alteration requirements are not cost effective generally or not cost effective within a short enough period. Commenter also suggests that lighting power allowances should be increased to account for emitting light outside of the visual spectrum that nonetheless has positive effects on health.	No	Staff finds that lighting control requirements are cost effective both in newly constructed buildings and in additions or alterations to existing buildings, and finds that eliminating efficiency requirements that are feasible and cost effective would be contrary to the statutory direction under which the Standards are adopted. Staff therefore finds that either fully removing or fully rolling back the requirements for lighting alterations would not be appropriate. Separately, staff finds that the current Lighting Power Allowances provide sufficient flexibility to allow for lighting designed to provide an enhanced spectrum that exceeds the visual spectrum. Staff does not find that the additional energy needed for a broadened spectrum would be such that the Lighting Power Allowance would not allow for an adequate amount of lighting to be installed.
76405.001	Non-Residential Lighting Alterations	Lighting Wizards	Commenter submits a series of comments requesting that lighting alteration requirements either be completely eliminated, or rolled back to pre-2013 requirements, stating that lighting alteration requirements are not cost effective generally or not cost effective within a short enough period. Commenter also suggests that lighting power allowances should be increased to account for emitting light outside of the visual spectrum that nonetheless has positive effects on health.	No	Staff finds that lighting control requirements are cost effective both in newly constructed buildings and in additions or alterations to existing buildings, and finds that eliminating efficiency requirements that are feasible and cost effective would be contrary to the statutory direction under which the Standards are adopted. Staff therefore finds that either fully removing or fully rolling back the requirements for lighting alterations would not be appropriate. Separately, staff finds that the current Lighting Power Allowances provide sufficient flexibility to allow for lighting designed to provide an enhanced spectrum that exceeds the visual spectrum. Staff does not find that the additional energy needed for a broadened spectrum would be such that the Lighting Power Allowance would not allow for an adequate amount of lighting to be installed.
76406.001	Non-Residential Lighting Alterations	Lighting Wizards	Commenter submits a series of comments requesting that lighting alteration requirements either be completely eliminated, or rolled back to pre-2013 requirements, stating that lighting alteration requirements are not cost effective generally or not cost effective within a short enough period. Commenter also suggests that lighting power allowances should be increased to account for emitting light outside of the visual spectrum that nonetheless has positive effects on health.	No	Staff finds that lighting control requirements are cost effective both in newly constructed buildings and in additions or alterations to existing buildings, and finds that eliminating efficiency requirements that are feasible and cost effective would be contrary to the statutory direction under which the Standards are adopted. Staff therefore finds that either fully removing or fully rolling back the requirements for lighting alterations would not be appropriate. Separately, staff finds that the current Lighting Power Allowances provide sufficient flexibility to allow for lighting designed to provide an enhanced spectrum that exceeds the visual spectrum. Staff does not find that the additional energy needed for a broadened spectrum would be such that the Lighting Power Allowance would not allow for an adequate amount of lighting to be installed.

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76407.001	Non-Residential Lighting Alterations	Lighting Wizards	Commenter submits a series of comments requesting that lighting alteration requirements either be completely eliminated, or rolled back to pre-2013 requirements, stating that lighting alteration requirements are not cost effective generally or not cost effective within a short enough period. Commenter also suggests that lighting power allowances should be increased to account for emitting light outside of the visual spectrum that nonetheless has positive effects on health.	No	Staff finds that lighting control requirements are cost effective both in newly constructed buildings and in additions or alterations to existing buildings, and finds that eliminating efficiency requirements that are feasible and cost effective would be contrary to the statutory direction under which the Standards are adopted. Staff therefore finds that either fully removing or fully rolling back the requirements for lighting alterations would not be appropriate. Separately, staff finds that the current Lighting Power Allowances provide sufficient flexibility to allow for lighting designed to provide an enhanced spectrum that exceeds the visual spectrum. Staff does not find that the additional energy needed for a broadened spectrum would be such that the Lighting Power Allowance would not allow for an adequate amount of lighting to be installed.
76408.001	Non-Residential Lighting Alterations	Lighting Wizards	Commenter submits a series of comments requesting that lighting alteration requirements either be completely eliminated, or rolled back to pre-2013 requirements, stating that lighting alteration requirements are not cost effective generally or not cost effective within a short enough period. Commenter also suggests that lighting power allowances should be increased to account for emitting light outside of the visual spectrum that nonetheless has positive effects on health.	No	Staff finds that lighting control requirements are cost effective both in newly constructed buildings and in additions or alterations to existing buildings, and finds that eliminating efficiency requirements that are feasible and cost effective would be contrary to the statutory direction under which the Standards are adopted. Staff therefore finds that either fully removing or fully rolling back the requirements for lighting alterations would not be appropriate. Separately, staff finds that the current Lighting Power Allowances provide sufficient flexibility to allow for lighting designed to provide an enhanced spectrum that exceeds the visual spectrum. Staff does not find that the additional energy needed for a broadened spectrum would be such that the Lighting Power Allowance would not allow for an adequate amount of lighting to be installed.
76411.001	Non-Residential Lighting Alterations	Associated Builders and Contractors of San Diego and the Western Electrical Contactors Association	We support the staff's recommendation for the Negative Declaration and the underlying rule change. Thank you.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76411.002	Non-Residential Lighting Alterations	NECA/IBEW/LMCC	I'd really like to thank staff, Mazi in particular, and Commissioner McAllister for listening to our concerns throughout this process and addressing these concerns in the areas where we're able to reach a consensus. Staff spent significant time meeting with us and answering our questions and we really appreciate that. We support the changes that have been made since the proposal was first introduced and, as you know, we weren't convinced that there was new proposals that would have saved energy, we thought it would have lost energy under these new proposals. It's substantially less likely that this would result in less energy savings and enforce correctly, it should result in new savings.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76411.003	Non-Residential Lighting Alterations	NECA/IBEW/LMCC	But we still have a few significant concerns we want to highlight that, if not addressed now, should be addressed at a future date. We're concerned that there's no mechanism to verify the power decrease because when we remove the luminaire, their existing luminaires, they're gone before anyone comes in to inspect the new luminaires. And our clients are concerned this would lead to large spread fraud and over estimation of the actual energy savings.	N/A	Staff does not find that enforcement of the percent reduction compliance path would be either more difficult or subject to greater risk than enforcement of other provisions of the Standards. Building officials are able to require diagrams or schedules describing the removed lighting, or pictures of the lighting prior to commencing the project, etc. appropriate to verify existing conditions, and written attestations relating to lighting are no different than written attestations relied upon for other building systems. Staff therefore finds that appropriate and effective compliance processes and forms can be developed, consistent with the other processes and forms developed for compliance with Part 6; staff have committed to working with stakeholders to develop these processes following this rulemaking.

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76411.004	Non-Residential Lighting Alterations	NECA/IBEW/LMCC	The second concern is under the new Regulations, lighting wiring alterations no longer require multi-level controls, automated demand response controls. And SB 350 directs the Commission increase ADR capabilities in buildings in order to maintain Grid reliability as we try to reach the Governor's new 50 percent goal for renewable energy. And the most cost-efficient time to install ADR controls is when you're doing rewiring or upgrading of lighting wiring, and ADR controls were only required in buildings over 10,000 square feet, and this doesn't affect the smaller businesses and we think it's a mistake not to require ADR when you're doing rewiring of a space of 10,000 square feet. So if the Commission moves forward to implement 350, we urge them to take another look at that issue. (P55)	No	Staff notes that the 2013 Standards specified only that lighting wiring alterations "shall meet the applicable requirements in Sections 110.9, 130.1, and 130.4" without specifying which requirements in those Sections would be applicable to a wiring-only project or providing any criteria for a provision's applicability. As the requirements of these Sections relate to lighting, not wiring, staff amended the language to make express reference to the criteria that would be applicable to a wiring project irrespective of the installed lighting served by the wiring, and provided criteria for the applicability of daylighting control requirements. Staff notes, regarding demand responsive controls, that alterations solely of lighting wiring that may not touch luminaires or lights in any way, and that a demand responsive control requires compatible lighting that can be lowered by 10 or 15 percent and not simply shut off; a wiring-only alteration cannot guarantee that the installed lighting is compatible with or able to be effectively controlled by a demand responsive control. Staff also notes that projects that include both luminaires and wiring are potentially required to install demand responsive controls consistent with the requirements of Table 141.0-E. Staff therefore finds that the final language preserves the stringency of the 2013 Standards.
76411.005	Non-Residential Lighting Alterations	NECA/IBEW/LMCC	The only other concern is that for some reason when you take the new 35 percent power reduction path, you're now exempt from requirements to install corridor and stairwell occupancy sensors. And studies have shown that this is significant savings from installing occupancy sensors in corridors and stairwells, it's not a real expensive install, we're not sure why that exemption is there. We think that leaves some additional energy savings on the table.	No	Staff finds that the percent reduction compliance path requires shutoff controls in corridors and stairwells consistent with Section 130.1(c)1 through 5, and that the absence of reference to Section 130.1(c)6C does not exempt corridor and stairwell areas from the requirements of these preceding Sections.
76411.006	Non-Residential Lighting Alterations	NECA/IBEW/LMCC	But with those reservations, we support the rest of the proposal and, again, we thank Commissioner McAllister and staff for the time they put into this, we know that they worked hard at this, and put together the best package that they thought they could. Thank you. (P56-57)	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76411.007	Non-Residential Lighting Alterations	National Electrical Contractors Association	I just want to connect what Tom Enslow had mentioned and not restate all of that. We are here today and feel that this language is much better than what we saw in the 45-day language, and we appreciate the moves the Commission has made in that regard.		Staff appreciates this comment of support; staff's responses to Mr. Enslow are noted in this document.
76411.008	Non-Residential Lighting Alterations	Ecology Action	The proposed 15-day language embodies a hard won compromise that balances the concerns of the various parties and has broad, if grudging, support from the stakeholders who actually engage in the business of lighting upgrades in existing buildings. And a partial list of stakeholders in support of the proposed language is attached for the record. So we just urge the committee to vote to adopt the Standards today.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76411.009	Non-Residential Lighting Alterations	Ecology Action	You know, we know that if it's adopted today, it goes into effect January 1 of 2017, and I think what Don and others have said is many of them won't be around on that date if we can't start running in some way under these provisions sooner than that. So I'm just wondering if this might be taken up under the 15 MISC02 proceedings, it's basically improved compliance with the current Energy Code, maybe there's a path forward there. Or if not, I'd highly suggest convening a docket to find out ways that people can start complying with the new better Codes instead of the current ones.	N/A	Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
76411.01	Non-Residential Lighting Alterations	TerraVerde	Good morning, Commissioners. Rick Brown, President of TerraVerde. We're an independent energy advisor primarily working with schools and other public agencies. We're here to support the changes that have been proposed today.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76411.011	Non-Residential Lighting Alterations	WattStopper	I do hope that you accept the recommendations of staff and that you accept this Code. Thank you very much.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76411.012	Non-Residential Lighting Alterations	Lutron	We support all the documentation that's been put forth so far. Overall we're very happy with what's here and we urge everyone to approve it.		Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.

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76411.013	Non-Residential Lighting Alterations	Lutron	We had a couple concerns on a few points, one of them being the power reduction complaints path of 50 percent. The concern is that it's not enforceable. With someone coming in later and trying to figure out what was there and figure out if there was 50 percent reduction, usually when an inspector comes in they're not going to know what was originally there. So it just leaves room for error and for people to maybe not be honest about it. We would recommend there that it was based off of lighting power density instead, that's something that's enforceable and could be checked and ensure that it's done properly.	No	Staff does not find that enforcement of the percent reduction compliance path would be either more difficult or subject to greater risk than enforcement of other provisions of the Standards. Building officials are able to require diagrams or schedules describing the removed lighting, or pictures of the lighting prior to commencing the project, etc. appropriate to verify existing conditions, and written attestations relating to lighting are no different than written attestations relied upon for other building systems. Staff therefore finds that appropriate and effective compliance processes and forms can be developed, consistent with the other processes and forms developed for compliance with Part 6; staff have committed to working with stakeholders to develop these processes following this rulemaking. Staff also finds that basing additional compliance paths on lighting power density calculations would not address stakeholder concerns related to difficulty and cost of determining square footage necessary for calculating lighting power density, and therefore that changing the percent reduction threshold to a lighting power density threshold would not be appropriate.
76411.014	Non-Residential Lighting Alterations	Lutron	The 70 luminaire threshold is too high for luminaire component modifications. We'd urge the number to stick down at 40 as it was previously. And the point behind that is that projects could be done in phases. Seventy seems like a really high number and for a building, it's done in different phases, so how would that really be enforced? You could end up with a building that should have been looked at, but is not because of how it was done in a project standpoint.		Staff finds that increasing the threshold to 70 is necessary and appropriate for addressing small spaces that use significant amounts of display or task lighting, or that use other numerous small luminaires such as recessed can lighting, rather than fluorescent troffers. Staff notes that the 2013 CASE report that was relied upon for the adoption of the threshold also refers the threshold as a number of "ballasts" and a number of "office luminaires"; staff finds that keeping the threshold numerically at 40 but changing "luminaires" to "ballasts" to address task, display, and other small, typically non-fluorescent lighting would create a requirement that is no longer technology neutral and that allows a potentially unlimited retrofitting of non-fluorescent lighting without triggering Title 24 requirements. Staff therefore finds that the 40 luminaire threshold was estimated based on consideration of fluorescent troffers in office settings and that increasing the threshold is necessary to account for, and apply to, small projects occuring in other types of spaces, consistent with the purpose and intent of setting this minimum threshold. Staff does not find that returning this threshold to 40 would be appropriate, given that doing so would discard valid stakeholder concerns over the appropriateness of this numeric value in applying to the small projects for which it was intended.
76411.015	Non-Residential Lighting Alterations	Lutron	Our last point was around the automatic daylight controls. The number did change from 20 in a primary day lit zone down to 10 before it's enforced, but it's in a per space atmosphere. So one space may have two day lit zones, a primary and a secondary, and the primary day lit zone, it's not often that a space has 10 luminaires in that zone. So you might end up with a lot of spaces, take a typical office building may have, let's say, 30 spaces in it, four of those spaces may meet that requirement where you could be taking advantage of daylighting throughout the whole building and end up with a lot of savings from daylighting. So we would urge that that's looked at either -- if it's done by spaces by wattage, and if it's not been by spaces, by maybe a project level. That way, you're taking advantage of all the natural light that is coming into a building and taking that in consideration when you're looking at it as a whole, not just by a space	No	Staff does not find, and the commenter does not provide, information that would allow for estimation of an appropriate wattage threshold, and staff finds that doing so risks exempting a greater number of spaces due to the low wattage of LED products or, alternatively, forcing the use of specific technologies to fit beneath the threshold. Staff therefore does not find that changing this threshold to a wattage threshold would be appropriate. Staff does not find that specifying "per floor" rather than "per space" is appropriate, given that each enclosed space may need a separate control or sensor due to different availability of daylight, and requiring installation of daylighting controls that apply to extremely small numbers of luminaires would not be cost effective. Staff therefore finds that retaining the 10 luminaire threshold is appropriate.

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76411.016	Non-Residential Lighting Alterations	NRDC	Sorry I can't be there in person today, but just wanted to voice NRDC's support for the 15-day language. As other stakeholders have mentioned, this is the result of many months of discussion and hard work by the CEC staff, particularly Mazi, and we think that this version of the language is the best to date. As Mazi documented, it will result in energy savings compared to the current Code, while resolving many of the stakeholder concerns. In particular, we were happy to see the increase to 50 percent production for the high occupancy building types. And so with that, just wanted to say that we urge you to adopt the language today and thank you, Commissioners and staff, for your hard work on this language.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76411.017	Non-Residential Lighting Alterations	Controlled Energy	It's fair to say that my company has basically been on life support and we've kept it there in the hope that there would be changes such as the ones being proposed in the 15-day language. We support that and we feel that it's vital that it happen if you want a lighting retrofit industry available at all. They're a great compromise. So I support these modifications of the 15-day language and strongly recommend that they become effective immediately, certainly no later than the start of 2016.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
76411.018	Non-Residential Lighting Alterations	Pacific Gas and Electric	MR. BENGTSSON: Good morning, Commissioners. Nathan Bengtsson from PG&E. Just here to echo the positives we've already heard. We want to express our support alongside the other investor-owned utilities for the revised 2016 lighting alteration provisions, which pull off the amazing trick of saving energy while reducing compliance burden. The statewide IOU CNS team docketed a letter supporting the adoption of the 15-day language on Monday. And also I'm up here, we would really like to recognize Mazi Shirakh and the other staff that worked on this for his leadership in negotiating a balanced solution here. All the parties who participated in the lighting retrofit negotiations over the past six months really should be recognized. Through this work, we've reached a proposal that, as he said, is going to result in significant energy savings, about 112 gigawatt hours a year compared to the 2013 Standards, and we appreciate the partnership of the parties involved. PG&E and the CNS team looks forward to supporting the CEC staff with implementation. And again, thank you for your work.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76411.019	Non-Residential Lighting Alterations	School Energy Coalition Executive Committee and the California Association of School Business Officials, Strategic Partner for Energy	My request is, if there's any way we can have some kind of process, I don't know the rules here, but for having an exemption for schools to be able if these are adopted to be able to use them as quickly as possible. That would really help accelerate this process. And just for order of magnitude, we're working with about 40 LEAs in Prop. 39 that have a total of about $50 million worth of projects. I would say 10 to 20 percent of that are these interior lighting retrofits, so getting some way to smooth things along would be very helpful.	N/A	Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
75512.001	Non-Residential Lighting ATTCP	Robert A. Shearer	The standards do not impose sufficient requirements for separate manual area controls in daylit zones that are controlled by Automatic Daylighting Controls. The commenter asserts that this could lead to installations where it is difficult or impossible for a field technician to confirm that the Automatic Daylighting Controls installed are in compliance with code.	No	Requiring manual lighting controls that are only intended to be used during testing or commissioning, and not for general use, would harm the cost effectiveness of lighting controls systems. Staff believes that the current code language imposes sufficient requirements for area controls to allow for acceptance testing of the daylit and skylit zone sensors.

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75485.001	Non-Residential Lighting CLCATT	RNM Engineering, Inc.	I am concerned about the apparent overlap/duplication between the Acceptance Testing requirements and the Commissioning requirements in the proposed 2016 Title 24. In order to ensure that energy efficiency and cost effectiveness are the focus of this version of Title 24, I strongly suggest that an effort at harmonizing these two related and currently overlapping requirements be undertaken.	Yes	Staff have reviewed and edited all of the language within the Standards, including the language relating to Commissioning and to Acceptance Testing, and have made changes to more clearly present these requirements. This includes a change to Section 130.4 noted in response to the commenter's comment on that Section.
75485.001	Non-Residential Lighting CLCATT	RNM Engineering, Inc.	130.4: Recommend interchanging paragraphs (a) and (b) as construction project installation occurs prior to acceptance testing.	No	The language does not state or imply acceptance tests has to be performed before installation. Staff notes that if acceptance testing reveals a problem with installed equipment, this may lead to installing new or different equipment which would need a subsequent installation certificate.
75485.002	Non-Residential Lighting CLCATT	RNM Engineering, Inc.	130.4: Recommed deleting paragraph 1 or modifying it because CLCATT is not responsible for the preparation of the plans and specifications.	Yes	Staff modified this language to specify "is completed" rather than "are included on the plans and specifications", consistent with the commenter's request and the responsibility of the acceptance tester.
75487.001	Non-Residential Lighting CLCATT	RNM Engineering, Inc.	Commenter proposes that Commissioning and Acceptance Testing be required for all nonresidential, high-rise residential, and hotel motel areas.	Partially	A note was added to Section 120.8 to highlight that the requirements for commissioning apply to nonresidential spaces within buildings, even when those buildings also include residential spaces. Staff does not find that extending commissioning requirements or related acceptance testing to residential spaces would be appropriate, as it would create several inconsistencies within the Standards.
75487.002	Non-Residential Lighting CLCATT	RNM Engineering, Inc.	Commenter proposes that Commissioning and Acceptance Testing be required for all new construction, additions, and alterations.	No	Both the existing and proposed Standards specify where acceptance testing is required for new construction and additions and alterations. Commissioning requirements are written to specifically provide minimum standards for the designing and commissioning of new buildings that ensure efficiency is considered at this phase of the building project; staff does not find that extending these requirements to additions and alterations would be appropriate, and would need at minimum a cost analysis or similar information in order to determine whether doing so would be feasible or cost effective.
75487.003	Non-Residential Lighting CLCATT	RNM Engineering, Inc.	Commenter either states that they do not request any change to Section 10 103, or request that the language in Section 10-103 not be changed, as this Section relates to commissioning.	No	Staff amended the language in 10-103 to improve consistency with the California Business and Professions Code. If the commenter is requesting that the language not be changed, staff find that improving consistency with the California Business and Professions Code is appropriate and that the proposed changes align our requirements for signature and responsibility with the Business and Professions Code in a way that is appropriate. Staff does not find that neglecting to make these changes would be appropriate or would result in improve code language.
75487.004	Non-Residential Lighting CLCATT	RNM Engineering, Inc.	Commenter proposes language parallel to the language in Section 10-103 that would describe and apply to installation and testing by Acceptance Test Technicians.	No	The Standards allows an ATT to perform acceptance tests on buildings of any size, and the ATT can either be an in-house or third party ATT. There is currently no restriction on the use of in-house ATTs, and adding the suggested requirement could potentially impose costs by requiring independent third party testing in more circumstances. To consider making the proposed change, staff would, at minimum, need a cost analysis that shows such a requirement would provide benefits in excess of its costs; if the commenter has such information, staff encourages the submittal of a proposal for the 2019 code cycle.
75487.005	Non-Residential Lighting CLCATT	RNM Engineering, Inc.	The scope of Commissioning is not to include the component testing performed by the ATT.	N/A	Staff find that the Commissioning requirements state only that the Commissioning Plan shall include a plan to test systems and components that explains the original design intent, identifies the equipment, systems, and functions that require testing, the conditions needed for the tests, and what would constitute acceptable criteria resulting from tests (per the language in Section 120.8(f). Commissioning does not, itself, include the component testing performed by the ATT except that it may identify that a system needs to have ATT testing performed and specify what criteria a passing system would be expected to have. Staff is thus not able to find that a change to the regulatory language is either necessary or appropriate for addressing this comment.

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75487.006	Non-Residential Lighting CLCATT	RNM Engineering, Inc.	The scope of Acceptance Testing is not to include the design review and system performance testing performed by the Commissioning Agent.	N/A	Acceptance testing and commissioning are separate sets of requirements that apply at opposite ends of a building project's timeline. Staff finds that neither the current nor proposed Standards require that Acceptance Testing include responsibilities specified as applying to the design reviewer or occurring during design review.
75487.007	Non-Residential Lighting CLCATT	RNM Engineering, Inc.	The scope of Commissioning should include outdoor lighting.	No	The Basis of Design specified in Section 120.8(c) is not required to include outdoor lighting in its explanation of how the Owner's Project Requirements (under Section 120.8(b)) are met. However, to the extent that the Commissioning Plan describes the entirety of the project, outdoor lighting is required to be included in this plan if installation of outdoor lighting systems comprises a portion of the project. Staff therefore finds that outdoor lighting is already included in the scope of commissioning.
75487.01	Non-Residential Lighting CLCATT	RNM Engineering, Inc.	The formal training of ATTs should include explanation of the scope of the Commissioning Process covered by Section 120.8.	No	As ATTs are not typically directly involved in the commissioning process (meaning drafting of Owner's Project Requirements, Basis of Design documents, Commissioning Plan documents, or particpating in the Design Review), staff does not find that adding a requirement in regulation that ATTs be trained in the commissioning process would be appropriate. However, staff will communicate this suggestion to ATTCPs that they include a brief explanation of commissioning either in their training or in the educational materials they provide, as it provides context to the work of ATTs in building projects.
75496.004	Non-Residential Lighting CLCATT	RNM Engineering, Inc.	The quantity of seven for a sampling group seems to be arbitrary. The sample quantity should be based on the quantity of spaces in the building. Recommend following guidelines used in the commissioning industry such as IPMVP.	Partially	There is no evidence that small buildings are overly tested or that large buildings are being under tested. Keeping the sample size at 7 will mean the Standards are consistent with itself. The proposed language is edited to include a minimum of one space for each group of up to 7 additional spaces.
75496.004	Non-Residential Lighting CLCATT	RNM Engineering, Inc.	The functional test put the test technician in an award position as either he is going to test much more than what was included in his lump sum fee or the client is going to pay more than they had expected. Suggest to the Commission that after the first failure, the acceptance test should stop. The failed component shall be repaired, replaced or adjusted. During this time the rest of the system could also be verified. The acceptance testing would resume on a different space and if it passes then the remaining building spaces in the sample group will be assumed to also pass.	No	There is no assumptions made in the acceptance test requirement that the first tested space will pass the test. No acceptance test technicians should assume the first tested space will pass the test as there is no basis for such assumptions. If the enclosed space tested fails, it is necessary to determine whether the fault is common to any of the other spaces in the tested group, given that the presence of the failed control makes it significantly more likely that other controls in the same group are similarly in need of correction.
75947.002	Non-Residential Lighting CLCATT	RNM Engineering	Commenter suggests replacing "Installation Certificate" with "Certificate of Acceptance", as the CLCATT (acceptance test technicians) shall test the operation of the PAF controls.	No	Staff finds that "Installation Certificate" is the appropriate requirement: the PAF is provided based on the design of the lighting system, and the Installation Certificate confirms that appropriate equipment matching the design was installed. Acceptance testing confirms the correct operation of installed controls, but does not change the design or installation upon which Title 24 compliance is assessed.
75236.001	Non-Residential Lighting Controls	Gary Flamm	100.1(b) Shut-off controls are not required to always shut off all of the lighting in a space according to Section 130.1(c).	Yes	The word "all" was removed from the definition. The adopted definition now reads: "Shut-off Controls is any lighting control capable of automatically shutting OFF the lighting in a space when the space is typically unoccupied."
75236.002	Non-Residential Lighting Controls	Gary Flamm	Section 110.9(b)4F is in conflict with 110.9(a)3 requirement and the Title 20 compliant occupant sensing controls device to shut off within 30 minutes.	No	Title 20 has the capability requirements for occupancy sensors. Title 24 Section 110.9(b)4 is a programming requirement on the occupant sensing controls. While Title 20 specifies that the maximum time to shut off is 30 minutes, Title 24 specifies that the programmed shut off time in regulated buildings shall be no more than 20 minutes. Therefore, a control in compliance with the proposed Title 24 requirement would also meet the maximum shutoff time requirement of Title 20.
75236.004	Non-Residential Lighting Controls	Gary Flamm	Exception to Secton 130.0(c)9 appears to create confusion with Section 130.0(b), because there is language contained within Section 130.0(b) that relates to both residential and nonresidential lighting Standards. Therefore, proposed Exception to 130.0(c)9 could be broadly interpreted to cover both residential and nonresidential applications.	Yes	Staff clarified the text of the Exception to make it clear in applying to lighting that complies with Section 150.0(k). It is not necessary to perform what is specified in 130.0(b) in order to demonstrate compliance with 150.0(k).

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75236.005	Non-Residential Lighting Controls	Gary Flamm	Exception to Secton 130.1(a)2. For clarity, "industrial facilities" should be relisted as, "commercial and industrial storage", and "General commercial and industrial Work Areas." Additionally, parking garage areas should be allowed to use a manual switch that is not accessible to unauthorized personnel, because there is a public safety risk when allowing an unauthorized person to have access to the ON/OFF switch.	Yes	Staff made the suggested clarity changes to ensure that the use of terms is consistent within the Standards. In addition, staff added parking areas, stairwells, and corridors to Exception 2 in order to prevent the public safety risk identified by the commenter.
75236.006	Non-Residential Lighting Controls	Gary Flamm	The 130.1(b)3 language appears to prohibit the use of multi-scene programmable controls for use as a dimmer control. A multi-scene programmable control would save energy similar to any other dimmer control.	Yes	Staff has clarified the language in this Section by replacing the word "switch" with the word "control", and by adding language that makes clear that any device capable of performing these control functions can be used to meet the requirements of the regulations.
75236.007	Non-Residential Lighting Controls	Gary Flamm	Adding "may be inside a locked case or under a cover which require a tool for access" is overly prescriptive and superfluous. Adding this language implies that no other methods of limiting access are recognized by the Standards, thus being inappropriately restrictive, and stifling creativity and innovation.	No	The word "may" is permissive, not prescriptive. A "locked case" or "cover" or any other means of preventing access are all able to meet this permissive specification. The proposed language thus does not discourage innovative and creative solutions to meet the Standards.
75236.008	Non-Residential Lighting Controls	Gary Flamm	Section 130.1(e). Citing Table 130.1-A for uniformity requirements implies that each and every luminaire must be dimmed by 15%. It is often not technically feasible to control each individual luminaire to comply with all of Sections 130.1(a),(b),(c),(d) and (e). Additionally there will be occassions where lighting systems complying with Table 130.1-A will not be able to comply with this Section. Another unresolved issue is, according to Exception 1 to Section 130.1(b), classrooms are not required to comply with Table 130.1-A. Therefore it is not technically feasible to require lighting in classrooms to be demand controlled according to the current language.	No	The phrase "shall be reduced in a manner consistent with" is distinct from the phrase "shall meet". The phrase means that where Table 130.1-A applies, the reduction required by this Section shall be done in a manner consistent with that Table: this Section does not allow the multi-level requirements of 130.1(b) to be overruled, but also does not require that it be applied where it is not required.
75237.003	Non-Residential Lighting Controls	California Building Properties Association	Requirements to dim or turn off elevator lights could cause premature wear and increase maintenance costs	No	Staff does not find that dimming or turning off lighting leads to premature wear in comparison to leaving lighting on at all times.
75237.004	Non-Residential Lighting Controls	California Building Properties Association	The mandatory requirement where occupant sensing controls are required to shut OFF all lighting are not cost effective because there are not sufficient compliant sensor controls on the market	No	The proposed changes to this Section clarify without materially altering the Exception present in this Section in the 2013 Standards, and do not in any way change this Section's requirements. The requirements in this Section were adopted in the prior code cycle based on a finding that they were feasible and cost effective; the commenter does not identify in what circumstances or what ways these controls are not cost effective, and thus staff is not able to re-evaluate the cost effectiveness studies underlying the adoption of the 2013 Standards.
75237.005	Non-Residential Lighting Controls	California Building Properties Association	The exemption to §130.1(c)5 is unclear	Yes	The exemption has been rewritten and made a part of the requirements of the Section in order to clarify what the Section requires.
75397.001	Non-Residential Lighting Controls	California Electrical Training	Sampling provisions should be developed for nonresidential outdoor lighting control Acceptance Testing	Yes	Staff included a sampling method for the outdoor lighting control acceptance test in NA 7.8.
75418.005	Non-Residential Lighting Controls	Phillips	130.1(b)(3): Retain the previous options B-D for dimmable luminaires.	No	Commenter did not bring specific reason to retain the previous options. These options are already covered by other 130.1 section requriements: items B through D rely on lighting that is able to be partially reduced in output, and Section130.1(a) requires that lighting capable of being dimmed must be installed with a dimming control. This required dimming control meets the requirement of item A, making items B through D irrelevant. Retaining the redundant requirements of this Section was not necessary, and removing them results in simplification and streamlining of regulatory language.

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75418.006	Non-Residential Lighting Controls	Phillips	[Relating to Section 130.1(c)5] There are already a number of Partial ON occupancy sesnsor product in the marketplace that dim to a lower level than 50% (for open office applications, for example). Advise not to define a minimum level of Partial-ON sensor requirement. The exception is confusing. Further, the wording in the exception added in the latest draft is confusing; we urge the staff to further clarify and to align with ASHRAE 90.1.	Yes	The exception in the 45-Day has been deleted and the language has been further revised to more clearly state how this sections' requirements apply to areas for which multi-level lighting is not required. This also brings the language into closer alignment with ASHRAE 90.1.
75418.007	Non-Residential Lighting Controls	Phillips	We propose that a clarification such as included in 130.2(c)3B "…or other lighting control systems" be added [to Section 130.2(c)1] to clarify that automatic lighting control systems may fulfill this requirement as well.	Yes	Staff added the proposed language to Section 130.2(c)1 in the 15-Day Language
75418.008	Non-Residential Lighting Controls	Phillips	as NA7.8 indicates that there will be separate requirements for Outdoor Photocontrols; we propose that there will be separate categories for Indoor and Outdoor Photocontrols in the T20 database.	N/A	The comment neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language: the comment relates to the structure of the Energy Commission's Appliance Efficiency Database, not to the proposed amendments to the 2016 Standards.
75418.009	Non-Residential Lighting Controls	Phillips	Philips does not support the inclusion of a Power Adjustment Factor (PAF) for Institutional Tuning as described in Section 130.4(a)(7), as it increases complexity in the code, and the subsequent testing for this PAF as defined in NA7.7.6.2 increases the burden on building owners to show compliance.	No	This Section only specifies that if the Power Adjustment Factor credit for institutional tuning is taken, then documentation of this element of the lighting system must be included in the acceptance testing and Certificate of Acceptance for the lighting system. All power adjustment factors are optional credits that are available for builders to voluntarily utilize; builders that would find these to be burdensome are not required to include them.
75424.002	Non-Residential Lighting Controls	Lutron	Want to ensure that occupancy sensors that are programmed to operate as partial-on or vacancy sensors can comply. Suggest changes to the language …	No	Under the current language, occupancy sensors that can be programmed to operate either as partial-on occupancy sensors or vacancy sensors can be used to comply with Section 130.1(c)5. The Section specifies the required behavior and does not restrict how that behavior may be implemented. No change to the regulatory language is necessary.
75424.005	Non-Residential Lighting Controls	Lutron	Add clarification language to the daylight sensor requirement of the section that explicitly states that installation of a single sensor can be used to comply with the Standards.	No	Automatic daylighting control requirement of Section 130.1(d) specifies the required quantity and the locations of the photosensors (daylight sensors) but it does not describe any particuar quantity or arrangement of photosensors as it intentionally leaves the design of the system to the designer and installer. Lighting design is highly situational to the design of the building, and staff finds that the proposed language risks implying that a single sensor will be appropriate or sufficient for meeting control requirements in all cases. Explanations of compliance approaches and examples of compliant designs are more appropriately located in the Compliance Manuals published by the Energy Commission than in regulatory language.
75424.006	Non-Residential Lighting Controls	Lutron	Manual controls should not be required in stairwells, corridors, and restrooms. ASHRAE 90.1-2016 is addressing this by not requiring local control in these spaces.	Partially	ASHRAE 90.1 2016 has not been finalized, and therefore staff cannot act on a presumption that the considered change will occur. Staff finds that the justifications for area controls apply to stairwells, corridors, and restrooms, and Exception 2 to Section 130.1(a)2 acknowedges the question of access in a restroom by allowing the controls to be inaccessible to unauthorized personnel. Staff have, in response to this and other comments, added stairwells and corridors to this exception in acknowledgement that stairwells and corridors face issues similar to that in restrooms and noted by the commenter (i.e., that you would not want the lights manually turned off arbitrarily).

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75424.007	Non-Residential Lighting Controls	Lutron	Lighting in stairwells that are controlled with partial-off automatic sensing controls per Section 130.1(c)6 and 130.1(c)7 should not also have to be controlled with automatic full-off control because of safety issues.	No	Section 130.1(c)7 specifies that the requirements of this Section are instead of, not in addition to, the requirements of 130.1(c)1. Section 130.1(c)6 specifies that compliance with this Section is in addition to complying with Section 130.1(c)1, however Section 130.1(c)1 also contains an exception that allows a specific amount of continual lighting for means of egress, and additionally only specifies that the controls must be capable of automatically shutting the lighting off, not that they must do so. This compliments Section 130.1(c)6C, which specifies that the controls shall reduce lighting by at least 50%: the occupant or site operator then can determine whether reducing the lighting by a greater percent, including turning the lighting off completely, is appropriate.
75424.008	Non-Residential Lighting Controls	Lutron	Hotel guest room control: Captive card key controls are too easily defeated. Current hotel guestroom technologies are better at guest presence detection than captive key card controls.	No	Section 130.1(c)8 specifies that "Hotel motel guest rooms shall have captive card key controls, occupancy sensing controls, or automatic controls such that, no longer than 30 minutes after the guest room has been vacated, lighting power is switched off." This is technology neutral in allowing any automatic control that provides the same assurance that the lighting will be turned off when the room is not occupied. Staff do not believe that any approach will be perfect in detecting the presence or absence of occupants, and thus does not find that there is sufficient justification for prohibiting either occupant sensors or captive card key controls as a possible approach for compliance with mandatory standards.
75426.002	Non-Residential Lighting Controls	Kingport	Allow technological advances and increased adoption of advanced lighting control systems that integrate lighting control systems into luminaires thereby facilitating Code compliance in many potential large nonresidential buildings. Allow manufacturers to continue to improve the performance of lighting control systems with new designs, including those integrated in luminaires at the factory: this integration reduces performance failures and installation that do not meet manufacturers' recommendations. These improvements will help end users meet many requirements of Title 24 2016 in cost effective installations.	No	The commenter does not state how the proposed regulations prohibit technological advances or prohibit manufacturers from improving the performance of their products. Staff does not find that the regulations in Section 110.9 in any way prohibit the products discussed by the commenter.
75429.001	Non-Residential Lighting Controls	NEMA	We disagree with the proposal to set a minimum automatic on level to 50% [in Section 130.1(c)]. This limits the amount of energy savings possible with today's control technologies. We propose to change this minimum limit to 10%.	No	Staff finds that lowering the minimum percent would not be appropriate. The minimum percent on is intended to provide an adequate level of lighting such that the occupant is not driven to enable the remaining fraction of the lighting. Staff finds that a 10% level of illumination would be unlikely to be adequate, and would be likely to lead to an enabling of the remaining lighting.
75429.001	Non-Residential Lighting Controls	NEMA	Add an exception in 130.1(a) area control for open office applications when partial-on luminaires are used with controls embedded in each luminaire. In these cases, a manual-on switch is not needed, nor is manual-off because lights turn off when the area is vacant below the luminaire, and automatically turn on to background level upon occupancy.	Partially	Staff clarified the language to remove the term "manual switch" and instead specify manual controls, which can include wireless controls installed within the building or other methods of providing manual control functionality. Previous rulemakings have found that area controls continue to provide a benefit in areas where partial-on controls are required. Staff therefore does not find that excepting partial-on lighting from the requirements of Section 130.1(a) would be appropriate.
75429.002	Non-Residential Lighting Controls	NEMA	2. Change Section 130.1(b) title to "Multi-Level Lighting Control".	No	As indicated in Section 100.1, where the context requires, the singular includes the plural and the plural includes the singular.
75429.003	Non-Residential Lighting Controls	NEMA	3. For countdown timer switches of Section 130.1(c)2, change 10 minute timeout values to 20 minutes to align with Section 110.9(b)4F.	No	The part of Section 130.1(c)2 that refers to a ten minute timeout is an exception that applies to single-stall bathrooms and closets less than 70 square feet. Staff does not find that a longer value would be appropriate, noting that this applies to countdown timers not occupant sensing controls.
75429.005	Non-Residential Lighting Controls	NEMA	4.We ask that the Commission explain the justification for the dimming range of 40-90% and consider a dimming range of 40-100% for Section 130.2(c)3B, Demand Responsive Control Lighting.	No	Dimming light to an off stage of 100% can be a safety and security concern at night time. Staff notes that the requirement is that the lighting "be capable of automatically reducing lighting" by the noted amount, and this requirement intentionally specifies that they must be able to reduce lighting to a low-power state without the lighting turning completely off. The lighting is expected to still have a manual control that would allow it to be shut off completely when appropriate; staff does not find that an ability to automatically shut off completely based on occupancy would be appropriate for nonresidential outdoor lighting.

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75429.01	Non-Residential Lighting Controls	NEMA	We note that in the CASE report for outdoor LPA, it was noted that the standard for recommended parking lot and parking garage design criteria (IES RP-20) was in revision and further the CASE study team suggested that CEC might ignore the update if the revision called for greater lighting allowances. We urge the CEC to incorporate IES guidance, regardless of whether it might increase LPAs, and in this case update the LPAs for Outdoor Lighting to be consistent with the IES RP-20-2014 standard.	Yes	Staff incorporated the IES RP-20-14 specifications for concrete-paved parking lots; staff did not find any further changes to the Standards based on RP-20-14 were necessary, as staf finds that the recommendations of RP-20-14 can be met while complying with the Outdoor LPA values. For example, RP-20-14 Table 3 specifies allowances for uncovered parking ares that are below the proposed general hardscape lighting power allowance specified in Table 140.7-A.
75430.001	Non-Residential Lighting Controls	NLCAA	The term "during occupied times" is not defined in Exception to Section 130.1(a)1. It would appear that any building in which there are nighttime custodians would require the stairwell lights to be readily available at any time. Otherwise, it would be a safety and security risk to require nighttime staff to enter into dark stairwells.	Yes	The phrase "during occupied times" was removed from this Exception.
75430.002	Non-Residential Lighting Controls	NLCAA	130.1(a)2. It is not clear if stairwells are classified as separate rooms or areas for each story of a building of if the sum total of all stories is considered a single area. Therefore, do stairwells require a manual switch on each floor, or can they have them only on the top and bottom floors?	Yes	Section 130.1(a)1 states that "Each area enclosed by ceiling-height partitions shall be independently controlled". Thus, stairwells are considered a single area provided that portions of the stairwell are not separated by ceiling-height partitions (given that doing so would create a separate enclosed area that would therefore need an independent control). For this reason, no, a manual control is not required on each floor, and a manual control on the top and bottom floors is allowable (as is a single control installed somewhere within the stairwell). Language was also added to Section 130.1(c)1B to clarify this by stating that stairwells are not required to have separate automatic shutoff controls on each floor.
75430.003	Non-Residential Lighting Controls	NLCAA	Stairwells should be included as part of Exception 1 to Section 130.1(a)2. The purpose of this exception appears to be to restrict public access to light switches in spaces where the general public should not turn off the lights while other people may also be occupying the space. Stairwells have the same security and safety issues as the other space types listed in this exception, in that stairwells should not be turned off by unauthorized personnel when they are in use, and therefore should be included in this list of exceptions.	Partially	The purpose of Exception 1 to Section 130.1(a)2 is to recognize spaces where it would be reasonable for the controls to be located within a separate room, and does not speak directly to access by authorized personnel. Exception 2 more directly addresses restricting access of unauthorized personnel. Thus, staff added "parking areas, stairwells, and corridors" to Exception 2, consistent with this comment.
75430.004	Non-Residential Lighting Controls	NLCAA	If stairwells are required to comply with multi-level lighting control requirements of Section 130.1(b), it may be challenging to meet both partial-off and partial-on as well as multi-level requirements. This can result in expensive lighting controls.	Yes	An Exception was added to Section 130.1(b) stating that "[t]he areas specified in Sections 130.1(c)6 and 7 are not also required to meet the requirements of Section 130.1(b)." This clarifies that the proposed change of Sections 130.1(c)6 and 7 to specify "partial OFF" rather than "Partial ON/OFF" is not intended to create a situation where both Partial ON and Partial OFF requirements must be met.
75430.005	Non-Residential Lighting Controls	NLCAA	Exception 2 to Section 130.1(b). A single section of steps within a stairwell should be considered an enclosed area because it occupies only one story of a building.	No	Staff finds that it is more appropriate to consider a stairwell a single space even when it traverses multiple floors, and has added appropriate language to the proposed Standards. Staff does not find that it would be appropriate to consider each "section of steps" to be a separate enclosed space for the sole and specific purpose of this Exception.
75430.006	Non-Residential Lighting Controls	NLCAA	Section 130.1(c)1B appears to mean that each section of stairs in a stairwell must have isolated automatic shutoff controls. If that is true, it creates some technical challenges that are very expensive to comply with. Stairwells need to be specifically addressed related to this language.	Yes	Staff added the phrase "other than lighting in stairwells" to this Section to clarify that this Section is not intended to require isolated automatic shutoff controls on each floor of a stairwell.
75430.007	Non-Residential Lighting Controls	NLCAA	Exception 1 to Section 130.1(c)1. This should be applied to stairwell if it is always in use, such as when a custodian crew works every night.	No	This Exception is applicable to any and all areas meeting its criteria, including stairwells. Staff therefore finds that no change is needed to the language as the commenter's request is already addressed.

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75430.008	Non-Residential Lighting Controls	NLCAA	Section 130.1(c)3 appears to mean, when using the automatic time-switch control option in stairwells, there must be a manual override switch on each and every floor. If this is true, that could require a whole lot of override switches. Stairwells need to be separately addressed related to this requirement.	No	This Section refers to the manual control requirements of Section 130.1(a), which requires independent manual controls for "each area enclosed by ceiling-height partitions". As stated in the response to this commenter's comment on Section 130.1(a), Section 130.1(a) does not require manual controls on each floor of a stairwell.
75430.009	Non-Residential Lighting Controls	NLCAA	For stairwells, the relationship between Sections 130.1(c)1, 130.1(c)6 and 130.1(c)7 is confusing. Section 130.1(c)1 requires 100% of the lighting to be automatically shut off, and it allows an occupancy sensor to be used for compliance. However, because Section 110.9 requires all occupant sensing devices to automatically turn of lights within 30 minutes, it presents a challenge if choosing to use occupant sensing devices to shut off both tiers, as required when combining all of these sections	No	Section 130.1(c)7 is explicit in stating that "[l]ighting installed in the following areas shall meet the following requirements instead of complying with Section 130.1(c)1." Thus, there is no interaction between these requirements and those of 130.1(c)1. Section 130.1(c)6 specifies areas where the lighting may be reduced by at least 50% rather than fully shut off. Section 130.1(c)1 specifies that the control must be capable of shutting off all of the lighting; a control that can be configured to shut off either some or all of the lighting meets this requirement. A control that shuts off the appropriate fraction of the lighting within the required time, and that is also capable of being set to shut off all of the lighting, meets these requirements of all three Sections. Staff does not find that changes to regulatory language are needed to address the commenter's concern, however staff can provide this direction in the guidance documents that will be published for the 2016 Standards.
75430.01	Non-Residential Lighting Controls	NLCAA	Section 130.1(c)6C. 1.Stairwells are sometimes occupied 24 hours per day; including such times as when there is a night custodian. Such stairwells should not have to comply with this requirement.	No	Exception 1 to Section 130.1(c)1 specifies that areas are not required to have controls that can automatically shut off all of the lighting if the area is in continuous use 24 hours per day/365 days per year. Section 130.1(c)6C specify that lighting installed in corridors and stairwells shall have controls that reduce lighting by at least 50% when the area is not occupied. The distinction between "in continuous use" and "occupied" is intentional, and staff find it to be appropriate to reduce lighting in stairwells by the noted fraction while they are not occupied even if they are still "in use" by virtue of other areas of the building being in use or occupied and the stairwell being available for ingress or egress.
75430.011	Non-Residential Lighting Controls	NLCAA	Does this language require a separate occupancy sensor for each section of stairs within a stairwell? What about when there are a large number of stories in a high rise building? Are the occupancy sensors supposed to turn on only one section of stairs, or in the case of a large number of stairs, may they control the entire length of stairs from only the bottom floor to the top floor? Likewise, if using a timeclock to control one of the two required levels of light, would a manual override switch need to be located on each and every floor?	N/A	Although these are not direct comments on the proposed regulatory language, staff finds that Section 130.1(c)7A specifies that "The occupant sensing controls … shall be automatically activated from all designed paths of egress." This may require a sensor at each floor, though these sensors can communicate with a single control that activates all of the stairwell's lighting: independent controls on each floor are not required. Similarly, manual override switches are not required on each floor.
75430.011	Non-Residential Lighting Controls	NLCAA	Section 130.1(c)7. Again, it is not clear if an entire multi-story stairwell must be controlled by one, or multiple occupant sensing controls.	No	Staff find that the language is clear that installation of one control can comply with this Section provided it can be activated from all designated paths of egress (for example by use of remote sensors).
75430.012	Non-Residential Lighting Controls	NLCAA	Stairwell should be exempted from the demand response requirement as it is not always feasible, or at least expensive to install manual multi-level dimmer control on each floor of a stairwell, and automatic shutoff and override switch.	Partially	Staff do not find that an exemption from Demand Response requirements would be appropriate for stairwells, though staff have edited the language in Section 130.1(e) to clarify that the reduction in lighting power required by this Section is not required from each area individually but from the building as a whole. Lighting designers (and other appropriate persons) can determine the areas and associated lighting reduction amounts that would comprise an appropriate response to a Demand Response Signal, and are not required to reduce lighting in all areas if reducing lighting in specific areas is sufficient for a 15% overall reduction in power.
75430.013	Non-Residential Lighting Controls	NLCAA	How many of the Section 130.1 lighting controls are required to be installed when doing a lighting alteration in a stairwell? Has there ever been an investigation into the costs associated with installing all of the required lighting controls in an existing stairwell?	N/A	Stairwells are not treated uniquely or separately from other building areas by Section 141.0(b)2, given that specifications and exceptions related to specific building areas are found in Section 130.1 and these are implicitly included when Section 130.1 is referenced by Section 141.0(b)2. The requirements of both Sections were based on studies and analysis that included cost analysis.

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75496.006	Non-Residential Lighting Controls	RNM Engineering, Inc.	NA7.6.3.2 Delete the minimum output test as Section 130.1(e) does not mention a minimum level.	No	A lighting system could be operating at a partial light output level or at a full light output level. In order to ensure that the lighting system meets the demand responsive control requirement, the system has to be tested at both full and partial light output level, so that the partial light output condition is shown to be at least 15% below the full light output condition. The full output test is for testing the full output level condition of the lighting system. The minimum output test is for testing the partial light output level condition of the lighting system: this is specified to be at minimum light output to provide a simpler and easier to establish test condition than specifying that it be conducted at exactly 85% of output.
75501.001	Non-Residential Lighting Controls	CPBA	CEC add mandatory requirements for partial-ON occupant sensor and vacancy sensor technologies. The lack of suitable sensor controls at competitive pricing especially for the partial-ON occupant sensor may make this revision not cost effective. Additionally we believe the revision lacks clarity. If a vacancy sensor is selected, which we believe may be the de-facto selection, the standard is met. However, the EXEMPTION is to allow a vacancy sensor which is what the code is requiring.	Partially	The mandatory requirements for partial-ON occupant sensor and vacncy sensor are cost effective in accordance with the CASE study. Staff has further edited the proposed language to clarify that there are more than one shut-OFF control technology allowed for meeting the requirement. Partial-ON sensors and vacancy sensors can be used for meeting the requirement of Section 130.1(c)5 for areas required to have multi-level lighting controls. For areas not required to have multi-level lighting controls, occupancy sensors in addition to the above sensor types are allowed to meet the requirement of Section 130.5(c)5.
75504.001	Non-Residential Lighting Controls	NLCAA	Commenter stated that there is confusion if this subsection (130.1(a)4) requires separate ON and OFF controls. Commenter proposes to edit Section 130.1(a)4 languge for clarity.	No	Staff does not find commenter's proposed language improves the clarity of the Section. In context, Section 130.1(a)1 specifies that all luminaires shall be controlled with manual ON and OFF controls. Section 130.1(a)4 then specifies that, in addition to 130.1(a)1, certain types of lighting shall be controlled separately from the general lighting. The language added by the commenter is redundant with that in Section 130.1(a)1, and staff does not find there to be confusion present in the proposed language that this addition prevents.
75504.001	Non-Residential Lighting Controls		Also commenter stated that it is impossible to conduct an accurate daylight acceptance test if the daylit zone under test cannot be isolated from other daylit and general lighting, so that all other lighting that is not part of the daylight test must be able to be turned off to conduct an accurate test, in accordance with the other criteria in NA 7.6. Commenter proposes to edit Section 130.1(a)4D languge.	No	Requiring manual lighting controls that are only intended to be used during testing or commissioning, and not for general use, would harm the cost effectiveness of lighting controls systems. Staff finds that the current code language imposes sufficient and appropriate requirements for area controls to allow for acceptance testing of the daylit and skylit zone sensors.
75511.001	Non-Residential Lighting Controls	Robert A. Shearer	While 130.1 (c) 7. Does not actually contain flawed language and is defensible, it does not overtly state that some lighting is to be kept on in these areas under all normal circumstances. An examination of the types of areas containing the controlled lighting should make it clear that all lighting should not be extinguished in these areas for safety reasons. The author recommends the addition of some statement to clarify that some illumination must be provided in these areas at all times. It is [also] recommended by the author that some language be inserted in Section 130.1 (c) 6. To dictate that the Partial OFF requirement revert to a Partial ON requirement in the area(s) of interest "… when the space is typically unoccupied …". The occupant sensing control should remain capable of energizing some controlled lighting in the specified area(s) "24 hours per day/365 days per year".	No	Title 24, Part 6 of the California Building Code specifically contains the energy efficiency requirements that apply to buildings. Other requirements, such as health and safety requirements, are specified in other portions of the California Code of Regulations. The purpose of Section 130.1(c) is to specify that lighting controls shall be minimally capable of automatic shutoff behavior, following the specifications in its subsections. The Section is not intended to specify where lighting shall or must be energized for health and safety purposes, and staff finds that doing so would exceed the scope of Title 24, Part 6, noting that other areas of California law do contain health and safety specifications and the requirements of this Section are written to allow appropriate configuration and behavior where such requirements apply.

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75511.002	Non-Residential Lighting Controls	Robert A. Shearer	It is recommended by the author that some language be inserted in Section 130.1 (c) 6. To dictate that the Partial OFF requirement revert to a Partial ON requirement in the area(s) of interest "… when the space is typically unoccupied …". The occupant sensing control should remain capable of energizing some controlled lighting in the specified area(s) "24 hours per day/365 days per year". It is [also] recommended that the term, "partial ON/OFF occupant sensing controls", remain in the title of Section 130.1 (c) 6.	Partially	Title 24, Part 6 of the California Building Code specifically contains the energy efficiency requirements that apply to buildings. Other requirements, such as health and safety requirements, are specified in other portions of the California Code of Regulations. The purpose of Section 130.1(c) is to specify that lighting controls shall be minimally capable of automatic shutoff behavior, following the specifications in its subsections. The Section is not intended to specify where lighting shall or must be energized for health and safety purposes, and staff finds that doing so would exceed the scope of Title 24, Part 6, noting that other areas of California law do contain health and safety specifications and the requirements of this Section are written to allow appropriate configuration and behavior where such requirements apply. Staff separately finds that "partial OFF" is the accurate description of the behavior required by the noted Sections: these Sections specify areas were lighting is able to be automatically reduced rather than turned off when spaces are unoccupied. Partial ON refers to automatically turning on to less than full power (i.e., prevented from turning the lighting fully on and restricted to turning on only a fraction of the lighting, or only at a fractional level of output), and this type of behavior is not required or otherwise discussed by these Sections.
75541.003	Non-Residential Lighting Controls	RNM Engineering	There is a discrepancy between Exception to Section 130.1(a)1 and Exception 3 to Section 130.1(c)1 in the allowable lighting power density.	No	Staff finds that the values in the Exceptions differ despite the exceptions being otherwise highly similar, however staff notes that the value in Section 130.1(c)1 Exception 3 is an existing value rounded to a fewer number of digits for consistency (0.05 rounded to 0.1). As this is an intentional, adopted difference between Sections applying to two different types of controls, staff finds it to be more appropriate to leave these values in place.
75541.004	Non-Residential Lighting Controls	RNM Engineering	There is a spelling error in Exception 5 to Section 130.1(c)1.	Yes	Staff has corrected the error.
75545.001	Non-Residential Lighting Controls	Silver Creek	Section 130.1(b) defines the requirements for spaces which shall receive Multi-Level Lighting Controls. We suggest an additional exception to this section [for public restrooms] which would be similar to Exception #2 to Section 130.1(a)2.This exception would serve to remove the unnecessary addition of dimming controls (or step controls) to a lighting system which cannot be adjusted by the user. The function of this particular space does not support variable lighting levels, further; since the user has no access to the controls for the space the existence of these controls serves no purpose.This prescribed power density would cover many public restrooms, however, there are instances where a typical design would result in a somewhat higher density. The addition of this exception would help to resolve this issue while still meeting the spirit of the regulations. As an alternate we would support the revision of the connected load as stated such that spaces with a connected load of 0.6 watts per square foot or less would not be subject to Multi-Level Lighting Controls.	Yes	Staff has added "public restrooms" to Exception 1 to Section 130.1(b); staff finds that restrooms are unlikely to benefit from having four or more lighting steps, consistent with the suggestion of the commenter, but that bi-level lighting remains an appropriate requirement for these spaces.
75545.002	Non-Residential Lighting Controls	Silver Creek	Section 130.1(b) defines the requirements for spaces which shall receive Multi-Level Lighting Controls. We suggest an additional exception to this section which would be similar to Exception #2 to Section 130.1(a)2 [applying to public restrooms]. As an alternate we would support the revision of the connected load as stated such that spaces with a connected load of 0.6 watts per square foot or less would not be subject to Multi-Level Lighting Controls.	Partially	Staff added "public restrooms" to the existing Exception 1 to Section 130.1(b). Staff agree that offering several or variable lighting levels would serve little purpose and be rarely utilized in a restroom setting, and therefore finds that the benefits of multi-level lighting in a restroom are fully captured by having a single level below full power (specifically between 30-70% power, consistent with other bi-level lighting requirements within Title 24 Part 6). Staff does not find that completely exempting restrooms from multi-level lighting requirements would be appropriate, as staff finds that they can still provide benefits: as a single example, staff finds that many restrooms meet Exception 1 of Section 130.1(c) and therefore having a low-power setting for when the restroom is unoccupied provides energy savings without compromising safety or security.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75545.003	Non-Residential Lighting Controls	Silver Creek	While we support [the] requirements [of Section 130.1(d)] and their application in general, we feel that the resulting controls schemes for some particular spaces result in unnecessary added complexity and cost which are not supported by the associated energy use reduction. We suggest an additional exception to this section ... [that] would serve to remove the addition of automatic daylighting controls for single fixtures in large spaces.	No	Staff finds that the existing requirements for daylighting controls in Section 130.1(d) are supported by their energy savings, per the contents of the CASE reports and other documents relied upon when the requirements were adopted. Staff also finds that providing the proposed Exception would create a perverse incentive to utilize as little daylighting as possible in order to meet the criteria for the Exception. While designing spaces to fully leverage available daylight can be challenging, staff finds that the benefits of doing so justify the costs.
75545.003	Non-Residential Lighting Controls	Silver Creek	Table 140.6-B provides the allowable Lighting Power Densities when using the Complete Building Method of lighting compliance. This table has been revised in the proposed 2016 standards and a result of these revisions is the reduction in power density from 0.60 to 0.50 watts per square foot for the “All Other Buildings” category. We believe that this revision is in error and that it does not align with the revisions made to Area Category Method (Table 140.6-C). We suggest returning the power density to 0.60 watts/SF for the “All Other Buildings” category in Table 140.6-B.	No	Staff notes that the same change to Lighting Power Density Allowance for "All Other Buildings" in Table 140.6-B (from 0.6 to 0.5) is made for "All Other Areas" in Table 140.6-C (also from 0.6 to 0.5). Staff finds that these changes are consistent with each other and with the descriptions of the changes in the Initial Statement of Reasons, and are not made in error.
75552.003	Non-Residential Lighting Controls	Engineering Enterprise	Section 130.1(b). Lighting in certain areas shall be allowed to have manual ON/OFF control without dimming as long as the fixtures are dimmable thru other means.	No	Staff does not find that connecting dimmable lighting to controls that do not permit the dimming of the lighting is appropriate, as it diminishes the benefit of the lighting's ability to dim. The requirement to pair dimmable lighting with manual dimming controls was found to be feasible and cost effective when originally adopted, and staff finds that these requirements remain appropriate to apply in all areas.
75552.004	Non-Residential Lighting Controls	Engineering Enterprise	Exception 2 to Section 130.1(b). Exception should read as it does but also address LED fixtures.	No	Staff finds that the language, in specifying "no more than two lamps", applies to a luminaire that uses zero lamps such as integral LED fixtures. Staff does not find that editing the regulatory language is necessary.
75552.005	Non-Residential Lighting Controls	Engineering Enterprise	Section 130.5(b). It is unclear if this requires a metering system to be installed if we utilize a deductive disaggregation approach.	Partially	A metering system is not required to be installed in order to meet Section 130.5(b) requirement; staff have edited the language to make this more clear.
75552.006	Non-Residential Lighting Controls	Engineering Enterprise	Section 130.5(b) does not address small problem where only one panel is installed to serve electrical loads.	Partially	Staff have clarified the requirements in Section 141.0(b)2P to state that the requirements for separation of electrical loads do not apply to projects of that size: these requirements apply specifically to newly constructed buildings and to alterations that include "entirely new or complete replacement of electrical power distribution systems". Projects that include replacing or adding a single panel board within a building are not required to meet the specifications of Section 130.5(b).
75568.001	Non-Residential Lighting Controls	Lighting and Watercon Supply	Strike out the word "Outdoor" from Section 110.9 as the device can be placed indoor.	No	Staff note that Section 110.9(b)1 contains specifications for "Astronomical Time Switch Controls" in part B, and additional specifications for "Outdoor Astronomical Time Switch Controls" in part D. The specifications in Part D apply only to controls for outdoor lighting; making the change suggested by the commenter would apply these specifications to all such controls. Staff instead find that the word "outdoor", as it is used in this Section, refers to the application of the control rather than its physical location, and as such the application of the Section is consistent with the recommendation of the commenter.
75568.002	Non-Residential Lighting Controls	Lighting and Watercon Supply	I would advise keeping the “fixture modification in place” category, that was new in the Title 24 Part 6 Section 141– year 2013, in the new versions of Title 24 Part 6. “Fixture modification in place” can simplify and encourage energy efficient improvements.	Partially	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
75622.069	Non-Residential Lighting Controls	RNM Engineering	Commenter (Rick Miller) requests that software should be recognized as a legitimate means for adjusting daylight harvesting.	No	Commenter suggests a new compliance method for meeting the automatic daylight controls requirements; in order to consider a new compliance method, staff will need to review technical feasibility and cost details of the new method, which the commenter did not provide. Staff encourages the commenter to submit a complete proposal for the 2019 code cycle

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75622.077	Non-Residential Lighting Controls	Matthew Hargrove	In regard to 130.1(b)3, a lot of the exceptions to multi-level lighting is removed. The commenter feels this is limiting to intelligent controls and urges staff to retain previously removed options b through d and only remove the exception for demand response.	No	Staff finds that these four additional options were not required in practice: all four options depend in part on dimmable lighting (either continuous or stepped), and dimmable lighting is required under Section 130.1(a) to have dimming controls. These dimming controls meet the requirements of option a under this Section; for this reason, this dimming requirement was moved to this Section and the other requirements removed, to clarify and simplify the code language. Staff does not find that restoring these options would be appropriate.
75622.078	Non-Residential Lighting Controls	Matthew Hargrove	In regard to 130.1(c)5, for multi-level lighting, there is an exception added in the 45-day language where the commenter is (we're) wondering if that can be clarified by staff, areas that are not required by Section 130.1(b) to have multi-level lighting controls may instead use occupant sensing controls that function as an occupant sensor or vacancy sensor.	Yes	Staff edited the proposed language to provide the clarification requested by the commenter.
75622.108	Non-Residential Lighting Controls	RNM Engineering	Commenter (Rick Miller) requests clarification regarding the daylight dimming plus off power adjustment factor is met when a daylighting control also has a manual switch.	No	Staff finds that the language in the Final Express Terms is sufficiently clear, and that the behavior required to receive this PAF is an automatic off behavior, not a manual off control.
75622.109	Non-Residential Lighting Controls	RNM Engineering	Commenter (Rick Miller) notes that Section 140.6 contains a mixed use of terms throughout the document and there is a difference between lighting power density and lighting power.	Yes	Staff has corrected the term "lighting power density" where it is appropriate in the context of the language section.
75622.11	Non-Residential Lighting Controls	RNM Engineering	Commenter (Rick Miller) asks why the controls (automatic daylighting controls) for sidelit are in 140.6 and asks how to calculate allowed lighting power if prescriptive method is not used. Commenter also asks if the software model includes the value for secondary sidelit zones.	No	The comment neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language. Nevertheless, staff can provide the following answers: automatic daylighting controls for secondary daylit sidelit zone is not mandatory, but is a prescriptive measure and for that reasons is located in in Section 140.6. As the standard design building used for the performance compliance approach is a building modeled as incorporating the prescriptive options, the prescriptive calculations of lighting power allowance can still be used to determine the amount of lighting power that will be assumed by the standard design and against which the proposed building will be compared. The software model includes the value for secondary sidelit zones.
75632.001	Non-Residential Lighting Controls	Lighting Wizards	Automatic controls are an important issue. Although they may be cost effective with an energy code's maximum lighting power density (LPD), such as 1.0 WSF, they are often not cost effective below 0.5 WSF, because the high performance and low wattage lighting is consuming so little electricity, so there is very little extra to save.	No	Staff notes that consideration of low watts per square foot spaces were included in the 2013 Standards: multi-level lighting control specifications in Section 130.1(b) do not apply where lighting does not exceed 0.5 watts per square foot, however automatic shutoff control specifications were found to still be cost effective in areas with low installed wattage. Staff therefore finds that applying a similar watts per square foot threshold to automatic shutoff controls would not be appropriate.
75637.001	Non-Residential Lighting Controls	Jay Martin	Suggest an addition to section 130.1(c)7B for an addition of occupant sensing controls for parking garage, parking areas, and loading and unloading areas. It is suggested to "turn the lighting fully OFF" or "reduce the lighting level to the minimum required by a health or life safety statue."	No	Existing Language requires at least one level between 20%-50% of design lighting power when the space is vacant. It is permitted for the building team to include an OFF level as well as a minimum light level for the lighting system for parking garages, parking areas, and loading and unloading areas. Staff did not find it necessary or beneficial to add the suggested language to the Standards as the proposed language addresses commenter's concerns.
75799.001	Non-Residential Lighting Controls	Robert Shearer	Commenter asserts that the proposed test to verify institutional tuning is potentially costly, and may damage equipment. Commenter proposes a test conducted at installation that observes performance of tuning, with proposed language changes to support this approach.	No	The proposed acceptance test for institutional tuning straightforwardly verifies the two pieces of information necessary to show that lighting has been tuned: it's actual maximum output, and the level below that maximum output that the lighting has been limited to. Staff finds that the proposed language already allows for testing to be performed by observing the lighting as it is tuned, consistent with the approach preferred by the commenter, and additionally allows for "after the fact" testing if found to be necessary or preferred for a given project. Thus, staff does not find that changing the language is necessary to provide the operation requested by the commenter, and does not find that removing the ability to perform an "after the fact" test is appropriate.

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75800.001	Non-Residential Lighting Controls	Robert Shearer	Commenter supports the removal of Section 130.1(a)2C.	No	Staff appreciates this comment of support, though staff also notes that this Section's language was not deleted but was moved to Section 130.1(b)3. It is unclear if commenter supports this change or believes that the language is removed from the regulations entirely; in the latter case, staff finds that the requirements of this Section are feasible and cost effective, and are merely better organized within the regulations as a multi-level lighting requirement. Staff therefore do not find that removing these requirements would be appropriate.
75813.001	Non-Residential Lighting Controls	Robert Shearer	This comment supplements a previous comment submitted by the commenter and assigned number TN-75512.	No	Staff's consideration of comment TN-75512 included consideration of this addendum: staff continues to find that requiring manual lighting controls that are only intended to be used during testing or commissioning, and not for general use, would harm the cost effectiveness of lighting controls systems. Staff believes that the current code language imposes sufficient requirements for area controls to allow for acceptance testing of the daylit and skylit zone sensors.
75899.001	Non-Residential Lighting Controls	NECA/IBEW/LMCC	The California Energy Commission is now proposing to adopt amendments to Title 24 that would create significant new exemptions to these current lighting control and acceptance testing requirements for retrofits in existing buildings. These proposals roll back current energy efficiency requirements for existing building retrofits. Moreover, these proposals have not been sufficiently vetted or justified and have been proposed in violation of the California Procedure Act. We urge the Commission to reject these proposed amendments. [Commenter provides a detailed description of potential losses of energy savings, and based on this asserts that insofar as the changes would cause this loss, they are contrary to State policy and should be rejected.]		The language was revised to address stakeholder concerns of lost savings and reduced stringency. Staff finds that the final language provides appropriate cost relief without diminishing expected energy savings, noting that this commenter's comments at the final adoption hearing reflect that these concerns were addressed.
75899.001	Non-Residential Lighting Controls	NECA/IBEW/LMCC	If the Commission is going to move forward with the proposed changes, an additional 45 day public comment period on these changes is necessary. The 15 day public comment period provided for these proposed exemptions is not sufficient to meet the requirements of the California Administrative Procedure Act. Nothing in the 45 day language put the public on notice that the originally proposed amendments could be modified as now being proposed in the 15 day language. Adoption of these lighting control and acceptance test exemptions without providing a new 45 day public comment period would thus violate California Law.	N/A	Staff finds that potential changes to simplify and streamline the requirements for nonresidential lighting alterations are expressly identified in the Notice of Proposed Action, providing the required public notice that changes to these provisions would be considered as a part of this rulemaking action. Staff finds that the revisions considered in each 15-Day Language to simplify and streamline these provisions are therefore "sufficiently related to the original text that the public was adequately placed on notice that the change could result from the originally proposed regulatory action", and thus that 15-Day public review periods were appropriate for the revisions to these Sections.
75929.002	Non-Residential Lighting Controls	Eaton Cooper Lighting	We ask the Commission to look at the track lighting integral current limiter requirement for possible existing patents. We would be concerned about restriction of trade if this requirement limits this product only to this manufacturer that holds this patent.	No	Staff does not find that the requirements of Section 110.9(c) create a risk of limiting compliance to the use of a patented product, as the requirements of the Section are general enough to allow several methods of limiting current in a way that resists tampering or removal.
75950.001	Non-Residential Lighting Controls	RNM Engineering	The "150 lamp watts" shall be in lumen because the values in Table 130.2-A and B are in lumens.	No	Staff finds that the 150 watt requirement serves a separate purpose of setting the scope of the Section, to prevent applying the Section's requirements to specialized types of lighting such as stadium lighting. This is unrelated to the use of lumens in the following Tables. Staff therefore finds that changing this value risks changing the scope and application of the Section and would make it inconsistent with matching requirements in Part 11, and for these reasons would not be appropriate.
75950.001	Non-Residential Lighting Controls	RNM Engineering	Add footer to page 124 of Section 130.2.	No	The final layout of the unmarked regulations will be corrected as it is published.
75950.001	Non-Residential Lighting Controls	RNM Engineering	Fix the sentence of Section 130.2(c)3B. The first half is a reduction down from 100%, whereas the second half is a percentage of 100.	No	Staff finds that "exceeding" is synonymous with "more than", and that the phrase "at least 40 percent but not more than 90 percent" is grammatically correct. Staff therefore finds that no correction to this Section is needed.
75951.001	Non-Residential Lighting Controls	RNM Engineering	The exception under Section 130.1(a)1 does not belong under (a)1. It belongs to (c).	No	Commenter misunderstands the language: the Exception specifies that manual controls are not needed for egress lighting meeting the noted criteria. This relates directly to the requirements of this Section; staff finds that moving the Exception to apply to a different Section would not be appropriate.

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75951.001	Non-Residential Lighting Controls	RNM Engineering	Arenas are not in Table 140.6-C.	No	Commenter misunderstands the language: "arena" is not a functional area but a building occupancy. Table 140.6-C is a table of functional areas, not occupancies.
75951.001	Non-Residential Lighting Controls	RNM Engineering	Add stairwells to Tale 140.6-C.	No	Staff finds that "stair" is in Table 140.6-C, and that this is inclusive of stairwells.
75951.001	Non-Residential Lighting Controls	RNM Engineering	Add remote annunciator to public restrooms under Section 130.1(a)2.	No	The commenter misunderstands the regulations: control requirements generally specify that the controls must be "readily accessable" to the person in that space. The first Exception specifies areas where the controls can be located in a separate space: said controls must still be readily accessable to persons in the space with the controls, but that space can be locked or secured such that unauthorized persons do not have access to the room. The second Exception is for spaces that are not expected to be locked or secured, but where the controls should none the less be restricted to authorized personnel. Annunciated areas are included in the first Exception; staff does not find that including them in the second Exception would be appropriate, and the commenter does not provide any rationale for doing so.
75951.001	Non-Residential Lighting Controls	RNM Engineering	Make the floor and wall display lighting requirement of Section 130.1(a)4B to be an exception.	No	The commenter misunderstands the regulations: Section 130.1(a)4B is not an exception in nature. It requires floor and wall display lighting to be controlled separately from other lighting, as specified in this Section. The floor and wall display lighting is still required to be controlled.
75951.001	Non-Residential Lighting Controls	RNM Engineering	Change "floor and wall display" to "floor display" and "wall display".	No	Staff find that floor and wall displays are commonly grouped together, and thus that retaining the grouping in the Final Express Terms is appropriate.
75951.001	Non-Residential Lighting Controls	RNM Engineering	Make an exception for the 100 square feet area" for Section 130.1(b), and delete "and" and "through", spelling out the subsections.	No	Staff finds that commenter's suggestions increase the complexity of the language and reduce its clarity. Staff therefore finds that making the suggested changes would therefore not be appropriate.
75952.001	Non-Residential Lighting Controls	RNM Engineering	The commenter requests to add an appropriate footer to page 114 and 116 of Section 130.0.	Yes	Staff have made this correction.
76083.001	Non-Residential Lighting Controls	William's Electric	Lighting alterations	N/A	The commenter did not provide any occupancy sensor acceptance test time information to the Energy Commission for staff to analyze or consider. Staff therefore could not evaluate the validity of the comment, and as the commenter does not suggest any alternate values for staff to consider, staff is also unable to arrive at suggested changes to regulatory language.
76095.001	Non-residential Lighting Controls	RNM Engineering	Commenter provided verbal comments matching his written comments at the June business meeting.	Partially	Please see staff's response to the RNM Engineering letter, TN #75959.
76095.039	Non-Residential Lighting Controls	Lutron	Commenter (Michael Jouaneh) urges the Commission to postpone the adoption of the Joint Appendices until some key issues with the JA 8 start time requirement are resolved.	No	Staff did not find that a change to the regulatory language was needed to resolve the commenter's concerns related to start time, and has provided additional guidance regarding how light sources with fade-in functions are able to meet this requirement.
76095.041	Non-Residential Lighting Controls	Matt Tracy	Commenter (Matt Tracy) notes that they would (we'd) be happier with the old language, but they (we) feel like the 15-day language as it's written, it addresses most of the barriers that they have (we've) seen in the 2013 language to the lighting retrofit (our) industry, it allows them (us) to work within he (I) think is a unique environment.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
76095.05	Non-Residential Lighting Controls	Jay Martin	Commenter (Jay Martin) notes that people understand Section 130.1(C)(7) to be that complete shut-OFF is never allowed in those areas. He requests that a sentence be added to Section 130.1(C)(7), saying that shutoff is not precluded.	No	Staff finds that the requirements relating to the behavior of the automatic shutoff controls do not preclude use of manual controls, and instead that the ability to manually shut off the lighting is required by Section 1301(a), Area Controls. Staff therefore does not find that adding language to this Section would be appropriate; staff finds that the requested explanation is more appropriately located in the guidance materials published by the Commission that support the Standards.
76095.051	Non-Residential Lighting Controls	Jay Martin	Commenter (Jay Martin) requests more editing to be done on the Code to correct inonsistency. He noticed that there is deletion of 2010 from the cross-reference to the California Mechanical Code. But in some places, it still refers specifically to 2010 Code in the 15-day language.	Yes	Staff has made corrections to the noted errata.

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76095.052	Non-Residential Lighting Controls	Don Link	Commenter (Don Link) urges the Commission to reject the efforts efforts to block the 15-day language because that would effectively eliminate energy conservation projects for the small and medium business sector in the state.	N/A	Staff appreciates the comment of support for clarifying and streamlining the nonresidential lighting alteration requirements.
75236.009	Non-Residential Lighting Demand Response	Gary Flamm	Because the goal of the Standards appears to be the ability to shed the electric load by 15%, and because lighting is not the only electric load in many buildings, it would make sense to move the demand responsive control requirements to Section 130.5, and allow designers to shed 15% from the building's entire electric load.	No	Applying the demand response requirements to the entire building, and including all building energy uses in the calculation of 15% of power, is beyond the scope of the current rulemaking and would require additional feasibility and cost-effectiveness analysis not provided by the commenter in order to be considered by the Energy Commission.
75495.001	Non-Residential Lighting Demand Response	RNM Engineering, Inc.	Section 100.1 does not contain a definition for "total installed lighting power". Commenter implies that a definition for this term should be added.	No	The term "total installed lighting power" does not mean something different or more specific than the plain meaning of its words, and staff finds that it is clear in context that it means the total of the lighting power of an installed lighting system. Staff therefore finds that adding an explicit definition would be redundant and risk causing confusion.
75495.002	Non-Residential Lighting Demand Response	RNM Engineering, Inc.	Exclude from the 10,000 square foot threshold the spaces that are illuminated at less than 0.5 watts per square foot.	Yes	Staff edited this Section to make it clearer that acceptance testing is required when there is at least 10,000 square feet of building space to which it would apply.
75495.003	Non-Residential Lighting Demand Response	RNM Engineering, Inc.	Clarify whether the "non-habitable" spaces are to be excluded from the 10,000 sf threshold, are to be excluded from the total installed lighting power, or are to be excluded from the 15% reduction.	Partially	Staff edited the language to remove reference to "non-habitable" spaces.
75495.004	Non-Residential Lighting Demand Response	RNM Engineering, Inc.	Clarify whether the 0.5w/sf is based on the nameplate label or on the high-end trim .	No	Luminaire classification and power is explicitly specified in Section 130.0(c). Staff does not find that a change in the regulatory language is needed to make this more clear within the Standards.
75495.005	Non-Residential Lighting Demand Response	RNM Engineering, Inc.	Many LED lighting installations find the lighting to be too bright and hence high-end trim is often adjusted to be at 80 to 85%. Exclude spaces whose high-end trim is below 85%.	No	While staff notes that demand response controls are not required for lighting alteration projects when such projects use no more than 85% of the calculated Lighting Power Allowance, projects taking place within existing buildings face constraints and costs that do not exist for newly constructed buildings. Staff does not find that demand responsive controls are not beneficial and cost effective for newly constructed buildings where installed lighting is under that threshold. For this reason, staff is not proposing a similar exception for newly constructed buildings.
75495.006	Non-Residential Lighting Demand Response	RNM Engineering, Inc.	Require a minimum of 15% reduction below the high-end trim adjustment.	No	This suggestion appears to contradict to the previous suggestion; if the commenter intends for their comment to mean "either exclude spaces that are 15% below their Lighting Power Allowance, or calculate the required reduction in lighting power from the actual installed lighting power", then staff finds that the current language requires that lighting power be reduced by 15% of installed lighting power, not 15% of the Lighting Power Allowance, meaning that the language already behaves in this manner.
75496.001	Non-Residential Lighting Demand Response	RNM Engineering, Inc.	Capitalize the word "tests" because it is of equal importance, and possibly even more important than the other words in the title because this whole section about testing.	Yes	The suggested change was made to the proposed regulations, consistent with capitalization of the phrase "Acceptance Test" and similar terms throughout the Standards.
75496.002	Non-Residential Lighting Demand Response		Allow testing of the demand responsive function to be initiated by a simple contact closure rather than requiring the purchase of a $16k test set. The language "standards based messaging protocol" is generally accepted to mean Open ADR 2.0 or Smart Energy Profile SEP 2.0. These are proprietary programs and are not generally available to the testing technician.	No	Use of a lighting control system dry contact as an interface to demand responsive control signals is allowed and it can be a compliance method in meeting the demand responsive lighting control requirement as specified in existing Compliance Manual. A test set is not a mandatory tool for for demand responsive control acceptance testing.
75496.003	Non-Residential Lighting Demand Response	RNM Engineering, Inc.	How is it known that all of the remaining spaces in the sampling group would also pass the test if they were tested? Change "the remaining building spaces in the sample group also pass" to read as "the remaining building spaces in the sample group will be assumed to also pass."	No	Staff does not find there is any difference between the existing language and the commenter's suggested language as they both specify that no further test is required if the first space passes the test.

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75496.003	Non-Residential Lighting Demand Response		If a customer is going to choose to contract with the utility company for a demand response program, then the customer will be looking at much more than just lighting. The customer will also be looking at motor loads and electric heating loads. The control of which will be handled by a building wide EMCS. When a customer contracts for demand responsive program, the customer and the utility company will test the whole system to make sure it provides the demand reduction that both parties expect.	No	The demand responsive lighting control requirements does not prevent contracting with local utility company for a demand responsive program that includes building load reductions beyond lighting and HVAC. These requirements specify that the lighting and HVAC systems must be designed to facilitate a demand response program, and are written to avoid preventing or precluding more comprehensive DR programs or EMCS behavior.
75496.007	Non-Residential Lighting Demand Response	RNM Engineering, Inc.	NA7.6.3.2 "Primary skylit" is not a defined term. Change the sentence to read "The chosen location must not be in a skylit area, primary sidelit area, or secondary sidelit area."	Yes	The suggested clarifying change was made to the proposed regulations.
75496.008	Non-Residential Lighting Demand Response	RNM Engineering, Inc.	NA7.6.3.2 The wrong section number is referenced. Change Section 131(b) to Section 130.1(e)."	Yes	The suggested correction was made to the proposed regulations.
75496.009	Non-Residential Lighting Demand Response	RNM Engineering, Inc.	Taking current measurements requires working on live circuits. While working on live circuits, OSHA requires the technician to wear personal protective equipment PPE in particular an arc flash suit. Such PPE cost between $600 and $1100.	No	Staff understands this comment to be implying that the costs of performing the acceptance testing are higher than considered in the CASE report supporting adoption of this testing, noting that the current proposed language makes solely clarifying changes to this Section. Staff finds that the cost is a one-time cost, which would then be divided over the number of tests conducted over the life of the PPE in arriving at a per-test cost. As staff is not proposing substantive changes to this Section beyond clarifying how sampling is to be performed, staff does not find that changing or removing the requirement to take current measurements would be appropriate.
75496.01	Non-Residential Lighting Demand Response		Most electricians have readily available a handheld clamp-on ammeter [digital multimeter]. A typical meter would be a Fluke 323. This meter has a capacity of 400 amps with an accuracy of 2%. This computes to an accuracy of + or – 8 amps. The reduction in current is less than the accuracy of the meter. This method of determining demand response performance is not reliable. Allow the use of advanced lighting control system to trend the total building lighting load before, during and after a demand responsive event.	No	The digital multimeter accuracy specification is based on the % of reading and not based on the capacity of what a meter can read. The AC current accuracy of Fluke 323 meter is 2% ± 5 counts. In the commenter's example of reading of 16 amps, the actual current could be estimated from 15.18A (16Ax98%-0.5A = 15.18A) to 16.82A (16A*102%+0.5A = 16.82A). In the example of reading of 12 amps, the acutal current could be estimated from 11.26A (12A*98%-0.5A = 11.26A)to 12.74A (12A*102% +0.5A = 12.74A). A 15% drop of 16A results in a drop of 2.4A and compare this is to an accuray of ±0.82A. A 15% drop of 12A results in a drop of 1.8A and compare this to an accuracy of ±0.74A. Hence, a meter user should be able to tell a 15% current drop from using a digital multimeter. Staff do not find the method of determining demand response performance is not reliable. As the purpose of the acceptance test is to find and prevent errors in the installed controls, staff does not feel that relying on data provided by the control itself to determine correct behavior to be appropriate.
75503.001	Non-Residential Lighting Demand Response	kW Engineering	Recommend revising the Section 130.4(a)1 requirement to be reviewed by permitting department rather than by the acceptance tester.	Yes	Staff replaced the phrase "are included on plans and specifications" with "is completed" to correct the noted inconsistency. The language of this Section specifies what the acceptance tester or testers will certify about the project, and does not specify requirements relating to review by the permitting department.
75503.002	Non-Residential Lighting Demand Response	kW Engineering	Timeclocks and occupancy sensors acceptance tests: The statistical basis for a sample size of 7 is not apparent and conflicts with sample size requirements suggested by Performance Monitoring protocols. Recommend the sample size to be based on IPMVP Appendix B methodology.	No	There is no evidence that small buildings are overly tested or that large buildings are being under tested. Keeping the sample size at 7 ensure that the Standards is consistent with itself.
75503.003	Non-Residential Lighting Demand Response	kW Engineering	Daylighting Acceptance Test: Testing of daylighting systems during partial daylight conditions is exceptionally difficult.	No	There are multiple methods to create a partial daylight condition and testing agent can choose the one depending on the site condition. It is important to perform daylight testing during real or simulated partial daylight conditions to ensure the lighting system works correctly during partial daylight conditions.
75503.004	Non-Residential Lighting Demand Response	kW Engineering	Daylighting Acceptance Test: similar comment of item #2.	No	There is no evidence that small buildings are overly tested or that large buildings are being under tested. Keeping the sample size at 7 will mean the Standards are consistent with itself.

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75503.005	Non-Residential Lighting Demand Response	kW Engineering	Daylighting Acceptance Test form NRCA-LTI-03-A: Lutron's daylight sensor is both open and closed loop. I request that the text of the form be revised to match the currently available technologies and removed the redundancy.	No	Staff finds that there are closed loop daylight sensors, open loop sensors, and also dual loop sensors (dual loop means both closed loop and open loop) available, and they are chosen to be used depending on the applications. If a dual loop sensor is being used, that can be and should be indicated on the form, noting that there is nothing in the Standards that prohibits the use a dual loop sensor to meet the daylight requirement of Title 24.
75503.006	Non-Residential Lighting Demand Response	kW Engineering	NRCA-LTI-03-A: The forms refers to the reference illuminance as line I, but the information is called out on line j.	No	The reference illuminance information is in line j of the NRCA form, page 6. Staff do not find the line I or line j to be incorrect. Commenter refers to page 7 but the information is actually on page 6.
75503.006	Non-Residential Lighting Demand Response		I suggest adding a default power chart for LED.	N/A	It is allowed to use power chart other than the one contained in the form NRCA-LTI-03-A. A manufacturer's power chart for LED is allowed to be used for existing and proposed acceptance testing of automatic daylighting system. Commenter also did not provide any LED power chart for staff to evaluate. Staff did not find any appropriate LED power chart to be used as either a model or prescriptive power chart for daylighting control acceptance testing use, and staff feels that adding a power chart to the Standards risks implying that it is required to be used.
75503.007	Non-Residential Lighting Demand Response	kW Engineering	This form requires the testing of lighting control panels for projects over 10,000 square feet to assess whether they meet the requirements of 130.1(e) (demand response). This section of code only requires the system "be capable of" reducing power in response to a demand response signal; it does not require that the building owner sign up for this service with their utility. If the building owner is not pursuing demand response, the sequences for enacting it are not described in the contract documents – lighting level reductions are not shown on the drawings or called out in the specifications. In order to satisfy the requirements of testing, the systems are set up with the best-guess of the lighting control system provider, putting the lighting control system supplier in a risky position. If the owner later decides to implement demand response, the sequences will likely change – wasting time and money. I recommend requiring this test if the Owner is actively pursuing demand response as part of the design.	No	The requirement of both the form and the acceptance test is about verification that the demand responsive (DR) controls are capable of receiving a DR signal and able to reduce lighting system power of the building in response to the signal, and therefore able to participate in a DR program should the current or any future owner or tenant choose to do so. Without testing, a building may be unable to respond to DR signals and this may not be discovered until after a point where correcting or enabling DR behavior is no longer feasible. For this reason it is necessary to confirm that the basic capability is there as a part of overall building acceptance testing.
75503.008	Non-Residential Lighting Demand Response	kW Engineering	The lighting certificate of installation - contractors can do what they think is setup/startup for the system, and then fill out the forms in the office and the form information may not reflect the installed condition. Please revise the forms to require specific data that can't be faked or copied throughout the forms. Please revise the forms to require specific data that can't be faked or copied throughout the forms (the acceptance test forms are a good example of this). For example, page 2 of NRCI-LTI-02-E (EMCS or Lighting Control System), part 2.E.1, requires that a box be checked to indicate that the automatic time switch meets the requirements of Title 20. As is, this form provides no concrete evidence to the acceptance tester that the lighting control system has been set up or programmed. I recommend adding an additional field to require documentation of the schedule that was programmed in to the LCS. Similarly, page 3, part 2.H.1 requires that the lighting control system be able to turn off the lights no more than 30 minutes after the area has been vacated. I recommend adding a field for the contractor to document the occupancy sensor time delay.	No	Compliance documents are not included in the adopted regulations and are not a part of the current rulemaking proceeding. The Energy Commission engages in a parallel public process as it updates the compliance documents, including the forms noted by the commenter, and this comment has been shared with that team.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75552.001	Non-Residential Lighting Demand Response	Engineering Enterprise	Break out the definition of building in Section 100.1. The definition is confusing for tenant improvement projects. This definition [becomes] very confusing for most people when taken in context of the code, for example, lighting power in buildings over 10,000 square feet shall have demand response capabilities. It would be much clearer to state that spaces over 10,000 square feet shall have demand response capabilities. Break out the definition of building and space.	Partially	The definition of "building" reads as follows: "BUILDING is any structure or space covered by Section 100.0 of the Building Energy Efficiency Standards." Staff finds that including "or space" within the definition of "building" is necessary for the correct operation of the code and to prevent semantic arguments regarding code requirements; this is the purpose of defining otherwise common terms, such as "building", within regulation. Staff have clarified requirements for alterations projects including tenant improvement works in the proposed languge of Table 141.0-E - demand responsive controls requirements applies where there is an over 10,000 square feet of alterations in a single building.
74564.002	Non-Residential Lighting General	Lighting Wizards	Please at least maintain the current 45 day language of the 2016 Title 24. It would even be better to have less or no restrictions for lighting retrofits. Since the current 2013 Title 24 is decimating the lighting retrofit industry in California, please allow the 2017 version to take effect ASAP, which is well before the 2013 version expires.	Yes	The language in the final express terms is specific in avoiding three sources of increased project costs: determining floor areas in order to calculate lighting power densities, running new wire to support bi-level lighting, and performing acceptance testing when only a limited number of controls are installed, consistent with this and other commenters' calls for relief from project costs. Specific thresholds such as percent reduction requirements and numbers of luminaires were adjusted to ensure equivalent energy savings are achieved by the final language. Staff finds this to be appropriate in responding to the commenter's concern about project costs while also responding to concerns from other commenters relating to energy savings. Staff does not find that completely removing requirements for lighting alteration projects would be appropriate or responsive to both comments seeking cost relief and those concerned about losing required energy savings. Regarding the effective date of the changes, the effective date for revisions to the Building Code is a matter of law; the Energy Commission cannot establish an earlier effective date for specific provisions of the Code.
74626.002	Non-Residential Lighting General	Lighting Wizards	More technical detail should be added in the code language using diagrams and/or more specific terms and explanations on how demand-responsive controls (or AutoDR capable equipment) can receive and respond to the AutoDR signals from an external provider, including links to the physical and the logical interfaces.	No	Diagrams inserted into regulatory language would become prescriptive, and the Standards intentionally do not prescribe the design of demand response controls. Rather, the Standards specify the protocols that the demand response controls must be capable of using to communicate, such that a minimum level of compatibility among equipment is assured.
74626.003	Non-Residential Lighting General	Lighting Wizards	Code-triggers for retrofits should be clearly defined for indoor lighting controls and HVAC systems.	Yes	The regulatory language specifying when lighting alteration projects trigger code requirements has been revised and clarified.
74626.004	Non-Residential Lighting General	Lighting Wizards	Acceptance testing processes and compliance requirements should be clearly explained. For example, steps required to simulate a DR signal is not clearly described. This lack of clarity leaves open-ended questions and confusion within the industry to develop AutoDR compliant products.	No	Staff finds that the current acceptance testing procedure is clear, and that the additional specificity requested by the commenter would be overly prescriptive and detrimential to manufacturers of this equipment. The acceptance test specifies, "Simulate a demand response condition using the demand responsive control." This is phrased generally to account for differing devices having different methods for receiving and responding to demand response signals. Staff does not find the alternative of dictating product design to be appropriate.
74626.005	Non-Residential Lighting General	Lighting Wizards	A list of requirements for the standards-based messaging protocol, not just for the OCSTs, should be clearer.	Yes	Staff have clarified the language relating to the physical and logical communications interfaces.
74626.006	Non-Residential Lighting General	Lighting Wizards	Architects and engineers are used to learning the technical details from diagrams, and it is critical to summarize the requirements in succinct formats to follow through easily and clearly. Communicate information visually by adding tables and figures. A figure that explains how DDC and EMCS are automatically receiving and sending a signal from the utility company and/or the entity selected by an occupant would be very helpful. Illustrated examples describing how price signals with pricing information, DR signals, and event responses are sent and received by the OCST should be added [to JA5].	No	Diagrams inserted into regulatory language become prescriptive, and for this reason staff finds that inserting technical details, figures, and diagrams into the regulations for demand response controls would not be appropriate. Explanatory information is more appropriately published as guidance rather than as a prescriptive requirement, and thus is more appropriately included in the compliance documents published by the Energy Commission such as its compliance manuals.
74626.007	Non-Residential Lighting General	Lighting Wizards	The definition of “Standards based Messaging protocol” is missing in section 100.1. Clearly list standards-based messaging protocols as shown [in the commenter's letter].	Partially	Staff have removed the phrase "standards-based messaging protocol" and clarified the language used to describe the required communication abilities of the demand response control.

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74626.008	Non-Residential Lighting General	Lighting Wizards	Specific explanations need to be added on how lighting power (which lighting controllers) shall be capable of being automatically reduced in response to a Demand Response Signal.	Partially	Staff have clarified the language in Section 130.1(e), however staff finds that the language must remain general in order to give lighting designers and facilities managers the flexibility to determine what the most appropriate and least disruptive response would be for their building.
74660.001	Non-Residential Lighting General	Lighting Wizards	Please remove the CLCATT requirement in occupancy sensor only projects, because they are not necessary and costs could be kept down.	No	Staff does not find that there is anything inherent in occupant sensing technology that makes it less likely to benefit from CLCATT requirements.
75237.001	Non-Residential Lighting General	California Building Properties Association	Both the notice and the ISOR should include an estimated cost of compliance analysis. Some of the requirements are not cost effective as written.	No	Cost effectiveness analyses are found in the CASE reports and the Fiscal Impact Analysis specified in the Documents Relied Upon section of the Initial Statement of Reasons. In addition, summarized cost and cost effectiveness information is stated in the Notice of Proposed Action.
75237.002	Non-Residential Lighting General	California Building Properties Association	Energy efficiency regulation should be focused on existing buildings, where the largest potential exists	No	While this comment is not specific to any proposed change within the proposed 2016 Standards, the current efforts to revise the Standards do pay significant attention to existing buildings.
75237.006	Non-Residential Lighting General	California Building Properties Association	Due to the lack of fully understanding these revisions and the time required to analyze the full impact we are summarizing them below. We are requesting your assistance and comments in fully grasping the potential impact these may have on our vast membership[.]	N/A	Staff contacted the commenter during the public comment period to provide explanations of the noted Sections.
75413.001	Non-Residential Lighting General	Gary R. Flamm Consulting	There are errors in Secion 140.6 regarding mounting height multipliers. Where there are wall display or floor display luminaires of varying mounting heights, there is no correct way to assign mounting height multipliers. Also, in Section 140.6(c) 3J, there is an incorrect citation of wall display that should have been "floor display".	Yes	The mounting height multipliers have been corrected to be applied to the luminaire wattage to arrive at design watts, following the edits proposed by the commenter.
75426.003	Non-Residential Lighting General	Kingport	Adding a definition of a "Lighting System".	No	"Lighting system" is a commonly used and generally understood term within the industry, and defining the term within regulation risks causing confusion. A lighting system generally consists of luminaires, lighting controls, and wiring as a functional system, and may include indoor and/or outdoor components; the use of the word "system" is in accordance with its dictionary definition. The commenter does not propose a definition for the term, and given the extreme variability of how lighting can be installed within a building and integrated with non-lighting products and features, staff does not find that defining this term in regulation would be beneficial or appropriate.
75429.001	Non-Residential Lighting General	NEMA	We are concerned that the Commission staff has become over-reliant on CASE studies and opinions, and that sufficient rigor has not been applied to the studies or opinions. We urge the Commission to increase the rigor and mandatory feasibility/representation requirements placed on CASE study reports and studies and are preparing a letter of recommendations for this.	No	Staff find that the CASE reports are rigorous analyses of the topics they investigate, and that they follow the Building Energy Efficiency Measure Proposal Template provided by the Energy Commission at http://www.energy.ca.gov/title24/2016standards/prerulemaking/documents/New_Measure_Proposal_Template_V1.docx.
75429.001	Non-Residential Lighting General	NEMA	The cost projections in the CASE proposal are not accurate since they don't represent products that meet all the overlapping quality attributes.	No	Staff finds that the cost projections in the CASE report are reasonable and accurate, and represent the anticipated cost of a lighting product designed to incorporate the noted features. Staff does not find this to be an unreasonable method of estimating costs given the incredible variety of lighting products and designs.
75429.001	Non-Residential Lighting General	NEMA	NonRes Lighting. 1.Remove all declarations in 130.0(c)5, "… Field modifications, including hard wiring of an LED module, shall not be recognized as converting an incandescent luminaire or luminaire housing to a non-incandescent technology (for compliance with Part 6)".	Partially	Staff added the phrase "unless such sockets are removed" to the end of Section 130.0(c)5 in order to allow field modifications that prevent the use of inefficient lighting to count at their new efficiency. Staff does not find that a complete striking of this language is appropriate, as determination of lighting power density in nonresidential lighting is based on the amount of lighting able to be powered by the installed equipment and this language is necessary to maintain consistency in the application of Section 130.0(c).
75429.01	Non-Residential Lighting General	NEMA	As we noted in our written comments the testing performed by the IOU teams was "woefully inadequate" and we stand by this statement. We ask the Commissioner to take note of this.	No	Staff notes NEMA's concern that the testing performed by the CASE team was "woefully inadequate", but does not find this to be the case. Staff finds that the testing performed was adequate to demonstrate the feasibility and effectiveness of the test in producing an accurate description of the flicker behavior of light sources.

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75429.011	Non-Residential Lighting General	NEMA	Since the CEC undertook several modification to definitions in the staff proposals, NEMA reviewed all definitions in use for lighting products in Title 20 and compared them to definitions already established by the Illuminating Engineering Society (IES) and other accepted industry practices.	Partially	Staff made the suggested changes to the following definitions: "Illuminance"; "Light Emitting Diode (LED)"; "Pendant"; "Radiant Energy". Staff also made the suggested change to the definition of "Photo Control". Staff did not make the suggested change to the definition of "recessed luminaire" but instead changed the language in Section 150.0(k) to refer specifically to recessed downlights in ceilings, consistent with the commenter's suggestion. Staff did not add the phrase "It is expressed preferably in Watts." to the end of the definition for Radiant Power, as this would imply a requirement or differential treatment of values that does not exist within the regulations. Staff did not amend the definition of "luminaire" as the differences between the definition in the Standards and the IES definition are intentional, using more technology neutral phrasing by not referring exclusively to lamps and ballasts. Staff did not make the change to the definition of Compact Fluorescent Lamp as the added detail makes the definition more complicated without providing additional clarity or having any regulatory effect. Staff did not make the change for "lumen maintenance" or "multi-level lighting" as the proposed definitions have the effect of inserting regulatory standards into the definition. For example, the commenter's proposed definition of "lumen maintenance" would require lumen maintenance strategies to have three-level lighting, which is not currently required by the Standards. As there is not enough analysis within the comment for staff to consider applying new standards to lumen maintenance and multi-level lighting, staff encourages the commenter to submit a complete proposal for the 2019 code cycle.
75433.008	Non-Residential Lighting General	Lighting Quotient	Portable furniture mounted lighting systems have proven to be highly effective in reducing office lighting power. Imposing hardwiring requirements on modular office furniture negates the intrinsic value of portable systems furniture. The language of Section 140.6(a)2C is unnecessary limiting as it limits the use of PAF to permanently installed and hardwired furniture mounted general lighting systems and luminaires. Proposed to revise the language for Section 140.6(a)2C.	No	Title 24 fundamentally considers the permanent aspects and components of buildings. This power adjustment factor provides a route for consideration of some portable lighting systems as "permanent" lighting. The requirements of this Section ensure that the lighting is permanent and meet the requirements for permanent lighting before it is considered a permanent part of the building under Title 24. Staff do not find that allowing non-permanent lighting to count as permanent lighting for the purpose of receiving a credit within this Section would be appropriate.
75496.005	Non-Residential Lighting General	RNM Engineering, Inc.	Change "using one or the following two methods" to "using one of the following two methods".	Yes	The suggested correction was made to the proposed regulations.
75509.001	Non-Residential Lighting General	Emerging Technology Associates, Inc.	There is market confusion that Luminaires and Lighting Control Systems must be certified to the Commission under Title 20 Appliance Efficiency Requirements. Commenter recommends removing the word "luminaire" from the title of Section 110.9	No	Section 110.9 includes, in subsections (j) and (k), language relating to JA8 High Efficacy Light Sources, which include luminaires, and Ballasts for Residential Recessed Luminares. Accordingly, while staff does find that there may be some confusion remaining in the marketplace, staff does not find that removing the word "luminaires" from the title of the Section or from its use in Section 110.9(a)1 is an appropriate response given that its presence is accurate. Staff will continue providing a consistent message and supporting outreach and educational materials outside of the rulemaking proceeding to educate the public on what products are required to be certified, and when.
75509.002	Non-Residential Lighting General	Emerging Technology Associates, Inc.	To make this very clear and ensure compliance of all parts of a “Lighting Systems”, I recommend adding a definition of what the Code defines as a “Lighting System”.	No	Staff finds that the phrase "lighting system", like the phrases "HVAC system" and "water heating system", is clear enough in its plain language that a definition is not warranted, and therefore that adding a definition would be both redundant and add a risk of confusion.
75540.001	Non-Residential Lighting General	RNM Engineering	The text is not clear in the definition of meaning of "installed lighting power", "rated lighting power" and "design lighting power", "total lighting power" and "total installed lighting power".	No	Staff finds that these phrases are readily understandable in their context and have their ordinary meaning, and therefore that a more specific regulatory definition is not needed for these terms. Staff additionally notes that Section 140.6 specifies how lighting power is to be determined, where it is necessary to do so.

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75557.002	Non-Residential Lighting General	NRDC	In section 100.1 (b) the CEC proposes a new definition for “plug loads” for the purpose of Section 130.5. We support the addition of a definition but propose that the CEC use the term “plug-in equipment” instead of “plug loads”. The definition as written includes both appliances and other electronic devices that can be plugged in. We support this broad definition, but note that currently the IOUs and CPUC define the term plug loads as separate from appliances. The term “plug-in equipment” is inclusive of both appliances and plug loads and would better align with the terms currently used by the IOUs and CPUC. Additionally, we suggest a small change to the language to indicate that appliances covered under “plug-in equipment” are generally plugged in, but in some cases may be hard-wired (e.g. dishwashers). We suggest the following definition: “Plug-in equipment is any electrical equipment of a type that is typically plugged into a receptacle or receptacle outlet. Plug-in equipment are not related to general lighting, heating, ventilation, cooling, and water heating, domestic and service water system, renewable power, and electric vehicle charging.”	No	The terminology ("Plug Load") has been used since 2013, is well understod by stakeholders, and alterating the term together with revising the associated regulation sections may confuse stakeholders as this can be interpreted as a substantive change to Section 130.5's requirements. Further, it may confuse code users as there are now two types of equipment - "typical" and "atypial" plug-in equipment. Staff did not find a benefit in replacing or redefining the existing term as suggested by the commenter.
75598.001	Non-Residential Lighting General	NEMA	Commenter states broad complaints and suggestions about scheduling and coordination with their organization.	N/A	Staff finds that scheduling of events and deadlines met the requirements of law; staff nonetheless will take the commenter's suggestions for process improvement under advisement.
75622.063	Non-Residential Lighting General	RNM Engineering	Commenter (Rick Miller) questions how do we get the design community educated on the requirements of Title 24?	N/A	The comment relates to education and neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language. Nonetheless, there are outreach and education efforts about the Standards undertaken by the Energy Commission, by the utility companies, and by a host of private and NGO organizations. Some of these efforts are taken in the form of classroom lectures, conference presentations, on-demand videos and others. There are also printed documents as well as downloadable electronic materials about the Standards and they are available for public access online and by request. The Energy Commission also provides a telephone hotline to answer questions about the Standards.
75622.076	Non-Residential Lighting General	Matthew Hargrove	Commenter (Rick Haring of Philips) notes that the Section 130.0(c)5 requirememt of luminaires with incandescent screw based sockets limits the implementation of the LED technology and it is also not consistent with the table in 150.	Yes	Staff has edited the proposed language with changes to allow field modifications of screw base socketed luminaires to be recognized as converting an incandescent luminaires or luminaire housing to a nonincandescent technology, consistent with the commenter's comment.
75957.001	Non-Residential Lighting General	RNM Engineering	(The deleted reference to Section) 130.5 is included in paragraph P (of Section 141.0(b)2).	No	Staff finds that the requirements in Section 141.0(b)2P relate to power distribution systems, not lighting. For this reason, staff finds that referencing these requirements in Section 141.0(b)2F, which is about lighting systems, would not be appropriate.
75957.002	Non-Residential Lighting General	RNM Engineering	Add footer (to indicate Section 141.0) to entire section of 141.0.	Yes	Staff has made this correction.
75957.003	Non-Residential Lighting General	RNM Engineering	Commenter suggested to delete the lighting power criteria "up to 100%" from Table 141.0-E.	No	Staff finds that noting the maximum value of 100% provides consistency with the requirements of the Sections that reference the Table, and is therefore appropriate to retain.

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75236.003	Non-Residential Lighting Power	Gary Flamm	It is not appropriate for the Energy Standards to require that sockets be removed, because doing so will often violate the Underwriter Laboratory listing of a luminaire. It is more appropriate to continue to classify luminaires manufactured with incandescent sockets as incandescent luminaires.	No	Staff is responding to concerns voiced by retrofit providers that their retrofit products cannot be recognized in the context of Title 24. Retrofit products generally have their own UL listing, applicable to retrofit use, which is not voided by installation within an existing fixture. Additionally, staff expect that retrofit projects that remove sockets would most commonly remove all of the electronics and simply re-use the troffer, housing, or trim. The primary concern is allowing retrofitted luminaires to be recognized for their increase in efficiency. Because the existing language retains the original classification based on the ability to install inefficient lamps, the proposed language allows for reclassification if the ability to install an inefficient lamp is removed.
75418.002	Non-Residential Lighting Power	Phillips	Consider field labeling of luminaires and/or wireless verification of wattage levels.	No	Commenter offers no description of either "field labeling" or "wireless verification of wattage" by which staff could evaluate the appropriateness of the request or determine appropriate regulatory language. Staff has concerns about after-the-fact labeling or non-permanent evidence of compliance creating opportunities for abuse and complicating compliance and enforcement efforts, topics that are not addressed within the comment letter. Commenter is welcome to submit a complete proposal regarding this change for consideration in the 2019 rulemaking.
75418.003	Non-Residential Lighting Power	Phillips	Commenter proposes that the requirement in 130.0(c)(6)(B) that "luminaire wattage [...] determined by the maximum input wattage of the rated driver published in driver's manufacturer catalogs based on indecpendent testing lab reports as specified by UL 8750 or LM-79", take into account this existing technology for programmable drivers.	No	Commenter does not recommend any specific way of taking into account existing technology for programmable drivers, and it is unclear how staff would do so. Catalog publications can contain any information provided or specified by the manufacturer or publisher of the catalog. Luminaire classification and power is based on the maximum lighting power able to be provided by the luminaire or lighting system; this is consistent throughout Section 130.0(c).
75418.004	Non-Residential Lighting Power	Phillips	Remove declarations in 130.0(c)5: "... Field modifications, including, but not limited to hard wiring of an LED module, shall not be recognized as converting an incandescent luminaire or luminaire housing to a non-incandescent technology".	Partially	Staff has proposed language that specifies that removal of the ability to power incandescent luminaires allows the reclassification to a more efficient luminaire. Staff does not feel that complete removal of this language is appropriate: this is consistent with the general approach that luminaire classification and power is based on the maximum lighting power able to be provided by the luminaire or lighting system.
75429.001	Non-Residential Lighting Power	NEMA	The percent changes in LPA are not consistent and are much more restrictive for higher zones. In the June workshop, homebuilders referenced the inherent inefficiencies with 250 watt Metal Halide systems; however the changes seem to be overly aggressive for higher zones. We appreciate the projections that LED systems will be 30% more efficient by 2017, but the energy standards must be based on an analysis of commonly available existing technologies today.	Partially	Staff find that LED systems are commonly available existing technologies, and that an estimated 30% increase in efficiency compared to Metal Halide systems is reasonable, if not conservative. Staff have proposed the LPA requirements found to be feasible and cost effective in the CASE reports identified as documents relied upon.
75429.006	Non-Residential Lighting Power	NEMA	At the June 23, workshop, it was stated that the Table 140.7-A is based on projections. We recommends that the models be reevluated using technology that is currently feasible to meet the Warren-Alquist Act requirement. Also, the reduction in lighting zone 3 and 4 seems to be more aggressive in order to achieve the higher illuminance requirements. Please be caution the assumptions are correct and applied consistently to all lighting zones. [NEMA notes that their comments to Table 140.7A also apply to Table 140.7B]	No	Staff finds that the proposed changes in lighting power allowance in Table 140.7-A and for building entrances and exits in Table 140.7-B are shown to be both feasible and cost effective within the CASE analysis. Staff notes that although projections of 2017 lighting were used to explore "maximum possible" LPA values, these values were not what the CASE report proposed for standards nor what staff proposed in the Standards. Quoting from Page 18 of the CASE report: "Though 27.2 Watts per entrance is the lowest possible wattage allowance that could be proposed, this proposal is conservative and allows higher lighting wattage allowances. In this case the proposed lighting power allowance for LZ3 [for building entrances and exits] is 35 lumens per watt – 30% higher than the minimum wattage that could be technically justified, but still achieving a reduction of 62% of lighting power as compared to the current allowance of 90 Watts per entrance."

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75429.007	Non-Residential Lighting Power	NEMA	IES has recently issued an update to RP-20 for parking facilities. The updates to the recommended maintained illuminance levels do not impact the power allowances for areas with asphalt surfaces. However they have added new illuminance requirements for concrete surfaces and transactional areas. We recommend that exceptions be added to Tables 140.7-A and 140.7-B to provide a multiplier of 2.0 to accommodate concrete surfaces and transactional areas to be consistent with IES illuminance recommendations.	Yes	A footnote has been added to Table 140.7-A that captures this change to RP-20 and provides an allowance that aligns with the IES RP-20 specifications for concrete surfaces.
75622.107	Non-Residential Lighting Power	NRDC	Commenter (Meg Waltner) notes that the washed back changes from the Draft Standard to the 45-Day Language in Table 140.7-B for Outdoor Lighting.	No	Staff finds that the proposed values were not able to be included in the 45-Day Language as the CASE Report did not show that the values were cost effective. Staff provided the following response at the hearing where the comment was made: MR. SHIRAKH: So that's a table that has been the subject of a great discussion between us and the CASE teams and what happened was that basically the cost—effectiveness wasn't there for many of the lighting levels that was being recommended, so you know, we have to pull some of them back. Fortunately we were able to maintain or retain some of the major LPDs reductions for hardscapes and some of the areas which basically captures about 70 percent of the original savings anyways. But for the other ones, we just couldn't demonstrate that they were cost—effective in all four lighting zones and that was the main reason for changing it back. (P176)
75622.111	Non-Residential Lighting Power	George Nesbitt	Commenter (George Nesbitt) says that the process for calculating your outdoor lighting budget is not easy, and he suspects that most of the time numbers are made up just to show compliance	Yes	Staff have provided an alternate compliance path for outdoor lighting that does not require calculation of lighting power densities or lighting power allowances.
75949.001	Non-Residential Lighting Power	RNM Engineering	Recommend acceptance testing of each PAF in Table 140.6-A. Add PAF to Section 130.4(a) move Section 130.4(b)6 to 130.4(a). Each PAF should be tested by CLCATT and not by the installer.	No	Staff finds that acceptance testing, including acceptance testing applicable PAFs, is specified in the referenced Sections of the Nonresidential Appendix and that making the recommended changes to this Section would create redundancy and decrease clarity. Staff therefore finds that doing so would not be appropriate.
75949.001	Non-Residential Lighting Power	RNM Engineering	Add footnote to page 128 of Section 130.2.	No	The final layout of the unmarked regulations will be corrected as it is published.
75949.001	Non-Residential Lighting Power	RNM Engineering	Clarify "or", define "feeder" of the Section 130.5(a) requirement. Table 130.5-A is only for service.	No	Staff finds that "Feeder" is defined in the California Electrical Code, and included by reference as specified by Section 100.1(b); adding the definition to Part 6 is not necessary and would create redundancy with the California Electrical Code. Commenter also misunderstands the relationship between service and feeder as used by this Section: metering requirements are based on the service being provided, but metering is allowed to occur or be installed at the feeder level to facilitate cases, such as separate tenants, where separate meters at each feeder are more appropriate than a single meter at the service.
75428.02	Non-Residential Lighting Power Allowances	Acuity	The lighting power allowances are reduced more drastically for lighting zones 3 and 4, which does not seem to be justified. Based on current technology, we believe that the LPA values in Table 140.7-A and the LPA values for building entrances and exits in Table 140.7-B for lighting zones 3 and 4 would be difficult to meet for certain applications. We recommend that the CEC reevaluate the LPA requirements in Table 140.7-A and the building entrance and exit LPA in Table 140.7-B for lighting zones 3 and 4 based on the performance of current LED technology.	No	The proposed requirements are shown to be currently feasible and cost effective in the documents identified as documents relied upon for the rulemaking. These documents include staff's analysis of the materials in the CASE studies.
75428.021	Non-Residential Lighting Power Allowances	Acuity	We also recommend an exception to Tables 140.7-A and 140.7-B for applications using concrete surfaces to allow a multiplier of 2.0 to the LPA values in those tables to support the illuminance recommendations in IES RP-20-14.	Yes	A footnote has been added to Table 140.7-A that captures this change to RP-20 and provides an allowance that aligns with its specifications for concrete surfaces.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75552.011	Non-Residential Lighting Power Allowances	Engineering Enterprise	Table 140.-7A. The general hardscape allowance has been reduced more than 50%. This seems unreasonable.	No	Staff find that the proposed general hardscape lighting power allowance is both feasible and cost effective based on the identified Documents Relied Upon for the rulemaking. Staff notes that the prior standards were establised based on consideration of HID lighting, and the proposed standards include consideration of LED lighting, which is capable of using significantly less power.
75929.001	Non-Residential Lighting Power Allowances	Eaton Cooper Lighting	We support the proposed LPA changes, however, we have concern about the projected 2017 efficiency levels of LED technology. We would like to evaluate the models before making further comments.	No	Staff appreciates the comment of support; staff has responded to additional received comments as noted in this document.
75947.001	Non-Residential Lighting, Indoor	RNM Engineering	Commenter suggests to capitalize the words "actual indoor" throughout Section 140.6.	No	"Actual indoor" is not used as a proper noun, nor is it a phrase that is later abbreviated; staff find that it would not be appropriate to make the suggested capitalization.
75947.003	Non-Residential Lighting, Indoor	RNM Engineering	Use consistent notation: "no greater than 85 percent".	No	Staff find that the current language is appropriate: the lighting must be limited to some value that is either 85 percent or less of the maximum output or power draw, which could be some specific value that is lower than 85 percent. The plans must only indicate in a nonspecific manner which fixtures have a maximum power draw that is not greater than 85 percent of their full light output.
75947.004	Non-Residential Lighting, Indoor	RNM Engineering	Add "excluding spaces with LPD of 0.5 W/SF or less" to Section 140.6(a)2J.	No	Staff finds that making the recommended change to this Section to align with Section 130.1(e) creates a substantive effect of potentially allowing more lighting wattage to be installed, as buildings above 10,000 square feet that would not have been able to use this PAF would be allowed to do so if they had sufficient spaces with power density below 0.5 watts per square foot. Staff does not find, and the commenter does not provide, quantification of the potential effect of this change, and thus staff is unable to consider making the suggested change.
75947.005	Non-Residential Lighting, Indoor	RNM Engineering	Seems like this (Section 130.0(b) as mentioned in Section 140.6(a)3M) should be 150.0(k), Residential Lighting.	No	Section 130.0(b) provides additional specifications relating to high-rise residential buildings not found in Section 150.0(k). For this reason, staff finds that retaining reference to Section 130.0(b) is appropriate.
75947.006	Non-Residential Lighting, Indoor	RNM Engineering	Could not find applicable (lighting) reference in Section 150.0(k) (about residential parking garage provision).	No	The residential parking garage provision referred to by this Section is found in Sections 150.0(k)2J and 150.0(k)5.
75947.007	Non-Residential Lighting, Indoor	RNM Engineering	Add "allotment" to the phrase "total allowed lighting power" in Section 140.6(c)2F.	No	The word "allowed" already indicates it is allowed lighting power; adding "allotment" to the phrase is not necessary and creates dissimilar yet redundant terms. Staff finds that this would create ambiguity and reduce clarity, and therefore would not be appropriate.
75947.008	Non-Residential Lighting, Indoor	RNM Engineering	Commenter recommends relocating and making several editorial changes to Section 140.6(d).	No	Staff finds that though "luminaires" is referred to in the plural, "general lighting" is referred to in the singular and thus that the singular conjugation of the sentence relative to that term is appropriate. Staff finds that removing the phrase "submitted to the enforcing agency" would be a substantive change and thus not appropriate as an editorial change. Staff finds that Section 130.1 contains mandatory provisions while Section 140.6 contains prescriptive compliance options; staff finds that the suggestions to move and expand the language would create additional mandatory requirements under the Standards, and thus would not be appropriate to do as an editorial or organizational change.
75947.011	Non-Residential Lighting, Indoor	RNM Engineering	Clarify whether the PAF for daylight dimming plus OFF controls applies to parking garages.	No	The PAF for daylight dimming plus OFF controls does apply for parking garages if the parking garage contains luminaires in primary sidelit daylit zone.
75947.012	Non-Residential Lighting, Indoor	RNM Engineering	Table 140.6-B could fit here (on the same page as Table 140.6-A).	N/A	The final layout of the unmarked regulations will be corrected as it is published.
75947.013	Non-Residential Lighting, Indoor	RNM Engineering	Add "arena" to Table 140.6-C.	No	Arena is not a functional area but a building occupancy type. It is not appropriate to add a building occupancy to Table 140.6-C.
75947.014	Non-Residential Lighting, Indoor	RNM Engineering	To be consistent with Sec. 130.1(a)2 Exception 1, add "stairwell" to Table 140.6-C.	No	Staff disagrees. "Stair" is already included in Table 140.6-C and stairwell is considered the same as stair. Since the term already exists in the Table, it is redundant to have another similar term in the Table.
75947.015	Non-Residential Lighting, Indoor	RNM Engineering	Insert page break before Table 140.6-C. Use consistent format and delete lines in Table 140.6-C.	No	The final layout of the unmarked regulations will be corrected as it is published.
75947.016	Non-Residential Lighting, Indoor	RNM Engineering	Change the word "smallest" to "smaller".	No	Staff finds that "smallest" is the correct word as more than two of the listed items in the Table may be applicable to a given lighting installation.

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75947.017	Non-Residential Lighting, Indoor	RNM Engineering	Add unleased tenant area of 0.6 W/sf to Table 140.6-C.	No	"All other areas" included unleased tenant area. It is not necessary to add a new primary function area when existing primary function areas listed in Table 140.6-C can accommodate the need.
75947.018	Non-Residential Lighting, Indoor	RNM Engineering	Change the word "listed" to "calculated" in Section 140.6(c)2Giv and Table 140.6-C.	No	"Listed" refers to the lighting systems listed in the Table 140.6-C; the usage of the word "listed" is correct.
75947.019	Non-Residential Lighting, Indoor	RNM Engineering	If necessary, the page break could go here (in Table 140.6-C).	N/A	The final layout of the unmarked regulations will be corrected as it is published.
75946.001	Non-Residential Lighting, Outdoor	RNM Engineering	Caps (Capitalize the words) "actual outdoor lighting", "allowed outdoor lighting power" to Section 140.7(a). Also add the word "power" to the phrase "allowed outdoor lighting".	No	These words are not proper nouns and thus do not need to be capitalized. The "allowed outdoor lighting" refers to the outdoor lighting and it is correct without the word "power".
75946.002	Non-Residential Lighting, Outdoor	RNM Engineering	Remove the blank space between the Section # and the text for Section 140.7(a)10 thru 12.	Partially	Staff have made this correction.
75946.003	Non-Residential Lighting, Outdoor	RNM Engineering	Add "Allowed" to the title "Outdoor Lighting Power Trade-offs" in Section 140.7(b). Add "Outdoor" to the phrase "Allowed lighting power" in Section 140.7(b)1 and 2 and cap (capitalize) the phrase.	No	The title "Outdoor Lighting Power Trade-offs" describes the content of the section is about power trade-offs for outdoor lighting. The subsections further specify what is allowed for outdoor lighting power. Staff finds that this phrasing of the Section and its title provides clarity and consistency, and does not find that adding the word "Allowed" to the title would be appropriate.
75946.004	Non-Residential Lighting, Outdoor	RNM Engineering	Add "Outdoor" to the title "Calculation of Actual Lighting Power" of Section 140.7(c).	No	Section 140.7 is titled "Requirements for Outdoor Lighting"; staff finds that adding the word "outdoor" to this subsection is unnecessary and redundant.
75946.005	Non-Residential Lighting, Outdoor	RNM Engineering	Explain [in Section 140.7(c)] the calculation procedure, similar to Section 140.6(a).	No	The calculation procedures referenced by this Section are in Section 130.0(c); this Section is two pages in length and includes subsections addressing ten distinct scenarios. Staff finds that duplicating the requirements of Section 130.0(c) in Section 140.7(c) would create unnecessary redundancy and reduce clarity, and for this reason would not be appropriate.
75946.006	Non-Residential Lighting, Outdoor	RNM Engineering	Add "Outdoor" to the title "Calculation of Allowed Lighting Power" of Section 140.7(d).	No	Section 140.7 is titled "Requirements for Outdoor Lighting"; staff finds that adding the word "outdoor" to this subsection is unnecessary and redundant.
75946.007	Non-Residential Lighting, Outdoor	RNM Engineering	Add "total" and "outdoor" to the sentence of Section 140.7(d). Delete "the combined total of" and "the sum of" from the sentence of Section 140.7(d).	No	The phrasing of this Section is clear, and staff does not find that the commenter's editorial suggestions improve its clarity or consistency. The allowed lighting power is "the combined total of" two separate sums mentioned later in the sentence. The phrasing suggested by the commenter treats these sums as single values; staff finds that they are more appropriately described as sums given that there may be multiple hardscape areas and multiple additional allowances for multiple specific applications. Given this, these two sums are expected to be added into a combined total, which is the allowed lighting power for outdoor lighting for the project. Staff therefore find that making the changes suggested by the commenter would not be appropriate.
75946.008	Non-Residential Lighting, Outdoor	RNM Engineering	Delete "less than or equal to" and add "or less" after "10 feet in Section 140.7(d)1A.	No	Staff finds that the current phrasing is more consistent with the rest of the Final Express Terms, and therefore that making this change would not be appropriate.
75946.009	Non-Residential Lighting, Outdoor	RNM Engineering	Delete "minimum of" and add "or greater" after "10 feet" in Section 140.7(d)1B.	No	Staff finds that the current phrasing is more consistent with the rest of the Final Express Terms, and therefore that making this change would not be appropriate.
75946.01	Non-Residential Lighting, Outdoor	RNM Engineering	Watch where the page break occurs (to Table 140.7-A).	No	The final layout of the unmarked regulations will be corrected as it is published.
75433.006	Non-Residential Power Distribution System	Lighting Quotient	This requirement [Section 130.5(d)8] along with Exception 1 to it, fails to acknowledge receptacle circuit control technologies available with the modular wiring systems supplied with open office workstation furniture. Furniture circuit control devices may be integrated into the furniture system modular power feed cable or maybe hardwired in-line between the furniture system and the building wiring.	Yes	Staff determined that the control indicating on Figure 5 thru Figure 9 would meet the requirements for circuit level controls for receptacles. Accordingly, staff has added a note to the standards to clarify that hard-wired power strips with controls may be used to comply with the Standards, and that plug-in power strips cannot be used.
75433.007	Non-Residential Power Distribution System	Lighting Quotient	Exception 1 to Section 130.5(d) is ambiguous, and we suggest that this exception be revised and repositioned as an exception to Section 130.5(d)8 only, or omitted entirely.	Yes	Staff revised the language in Section 130.5(d) to no longer require Exception 1.

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75557.001	Non-Residential Power Distribution System	NRDC	Data Center and Server Room Submetering – NRDC recommends submetering requirements for data centers and server rooms.	No	This proposed new measure would require a new study to justify the technical feasibility and cost effectiveness of the measure. The commenter has not provided such a study to substantiate the feasibilty and cost effectiveness of the measure. This may be considered during the 2019 development, and staff encourages the commenter to submit a complete proposal.
75948.001	Non-Residential Power Distribution System	RNM Engineering	Commenter suggests to Insert the work "or Feeder" before "Electrical Metering".	No	Section 130.5(a) requirement applies to Service metering. Metering installed at feeders is permitted to be used for meeting the requirement of Section 130.5(a), however "electrical metering" and "feeder" are not interchangeable terms. Staff does not find that this edit would be appropriate.
75948.002	Non-Residential Power Distribution System	RNM Engineering	Commenter suggest to insert the word "feeder" after "Service" in Table 130.5-A and 130.5-B.	No	Staff finds that the specifications in these tables still relate to provision of electric service, even though metering is allowed to occur at the feeder level if or when needed (for example for separate tenants in the same building). For this reason, staff finds that inserting the word "feeder" would not be appropriate.
75948.003	Non-Residential Power Distribution System	RNM Engineering	Commenter suggests that "In all buildings" is no consistent with opening sentences.	No	The phrase "In all buildings" refers to the requirement being applicable to all building types, and is appropriate where it occurs.
75948.004	Non-Residential Power Distribution System	RNM Engineering	Commenter suggests that there are inconsistent syntax in Table 130.5-B.	Partially	Staff finds that the phrasing in the first column is due to their being both a "less than 25 kVA" entry and a "25kVA or greater" entry, necessitating that phrasing in the first column.
75948.005	Non-Residential Power Distribution System	RNM Engineering	Commenter suggests using "disaggregated" instead of "separated" and suggests inserting periods in two phrases in Table 130.5-B.	No	Staff finds that "disaggregated" is less clear of a term than "separated", and that table entries consistently do not use ending periods within the Final Express Terms. For this reason, staff does not find that these changes would be appropriate.
75487.008	Non-Residential Power Distribution System CLCATT	RNM Engineering, Inc.	The scope of Acceptance Testing should include the testing of controlled receptacles.	No	The commenter does not provide any suggestion of what an appropriate acceptance test for controlled receptacles would include, and staff did not find within this rulemaking evidence that acceptance testing for controlled receptacles was necessary to prevent a risk of lost energy savings such that the benefit of such testing would outweigh its cost. If the commenter has such information, staff encourages the submittal of a proposal for the 2019 code cycle.
75424.009	Non-Residential Power Distribution System General	Lutron	The Standard should focus more on energy monitoring over disaggregation of circuits. Disaggregation of circuits does not save energy. If projects use a utility meter to comply, the data should be made easily accessible to the owner.	Partially	Staff edited this Section to more clearly state its requirements: Section 130.5(b) requires that the electrical distribution system be designed such that loads are separated and therefore capable of being independently measured, and allows but does not require the installation of any particular metering equipment. Staff notes that the changes to this Section are primarily to clarify and streamline requirements present in the 2013 Standards.
75437.001	Non-Residential Power Distribution System Metering	Schneider Electric	Exception to Section 130.5(a) does not state when the rate payer / building owner will receive the data. The proposed revision would make it clear that the data is readily accessible so that corrective actions may be promptly taken to resolve energy efficiency issues rather than waiting until after receiving an energy bill.	No	Staff finds that it would not be appropriate for the Energy Commission to prescribe in regulation how utility companies provide data to their customers.
75437.001	Non-Residential Power Distribution System Metering	Schneider Electric	Rearrange order of options of Section 130.5(b) to make electrical energy monitoring more prominent as monitoring of the loads can lead to actions to reduce energy use.	Partially	Staff revised the section title to connect the concepts of separation of electrical loads and electrical energy monitoring. Staff finds connecting the concepts to be preferable to ordering them, given that they are interrelated.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75395.001	Non-Residential Power Distribution System Receptacle Controls	TruTechEnergy	The requirement for plug load controllers in the 2013 Title 24 Section 6 130.5 is a cause of considerable damage to the construction industry, the lighting industry, and California's ability to reach its 2030 goals of Net Zero Energy. Please eliminate the requirement for plug load controllers completely from the code requirements as the plug load controllers increase the cost of a Retrofit or New Construction by ~$4/sqft, and do not significantly reduce energy use, have a non existent payback period, and require an incredibly invasive process to comply with. Please also consider eliminating the requirements of Demand Response as it creates a drastic increase in cost, with a minimal benefit to Californians compared to larger scale measures like battery banks to deal with demand events.	No	Staff notes that the controlled receptacle requirements in Section 130.5(d) and the Demand Response requirements of Section 130.5(e) are existing requirements from the 2013 Standards. While the Final Express Terms contain code cleanup changes to clarify and streamline these requirements, they do not revisit the requirement to install controlled receptacles or for the basic performance of demand responsive controls and equipment. Staff find that the requirements are feasible and cost effective, based on the Documents Relied Upon identified for the rulemaking that originally established controlled receptacle requirements, and therefore find that retaining these requirements is appropriate. Staff also notes that the Final Express Terms does not require controlled receptacles in alterations unless the power distribution system is entirely new or completely replaced.
75433.001	Non-Residential Power Distribution System Receptacle Controls	Lighting Quotient	Has the Commission determined that imposing a receptacle control requirement to computer classroom presents an unnecessary or unjustified hardship?	No	Staff did not find during the rulemaking proceeding that imposing a controlled receptacle requirement on computer classrooms creates a hardship.
75433.002	Non-Residential Power Distribution System Receptacle Controls	Lighting Quotient	This section is ultimately intended to implement receptacle control as opposed to circuit control. We proposed that the work "circuit" be deleted from the first paragraph of Section 130.5(d).	Partially	Staff added the phrase "and controlled receptacles" to this Section to clarify that the requirement of Section 130.5(d) can be accomplished by using either circuit-level controls or controlled receptacles.
75433.003	Non-Residential Power Distribution System Receptacle Controls	Lighting Quotient	This section is ultimately intended to implement receptacle control as opposed to circuit control. We proposed to revise the first paragraph of Section 130.5(d)1.	Yes	Staff revised the language of this Section, and included in this revision specifying that the control could be "either at the receptacle or circuit level", consistent with the commenter's request.
75433.004	Non-Residential Power Distribution System Receptacle Controls	Lighting Quotient	For workstations, the Commission may consider adding one of the following provisions: “Where receptacles are installed at workstations in open office areas, at least one controlled receptacle shall be installed at each workstation.” or, “Where receptacles are installed at workstations in open office areas, at least one controlled and one uncontrolled receptacle shall be installed at each workstation.”	Yes	Staff added the following language to Section 130.5(d)2: "Where receptacles are installed in modular furniture in open office areas, at least one controlled receptacle shall be installed at each workstation."
75433.005	Non-Residential Power Distribution System Receptacle Controls	Lighting Quotient	Does the Commission intend that each furniture system manufacturer shall offer marked and unmarked versions of every receptacle variant they offer? In consideration of the above, and in the interest of establishing an environment of ongoing compliance, we respectfully recommend that the Commission consider deleting the word “permanent” from SECTION 130.5(d)3.	No	All controlled receptacles must be marked to distinguish them from uncontrolled receptacles, and there is no marking requirement for uncontrolled receptacles. Use of permanent marking is appropriate to ensure the identificaton is long lasting and does not become unidentifiable after installation.
75552.009	Non-Residential Power Distribution System Receptacle Controls	Engineering Enterprise	I have seen many consultants provide a double duplex. This doubles the power to serve the space.	Partially	Staff have edited the language to be more generic in how these requirements can be met, including removing the word "duplex". Staff finds that the revised language allows several cost-effective paths for meeting the controlled receptacle requirement.
75539.001	Nonresidential Process Loads	Taylor Engineering	Section 110.2(a) sets mandatory minimum equipment efficiency requirements. The newly added exception provides an exemption for equipment that serves process loads, whether exempt or covered. Exempt process are already exempt and do not need another exemption here. Covered processes typically have higher loads than non-processes and do not deserve an exemption. Also, there is no equivalent exemption in ASHRAE Std. 90.1.	Yes	Staff ammended the exception to be specific for commercial refrigeration and refrigerated warehouses.

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75557.002	Nonresidential TDV	NRDC	Commenter asserts that TDV fails to account for societal value in greenhouse gas reduction, and proposes addressing this issue by using the same fuel type in the reference and proposed design, making the standards fuel neutral.	No	This comment relates to the compliance software published by the Energy Commission and its associated Reference Manual; it is not a comment on the documents or proposed amendments included in this Rulemaking. Having said this, staff notes that the Energy Commission is currently restricted to using Time Dependent Valuation (TDV) for its Life Cycle Cost and energy analyses, per the Integrated Energy Policy Report (IEPR).
75560.001	Residential (General)	Jody London	In the Joint Appendix JA7.4.7, while no changes are proposed, the LGSEC suggests the document should acknowledge that the enforcement verification for compliance documents provide sufficient latitude for permitting jurisdictions to perform their duties as they find best appropriate.	N/A	The comment neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language; it is unclear how the requested acknowledgement would relate to the regulatory requirements specified in JA 7.
75560.001	Residential (General)	Jody London	When the CASE reports determine cost effectiveness at the measure level, the baseline is taken from the current code requirements. This is a generalized baseline assumption for typical conditions based on a number of factors including Lifecycle Costing Methodology ("LCC") and Time Dependent Valuation ("TDV"). However, cost effectiveness for a building owner in the real world may be radically different from the CASE baseline, rendering code compliance not cost effective when using the same calculation method used for code development. There is a need for a separate, cost-effective solution for existing building alterations, and compliance pathways that mitigate building alterations that are non-permitted or below code.	No	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. Staff encourages the commenter to submit a fully developed proposal for the 2019 rulemaking.
75615.047	Residential (General)	Gary Kline	I don't understand how you get LEER from IEER, integrated energy efficiency ratio? Is that just a typo or is that something that's missing?	N/A	This comment relates to a typographical error in a presentation slide shown at the hearing. Staff provided the following answer at the hearing: *MR. SHIRAKH: So, IEER, I should say, not LEER. Yeah, sorry, it's a typo.*
75615.049	Residential (General)	Nehemiah Stone	It is really laudable to provide greater flexibility to the builders. At the same time, it raises the need for making compliance simpler for the building departments. Because of this, we need to pay even greater attention to making sure that we have the compliance paths clear and easy for building departments to deal with. In moving forward we should think a whole lot more about how compliance hits the road when it comes down to it. I want to make one thing clear, I am not arguing for making things simpler in a way that we back way off on the Standards. What I'm arguing for is that we spend a whole lot more of our intellectual capital thinking about how this is actually going to get verified in the field.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. Having said this, staff is committed to working withbuilding departments on compliance and enforcement topics, and does seek greater engagement with building officials both during and following our code update rulemaking proceedings.
75615.051	Residential (General)	George Nesbitt	For Section 150.1, it's good to see that the name of the chapter has changed and you removed "new construction". Because, obviously, it's not just about new construction. Because additions and alterations mostly refer back to it with some exceptions.	N/A	Staff appreciates the commenter's expression of support for the proposed changes to the Standards.
75615.053	Residential (General)	George Nesbitt	If you go read Chapter 9, 150.2, it references every section of Chapter 7, 150.0, the Low Rise Mandatory Standards, with the exception of the Solar Ready, as well as typically it references the Chapter 150.1, which is Chapter 8, what we refer to often as New Construction, the Prescriptive and Performance Path. I think it's probably too late for this cycle, but I think come next cycle we need to look at lot harder at the existing in the Codes and how we're doing things. Things are getting a little complicated and I think we're going to end up with more exceptions, so we tried to simplify in 2013, and things have gotten pretty complicated.	N/A	The comment neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language. Nevertheless, staff is committed to iterative improvement of code language, which is the reason for including "code cleanup" as an explicit component of this rulemaking; staff plan to continue this approach in future code cycles.

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76095.073	Residential (General)	Bob Raymer	CBIA supports the adoption of the proposed changes to Part 1 and Part 6 today. I've also been asked by the California Business Properties Association to indicate their support on the Nonresidential provisions, which I'll do later on today. It is largely due to their [staff's] efforts that this package includes a historically large increase in energy savings while also providing an impressive level in design flexibility, and still maintaining a sensitivity to increased cost, that's kind of a hard nut to crack, but we spend a lot of work on that.	N/A	Staff appreciates the commenter's expression of support for the proposed changes to the Standards.
76095.074	Residential (General)	Bob Raymer	Of particular note were the two full day forums that CBIA hosted with the CEC out at SMUD Headquarters, these were standing room only, well over 100 participants in each one of them, effectively representing industry, building officials, CEC staff, government, local government, and manufacturers from all over the country. These provided a very productive setting where the stakeholders were able to think out loud, basically the CEC staff provided their goals and there was a lot of feedback on every one of them on problems we could run into, potential solutions to those problems. CBIA and our consultants also worked extensively with CEC staff as we always did on developing cost of compliance data with each of the four main proposals here. We completed this cooperative effort in late January with the CEC estimating a total cost of around $2,600 to $2,700 which is right where we're at with about $2,700. And given where we were back in the '80s and '90s, to be that close is remarkable. So while this is a significant amount, there's no question that the CEC staff made every effort to keep the overall cost in mind by still working hard to meet Zero Energy goals.	N/A	Staff appreciates the commenter's expression of support for the process of developing the Standards.
76095.077	Residential (General)	Bob Raymer	CBIA is looking forward to working with CEC staff and the California Building Officials in efforts to simplify compliance documentation and inspection.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language: commenter is referring to work to update compliance documents that occurs after changes to the Standards.
76095.078	Residential (General)	Meg Waltner	I'm here today to voice NRDC's support for the Standards and the 15-day language and respectfully ask the Commission to adopt them today. Today's Standards will add to the long history of energy savings from Title 24, which has saved Californians over $30 billion since the '70s. The Proposed Standards will reduce regulated energy use in homes by almost 30 percent, which is an important step towards the 2020 ZNE Goal, create large electricity and therm savings, and reducing the pollution associated with power generation.	N/A	Staff appreciates the commenter's expression of support for the proposed changes to the Standards.
76095.080	Residential (General)	Meg Waltner	While today's standards make a big step forward, there's still a long way to go for 2020 and we encourage the CEC to start thinking about the 2019 Code soon. There are issues that NRDC commented on previously in this rulemaking that I'm not going to outline here, that haven't been addressed today and we're looking forward to continuing to work with you on those going into 2019.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language.
76095.081	Residential (General)	Manuel Alvarez	I'm actually here to support the Standards and ask for your positive vote. I think Mazi this morning talked about his discussion as collaborative, and I think he underestimated the amount of work that it took place to get where we are today, so I think you need to recognize that effort, it was a yeoman's job to get there. As we take this first step on the 2016 Standards and move to 2019, and ultimately to the Net Zero Energy Homes, I think we still have got some heavy lifting to do, and we look forward to working continuously in the collaborative process with everybody here at the Commission, and I think you should be proud of these efforts and the work that you've undertaken.	N/A	Staff appreciates the commenter's expression of support for the proposed changes to the Standards and the process for developing the Standards.

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76095.083	Residential (General)	Lindsey Stovall	We applaud the Commission for its leadership role in promoting building energy efficiency and these new Standards. Title 24 Energy Efficiency Standards have set a high water mark for building energy efficiency in California and have been used as guideposts for energy efficiency requirements in other jurisdictions. ACC has been involved in the development process for the 2016 Title 24 Energy Efficiency Standards and is generally supportive of the 15-day language for the Standards.	N/A	Staff appreciates the commenter's expression of support for the proposed changes to the Standards.
76095.084	Residential (General)	Curt Rich	I want to thank the Commission and Commission staff for their work on update of Title 24 as expressed in both the 45-day language and the 15-day language here, it's a great step forward.	N/A	Staff appreciates the commenter's expression of support for the proposed changes to the Standards.
75554.001	Residential ACM	Goodman	Concern with ACM Reference Manual language about ductless heat pump(mini-split and multi-split VRF) being simulated as split system equivalent to the standard deisng with default duct conditions. These systems have much higher efficiency	No	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking.
75615.002	Residential ACM	George Nesbitt	The only real question at the moment goes back to the issue of bugs versus minor changes versus major. If I'm using CBECC and I've been using the December version and there's bugs, how would I know until the next full release, how would I get it? If I'm using Energy Pro and Energy Pro issues updates with some frequency, does that mean that that might include bug fixes since the past release that I might not get if I'm using CBECC directly?	N/A	Staff answered Mr. Nesbitt's question at the hearing it was asked as follows: *MS. ROSS: Well, as you know, bugs are unexpected, so we did have a bug fix that was 3B1 and it was strictly a bug fix. If we can, we try to combine bug fixes and minor updates, especially given this first CBECC is new to the industry right now so we try to combine them, but if there is truly a bug, that will be released on its own.* *MS. ROSS: Well, I happen to know -- that was a little hard to follow, but I happen to know that we kind of delayed the approval of Energy Pro because we did find that bug. When we released CBECC 3B there was a bug and we managed to get it so that Energy Pro didn't have to issue a bug fix, because their approval when they incorporated the compliance manager of 3B, it was 3B1 so it included the bug fix. And in general, there are several versions that are out there that are approved right now because a lot of the changes we've made have just added functionality changes like the ability to model mass walls, so that doesn't necessarily mean that a previous version expires.* *I mean, you should be notified. As long as you're on a email contact list from the software vendor, you'll be notified if there's a bug fix.* *MS. ROSS: Right, it would be a minor change, if anything was changing in addition to a bug.* *MR. STRAIT: The main thing that this is doing is giving us some additional flexibility to say that there are types of changes to fix bugs that don't need the same approval process as a minor change, but we do try to package those things together and be more efficient about doing so. It's just the rephrasing that we have in the language gives us a little additional flexibility in the case that we do need to address a bug. (P186-188)*
75615.003	Residential ACM	George Nesbitt	When is CBECC going to do a HERS score?	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75615.004	Residential ACM	Nehemiah Stone	If a solar credit is going to be included in the next version of CBECC, I'm curious how the three story less than 2000 square foot exemption would be incorporated. If I understood the exception correctly, you can get solar credit and not have to have the same size of a system. Is that correct?	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking. Nevertheless, staff answered Mr. Stone's question at the hearing it was asked as follows: *MR. SHIRAKH: This exception you're talking about?* *MR. STONE: Yes. So what exactly does that exception mean, then?* *MR. SHIRAKH: This exception is the area for the solar ready zone.* *MR. STONE: So it's not an exception to what's written above it, it's an exception to the solar, okay.* *MR. SHIRAKH: No, no. Just basically we found a natural break within the requirement for solar ready zone where 2000 square foot was the threshold.* *MR. STONE: Okay. If it's for solar ready, that's fine. I thought -- coming where it is, I thought it was an exception to the requirement for the size of the system.* *MR. SHIRAKH: No, no, no. (P195-196)*
75615.005	Residential ACM	Charles Cottrell	Also, you mentioned the PV details, the methodology and that information would be in the ACM Manual?	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking. Nevertheless, staff answered Mr. Cottrell's question at the hearing it was asked as follows: *MR. SHIRAKH: It's an ACM Reference Manual.* *MR. SHIRAKH: And on the PV credit, again, Bill, did you want to make a comment on that? So that's going to be part of what we call the ACM Reference Manual and so it will not be adopted in May with the rest of the Code, it's something we're going to be working on it through the rest of the spring and summer, and it will be approved by the Commission hopefully in December. (P239)*
75826.001	Residential ACM	Greg Davis	Ran into another issue this weekend using CBECC - It has to do with the portion of unmet heating and cooling load hours and low air flow	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking.
76095.058	Residential ACM	Aniruddh Roy	The last comment I have is regarding the ACM Reference Manual since it was mentioned in the presentation slides. There was a provision that was added in 2014 for mini-splits and it says until there is an approved compliance option for ductless heat pumps, they are assimilated as a split system equivalent to standard design with default duct conditions. I would recommend the CEC to revisit that and reconsider the fact that there is an active project that is being sponsored by PG&E on California Central Valley research homes to look into ductless heat pumps further, and the consultants that developed the study which led to this conclusion in the ACM are essentially working on that PG&E study, as well. And the industry in parallel has also taken some efforts to develop a checklist, a HERS Inspector Checklist for such products and share that with CEC staff. So I would recommend that until those findings are determined, because these products are highly efficient, that this ACM sentence be removed until the findings of that study are determined.		These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking. Nevertheless, staff answered Mr. Roy's question at the hearing it was asked as follows: *MR. PENNINGTON: So I'd just like to comment on the mini-split points that were made. The research that the gentleman was referring to was initiated by the Energy Commission and we have been sponsoring it through the PIER Program first, and it's continuing. PG&E has stepped up to continue it, but the Energy Commission is actively involved in it. There are certainly performance issues and potentially comfort issues with mini-splits and we want to make sure we get it right before we provide a substantial credit for those systems. So we're working very collaboratively with the industry to look into these issues, and that's a very successful activity. We're not there yet. (P84-85)*

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75615.001	Residential ACM Non-rated fenestration	Ken Nittler	Have software enforce 1,000 sq ft limit on nonrated fenestration (ACM change)	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking. Nevertheless, staff answered Mr. Nittler's question at the hearing it was asked as follows: *MR. BOZORGCHAMI: No, but I think at this time we may not be able to remove the 1,000-square-feet limitation. But we could probably add something into the ACM, when we have some time for that. (P48)*
75615.052	Residential Administrative	George Nesbitt	Builders should not be allowed to select which units are tested in a sample group.	No	Builders are only allowed to select sites that are included in a sample group, and are not allowed to select specific units.
76132.001	Residential Administrative	Knauf Insulation	Comments are related to handling of photovoltaics in the CBECC software.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking.
75615.036	Residential Administrative Definitions	Meg Waltner	Recommend using the term plug-in equipment instead of plug load.	No	Staff found that changing the definition of "plug load" to "plug-in equipment" would be contrary to how the term is used within the Standards, and thus would make the Standards less clear and potentially more confusing were it to be changed.
75615.054	Residential Alterations	George Nesbitt	For the performance path under alterations it says you have to alter at least two components, and I think in your clarification you did say that two windows would be two components, although two of the same thing is not the same as doing windows and insulation; honestly, it should really be one component. I don't think there should be a restriction to two.	No	The purpose of the performance approach is to allow tradeoffs in efficiency between building components provided that the overall efficiency of the building is at least equal to that of a building implementing the prescriptive options in the Standards. If you have one component and it's better than the prescriptive requirement, and you're not trading the improvement off against another change in the building, then there's no reason to model the building for complying via the performance approach as the change already complies with the prescriptive requirements. If you're installing something worse than what's required prescriptively, and you're not making up the difference via other improvements to the building, then the building will not pass either the prescriptive or, hypothetically, the performance path. Given this, staff finds that the performance compliance approach cannot logically be applied to a change of only a single building component, and therefore finds that the specification of at least two components is appropriate to prevent unnecessary costs from arising from performing unneeded building modeling.
75615.055	Residential Alterations	George Nesbitt	The language does specifically say only the components that are being altered should be verified; I think the reality is all the existing components need to be verified because it has to do with setting your budget, so it used to be you could take vintage defaults.	No	Staff finds that Table 141.0-D states that verification only affects compliance as it relates to fenestration and windows; the Standard Design to which the proposed building is compared is "fixed" for all other aspects, and is not contingent upon the condition of the existing building.For this reason, additional verification would not affect compliance and thus not provide any benefit to offset its cost.
75615.076	Residential Demand Response OCST	Honeywell	Will recertification of existing OCST products be required in 2016?	No	The comment neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language. Nonetheless, staff find that the changes in this Section would not cause products compliant with the 2013 Standards to be noncompliant under the 2016 Standards, and thus that recertification of currently compliant models may not be necessary, or may be able to be streamlined if it becomes necessary for procedural reasons.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75615.077	Residential Demand Response OCST	Honeywell	Does footnote 5 in JA5 allow networked thermostats to comply with the requirement (of OCST)?	N/A	The purpose of this footnote is to clarify that the required capabilities are akin to performance standards: the regulations are agnostic regarding how the manufacturer assures that the OCST can communicate using a wireless signal, provided that the capability is there.
75376.001	Residential DHW	A.O. Smith Corporation	Request clarification to recirculation systems requirement to explain that the manual pump can be intergral or external to the water heater	Yes	Manual pumps are able to be either integral or external to the water heater. Language was added in the Reference Appendices RA3.6.7, RA3.6.8 and RA4.4.7 to state this clearly.
75539.001	Residential DHW	Taylor Engineering	Taylor recommends deleting the proposed changes to Section 110.3(c)7 and keeping the original language as is, and states that this is not an energy issue and does not belong in the energy code.	No	Staff determined that regular maintenance is important to maintaining the performance of an instantaneous water heater and prolonging the lifespan of the water heater. Installation of isolation valves facilitates the maintenance and therefore efficiency of the water heater, as regular maintenance prevents build up of scale that would otherwise reduce the efficiency of the water heater over time.
75540.001	Residential DHW	Taylor Engineering	Taylor recommends adopting 90.1 language use for both Section 120.3(a)3 and Table 120.3-A.	Yes	This Section's language has been aligned with the phrasing in ASHRAE 90.1.
75541.001	Residential DHW	Taylor Engineering	Revise the prescriptive water heating requirement for high rise residential and hotel/motel. Divide the current solar fraction requirement by the number floors. Requirement for low rise residential cannot be directly applied to high-rise residential buildings	No	Comment requests a substantive change to the solar water heating requirement for high-rise multi-family in Section 150.1(c)8Ciii. The requested change is outside the scope of the current rulemaking, as specified in the Notice of Proposed Action; commenter is encouraged to submit a proposal for this change to the Energy Commission for inclusion in the 2019 rulemaking. Staff also find that, while high-rise residential buildings greater than four stories in size do face challenges in installing solar water heating, that such buildings are able to demonstrate equivalent overall building performance by using the performance compliance path and implementing other measures: the increase in overall efficiency gained by solar water heating can also be gained through other measures that are cost effective to implement in larger multi-story highrise residential buildings.
75557.003	Residential DHW	NRDC	To address green house gas emission, CEC should use the same water heating fuel source in the standard design as in the proposed design, regardless of gas availability	No	This comment relates to the compliance software published by the Energy Commission and its associated Reference Manual; it is not a comment on the documents or proposed amendments included in this Rulemaking. Having said this, staff notes that the Energy Commission is currently restricted to using Time Dependent Valuation (TDV) for its Life Cycle Cost and energy analyses, per the Integrated Energy Policy Report (IEPR).
75557.004	Residential DHW	NRDC	CEC should allow heat pump water heaters to be installed prescriptively for new construction, additions and alterations.	Partially	A statewide prescriptive compliance option for heat pump water heaters is not appropriate given that the performance of heat pumps varies significantly when installed in different climates. This makes a one-size-fits-all prescriptive option unfeasible. For additions and alterations, the Energy Commission has developed and published an equivalency table for heat pump water heaters that allows their installation under the performance approach without the need for a performance calculation. For new construction, heat pump water heaters are expected to use the performance approach, to ensure an accurate assessment of the performance of the water heater in the climate zone into which it is being installed.
75615.007	Residential DHW	George Nesbitt	The section (c)8A ii, which is the water heating requirements. As I've said previously, I've violated this section in the past and put in commercial water heaters, prescriptively, no questions asked. Yet, the code basically, previously, has only required a water heater rated with an energy factor. And you've added an exception for a commercial water heater.	N/A	It is unclear what request is being made by the commenter. Staff confirms that the prescriptive requirement for newly constructed buildings clearly states residential storage under 105,000 BTU; larger water heaters can be installed using the performance approach. For alterations, the requirement is solely that the water heater meet applicable appliance efficiency requirements as specified in Sections 110.1 and 110.3.
75615.010	Residential DHW	Mark Stimson	Bosch does support the mandatory, as well as prescriptive language in the hot water recommendations for the new standards.	N/A	Staff appreciates the commenter's expression of support for the proposed changes to the Standards.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75615.014	Residential DHW	George Nesbitt	I forget who it was that said that the building departments do a good job enforcing the mandatory and the prescriptive requirements, even if you have a performance document. I'll disagree with that because I have, on a number of occasions, performed work that required HERS verification or would have required a prescriptive installation of a water heater with an energy factor. So, I think when we get to alterations we have long had a problem with compliance on the water heater issue. And that also extends to recirc pumps. Now, you have to have a demand pump, but I'm sure most people will keep putting in what they have been.	N/A	These comments neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language.
75615.015	Residential DHW	George Nesbitt	Point of Use credit should not be made non-HERS	No	Staff finds that this is a sensible area to simplify, given the rarity of Point-of-Use water heating systems and the lack of any complex element to assess that would depend on a trained professional.
75615.016	Residential DHW	George Nesbitt	Should have prescriptive path for commercial water heaters in residential construction	No	Commenter misunderstands the regulations: there is a prescriptive option for residential-use commercial water heaters which descends directly from updated federal law.
75615.017	Residential DHW	George Nesbitt	Do not require QII of piping in alterations. Ensure alterations treated separate, different from newly constructed buildings	No	Staff find that QII of hot water piping insulation is consistent with QII of installed insulation generally, and provides similar benefits.
75615.019	Residential DHW	George Nesbitt	Listings in Appliance database could be improved, filtered for contemporary listings	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language.
75615.020	Residential DHW	Sue Christianson, Southern California Gas	Support for staff work, compromises in regulations. Good process.	N/A	Staff appreciates the commenter's expression of support for the proposed changes to the Standards and the process for developing the Standards.
75615.021	Residential DHW	Mike Hodgson	I think there's a huge opportunity that there could be an incentive there to encourage compact design, and I would just like to say the building industry would be 100 percent behind that.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language.
75907.001	Residential DHW	Sierra Club California	Make compact hot water distribution system and pipe insulation mandatory. It will result in reduced water and energy use .	No	The Commission recognizes in its prescriptive options the benefits of compact distribution and pipe insulation. However, making them mandatory would greatly reduce design flexibility. It is more appropriate for these measures to be prescriptive alternatives than mandatory requirements.
75918.004	Residential DHW	Taylor Engineering	Delete parenthetical language concerning service water heating systems. Language conflicts with 120.3(a)3	No	The parenthetical language lists examples and does not have regulatory effect: while staff finds that the commenter is correct that electrical trace tape is only one kind of external heating, and that external heating is a broad class that is not limited to electrical trace tape, the mention here of electrical trace tape as a common type of external heating is likely to be helpful to the reader. Staff will clarify in the compliance manual that external heating products other than elctrical trace tape are also covered by this Table.
75919.005	Residential DHW	Taylor Engineering	The original language allowed different methods of protecting exposed pipe insulation to account for different types of insulation. The new language only allows covers, which may not be necessary or cost effective for all types of insulation.	No	The proposed language is intentional in using the term "cover" in the broadest possible sense, that is, as anything that covers the pipe or the insulation. This term does not require that the cover be a separate component: if an insulation product is, itself, "a cover suitable for outdoor service", then it would not need any additional or separate product in order to be considered compliant. Staff will provide aditional direction in the compliance manual that the word "cover" is used broadly and does not refer narrowly to a specific class of product.
75919.006	Residential DHW	Taylor Engineering	Restore original language on vapor retarder requirement and not specifically require a Class I or Class II vapor retarder.	No	Section 120.3(b)2 of the 2013 Standards does not specify what amount or effectiveness of vapor retardant would be considered compliant, and what would be unacceptable. Other sections of the regulations, such as 150.0(j), explicitly state that vapor retarders must be either Class I or Class II. This change aligns this Section with other Sections of the regulations and more clearly states what properties a compliant vapor retardant must possess, removing a potential for ambiguity.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75919.007	Residential DHW	Taylor Engineering	The required U-factor for metal framed walls has been reduced to 0.151 in the 15-day language. This corresponds to R-13 cavity insulation with R-2 continuous exterior insulation (according to JA Table 4.3.3). We strongly recommend further reducing the mandatory insulation requirement to a level of 0.178 such that there is at least an option to avoid continuous insulation.	No	Metal is a conductor, and continuous insulation provides a thermal block which prevents the transfer of heat energy through the metal that would otherwise occur. Staff therefore reduced but did not eliminate the continuous insulation requirement: staff raised the u-factor for metal framed buildings from 0.105, which is equivalent to R13 cavity insulation with R5 continuous insulation, to a u-factor of 0.151, which is equivalent to R13 cavity plus R2 continuous insulation (as noted by the commenter). Staff did not find that allowing a complete absence of a thermal break would be appropriate.
75919.008	Residential DHW	Taylor Engineering	Section 130.5 - The sentence should be changed to reference Sections 130.5(a) through 130.5(e) to account for the sections on demand responsive controls and equipment.	Yes	Staff has made this correction.
75919.009	Residential DHW	Taylor Engineering	We strongly recommend revising the solar saving fraction requirement for high-rise residential to 0.20 divided by the number of floors in Climate Zones 1 through 9, and 0.35 divided by the number of floors in Climate Zones 10 through 16 for high-rise buildings	N/A	Staff has not proposed a change to thesolar fraction requirements in either the 45-day or 15-day language. The commenters proposed change is is outside of the scope of the current rulemaking; the commenter is encouraged to submit a fully developed proposal for this change for the 2019 code cycle.
75919.010	Residential DHW	Taylor Engineering	Section 150.0(i) - We recommend deleting the word “unitary”. The original requirement for setback thermostats applied only to heating systems (of any type). The new language only applies to unitary systems, whether heating or cooling, but no longer applies to gas-fired heaters. The word “unitary” must be deleted to ensure that the requirement still applies to all types of heating systems.	No	The word "unitary" is added for consistency with Section 110.2(c), which this Section references. Staff finds that Section 110.2(c) already narrows its application to unitary systems, and thus use of the same term in Section 150.0(i) is appropriate.
75919.011	Residential DHW	Taylor Engineering	We strongly recommend reverting the language in this section to the original language, or to limit the requirement to only where heat gain or heat loss will increase energy use as is done in the CMC. The revised language requires supply and return ducts that are fully within the conditioned space to be insulated to a minimum of R-4.2. This will not save energy. Nominally, this section appears to simply mirror the applicable requirements in Chapter 6 of the California Mechanical Code. However, CMC 604.1 includes an exception for ducts that are located in conditioned spaces where heat gain or heat loss will not increase energy use.	No	Staff finds that ducts passing through conditioned spaces must still deliver conditioned air to their endpoints: systems that lose too much heat or cooling "in transit" through conditioned spaces create issues of temperature gradients and inadequately served areas, leading to increases in energy use to mitigate hot and cold spots and also causing degradation of occupant comfort.
75919.012	Residential DHW	Taylor Engineering	Section 150.0(m)13.A - We recommend restoring the original phrase: “Have a hold for the placement of a static pressure…”	Yes	Staff has made this correction.
75919.013	Residential DHW	Taylor Engineering	We recommend revising the section titles to clearly distinguish whether requirements are mandatory, prescriptive or performance.	No	Staff finds that the Subchapter titles specify whether the contents of the chapter are mandatory, or include prescriptive and performance measures. Accordingly, staff does not find that changing Section titles is necessary.
75984.001	Residential DHW	Rick DeGolia	Make compact hot water distribution system and pipe insulation mandatory. It will result in reduced water and energy use .	No	The Commission recognizes in its prescriptive options the benefits of compact distribution and pipe insulation. However, making them mandatory would greatly reduce design flexibility. It is more appropriate for these measures to be prescriptive alternatives than mandatory requirements.
75984.001	Residential DHW	Rick DeGolia	Include electric or solar powered water heater (unclear from the comment if he meant solar thermal or PV powered electric water heater) as prescriptive options to reduce greenhouse gas emission	No	For this rulemaking CEC was unable to find a viable option for an electric water heater prescriptive requirement that would be equavalent in TDV energy to an instantaneous gas water heater. Electric water heaters, solar thermal systems and compliance credit for PV can be installed using the performance compliance approach.
75615.018	Residential DHW Additions and Alterations	George Nesbitt	Prescriptive approach only allows one water heater, but additions and alterations allow two. Why do we allow one in new construction, but two in an addition?	No	Installation of a second water heater under Section 150.2(a)1D is in the context of additions to an existing building, and is necessary to cover cases where an addition to an existing building adds a dwelling unit. The language applicable to alterations that include water heaters instead specifies "the replacement water heating system", and does not speak to addition of a second system. Staff also notes that the Rules of Construction in Section 100.1(a)1 specifies that "[w]here the context requires, the singular includes the plural and the plural includes the singular." For these reasons, staff does not find that changing the language is necessary or appropriate.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75615.008	Residential DHW Alterations	George Nesbitt	Water heater alterations shouldn't be held to requirements of newly constructed buildings.	Yes	The 2016 Standards include differing requirements for existing and for newly constructed buildings, consistent with the commenter's comment. Commenter is incorrect in describing the effect of changes to the "package" option tables within the Standards: water heaters in newly constructed buildings and as additions to existing buildings continue to be held to the prescriptive requirements applicable to newly constructed buildings or be part of an equivalently efficient building under the performance approach. Only water heaters replacements performed as an alteration are held solely to requirements imposed under appliance regulations, per Section 150.2(b)1Gii.
75615.022	Residential DHW Demand Response	Gary Kline	Should anticipate grid-interactive / DR-supportive water heating. Current practice in Australia.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language.
75907.003	Residential DHW Ducts	Sierra Club California	Include a prescriptive path for electric or solar water heating	No	A statewide prescriptive compliance option for heat pump water heaters is not appropriate given that the performance of heat pumps varies significantly when installed in different climates. This makes a one-size-fits-all prescriptive option unfeasible. For additions and alterations, the Energy Commission has developed and published an equivalency table for heat pump water heaters that allows their installation under the performance approach without the need for a performance calculation. For new construction, heat pump water heaters are expected to use the performance approach, to ensure an accurate assessment of the performance of the water heater in the climate zone into which it is being installed. Similar issues of variability in performance apply to solar thermal water heating systems.
75615.011	Residential DHW Heat Pump	Meg Waltner	We strongly support the update to the baseline in the prescriptive option to tankless water heaters for gas homes.		Staff appreciates the commenter's expression of support for the proposed changes to the Standards.
75615.012	Residential DHW Heat Pump	Meg Waltner	Commenter requests a prescriptive option for heat pump water heaters.	No	A statewide prescriptive compliance option for heat pump water heaters is not appropriate given that the performance of heat pumps varies significantly when installed in different climates. This makes a one-size-fits-all prescriptive option unfeasible. For additions and alterations, the Energy Commission has developed and published an equivalency table for heat pump water heaters that allows their installation under the performance approach without the need for a performance calculation. For new construction, heat pump water heaters are expected to use the performance approach, to ensure an accurate assessment of the performance of the water heater in the climate zone into which it is being installed.
75629.001	Residential DHW Heat Pumps	City of Arcata	Eliminate the current Title 24 Building Code requirement that each individual customer that makes [the] switch [from a gas-fueled water heater to a heat pump water heater] must undertake a modeling effort to prove that the switch from natural gas to electricity "uses no more energy" [than the existing water heater].	No	The Energy Commission has developed and published an equivalency table for heat pump water heaters that allows their installation under the performance approach without the need for performance modeling This provides the requested relief without removing the clause referenced by the commenter; the clause is needed to provide a technology-neutral compliance path based on demonstrating equivalent efficiency.
75629.002	Residential DHW Heat Pumps	City of Arcata	Allow for the installation of heat pump water heaters in new construction without penalty, even when natural gas is available.	Yes	Staff removed the regulatory language related to natural gas availability.
75629.003	Residential DHW Heat Pumps	City of Arcata	Work with manufacturers to develop standards that accurately report the efficiency of heat pump	No	The Energy Commission is restricted by law from establishing efficiency standards for federally regulated appliances, including heat pump water heaters, that are contrary to their federal standards. Having said this the Commission is working to update the ACM Reference Manual to more accurately model the performance of heat pump water heaters in its compliance software, using efficiency values derived from the Federal test procedure.
75510.001	Residential DHW IWH	California Building Industry Association	CBIA supports the CEC proposal for water heating, and stresses the importance of accuracy within the performance software in allowing builders to trade water heating budgets against other measures.	N/A	Staff appreciates CBIA's support of the proposed revisions to the water heater requirements. Behavior of the performance software is outside of the scope of the current rulemaking, and thus staff understand this comment as not requesting any specific change to the proposed amendments to the regulations.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75544.001	Residential DHW IWH	Bradford White Water Heaters	We disagree with the approach and do not believe the solution you are proposing is proper. While builders are essentially incentivized to install a tankless water heater, we do not understand why you need to go so far as to require them. This takes away from any opportunity a water heater manufacturer has to innovate a product that is at least as efficient as a tankless water heater.	No	The proposed regulations for residential water heaters do not require installation of a instantaneous water heater. Prescriptive options are availalble for both instantaneous and storage gas water heaters, and all types of water heaters may be installed by following the performace-based compliance path, which allows for comparisons based on efficiency as requested by the commenter.
75544.001	Residential DHW IWH	Bradford White Water Heaters	Rather than making one prescriptive option more attractive, BWC recommends that the options be technology blind and focus on the rated efficiency of the product.	No	The regulations allow performance-based compliance that is "technology neutral" and based on the estimated performance / rated efficiencies of the installed building components. That is, the existing regulations already provide the compliance path requested by the commenter, and no change to the regulations is needed.
75544.001	Residential DHW IWH	Bradford White Water Heaters	We believe that the amount of water used overall should be factored into the [performance modeling] calculations. In the "Water Heating Design Guide"prepared for the California Energy Commission dated December 2012, there are several references on how more water is used with tankless water heaters.	No	A more recent and comprehensive NREL study of water use by households with instantaneous and storage water heater systems shows that there is no difference in hot water use. This study, titled "Assessing the Energy Savings of Tankless Water Heater Retrofits in Public Housing", is identified as a document relied upon for this rulemaking.
75544.001	Residential DHW IWH	Bradford White Water Heaters	If a tankless water heater is required by the new standards, it would make sense that additional requirements would have to be put in place to reduce the amount of water used to offset the difference that would be seen with this type of water heater versus a tank type water heater.	No	The proposed regulations do not require installation of a instantaneous water heater, and the NREL report shows that instantaneous water heaters do not result in additional water use when installed.
75544.001	Residential DHW IWH	Bradford White Water Heaters	BWC notes that "the estimated useful life of instantaneouswater heaters is commonly stated as 20 years", and comments that "BWC disagrees with this estimated number, and would like to note that some of these sources are largely out of date and/or are based on marketing and advertising claims."	No	BWC does not identify which sources of data are out of date, in what way the estimated 20 year useful life is incorrect, or what a more correct estimate of useful life would be. The comment is too vague for staff to analyze; staff stands by its findings of water heater lifespan based on the identified documents relied upon.
75615.009	Residential DHW Modeling	Gary Kline	Look at hot water as a system: incorporate CUAC model into regs, make use of available research opportunities, provide credit for reduced system water use, add water to TDV.	No	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking.
75431.001	Residential DHW Pipe Insulation	North American Insulation Manufacturers Association	NAIMA supports the requirement of 120.3 of insulating the first 8 feet of nonrecirculating hot water piping and insulation thickness consistent with 90.1	N/A	Staff appreciates NAIMA's support for this requirement.
75615.006	Residential DHW Pipe Insulation	George Nesbitt	Insulate pipes in conditioned spaces.	No	Imposing new insulation requirements potentially imposes new costs, and cannot be done without a cost-benefit analysis showing that the benefits provided by the additional requirement outweigh its costs. Thus, staff do not find that this change can be made solely as a response to this comment, and staff encourages the commenter to submit a complete proposal for this change for 2019.
75878.001	Residential DHW Pipe Insulation	North American Insulation Manufacturers Association	For vapor retarder requirement for chilled water piping and refrigerant suction lines, NAIMA suggested changing the requirement from a Class I or Class II vapor retarder to perm rating of 0.02 or less instead of	No	The suggested change is a substantial increase in stringency compare to the current language. Such an increase requires a cost analysis, and proper vetting through appropriate stakeholders. Although this change is outside of the scope of the current rulemaking, it can be considered as part of the 2019 code update cycle.
75597.001	Residential DHW Pools and Spas	The Association of Pool & Spa Professionals	Update references of APSP-5 Standard to the 2011 edition. Also consider referencing APSP-15 Standard as a subsittute for the residential swimming pool and spa energy efficiency requirement.	No	The APSP-5 Standard is not currently referenced in Title 24, Part 6, and is therefore not part of this rulemaking. Changing the current standard for swimming pool and spa efficiency to this standard is outside of the scope of the current rulemaking; CEC can consider the efficiency requirements in the APSP-15 Standard in the 2019 Standards rulemaking.

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75828.001	Residential DHW Recirculation Loops	Navien	RA4.4.9(d)(2) could be interpreted to require a thermosensor in the attic, which would diminish the functionality of the thermosensor in hot weather. In addition, thermosensors cannot be installed close to the fixture or "under a sink" as recommended as no circulation occurs at fixture branches.	No	The regulations are written broadly, with the intent of acknowledging that plumbing systems can be designed in any number of ways. It is not the intent of the regulations to restrict the design of the plumbing system; this language is part of the performance compliance method, which is both design and technology neutral. Staff determined that the proposed language is appropriate and preferable to a more narrowly written requirement, and will address questions of implementation through its compliance and outreach publications.
75324.001	Residential DHW Solar Hot Water	International Association of Plumbing and Mechanical Officials	IAPMO asserts that the requirement for certification by a single private entity (the Solar Rating and Certification Corporation, or SRCC), is contrary to accepted procedure for establishing lawful and enforceable product certification requirements, and requests revision of any language wherein the state specifically names any one entity or otherwise designates a "sole source," in order to eliminate any potential anti-competitive effects.	No	While SRCC is named within the regulations, the regulations also specify that any listing agency approved by the Executive Director can be used to meet the certification requirement. This section therefore does not designate SRCC as a sole source. IAPMO does not otherwise specify what "accepted procedure" they are referencing regarding product certification; the Standards have contained reference to specific certification bodies for several decades.
75325.001	Residential DHW Solar Hot Water	International Association of Plumbing and Mechanical Officials	IAPMO asserts the designations "OG-100" and "OG-300" are obsolete; the Energy Commission should instead reference "Standard 100" and "Standard 300".	No	OG-100 and OG-300 contain rating methodologies that are not present in Standard 100 and 300, and in addition OG-100 and 300 directly reference and fully incorporate Standard 100 and 300, respectively. The reference to the OG documents, rather than the Standards, is intended.
75474.001	Residential DHW Solar Hot Water	Solar Rating & Certification Corporation	This is a rebuttal to comment number TN75324 from IAPMO. In addition, SRCC requests that the language in RA 4.4.20 remain in its present form.	No	SRCCs general descriptions of their organization and their publications arecorrect. The word "testing" was changed to the word "listing", consistent with the change in Section 150.0(n), but the additional changes requested by IAPMO and rebutted by SRCC were not made.
75615.023	Residential DHW Solar Hot Water	George Nesbitt	A protocol for solar domestic hot water should be created.	No	A protocol is present in existing regulation: Section RA 4.4.21 Solar Hot Water Systems requires CEC approved software to be used.
75615.013	Residential DHW TDV	Meg Waltner	Under the performance path you may install [a heat pump water heater] but there's a TDV penalty that you take from switching from a gas to an electric water heater. We're concerned with this because a conventional gas water heater today actually results in higher carbon emissions than the high-efficiency heat pump water heater. And we're worried that TDV doesn't accurately capture this long-term tradeoff between using gas and electricity.	N/A	This comment relates to the compliance software published by the Energy Commission and its associated Reference Manual; it is not a comment on the documents or proposed amendments included in this Rulemaking. Having said this, staff notes that the Energy Commission is currently restricted to using Time Dependent Valuation (TDV) for its Life Cycle Cost and energy analyses, per the Integrated Energy Policy Report (IEPR).
75233.001	Residential Envelope	American Chemistry Council	Center for the Polyurethane Industry's Spray Foam Coalition (SFC) would like to have a Prescriptive Compliance Path for unvented attics	No	Unvented attics can be modeled using the Performance path and compliance credit can be taken for unvented attics when using CBECC-Res. Depending on geographical location of construction and the type of insulation (air permeable insulation vs., impermeable insulation) used by the contractor, a moisture issue may be caused at the roof deck with an unvented attic. The California Residential Building Code, Section R806.5 does have set requirements for unvented attics which the CEC felt may cause a code compliant controversy among the different parts of the regulations (part 6 vs Part 2.5) if a prescriptive option was defined. For these reasons, staff chose not to set prescriptive criteria for unvented attics.
75431.001	Residential Envelope	North American Insulation Manufacturers Association	supports the added requirement for insulating the first 8 feet of piping for no recirculating hot water piping and maintaining the pipe insulation thickness consistent with the ASHRAE 90.1 STD.	N/A	Staff appreciates this comment of support.
75431.001	Residential Envelope	North American Insulation Manufacturers Association	Commenter requests a rewording of Section120.7(a)3C to make it clear that insulation placed on suspended ceilings with removable ceiling panels are not to be used to meet the thermal requirements of Section 140.3 and 141.0.	No	Staff added language to this effect in Section 120.7(a)3C.
75431.001	Residential Envelope	North American Insulation Manufacturers Association	Commenter raises issues with the wording for maximum water absorption for insulation in Section 120.7(a)3D.	Yes	This language was removed from the proposed Standards; similar requirements were already stated in Section 110.8(g)1B, and staff found that removing the proposed language for Section 120.7(a)3D removed any risk of having confusing or contradictory requirements.

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75431.001	Residential Envelope	North American Insulation Manufacturers Association	Commenter supports the work done in section 140.3, Tables 140.3-B, C and D	N/A	Staff appreciates this comment of support.
75431.001	Residential Envelope	North American Insulation Manufacturers Association	In Section 150.0 the word "buildings" is spelled wrong.	Yes	Staff corrected this misspelling.
75431.001	Residential Envelope	North American Insulation Manufacturers Association	NAIMA is asking to change the language to Section 120.7(a)3C to read, "Insulation palced on top of a suspended ceiling with removable;and"	Yes	The language was changed as suggested by the commenter to improve the clarity of the Section.
75431.001	Residential Envelope	North American Insulation Manufacturers Association	Section 120.7 (a)3D and Section 150.0(a)4 - NAIMA requests the Commission consider a change to clarify that only insulation used to meet the thermal requirements must meet the water absorption requirements. With the increasing practice of green/vegetative roofs, there are designs, which may use board insulation with higher levels of moisture permeability as a part of the roof design.	Yes	This language was removed from the proposed Standards; similar requirements were already stated in Section 110.8(g)1B, and staff found that removing the proposed language for Section 120.7(a)3D and Section 150.0(a)4 removed any risk of having confusing or contradictory requirements.
75431.001	Residential Envelope	North American Insulation Manufacturers Association	Commenter is not in support of raising the U-factor from a 0.031 to 0.043, which is equal to going form R30 to R22.	No	As a part of staff efforts to simplify and streamline the regulations, staff made this change to the Mandatory Minimum R30 requirement to allow a perfomance compliance path for buildings to make use of spray foam insulation. The prescriptive path and the performance compliance threshold for insulation continues to be R-30 (and for certain climate zones R-38), meaning that this change maintains consistency with the prescriptive requirement of the IECC while providing needed flexibility for the use of varying insulation products, and does so without diminishing building performance under the Standards.
75536.001	Residential Envelope HPA	LOW-E Southwest Distribution	Commenter requests changing the proposed R-2 above roof deck to R-1	No	R-2 roof deck insulation was physically studied in 2008 and verified to provide a benefit equivalent to a cool roof in certain climate zones. Staff have not seen or conducted a similar experimental study for R-1 insulation, and therefore have no basis for finding that a lower prescriptive requirement is appropriate. Under Section 10-109, stakeholders may propose or submit studies that demonstrate equivalence for inclusion as a compliance option: the commenter is encouraged to do so.
75615.057	Residential Envelope HPA	Jay Murdoch	I think the architecture that you've laid out here with the prescriptive and performance language, and giving options and tradeoffs really -- and not having being anchored by the performance level that you're trying to hit. So, that's the performance level that you have set and then you've kind of said, okay, get there. How are you going to get there? That's really refreshing because the end result is that you're going to end up with a code, I think, that does not pick winners and losers. So, you're setting the performance specification, you're letting the marketplace figure out how it's going to go.[...] So, that's really what we look to compete in the marketplace and we don't want -- we don't like being constrained by code. So, I wanted to compliment staff and the Commission on the direction it's taking.	N/A	Staff appreciates this comment of support.
75907.002	Residential Envelope HPA	Sierra Club California	The Club strongly supports the requirement that allows for the choice between the higher performance attics, where the attic is insulated much like any other room in the home, and placing ducts in conditioned space, meaning any space in the home that is properly insulated - usually below the attic and above the basement. Providing builders and contractors choice provides flexibility and increases compliance. Greater compliance means greater savings and will bring us one step closer to reaching our zero net energy goals.	N/A	Staff appreciates this comment of support.

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75935.001	Residential Envelope HPA	Absolute Consulting Engineers	Commenter "strongly accept[s] the addition of wording that prohibits adhesives as mechanical bonding for this section of the code. There are many scientific documentation that the adhesives applied in field are subject to degradation and soon will not perform as requested in the beginning."	No	Commenter does not identify any of the documentation referenced, preventing staff from reviewing these studies or including them as documents relied upon. Staff therefore is unable to find that adhesives do not perform adequately when used consistent with appropriate product specifications and directions.
75615.059	Residential Envelope HPA/DCS	Meg Waltner	We do have some concerns with the change to the mandatory ceiling requirements. I understand there's been some modeling done that shows that R-22, at the roof level, can be equivalent to R-30, and that you can't reach R-22 unless you're using a spray foam. Or, you can't reach greater than R-22 with a single spray foam application. We think we should limit that exemption just to that insulation that's installed at the roof level, not across the board.	No	Staff finds that having a uniform R-22 mandatory requirement paired with prescriptive requirements in Section 150.1 is preferable in making the regulations clear and consistent. Staff finds that the approach recommended by the commenter adds complexity and reduces flexibility without providing a clear commensurate benefit, and for this reason does not find that changing the regulations in the manner suggested would be appropriate.
75615.062	Residential Envelope HPA/DCS	Nehemiah Stone	Simplify things for building inspectors; flexible apporaches makes their job tougher.	N/A	The comment neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language. Having said that, staff are attentive to the need to keep regulatory language clear and direct to the greatest extent possible, and in particular to the needs of building officials.
75615.063	Residential Envelope HPA/DCS	George Nesbitt	I do think that reducing the minimum ceiling insulation from R-30 is probably not a good thing.	No	There is a desire to make unvented attics a cost effective alternative to HPAD by production builders, since it is a cost reduced technique for them as they do not have to deal with cost of installing air vents. One major technic in installing a unvented attic is to apply SPF insulation which can safely go to an R-22. The builders still have to meet the prescriptive requirement if not they would use the performance approach.
75615.067	Residential Envelope HPA/DCS	George Nesbitt	Are the insulated header requirements enforced? Stated that Raters are not being properly trained	N/A	The comment and question neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language. Nonetheless, staff provided the following answer at the workshop where the question was asked: *BOZORGCHAMI: You do have to insulate the headers for QII. Actually, there's a fact sheet that went out about a month ago, two weeks ago, that explains that. (P230-231)* A fact sheet has been provided to all trainers and the public addressing these concerns.
75473.001	Residential Envelope HPA/DCS and WHF	Andy Llora	The two measures of High Performance Attics and Whole House Fans conflict in their venting clauses if they both become prescriptive, and the unvented HPA is selected. Please consider adding an exception for 2016 code, when HPA and WHFans will both be prescriptively required at the same time.	No	The prescriptive path specifies a vented attic, not unvented. An unvented attic must be modeled using the performance path. As the situation described by the commenter does not occur, the requested exception is unneeded.
75510.001	Residential Envelope HPA/HPW	California Building Industry Association	Mr. Raymer agrees with our proposal for envelope	N/A	Staff appreciates this comment of support.
75557.007	Residential Envelope HPA/HPW	NRDC	NRDC recommends that the CEC increase the U-factor requirement for wood-frame roofs so that they are equivalent to the ASHRAE Climate Zone 3 levels. Current proposed levels stop short of what is cost-effective.	No	The studies underlying the proposed Standards are based on differing assemblies than those used for ASHRAE in the Climate Zone 3 specifications, and make use of California's designations of 16 climate zones. Using ASHRAE Climate Zone 3 would place all of California into a single climate zone for this requirement, which staff finds to be inappropriate. Doing so would make the standards less consistent, more complex, and would inappropriately ignore the variability of climates within California.
75615.058	Residential Envelope HPA/HPW	Meg Waltner	Commenter supports the direction of the proposed 2016 Standards in allowing for flexibility in achieving high performing attics and walls.	N/A	Staff appreciates this comment of support.

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75535.001	Residential Envelope HPW	LOW-E Southwest Distribution	Commenter proposes that the R-value of continuous insulation for the exterior of buildings be reduced to R-1.	No	Commenter provides no analysis or justification for a reduction in insulation requirements; R-4 is shown to be feasible and cost effective as a minimum insulation level. While the product noted by the commenter may provide an R-4 level of benefit in the noted circumstance, changing the requirement to R-1 would mean that an R-4 performance would not be required at all under any circumstance. The performance compliance approach exists to model the performance of products under differing circumstances, which allows for products achieving R-4 only under specific circumstances to be installed in those circumstances.
75538.001	Residential Envelope HPW	Gabel Associates, LLC	Commenter requests that staff add row to the JA-4 tables for R-1 above roof deck insulation, per attached data	No	As the JA4 table provides minimum prescriptive options, and the minimum prescriptive requirement for roof deck insulation is an R-2, staff did not find that adding an R-1 row would be appropriate.
75615.060	Residential Envelope HPW	Meg Waltner	We're concerned that the levels proposed aren't the levels that were the highest levels that were found to be cost effective in the case analysis. We had argued at the draft standards that the Commission should consider a .044 U factor. The IOUs' analysis proposed a .046. We'd still encourage the Commission to strongly consider those levels, which are the highest levels that were found to be cost effective.	No	Staff finds that the commenter's proposal would overly restrict construction options, and is not cost effective for several climate zones.
75615.061	Residential Envelope HPW	Bob Raymer	We, at CBI, will be supporting one or two of NRDC's other proposals today, [but] we are very resistive of changing the U value for the walls. We've got to be very careful, as we move away from two-by-four to two-by-six, that we don't trigger a series of litigations over water penetration. Like we saw in the late 1990s, there's any number of other issues that come into play here.	N/A	Comment is a response to a comment by another stakeholder; the comment neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language.
75615.064	Residential Envelope HPW	George Nesbitt	In section (c), in the walls, two-by-fours are required to have a minimum of R-13 and two-by-sixes are required to have a minimum R-19. I think we need some language in there that says wall cavities have to be filled if it's an air permeable insulation.	No	Staff finds that the proposed requirement would run counter to establishing performance rather than prescriptive standards, and that QII provides an adequate protection against improper installation of air-permeable insulation that requires a filled wall cavity for its performance. Staff therefore does not find that making the proposed change would be appropriate.
75615.065	Residential Envelope HPW	George Nesbitt	In section 120.7(d), I noticed you fixed the inconsistency of the language in floor insulation and made it the same as wall and ceiling, so thanks for doing that.	N/A	Staff appreciates this comment of support.
75615.066	Residential Envelope Multifamily	George Nesbitt	How do the high performance attic requirements apply to multifamily? Would there be any difference in multi-family in how we're applying this?	N/A	The comment and question neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language. A response to the question was provided at the hearing where it was asked, as follows: *MR. WILCOX: Well, if you were to have ducts in a vented attic, in a multi-family building, then this would apply. But that's not typically what the situation is with multi-family, as I understand it, because of fire codes, et cetera, that ducts are not typically in the attics. So, it has a minimal impact on those buildings, really. (P83)*
75615.068	Residential Envelope Multifamily	George Nesbitt	Building Envelope sealing not allowed for MF. Want a compliance credits for this measure.	No	Staff finds that there is not a test protocol for applying building sealing tests (i.e., blower door tests) to multifamily buildings, which would be needed before a requirement or credit could be applied. The commenter is encouraged to submit a complete proposal specifying a test protocol for 2019.
75615.069	Residential Envelope Multifamily	Nehemiah Stone	Do not require multifamily blower door tests until a recognized test protocol that is developed	N/A	The comment responds to a prior comment by another stakeholder; it neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75615.056	Residential Envelope Non-rated fenestration	Ken Nittler	I have some comments on Section 110.6(a). It's in Sections 2, 3 and 4. There's an exception written into the standard that allows the use of equation defaults in cases where products are unrated. The standards have required NFRC ratings as the primary way to get product performance, both on residential and commercial, dating to the 1990s. I think a majority of the buildings going in out there, especially large buildings with storefronts, and curtain walls, and slope glazings don't have rated product. And if you don't have rated product, you don't really know what's going into it. So, I request that the exception be removed. It was reduced from a 10,000-square-foot exception to a 1,000-square-foot exception, which certainly should help, but I don't think it goes far enough.	No	Staff finds that removing the exception would force small projects into expensive requirements that would be inappropriate and unlikely to be cost effective. For this reason, staff find retaining the exception to be appropriate.
75615.040	Residential HVAC	George Nesbitt	In 2013, allowable duct leakage for tight ducts was changed from 6% to 12%. He doesn't believe this should have been done.	No	Staff has not proposed a change to the multi-family duct leakage target in either the 45-day or 15-day language. The commenters proposed change is outside of the scope of the current rulemaking; the commenter is encouraged to submit a fully developed proposal for this change for the 2019 code cycle.
75615.042	Residential HVAC	George Nesbitt	We exempt packaged air—conditioners from refrigerant charge, yet refrigerant charge is not only a combination of how much refrigerant is in the system, but also air flow, so that package system is probably charged based on 400 cfm per ton because that's what manufacturers want. You throw it into a system with 300 cfm per ton or less and the charge isn't necessarily right. In the section on Altered HVAC, of course, it talks about the package equipment being except from refrigerant charge, but nowhere in the mandatory sections have I found an exemption for -- basically any time you have an air—conditioner you're supposed to meet the air flow and the fan watt. Nowhere do I find an exception for an altered system within an existing duct system.	No	Staff find that the Standards do not exempt newly installed space conditioning systems equipped with a packaged AC or HP from airflow and fan efficacy requirements of Section 150.0(m)13. The exemption is specific to performing refrigerant charge verification as specified by the exception to Section 150.1(c)7. The commenter's concerns are already adressed in the current 2013 Standards as well as the proposed 2016 Standards. For alterations that only encompass a change-out of the packaged AC or HP, the only airflow requirement pertains to minimum airflow specified by the refrigerant charge protocol. Nothing prevents an installer from achieving a higher CFM/ton as specified by the manufacturer. However, existing duct work may not be adequatley sized to accomidate higher CFM/ton targets.
76095.085	Residential HVAC	George Nesbitt	The 2013 Code and all the various manuals, appendices and whatnot are 3,500 pages long. All of the Title 24 Building Codes, Mechanical Codes, CALGreen in total are 6,000 pages. So we have a real problem with over-complication. And this affects compliance. And, you know, the Code is not complied well with, we're seeing both positive and negative compliance issues with the 2013 Code. We also see horrendous fraud in energy modeling out there, and these are all things we need to work on.	Yes	This rulemaking explicitly includes changes to simplify and clarify the regulatory language, consistent with this comment.
76095.071	Residential HVAC CFM Requirement	Aniruddh Roy	We'd like the CEC to take a more detailed look of the 350 CFM per ton requirement. I know that it was put into place because there was no public data on air flow, but that is in place now, so maybe it needs to be revisited.	No	Staff has not proposed a change to the minimum 350 CFM/ton of nominal cooling capacity in either the 45-day or 15-day language. The commenters proposed change is outside of the scope of the current rulemaking; the commenter is encouraged to submit a fully developed proposal for this change for the 2019 code cycle.
76095.070	Residential HVAC Charging	Aniruddh Roy	Changing the minimum outdoor temperature required for a proper refrigerant charge verification from 70 degrees to 55 will have adverse effects on the HVAC system's compressor.	Yes	Staff has not proposed a change to the minimum outdoor temperature requirement for refrigerant charge verification in either the 45-day or 15-day language. However, staff notes that there was a single erroneous reference to a 70 degree temperature in the Reference Appendix, but this reference was corrected to the 55 degree value in the 15-day language.
75615.039	Residential HVAC Ducktless Systems	George Nesbitt	Should use separate reference systems for ductless systems.	N/A	The commenter is misinformed when if comes to the applicability of the Building Energy Efficiency Standards. The Standards already have a mechanism for evaluating energy consumption between equipment types, specifically the public domain simulation software (CBECC-Res) used for buildings following the performance compliance approach. When a specific type of equipment is not represented in CBECC-Res there is a way for the software to be updated. This method is outlined in Section 10-109 and is available to anyone that wants to pursue it.

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75984.001	Residential HVAC Ducts	Rick DeGolia	The proposed standards for water heating provides the option of installing gas instantaneous water heater or a gas storage water heater with either a compact hot water distribution system or Home Energy Rates System (HERS) verified piping insulation on all hot water piping in the home as a part of the prescriptive path. The proposed standards could be more beneficial to the state if these installations were a part of the mandatory requirements for new residential construction.	No	Staff find that the benefits of installing a gas instantaneous water heater, and those of installing a gas storage water heater with distribution and insulation, to be equivalent in terms of performance and thus an appropriate baseline. Requiring insulation and compact distribution with an instantaneous water heater would preclude having a prescriptive option for gas storage water heaters, and may not be cost effective in all cases.
75984.001	Residential HVAC Ducts	Rick DeGolia	it is particularly important to the state that we continue to transition from natural gas on all fronts, including in the home (demand-side). The proposed standards should include electric or solar powered water heater options in the prescriptive path as well. Technology is available on the market that is cost-effective and will result in reductions in demand for natural gas, greenhouse gas emissions and improve air quality. Additionally, more options for installation provide more pathways to meet the ultimate goal of ZNE.	No	Staff find that the performance path provides the option of installing electric and solar water heaters. Staff does not find information in the rulemaking record or the materials submitted by stakeholders showing that solar water heating systems are cost effective in new construction on a statewide basis; commenter is encouraged to submit a complete proposal that includes this information for the 2019 rulemaking.
75593.001	Residential HVAC Heat Pumps	Bill Martin	As the draft 2016 Title-24 regulations stand, geothermal heat pumps will become illegal for use in California upon their implementation. Section 150.1 (c) 8 (C) of the draft 2016 Standards will still prohibit their benefits inside all natural gas territories because an electric hot water (storage) tank will not be allowed. This means that GHP de-superheater technology for free hot water pre-heat during cooling and hot water pre-heat at COPs of 3.5 -to- 5.0 during heating will not be available in the majority of the state's populated areas. It also means that GHP's well-known .7KW per ton electric reduction compared to standard air conditioning will be lost in the heaviest use densities within the grid. We can and must ask for specific GHP language in the 2016 code. One line in the new code would support GHPs - "Residential buildings may install GHP systems if they offset the burning of fossil fuels for heating and water heating" - That is all we need - Period!	No	The commenter is misinformed when if comes to the applicability of the Building Energy Efficiency Standards. The Standards already have a mechanism for evaluating energy consumption between equipment types, including fuel types, specifically the public domain simulation software (CBECC-Res) used for buildings following the performance compliance approach. When a specific type of equipment is not represented in CBECC-Res there is a way for the software to be updated: this method is outlined in Section 10-109 and is available to anyone that wants to pursue it.. As the current code provides the relief the commenter is seeking, no change to the code is necessary.
75615.038	Residential HVAC Mini-split systems	Gary Kline	My question has to do with the ductless HVAC systems. We're very clear about where ducts can and can't be located. Where do we require the location of the refrigerant tubing in a ductless system? I'm just wondering if we ought to encourage it being in the same locations as we require ducts.	No	Staff find that the regulations provide flexibility in the location of ducts; although one compliance path is to move ducts into the conditioned space, doing so is not mandatory and ducts can also be located in unconditioned spaces. Thus, as there are no mandatory requirements for duct location, specifying required locations for refrigerant tubing would be inconsistent with these regulations.
75427.001	Residential HVAC SDHV	Unico Incorporated	Include a definition of Small Duct High Velocity systems.	No	This term is defined in Federal law as well as in the Appliance Standards, Title 20. There is no need to duplicate the definition in the Building Energy Efficiency Standards.
75427.002	Residential HVAC SDHV	Unico Incorporated	List Small Duct High Velocity in the efficiency tables 110.2-H and I	No	Given that these system types are "covered products" under DOE and subject to minimum federal efficiency standards, there is no need to duplicate their minimum efficiency in the Building Energy Efficiency Standards.
75427.003	Residential HVAC SDHV	Unico Incorporated	Align California Title 24 with the 2015 editions of the International Energy Conservation Code (IECC) and the International Residential Code (IRC) by reducing the required insulation level on ducts less than 3 inches in diameter from R-4.2 to R-3.3.	No	Staff has not proposed a change to duct insulation requirements in either the 45-day or 15-day language. The commenters proposed change is outside of the scope of the current rulemaking; the commenter is encouraged to submit a fully developed proposal for this change for the 2019 code cycle.
75427.004	Residential HVAC SDHV	Unico Incorporated	Require the use of manufacturer's commissioning reports, so as to encourage installers to follow manufacturer-specified installation procedures.	No	Not all manufacturers provide the same level of post-installation instructions, and the commenter's suggested language would impose a new requirement on manufacturers, including those that do not currently provide commissioning report templates. A commissioning report prepared by a building designer is already able to identify the manufacturer's installation instructions and specify that it is followed. Adding the commenter's recommended language would add a layer of confusion to the Standards and unnecessarily complicate implementation of commissioning requirements.

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75427.005	Residential HVAC SDHV	Unico Incorporated	A more appropriate metric would be to relate fan energy to system capacity. This would have a large effect on conventional systems and a negligible effect for SDHV because SDHV systems are rated at conditions closely aligned with field conditions.	No	Staff has not proposed a change to the watts per cfm for fans systems with a total horsepower less than 25 in either the 45-day or 15-day language. The commenters proposed change is is outside of the scope of the current rulemaking; the commenter is encouraged to submit a fully developed proposal for this change for the 2019 code cycle.
75427.006	Residential HVAC SDHV	Unico Incorporated	Add an exception to Section 150.0(m)10 relating to porous inner core flex ducts for branch ducts serving a SDHV system	No	Staff has not proposed a change to the porous inner core duct prohibition in either the 45-day or 15-day language. The commenters proposed change is is outside of the scope of the current rulemaking; the commenter is encouraged to submit a fully developed proposal for this change for the 2019 code cycle.
75427.007	Residential HVAC SDHV	Unico Incorporated	Add an exception to Section 150.0(m)13 for SDHV systems since they operate differently than standard forced air systems.	Partially	An exception was added that gives the Executive Director the authority to approve an alternative cfm/ton and watts/cfm for Small Duct High Velocity systems on a case by case basis. Staff found this case-by-case approach to be more appropriate than attempting to establish a regulatory standard given the lack of information on these products submitted by stakeholders or present in the rulemaking record. Should the commenter prefer a rule of general application instead of case-by-case evaluation, commenter is encouraged to submit a fully developed proposal for the 2019 rulemaking.
75427.008	Residential HVAC SDHV	Unico Incorporated	Add an exception to Section 150.0(m)15 for SDHV systems since they operate differently than standard forced air systems.	No	Section 150.0(m)15 was moved to 150.0(m)13. Because of this move, the exception added in response to the commenter's previous comment applies to this comment as well.
75427.009	Residential HVAC SDHV	Unico Incorporated	Add a table for return duct sizing for SDHV systems to use instead of tables 150.0(c) or (d)	Partially	Tables 150.0 (c) and (d) are used as alternatives to the 350 cfm/ton and .58 watts/cfm requirements. The commenter does not provide sufficient information to determine that the values proposed in the commenter's table are univerally appropriate and applicable to all SDHV systems. The commenter is encouraged to provide additional information and submit it via the Exception added to allow consideration of alternate values for SDHV systems, or alternatively to submit a proposal for the 2049 rulemaking.
75427.010	Residential HVAC SDHV	Unico Incorporated	Allow a larger maximum watts per CFM for SDHV systems.	No	Staff has not proposed a change to watts per CFM for central forced air system fans used in Central Fan Integrated Ventilation Systems in either the 45-day or 15-day language. The commenters proposed change is is outside of the scope of the current rulemaking; the commenter is encouraged to submit a fully developed proposal for this change for the 2019 code cycle.
75427.011	Residential HVAC SDHV	Unico Incorporated	Allow the manufacturer's procedure for testing duct leakage.	No	A blanket allowance for any duct leakage test procedure publised by a manufacturer would not be appropriate; the commenter does not specify how a procedure would be determined to be "accurate" in order to qualify for the alternative. The established procedures for determining duct leakage are applicable to all ducted systems, including SDHV. These standardized procedures are made available to installing contractors and are part of the HERS Rater training ciriculum. For enforcement purposes, the contractor and HERS Rater must perform the same test in order to verify that they achieve matching results. The Reference Residential Appendix already has a process for review and possible approval of alternative test procedures, which is the method the commenter should pursue to have an alternate test procedure considered for allowance.
75427.011	Residential HVAC SDHV	Unico Incorporated	Add a cfm per ton criteria specific to SDHV	Partially	An exception was added that gives the Executive Director the authority to approve an alternative cfm/ton and watts/cfm for Small Duct High Velocity systems on a case by case basis.
75615.034	Residential HVAC SDHV	Shawn Intagliata	Add definitions for small duct-high velocity systems.	No	This term is defined in Federal law as well as in the Appliance Standards, Title 20. There is no need to duplicate the definition in the Building Energy Efficiency Standards.
75615.037	Residential HVAC SDHV	Shawn Intagliata	Include distinct test and efficiency requirements for small duct high velocity systems.	No	Staff finds that, given that these system types are "covered products" under DOE, there is no need to duplicate their prescribed test procedure or minimum efficiency in the Building Energy Efficiency Standards.

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75615.041	Residential HVAC SDHV	Shawn Intagliata	Commenter requests a methodology to describe how small high velocity duct systems can meet duct system sizing and air filter sizing requirements.	N/A	The commenter did not fully understand the applicability of the requirement and has since been informed of its scope: the minimum airflow (CFM/ton) requirement mentioned in the Standards is applicable only to centrally ducted forced air systems. Therefore ductless systems would not be subject to this requirement.
76095.072	Residential HVAC Static Pressure	Aniruddh Roy	Section 150.1c9 addresses ducts and air handlers in conditioned spaces, but does not specify a maximum external static pressure. Not specifying such a value would continue to ignore the potential issues that could arise due to poor duct work practices. And there are specific references in the U.S. HUD Standards, although it's for manufactured homes, but that might be something to take a look at and maybe specify the static pressure within this section to add further clarity.	No	Staff finds that although the duct performance specifications in the Standards do not include a maximum static pressure, they do contain cfm/ton, watts/cfm and % total leakage that together address poor ductwork practices. Thus, staff does not find that adding a static pressure requirement is necessary for ensuring performance of ducts, and that adding such a requirement would therefore be likely to add costs without adding commensurate benefits.
75615.088	Residential Lighting Candelabra	Jon McHugh	Labeling we require could be accomodated on candlabras	No	Staff amended the marking requirement based on comments from commenters. The marking requirement proposed in the 15-Day Language is reduced to require a compliance mark consisting solely of "JA8-2016" or "JA8-2016-E", which avoids issues of attempting to fit extensive information on a small lamp or light source.
75517.005	Residential Lighting Certification	NEMA	Regarding qualification or requalification of compliant products already listed in the CEC database. Industry will wait for further notification post-adoption as to what relisting actions should be undertaken, to maintain currently listed products in the database.	Partially	Existing compliant products are likely required to be requalified when there are changes to the existing requirements. When there are no changes to the existing requirements, existing compliant products are NOT required to be requalified when new standards become effective.
75443.001	Residential Lighting Color Temperature	Randall Whitehead	Remove the residential lighting requirement of 3000K CCT.	Partially	The proposed Standards language has been modified to allow inseparable SSL luminaires, LED light engines, and GU24 based LED lamps to have a color temperature of 4000K or less. Other light soruces must be 3000K or less. Staff did not find that complete removal of an upper bound on color temperature would be appropriate, as this would create a risk of unsuitable lighting being installed within the dwelling.
75497.001	Residential Lighting Color Temperature	RNM Engineering, Inc.	Delete the residential lighting requirement of 3000K CCT.	Partially	The proposed Standards language has been modified to address this comment. Inseparable SSL luminaires, LED light engines, and GU24 based LED lamps are allowed for 4000K or less (noting that the 4000K nominal color temperature includes 4100K lighting). Other light sources must be 3000K or less.
75530.001	Residential Lighting Color Temperature	Auerbach-Glasow-French	Remove limitations of 3000K and below requirements of JA8.	No	Staff edited the text of Section JA8.4.4 so that the CCT requirement for inseparable SSL luminaires, LED light engines, and GU-24 LED lamps is 4000K or less, based on comments from other commenters, and retained the 3000K requirement for removable lamp products. Staff finds that completely removing requirements for color temperature as requested by the commenter would be imappropriate, as it would lead to unsuitable lighting being able to be installed within the dwelling.
75424.003	Residential Lighting Controls	Lutron	Should require all luminaires in non-living spaces to be on an energy-saving control, not just one luminaire in those spaces. Or change it the other way so that only one luminare in those spaces are allowed to be uncontrolled.	No	Staff finds that the proposed language strikes a balance between the benefit of controls and the need for flexibility in lighting design. This requirement is best understood in conjunction with the requirement in Section 150.0(k)2K that all JA8 compliant lighting be controlled by dimmers or vacancy sensors, which will result in a majority of installed lighting being on these controls. In addition, staff notes that garages, laundry rooms, and utility rooms are commonly lit by a single installed luminaire, meaning that the single luminaire requirement will generally serve to cause "all" of the lighting to be controlled, whereas an allowance for one uncontrolled luminaire would allow "all" of the lighting to be uncontrolled.

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75424.004	Residential Lighting Controls	Lutron	There is significant energy savings for using dimmers or vacancy sensors in hallways. Suggest to remove the exception for these areas. Also suggest to add "partial-on occupancy sensor" to the language.	No	Regarding hallways, staff would need information or analysis showing feasibility and cost effectiveness in order to adopt and impose new requirements, including imposing requirements to install dimmers and vacancy sensors in hallways. As the commenter does not provide this information, staff is not able to consider making the requested change to the Standards. Staff encourages the commenter to submit a complete proposal for consideration in the 2019 Standards. Regarding partial-on sensors, the commenter misunderstands the regulations: a vacancy sensor ensures that lights are turned off when not in use. Staff does not find that automatic on functions, either partial or full, result in any energy savings: by definition they cause lights to begin using energy, not to cease using energy. Staff therefore does not find that changing the regulations to specify automatic-on functions as an alternative to automatic-off functions would be appropriate.
75424.01	Residential Lighting Controls	Lutron	All exterior lighting should be controlled, not just the exterior lighting that is attached to a building.	No	For residential lighting, the scope of the Title 24 Building Energy Efficiency Standards is restricted to the residential dwelling, consistent with the collected California Building Code. For this reason, staff is unable to consider regulations that apply to residential lighting that is not attached to a residential dwelling.
75424.011	Residential Lighting Controls	Lutron	Thermostat definition should be changed to allow for multi-part thermostat systems.	Yes	The suggested change was made to the proposed regulations.
75429.001	Residential Lighting Controls	NEMA	150.0(k)2J and 150.0(k)2K. The 2016 Title 24 should require all luminaires in these nonliving spaces to be on an energy-saving control, not just one luminaire in those spaces. This is a step backward from the current standard.	No	Staff finds that in the majority of bathrooms, laundry rooms, utility rooms, and garages have a limited number of luminaires, and that requiring at least one luminaire be controlled will lead to more controlled luminaires given the number of rooms that contain only a single luminaire. In addition, the proposed language requires that all lighting complying with JA8 be controlled by dimmers or vacancy sensors. Staff therefore finds that more luminaires will be installed with dimmers or vacancy sensors under the proposed regulations.
75429.002	Residential Lighting Controls	NEMA	A partial-ON occupant sensor should be allowed as they have been shown to save even more energy than vacancy sensors because occupants are usually satisfied with 50% of the lighting on and they don't need 100% of the lighting on.	No	The commenter does not identify or provide the study or technical data showing that Partial-ON sensors save more energy than dimming controls or vacancy sensors, and therefore staff cannot find that allowing these controls instead of requiring vacancy sensors or dimming controls would be appropriate. Staff would need this data in order to evaluate this proposal; staff encourages the commenter to submit a proposal that includes this data for the 2019 code cycle.
75429.003	Residential Lighting Controls	NEMA	Landscape lighting is still not addressed. All exterior lighting should be controlled, not just the exterior lighting that is attached to a building.	No	For residential buildings, the scope of the Title 24 Part 6 regulations is limited to the dwelling, which does not include lighting that is not attached to the dwelling.
75552.002	Residential Lighting Controls	Engineering Enterprise	Exception 2 to Section 130.1(a)2. This exception simply adds cost to a project and will never be utilized. If there is a keyed switch or central switch for a public bathroom why would it ever be turned off when there is a motion sensor in the space? I strongly suggest that public multi-stall bathrooms be allowed to not have manual control and only have automatic on/off occupancy sensor control.	No	Staff understands this comment to be a broader request to except public multi-stall bathrooms from the entirety Section 130.1(a), and notes that the Exception specified by the commenter solely specifies that, in contrast to the "readily accessable" requirement of Section 130.1(a), manual controls for the noted spaces can be made unaccessable to unauthorized persons. Staff finds that there are several circumstances, such as during servicing of a luminaire, where the ability to manually turn off the lighting is necessary. Staff also finds that manually turning off lighting when the building is not in use saves energy by avoiding the energy use of the automatic controls and avoiding energy used by false detection events.
75552.014	Residential Lighting Controls	Engineering Enterprise	Section 150.0(k)2J. Installing occupancy sensors in bathrooms may cause false offs when someone is in a shower. Commenter suggested to remove bathrooms from this section.	No	Only one of the bathroom's luminaires is required to be controlled by a vacancy sensor. Bathrooms may have more than one luminaire, and other bathroom luminaries can be controlled separately with dimmers or manual controls, meaning that these other luminaires can stay on.
75897.001	Residential Lighting Controls	Progress Lighting	Remove the requirement that outdoor lighting be controlled by a photocell because photocells can reduce the life span of CFLs due to inintended on-off cycling and because photocells are unreliable.	No	The commenter misunderstands the regulations; photocells are not required, but are included in two of four available options under Section 150.0(k)3A. The regulations allow the use of an astronomical time clock or energy management system for situations where a photocell would be incompatable or unreliable. Staff finds that no change is needed to accommodate the commenter.

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75917.002	Residential Lighting Controls	MaxLite	Photocells were introduced as part of the requirements for residential outdoor porch lanterns around 2006. The results were widespread failures of products due to the poor performance of low quality photocells. Recommend to remove integral photocell as an optional requirement for compliance to this section of Title 24.	No	Staff finds that installation of photocell-based driveway lighting is common, and does not find that such lighting is prone to widespread failure. Staff therefore finds that inclusion of photocell-based lighting as an option under this Section is appropriate and consistent with other Sections of the code that address automatic-off functionality.
74854.001	Residential Lighting CRI	U.C. Davis	Attached please find a letter that was sent to the Board of Directors (BOD) of the Illuminating Engineering Society (IES), requesting immediate withdrawal of the recently issued IES Position Statement PS-8-14, "Color Rendering Index", which recommends exclusion of the current Color Rendering Index (CRI) metric from energy regulations.	N/A	Staff appreciates this letter of support for the use of Color Rendering Index (CRI) in regulation.
75488.001	Residential Lighting CRI	U.C. Davis	The IES Position Statement PS-8-14, "Color Rendering Index", which recommends exclusion of the current Color Rendering Index (CRI) metric from energy regulations, is only a consensus opinion of the board members and does not represent the views of the IES. Certain manufacturers cited IES PS-8-14 as a justification for their position. We believe that the PS-8-14 is conceptually flawed and has the potential to cause serious harm.	N/A	Staff analysed the IES Position Statement and considered this comment letter relating to the Position Statement, and has not proposed that the standards for Color Rendering Index (CRI) be removed. Staff finds that CRI remains a valuable descriptor of an essential aspect of lighting, and that absent a criteria for CRI unsuitable lighting could be installed within dwellings to comlpy with the Standards.
75615.07	Residential Lighting CRI	GE	25% less light at CRI 90 versus CRI 80	No	Staff does not find that the lowered lumen output from a CRI 90 LED light source compared to a CRI 80 LED source is such that the LED would not be able to achieve the 45 lumen per watt requirement specified in the Final Express Terms. Staff otherwise finds that the 90 CRI requirement is an existing requirement that the proposed changes to regulation do not modify; staff does not find that changing this value would be appropriate.
75615.071	Residential Lighting CRI	GE	We'd like to see this be a more data-driven process.	No	The comments neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language; staff finds that the proposed changes to regulations are driven by data, per the Documents Relied Upon identified in the Initial and Final Statement of Reasons.
75615.082	Residential Lighting CRI	Cree	Supports high CRI and R9 proposals. Don't make compromises on these requirements. Don't use a rear view mirror to gauge future prices. Might be a 15-20% cost increment, but cost is coming down for the LED technology so the percentage is applied to a smaller price so marginal differential will decrease.	N/A	Staff appreciates the comment of support for JA8.
75615.083	Residential Lighting CRI	Jim Benya	I believe very strongly, and I support Professor Siminovitch, Papa Michael, who really got me into this dialogue in the first place, that compact fluorescents historically achieved a relatively low level of acceptance. They had problems with color, they had problems with flicker, and they had problems with dimming. All of these are being addressed here to present us with another race to the bottom. This [JA8] is a really good idea. And I think I'm disappointed that, frankly, it's not a national program. But I think we're leading the way, which we've done in the past, and we ought to keep doing it.	N/A	Staff appreciates the comment of support for JA8.
75615.084	Residential Lighting CRI	Loren Whitehead	There is a myth. The myth is that efficacy matters at the level of 10 to 15 percent. It simply doesn't. And in addition, if you look at human choice and ask people, you know, are you comfortable with high color rendering and 15 percent less lumens, they say what do you mean less lumens? You can't see it. Now, if you were to walk out of this room for a minute and walk back in, and if in the course of you being out of the room the light level had risen 15 percent or dropped 15 percent, which it actually might do with grid fluctuations, you wouldn't be able to see it. So, it's in the noise. Whereas, in contrast, the color rendering difference is absolutely visible, it's not in the noise. If you look at two different lamps of CRI 80, and look at the way they render colors, they're radically different, everyone can see it.	N/A	Staff appreciates the comment of support for JA8.

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75615.086	Residential Lighting CRI	Jon McHugh	The benefit of LEDs is enormous; we shouldn't jeopardize savings by allowing objectionable quality.	N/A	Staff appreciates the comment of support for JA8.
75615.089	Residential Lighting CRI	Loren Whitehead	Should stay with 90 CRI. Two commonly referenced concerns, with efficacy and cost, are both false. Need to be careful of non-neutral sources of advice/info.	No	Staff appreciates the comment of support for JA8.
75615.093	Residential Lighting CRI	NRDC	80 CRI is fine; they don't see evidence of consumer preference for high CRI lighting	N/A	The comment neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language: the 90 CRI requirement is an existing requirement of the 2013 Standards which the 2016 Standards do not propose to modify.
75615.095	Residential Lighting CRI	Mike McGaraghan	Prices for all LEDs are coming down; premium for higher CRI is generally a percent of cost, thus drop is narrowing gap between products in real dollars. Feit CRI 90 product is at $9; CREE is replacing 80 CRI poroducts with 90 at same price point.	N/A	Staff appreciates the commenter's support of the residential lighting requirements of Section JA8 of the proposed language.
75615.1	Residential Lighting CRI	Nathan (no last name provided)	CQS vs. CRI - Asked whether CQS was considered as a color quality test criteria	No	Staff does not find that CQS is a nationally recognized protocol at the present time. CRI is adequate, particularly if it is combined with R9. Staff therefore did not find that moving to CQS would be appropriate at this time, but will continue to observe the development of CQS as a potential alternative in the future.
75615.103	Residential Lighting CRI	NRDC	Lack of consensus on CRI. Industry is at 80; moving to 90 has a cost and efficiency penalty ($4-5, 4w)	N/A	The comment neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language: the 90 CRI requirement is an existing requirement of the 2013 Standards which the 2016 Standards do not propose to modify.
75894.001	Residential Lighting CRI	Rick DeGolia	Staff noted that there appeared to be a truncated sentence at the bottom of the first page and it is not clear what else the commenter may have intended to add to their comment. However, this does not appear to alter their overall comment that the CRI requirement of JA8 should be aligned to a similar requirement in Title 20.	No	Title 20 and Title 24 requirements are closely coordinated, however the overall goal of each is different. Staff finds that the differences between the two sections of code are necessary to balance consumer protection, the application of requirements to builders rather than consumers, and the freedom of consumers to choose from a range of lighting products in the marketplace.
75907.002	Residential Lighting CRI	Sierra Club California	We support NRDC's request to change the proposed CRI requirements in Title 24 to align with what is proposed in the Title 20 standards for lighting. Increasing the CRI value 84 improves efficacy with little impact to cost. Increasing the CRI value to 90, as some stakeholders have suggested, may provide some improvement in efficacy, but cost of manufacturing lighting with higher CRI values interferes with willingness to purchase these technologies. As NRDC has noted there is no data showing that consumers are not satisfied with CRI's in low 80s. Therefore we feel there isn't a need at the moment to push the price of the product up to meet the desires of the consumer if the desire isn't there.	No	Staff finds that 90 CRI products are available at prices comparable to lower CRI products and cost-effective to install, and thus does not find that reducing the CRI requirement to indirectly affect the price of lighting installed by builders in new construction is either necessary or appropriate.
76095.047	Residential Lighting CRI	Once Innovations	Commenter (Mr. Makley) suggests keeping the CRI at 80 and letting the consumer decide if he needs CRI of 90, especially for the applications at hand. Commenter also suggest an R-9 greater than zero or greater than 10 is more than sufficient; higher values could be specified and chosen by consumers.	No	The CRI 90 requirement is an existing requirement of the 2013 Standards that is not revisited by this rulemaking. Staff finds that the minimum R-9 value of 50 is appropriate based on the R-9 values that would be expected if the R-9 swatch was included in the calculation that determines overall CRI. Given that CRI is an average among swatches, for the average of nine swatches to be 90 or higher the R-9 swatch could only have a minimum value of 10 if every other swatch was at 100, which is mathematically possible but not technically feasible. Staff therefore does not find that lowering the R-9 specification to 10 or higher would be appropriate.

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75508.002	Residential Lighting Dimming	Jade Sky	We believe the Commission should require light sources in JA8 to be dimmable to a lower level than 10%. We support the 3% value that was proposed during the 45-day language hearing. 3% dimming is feasible with today's technology, for all form factors, and at comparable and equivalent pricing. Though many products currently do not provide this level of dimming, this is because it has not been demanded of them. If the Commission pushes the market in this direction, the 1.75 years between now and the effective date is plenty of time for the industry to respond. If the CEC deems 3% is too low, 5% would also be a significant improvement over 10%. We also support the Commission's proposal to require reduced flicker operation, and we support the CEC's proposed test procedure in JA10.	No	Staff appreciates the commenter's support for the proposed test for flicker. Staff does not find that a more agressive minimum standard for dimming is justified at this time, and would need more data and analysis before proposing a more stringent dimming requirement. There are currently only a handful of products that can meet a 3% or 5% dimming requirement, and its unclear how much of a benefit this marginal shift in output would accrue if required by law. Changing the JA8 dimming requirement to a level lower than 10% may result in a very small number of available products to the marketplace, and staff must weight the balance of the agressiveness of requirements against availability of products in a competitive price and benefits to the public. Staff encourages the commenter to submit a complete proposal for their more stringent recommended requirements for the 2019 code cycle.
75615.085	Residential Lighting Dimming	Dave Bannister	Why does dimming stop at 20 percent, not 3 percent, for the flicker test?	No	The comment neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language. Nonetheless, the author of the CASE report for this topic provided the following response at the hearing where the question was asked: MR. MC HUGH: Hi. The reason that we selected the 20 percent dimming level, so currently the proposal is that the low flicker operation criteria would be met when the lamp was tested at 100 percent of light output and 20 percent of light output. The reason that we selected 20 percent of light output as compared to minimum light output is that the current market, not the market in 2017, but the current market, the vast majority of products would fail at minimum light output. And at 20 percent light output, 50 percent of the lights would pass or 50 percent would fail, depending on which side that you're looking at. So, this is the first step. It's my expectation that once everyone starts measuring flicker and how easy, as you know, how easy it is to actually control flicker once you're measuring it. The problem is controlling something when you haven't measured it. But once you've measured it, that I'm expecting that in a future code cycle that we would likely, rather than using the lax flicker requirement that we have now, ideally would adopt the IEEE standard and, yes, test that over the full dimming range of the lamp. (P160-162)
75769.001	Residential Lighting Energy Star	Aaron Brusatori	Can language be added to Appendix JA8-2 to include Energy Star rating for demonstration of conformance to the efficacy requirements?	No	JA8 requirements are more stringent in comparison to the Energy Star lamp requirements, and therefore staff find that achieving the ENERGY STAR would not, by itself, be enough to indicate that the product also met the requirements of JA8. For this reason, staff finds that adding language that allows ENERGY STAR qualified products to be considered to meet JA 8 would not be appropriate.
75428.014	Residential Lighting Flicker	Acuity	We recommend that the CEC remove the flicker testing requirement for nonincandescent lamp sources intended to be controlled by a phase cut dimmer.	No	The flicker lamp and dimmer test is only required for the lamp and dimmer that the manufacturer wants to state on the product package. Manufacturers are free to choose which product combinations they test, and thus what dimmer technologies they are able to state compatibility with.

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75429.004	Residential Lighting Flicker	NEMA	NEMA reaffirms its opposition to the CEC establishing its own mandatory flicker test procedures ahead of numerous industry working groups examining this phenomenon and working to identify repeatable objective tests to evaluate it. We caution against adopting the proposed test procedure in Joint Appendix 10 because it has not been adequately tested and it is not related to other, more advanced, efforts taking place in the IEEE and other scientific forums. The number of devices tested by the IOU/CASE team is woefully inadequate and the CEC is taking a significant risk by relying on such a small, unrepresentative data set. The Flicker Test Procedure in Joint Appendix 10 is not adequately vetted and should not be allowed to proceed into regulation; the draft Appendix should be struck.	No	Regulations cannot be speculatory, and cannot require adherence either to future documents or to "the latest version of" a document. For this reason, staff found that consideration of test procedures that are not yet finalized and adopted would not be appropriate. Staff finds that flicker can render lighting unsuitable regardless of its other attributes and thus finds that a standard is necessary, and that a test procedure is necessary to support a standard. Staff finds that the proposed test procedure is appropriate for its purpose, and prevents some of the problems of gaming associated with the current ENERGY STAR test procedure. Staff does not find the number of performed tests to be inadequate for providing a level of confidence that the test will be effective at its purpose, and does not find that a significant risk is created by requiring this test. As industry tests such as the IEEE test are finalized and adopted, staff encourage commenters to submit proposals for the use of these tests for the 2019 code cycle.
75429.01	Residential Lighting Flicker	NEMA	JA8's restrictions on flicker, as summarized in Table JA8, are overly restrictive for some frequencies and too lax for others. The human eye definitely does not have a flat response over the range from 0 to 200 Hz. This specification makes no allowance for the dependence of human flicker sensitivity either on frequency or on wave shape. A full Fourier approach would take account of both frequency and wave shape effects.	Partially	Joint Appendix 10.6 specifies the calculations that are required to be performed on the raw test data, and this includes conducting a Fourier analysis to transform data for each dimming level into the frequency domain. Thus, staff finds that the flicker test accounts for frequency and wave shape, and takes a "Fourier approach" consistent with the suggestion of the commenter. Staf notes that Table JA8 is a list of reportable data fields, not in itself a statement of lighting requirements and therefore intentionally does not show this level of detail.
75429.011	Residential Lighting Flicker	NEMA	Sensitivity to flicker also depends on the application. Flicker in outdoor street lighting or in stairwells is more tolerated than in indoor offices, for instance. Therefore, a curve of acceptability may be above the visibility threshold curve. Different curves may be needed for different applications.	No	The Energy Commission has intentionally established a single, broadly applicable standard that ensures that light sources in dwellings are acceptable to all persons in all circumstances, not to most persons in specific circumstances. As noted by the commenter, the region in their graph that they would prefer to be allowed is not visible to most observers, implying that some percentage of California's population would be senstivie to flicker in this range and would be harmed by allowing light with this amount of flicker. Allowing different flicker levels for different applications would require separate designations and marking requirements that would drastically complicate the standards and increase compliance costs with no clear benefit; Staff finds that while significantly different applications such as the noted example of an outdoor streetlight may be appropriately assigned separate requirements, treating "dwelling lighting" as a single application and maintaining a single, uniform, and consistent standard for that application is appropriate.
75429.012	Residential Lighting Flicker	NEMA	Specifications on flicker and test procedures should wait until the experts (in IEEE and in IEC) conclude their work on this topic and produce a solid standard.	No	Staff does not find that delaying adoption of a standard for flicker to the 2019 Standards to be appropriate, as flicker is already identified as an important aspect of the suitability of lighting for the home environment. Staff finds that adopting a standard in the current code cycle is appropriate, and that adoption of a test procedure for flicker is necessary to adopt and implement a standard for flicker. Staff will review the work of IEEE and IEC as it is concluded and final speicifications are published, and will consider updating the test procedure for flicker in 2019 based on the results of such review. However, staff does not find the existence of other, developing tests to be, in itself, a reason why the proposed test is not appropriate or effective for its purpose.
75429.013	Residential Lighting Flicker	NEMA	We firmly oppose the entire draft language in Section JA10 regarding flicker measurements. While equipment pairing requirements for testing/listing purposes have been clarified, for non-incandescent lamp sources, the testing is proposed to be repeated for every dimmer/driver/lamp combination. This is a recipe for near-infinite testing, if manufacturers want their products to be usable with multiple dimmers. CEC should simply require manufacturers to maintain compatibility lists for dimmer/lamp combinations (as is now done in ENERGY STAR).	Yes	Staff have clarified the testing requirements to more clearly state that representative testing is required, meaning that a given light should be tested with a representative dimmer control and representative transformer (ballast or driver) of a given type. By doing so, staff have addressed the perceived need for combinatoric testing, and made it clear that a complete (product-to-product) compatibility list is not required for compliance with JA8.

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75429.014	Residential Lighting Flicker	NEMA	We believe the number of measurements as defined in JA10.5 and the subsequent data analysis and reporting as defined in JA10.6 and JA10.7, respectively, are overly prescriptive and complex and, as such, will impose an undue burden on manufacturers.	Yes	Staff removed the majority of the formatting specifications present in the noted Sections as well as the required testing at 80% and 50% of light output; the proposed test procedure now requires testing at full light output and at either minimum light output or 20% of light output (whichever is higher). Staff also removed reference to the use of a "Flicker Data Analysis Tool" and amended specifications of test duration and sampling duration to be more generic and less prescriptive. Lastly, the test duration was reduced from two seconds to one second. Staff finds that these changes address concerns that the of overly prescriptive test requirements, and finds that the requirements remaining in place are those that are necessary for successful determination of light source flicker characteristics.
75429.015	Residential Lighting Flicker	NEMA	The proposed test method and requirements are not well-substantiated: A sampling frequency of double the highest frequency within the signal to be measured is sufficient. Since the maximum flicker frequency that CEC cares about is 200 Hz, the sampling frequency should be greater than 400 Hz. JA10.5 requires a frequency measurement rate of 20 kHz (JA10.5). This is a factor of 50 times more data than necessary to characterize the specified flicker. In addition, we see no reason to require testing/calculation with 5 different frequency cutoffs (1000, 400, 200, 90, 50 Hz), when the specification only requires one value (200 Hz).	No	While the 200Hz frequency cutoff is used for determining compliance, public disclosure at other cutoff points is important for lighting designers attempting to meet specific needs, such as designing lighting for a person with photosensitive epilepsy (the CASE report provides this example and notes that 1 in 4,000 Californians may fall into this category and would be sensitive to highly modulated light at frequencies less than 70Hz). Staff finds that the measurement frequency is appropriate to provide a description of wave shape that allows for analysis at each specified cutoff (1000Hz, 400Hz, 200Hz, 90Hz, and 40Hz) after recording one second of data, regardless of the shape or other characteristics of the wave.
75429.016	Residential Lighting Flicker	NEMA	JA10's methodology goes all the way to 0 Hz frequency. This is physically impossible to characterize. The measurement time of 2 seconds is one full wavelength at 0.5 Hz. A measurement time of several wavelengths is generally necessary to characterize behavior at a particular frequency. CEC must to raise the lower frequency limit to have some reasonable correspondence with the specified data collection time.	No	Staff does not find that establishing a lower frequency bound is necessary, given that, as noted, the duration of the test sets a natural bound on the lowest frequency for which a complete cycle can be recorded, and that flickering or strobing below (slower than) 10Hz is generally understood to be perceptable.
75429.017	Residential Lighting Flicker	NEMA	The test procedure, if CEC insists on adding it, should be no more complicated than the procedure presently in use by ENERGY STAR, and should not require additional dimmer set points as compared to the ENERGY STAR requirements.	Partially	Staff have reduced the number of dimmer setpoints to one "full" and one "dimmed" setpoint. Staf finds that the test procedure is sufficient for describing the flicker behavior of a lamp in a way that is useful to communicate to consumers and compare to a performance standard. Staff finds that the ENERGY STAR test procedure, while simpler, does not adequately describe the flicker behavior of light sources, and therefore that diminishing the proposed test procedure in order to match its simplicity is inappropriate and would lead to a less useful test.
75481.001	Residential Lighting Flicker	Arnold Wilkins	I have researched the effects of lighting flicker on headache and ocular motor control for the last 30 years. The standards that you are proposing are nowhere near stringent enough to reduce the symptoms induced by flicker. The curve [recommended by the commenter] has been published in an article by Prof Brad Lehrman (Northeastern U) and myself in IEEE Power Electronics Vol 1 No 3 Sept 2014, and it forms the basis of the forthcoming IEEE1789 standard.	No	Staff appreciate the commenter's expression of support for a standard and test procedure for lighting flicker. The commenter's letter does not contain a cost analysis that staff could use to find that a more stringent standard would be both feasible and cost effective for California, and thus staff cannot find that adopting the more stringent level proposed by the commenter would be consistent with statutory requirements. Staff notes that IEEE 1789 was not finalized and adopted by IEEE in time for inclusion in this rulemaking proceeding, and staff encourages the commenter to submit a proposal related to use of this industry standard for inclusion in the 2019 Standards proceeding.
75482.003	Residential Lighting Flicker	AccurIC	It is necessary to establish and define maximum levels of flicker versus frequency in a manner similar to that used in defining EMC/EMI limits in electrical and electronic appliances. Namely, by constructing a 'mask' which defines these maximum levels and by defining a practicable filter-based test method by which the light output of an LED lamp can be tested against the mask. Defining such a mask has been the central focus of the work carried out by the IEEE PAR1789 Working Group on LED flicker.	No	Staff finds that the mask approach suggested by the commenter, while effective, adds complexity (and associated costs) to both the requirement and the necessary test procedure without providing a clear benefit in the context of minimum lighting efficiency standards. Staff also notes that the proposed alternate standard is based on "biological effect" rather than perceptability, which staff finds to be overly stringent for the purpose of ensuring lighting is effective at its purpose and does not possess flicker characteristics that would make it unsuitable for use within the home.

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75615.087	Residential Lighting Flicker	Jon McHugh	Significant percent of lamps will not pass flicker requirements	No	Staff finds that the flicker requirement is both feasible and cost effective, noting that the requirement is applicable specifically to new construction. Staff finds that a sufficient variety of compliant products are available in the marketplace; the existence of a large number of noncompliant products is irrelevant. Staff therefore finds that retaining the requirement is appropriate.
75910.005	Residential Lighting Flicker	Hinkley Lighting	Flicker requirement of JA10 should apply to inseparable luminaires installed outdoors.	No	Staff does not find that the flicker requirements are appropriate to apply to outdoor lighting, given that the same task demands and comfort needs for indoor lighting do not apply to outdoor areas, and staff additionally does not find that any safety condition is created by outdoor lighting that has some amount of flicker.
75917.004	Residential Lighting Flicker	MaxLite	MaxLite opposes the use of a flicker test that has not been standardized or widely utilized by the general lighting industry. We support the use of a flicker testing such as IEEE PAR1789.	No	The proposed flicker requirement is to reduce the likelihood of the most objectionable flicker when using light source at full output and at dim setting, and is consistent with past and current limitations on flicker applicable to dimming controls under the Title 20 and Title 24 Standards. Staff finds that IEEE PAR1789 was not finalized at the time of this rulemaking, and that adopting a standard that is subject to change would not be appropriate.
75929.008	Residential Lighting Flicker	Eaton Cooper Lighting	In our opinion, the flicker requirement of less than 30 percent at 200 Hz frequency is not readily available in today's marketplace. We recommend setting the requirement at less than 40 percent at 200 Hz frequency.	No	The proposed flicker requirement is not a new requirement for the Standards and it has been a requirement for dimmer control devices for usage with lamp products in both the 2008 Title 24 Standards and 2012 Title 20 Standards. Also, according to the 2013 LED Replacement Lamp Quality study performed by PG&E/SDG&E, more than half of the tested lamp products can meet the proposed flicker requirement. The suggested flicker requirement at less than 40 percent at 200 Hz frequency is a less stringent requirement which would weaken the proposed requirement effort to prohibit the most objectionable flicker. Staff does not find that reducing this requirement is either necessary or appropriate.
75937.006	Residential Lighting Flicker	NEMA	4.As previously stated NEMA opposes the content of Joint Appendix 10 (JA10) in its entirety. Setting a temporary, untested requirement in the face of an impending international standard doubles compliance cost and does nothing to alleviate field issues.	No	Staff finds that establishing a requirement for flicker is appropriate, and therefore that a test of flicker is necessary. Staff followed the development of the proposed IEEE PAR1789 Standard, and notes that the Standard was not finalized in time for consideration within the 2016 Standards. Staff finds that the alternative of not setting any standard for flicker due to lack of a test method would not have been appropriate, and further finds that the proposed procedure is appropriate and effective at its purpose.
76095.043	Residential Lighting Flicker	Feit Electric Co.	Commenter (Brian Wilcox) notes that this proposal (about flicker reduction) is not rooted in science, human impact, or customer acceptance. Also commenter notes that this proposal addresses a problem that does not exist.	No	Staff find that the standard for flicker is taken directly from existing requirements for the performance of dimmer controls, and additionally finds that flickering lighting is generally understood to be unsuitable for most functions and activities.
75240.001	Residential Lighting General	CASE Team	CASE Team response to comments from NEMA, Philips Lighting, and Cooper Lighting.		None; this letter is a response to a comment submitted by another stakeholder, and is not a comment on the proposed 45- or 15-day language.
75392.001	Residential Lighting General	Kichler	Can the word "installed" be replaced with "supplied"?	No	"Installed" means by the builder prior to final inspection; it does not mean installed by the manufacturer, but rather by the person installing the lighting in the building. "Supplied" would allow a builder to leave a pallet of boxed lamps in the garage, rather than installing them in appropriate sockets in the building, which is not the intent of the regulations.
75392.002	Residential Lighting General	Kichler	In the Residential Outdoor Lighting section, I do not see an exception for Landscape Light, an exemption that IS included in the non-residential section. For clarification, it would be good to include the same exception for both line and low-voltage landscape lighting.	No	The residential lighting requirements intentionally apply the high efficacy requirements of Section 150.0(k)1A to outdoor lighting, per Section 150.0(k)3. Table 150.0-A specifies that inseparable LED luminaires installed outdoors are considered high efficacy without needing to comply with JA8. Other types of lighting commonly installed outdoors, such as pulse-start metal halide and high pressure sodium lighting, are similarly specified in this Table as being high efficacy without needing to comply with JA8.

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75418.001	Residential Lighting General	Phillips	We propose that there is no need to exclude screw-base options [for recessed luminaires in ceilings], and we believe that removing this exclusion will allow greater flexibility and help to simplify the code.	No	While staff support the development of high temperature tolerant lamps by including an alternate elevated temperature test in JA8, staff did not find that the more severe thermal issues presented specifically by recessed luminaires in ceilings are fully resolved in relation to currently available temperature-tolerant screw-base LED and CFL lamps. Accordingly, the proposed regulations allow for screw-base sockets with lamps meeting JA8 to qualify as high efficacy for other elevated temperature applications, such as in enclosed luminaires, but restrict them in the specific environment of recessed luminaires in ceilings.
75426.001	Residential Lighting General	Kingport	Many stakeholders have interpreted the 2013 Title 24 as requirining the certification of luminaires manufactured with lighting control system integrated at the factory. The confusion is caused by the fact that Section is entitled: Mandatory Requirement For ... and Luminaires. Recommend to remove the word, luminaires, form the Title of Section 110.9.	No	The title of Section 110.9 reflects the content of the Section and it includes Section 110.9(e) and (f), which both apply to residential luminaires. Lighting controls integrated with luminaires may meet the definition of a Self Contained Lighting Control as regulated under the Title 20 Appliance Efficiency Regulations, and therefore are potentially required to be certified by the Manufacturer under Title 20. Nonresidential luminaires are not required to be certified to the Energy Commission under Title 24, however fluorescent lamp ballasts and metal halide fixtures are required to be certified to the Energy Commission under Title 20; it is inaccurate to blanketly say that nonresidential luminaires are not subject to any certification requirements.
75428.004	Residential Lighting General	Acuity	The definition of “recessed lighting” has always been intended to cover only recessed downlights. We understand that CEC has issued “Staff Intended Changes” to the 45-day language to clarify that the requirements in 150.0(k)1C, 150.0(k)1Gi, and Table 150.0-A will apply to only “recessed downlight luminaires”. We appreciate that CEC has recognized this issue and we expect this change to be incorporated into the 15-day language.	Yes	Staff made the changes referred to by the commenter.
75428.005	Residential Lighting General	Acuity	Furthermore, the concern with downlight performance in past versions of the code related to the thermal management of replaceable light sources. Recessed downlights with integral LED or OLED light sources are designed and tested for proper thermal management and the consumer cannot change the light source. Therefore recessed downlights with LED or OLED light sources should be exempt from meeting the requirements of JA8 in order to be classified as high efficacy.	No	JA8 contains requirements beyond thermal management, and staff finds these requirements appropriate to apply to this lighting. In addition, while integral LED and OLED products can be designed and tested for thermal performance, many products are not designed or tested for recessed ceiling installation. Therefore, there remains a need to confirm that such products installed as recessed downlights have in fact been tested and shown to be suitable for this use.
75428.016	Residential Lighting General	Acuity	The residential building code should be inspected with the same process used for non-residential buildings because there is no single solution for all installations.	No	Inspection procedures must necessarily follow from the requirements being verified. Nonresidential lighting requirements are structured differently than residential lighting requirements, and thus inspection procedures must also be different.
75428.018	Residential Lighting General	Acuity	We recommend that the CEC define alternate methods for inspection and compliance. We reiterate our suggestion from previous workshops to establish a submittal process using manufacturer’s specification sheets or technical data sheets in a builder’s inspection submittal. Also eliminate the requirement to submit products to the CEC appliance database since the requirements are not consistently applied to all technologies and imposes an unreasonable burden on SSL products including residential, commercial, industrial, specification and architectural grade products.	No	Manufacturers are required to submit data in a standard format in order to facilitate review by staff and uploading into the Energy Commission's database. Staff does not find that hunting through manufacturer spec sheets and data sheets for data that will not be present in the same locations or formats, and may not be present at all, to be reasonable for demonstrating compliance with regulation; such an approach would be prone to delays and errors in submittal processing, which would increase costs for both manufacturers and the State. Staff also finds that eliminating certification requirements would not be reasonable. Manufacturers must have a way of demonstrating to the State that their products comply with applicable regulations. Certification allows for the submittal of product data under signature to accomplish this demonstration, which staff have found in previous rulemakings to be a less burdensome method than alternatives. Staff does not find that this is applied inconsistently, nor that the burden is unreasonable.
75428.022	Residential Lighting General	Acuity	Staff changes and an aggressive schedule do not seem to support the consideration of comments from industry provided over the last year from Acuity and NEMA.	No	The consideration and response to submitted comments is shown both in the 15-Day Language and in this Final Statement of Reasons.

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75428.023	Residential Lighting General	Acuity	Public meeting that have been scheduled at times that are known in advance to present significant conflicts for industry members.	No	There are many stakeholders and they have competing demand for availability. The March 2 and 3 workshop was scheduled to accommodate as many stakeholders as possible, though it did occur at the same time as a significant lighting event that many lighting companies attended. The Energy Commission provides web resources for people to attend remotely when they cannot attend the meeting in person, provided transcripts and copies of presentations, and worked directly with stakeholders that wanted to have additional, direct discussions with staff.
75428.024	Residential Lighting General	Acuity	The 45-day language seems to be in a continual revision mode. It is difficult to formulate comments with the continual reference to potential changes throughout the 45-day process. In addition, CEC staff has indicated that comments provided after 3/17/15 are not likely to be addressed due to the limited schedule, even though the comment period is open until 3/30/15. Because of the changes introduced on March 3, the public only had 14 days to comment in a manner that would allow the CEC to address the comments.	No	The purpose of the public comment period within the rulemaking proceeding is to gather feedback from the public and refine proposed amendments accordingly. Staff received copious and continuous input from lighting stakeholders both before and throughout the formal public comment period, in particular in regards to the lighting alterations requirements of Section 141.0(b)2, and was transparent in showing how this feedback was leading staff to consider different approaches to this Section as 15-Day Language was developed. Staff does not find that this transparency impeded any stakeholders' ability to comment on the proposed 45-Day Language. Official notices indicated that earlier submittal of comments would give staff more time to consider those comments; this is not a statement that later comments would not be considered, and all comments received during the noted period were considered by the Energy Commission. Rather, submitting comments prior to the close of the public comment period allows staff the opportunity to contact stakeholders with questions about their comments while stakeholders are still able to submit additional comments, such as responses to staff questions, within the public comment period.
75428.025	Residential Lighting General	Acuity	Workshop documents and presentations have not been made publically available at the time of the workshop. Many items posted on the web have not included the date posted or modified.	No	Workshop documents have been posted within mandated time frames. Presentation materials are not required to be posted, but are made available as a courtesy, and were published on the day after the workshop.
75428.026	Residential Lighting General	Acuity	Historical documents including June and November CASE studies, proposed code language, presentations and comments seemed to have been removed or moved elsewhere other than the 2016 proceedings.	No	Materials relating to the period of Standards development occurring prior to the start of the formal rulemaking period are located in the "Pre-Rulemaking" section of the 2016 Building Energy Efficiency Standards webpage. This section is clearly titled and is available from the main 2016 Standards webpage here: http://www.energy.ca.gov/title24/2016standards/
75428.027	Residential Lighting General	Acuity	Transcripts have not been published within a reasonable amount of time.	No	This transcript had taken longer to develop than was initially planned, both due to the length of the transcripts and due to unexpected personnel shortage. However, transcripts are published as a courtesy, not to meet regulatory requirements for rulemaking proceedings. Staff also notes that the presentations given at the workshop were published on the Energy Commission's website (in the section relating to the 2016 Standards proceeding) on the day after the workshop's conclusion.

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75429.018	Residential Lighting General	NEMA	NEMA is concerned that some of the prescriptive requirements in this cycle of proposals have not being given adequate review and analysis as required by California Code. [...] California Government Code §11346.1(b)(1) and §11346.5(a)(7)(c)(iii) signal a policy preference for performance-based standards and they also require mandatory reviews and reports when prescriptive standards are to be proposed11.	No	Staff finds that any of the proposed requirements have been given adequate review and analysis as required by law, and the commenter does not specify in what way the analysis is inadequate or does not meet legal requirements. The referenced sections of the government code also do not impose requirements on the current rulemaking. Section 11346.1 of the California Government Code (and its subsections) applies specifically to emergency rulemakings, and this is not an emergency rulemaking. Section 11346.5(a)7 specifies information that must be included "If a state agency, in proposing to adopt, amend, or repeal any administrative regulation, makes an initial determination that the action may have a significant, statewide adverse economic impact directly affecting business." Subsection C specifies a statement that must be made, and that "Submissions may include the following considerations:", using the underlined permissive language. The third consideration, item iii, is what the commenter cites and states, "The use of performance standards rather than prescriptive standards." Staff does not find that this imposes a requirement that the proposed Standards or the current rulemaking materials fail to meet. Further, staff notes that the requirements of JA8 are performance standards: they establish performance thresholds that lighting proucts must meet to qualify for installation in regulated residential construction.
75476.001	Residential Lighting General	American Lighting Association	Comment letter duplicating comment letter TN 74444		Please see staff response to TN 74444
75482.001	Residential Lighting General	AccurIC	Due to the response of the eye, 10% dimmed (light output being 90% down on full brightness) corresponds to a perceived brightness level of 32% (light output is perceived as being down by only 68%). We therefore suggest that in order for the minimally acceptable dimming performance to correspond to a perceived dimming level of 10%, the minimally-acceptable dimming depth for a high-efficacy light source should be 1%. In our submission, in an era which will see lighting controls and daylight harvesting methods increasingly used in residential and commercial buildings, such a minimally acceptable deep dimming capability will be seen as a "must have" rather than simply as a desirable feature.	No	Staff finds that dimming down to 10% of light output ensures that lighting behaves appropriately down to a point where, in the context of daylighting controls, the lighting can be comfortably turned off if there is additional available daylight. Staff does not find that requiring all lighting to be dimmable down to 1% provides a benefit that would justify its stringency, noting also that there are very few lamp products that would meet a 1% dimming requirement.
75521.001	Residential Lighting General	CASE Team	Support comments from IOU CASE team.	No	Staff understands this comment letter to be responding to comments made by other commenters and not commenting on the proposed changes to the regulations shown in the Draft Express Terms.
75552.013	Residential Lighting General	Engineering Enterprise	Section 150.0(k)1. Is the intention that no low efficacy lights are allowed in residential applications anymore? There must be an exception for ornamental lighting. This would not allow any decorative fixtures in California homes as virtually none of them have integrated LED lamps, all have medium base sockets.	Yes	Staff added the item "Inseparable SSL luminaires containing colored light sources that are installed to provide decorative lighting" to the first column of Table 150.0-A, meaning that such lighting is treated as high efficacy without having to comply with JA8.
75615.079	Residential Lighting General	George Nesbitt	Are screw-based fixtures allowed (in residential dwellings?	N/A	Screw-based luminaires paired with JA8 compliant light sources are allowed to be installed in residential dwellings, with the exeption that recessed downlight luminaires in ceilings are not allowed to be screw-based luminaires.
75615.08	Residential Lighting General	George Nesbitt	Are IC-rated airtight housings for lighting still available? [Commenter also asks that the ICAT requirement be removed in some or all situations.]	N/A	Staff does not find evidence of an issue with the availability of IC-rated airtight cans. Staff additionally finds that the cost difference for an ICAT fixture is minimal, and that the regulations benefit from having a simple, uniform standard. For this reason, staff does not find that a change to the language is necessary or appropriate.
75615.091	Residential Lighting General	NRDC	Commenter suppots the proposed updates to the residential lighting requirements.	N/A	Staff appreciates the commenter's support of the residential lighting requirements.

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75615.094	Residential Lighting General	NRDC	The Title 24 requirements should align with proposed requirements in Title 20.	No	Staff find that T20 and T24 have often moved to different positions as appropriate given differences in scope. Staff also notes that the T20 language has not been finalized or adopted via a completed rulemaking process at the time of this writing, and is subject to change; for this reason, staff do not find that changing the 2016 Standards language would be appropriate at this time.
75615.096	Residential Lighting General	Alex Bosenberg	I wanted to ask if Mr. McGaraghan would be so kind to submit, as a comment, an analysis of his dataset that strips out only qualifying lamps as proposed to the new JA8, and also to be sure that any effects of rebate or other incentive programs are removed. It's our belief that once that's done, it doesn't look quite as rosy. But I look forward to him providing that, if he doesn't mind.	N/A	The effect of rebates or other incentive programs are not part of the cost effectiveness analysis: the CASE Study analysis has taken the full retail price of a lighting products into account for the cost effectiveness anlaysis.
75907.001	Residential Lighting General	Sierra Club California	We support the CEC's proposed changes to the Standards, which include requiring all lighting in newly constructed residential lighting buildings be high efficacy lighting.	N/A	Staff appreciates this comment of support for the proposed regulations.
75910.003	Residential Lighting General	Hinkley Lighting	Unless otherwise tested, fully enclosed and paritally enclosed lighting chambers should be limited to a single lamp.	No	Staff finds that the commenter's suggestion would impose a new regulatory limitation on decorative luminaire products, and that doing so requires a cost analysis showing that the proposed new measure is cost effective. Staff notes that no cost information or analysis is provided with the comment, and further does not find that limiting the number of sockets or installed lamps necessarily prevents or avoids thermal issues (for example, two small lamps may have superior thermal properties to a single, larger lamp, though staff understands that the commenter is specifically concerned about situations when inappropriate lamps are installed). Staff therefore does not find that making this change at this time would be appropriate; staff encourages the commenter to submit a complete proposal for the 2019 code cycle.
75910.004	Residential Lighting General	Hinkley Lighting	We suggest requiring a project to educate consumers on the best application of energy saving lamping in decorative fixtures.	N/A	The comment neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language. Staff notes that the Energy Commission engages in significant education and outreach relating to the Building Energy Efficiency Standards, and that any direction to the Energy Commission to engage in additional training would need to occur in statute, not regulation.
75928.002	Residential Lighting General	Acuity	Inseparable SSL luminaires contain LEDs and driver components which cannot be easily removed or replaced by the end user, thus requiring replacement of the entire luminaire. This infers that a luminaire that employs screws and connectors in order to replace LEDs and/or driver would not be classified as an inseparable SSL luminaire. A. Table 150.0-A exempts inseparable SSL luminaries that are installed outdoors from JA8 criteria. Separable SSL luminaires that are installed with the same feature would also be exempted (from JA8 criteria).	No	Staff does not find that the presence of screws or connectors alone would be sufficient for determining that the LED is not designed for or intended for the LEDs to be removed or replaced by the user, as there are products that use screws and connectors and are fully intended to be modified by users. However, staff finds that many luminaires that contains connectors and screws would meet the definition of an inseparable LED: for example, where replacing LEDs or drivers would require the luminaire cover to be removed in order to access the connector and screws and would further require the electrical circuit to be de-energized before accessing interior of the luminaires, only a licensed electrician, not a lay persion, would be qualfied to perform the described work, and most end users do not have an electrician license. For this reason, staff finds that the definition of an inseparable SSL product is appropriate in identifying the kinds of features that indicate whether a product is or is not intended for the LED to be removed or replaced by the end user.
75929.012	Residential Lighting General	Eaton Cooper Lighting	Pleases clarify the ICAT requirement of Section 150.0(k)1Bii is for rececessed downlights only and not other type of recessed products.	No	The ICAT requirement of Section 150.0(k)1Bii is for rececessed downlights only. The word "downlight" is added to Section 150.0(k)1B to distinguish that Section (k)1B is for recessed downlights only and not other type of recessed products since other type of recessed products are not identified as recessed downlights in the building industry.
75956.003	Residential Lighting General	RNM Engineering	Add a definition for blank electrical box.	Partially	Staff finds that the term "blank electrical box" is a common and well understood term in construction, and that a specific regulatory definition is not needed.

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75959.001	Residential Lighting General	RNM Engineering	Commenter recommends adding the word "residential" to the titles of several subsections.	No	Staff finds that the title of Section 150.0(k) is "Residential Lighting", and therefore that adding the word "residential" to each of its subsections would be redundant.
75959.002	Residential Lighting General	RNM Engineering	Commenter recommends providing a definition of "blank electrical box", and notes that studio apartments may not have a bedroom per se.	No	Staff finds that the term "blank electrical box" is a common term in construction, and that a specific regulatory definition is not needed. Staff also finds that studio apartments have single rooms that serve both as bedrooms, living areas, and kitchens; for these rooms, the fact that they serve as bedrooms would allow them to have a blank electrical box under this Section. Staff therefore finds that no change to the regulatory language is necessary.
75959.003	Residential Lighting General	RNM Engineering	Commenter asks if there are any limits on the number or locations of night lights.	No	The regulations do not limit either the number or location of night lights. Staff finds that buildings proposing to light entire rooms using solely night lights would be unlikely to pass building inspection or be acceptable to potential buyers, and has not observed any evidence of this allowance being abused. Staff therefore does not find that specifying any particular limit is necessary at this time.
75959.004	Residential Lighting General	RNM Engineering	Commenter asks for clarification regarding control of undercabinet lighting by EMCS systems.	No	Staff do not find that the language requires clarification: an EMCS can control undercabinet lighting provided that the undercabinet lighting can be manually controlled separately from other lighting, as specified in Section 150.0(k)2L.
75959.005	Residential Lighting General	RNM Engineering	Commenter requests renumbering of Section 150.0(k)3.	No	Staff does not find that the proposed renumbering improves either the clarity or consistency of the Section, given that the current enumeration serves to more clearly separate the requirements applicable to outdoor lighting.
75959.006	Residential Lighting General	RNM Engineering	Commenter suggests adding a section specifying requirements for garages with seven or fewer vehicles, and inserting the word "parking" into the Section title.	No	Section 150.0(k)5 specifies that residential garages for eight or more vehicles must comply with nonresidential lighting requirements applicable to nonresidential garages. The other subsections of Section 150.0(k) specify lighting for residential spaces, including residential garages; adding the suggested Section would be redundant, and would incorrectly imply they are treated differently from other residential spaces. Separately, staff find that the residential garages referred to by the Section title are not parking garages, and thus inserting the word "parking" would not be appropriate. Staff notes that the commenter is correct that the nonresidential requirements referred to in this Section are applicable to parking garages; the action of this Section is to also apply these requirements to residential garages intended for eight or more vehicles.
75959.007	Residential Lighting General	RNM Engineering	Commenter suggests edits to specifications for corridors and stairwells to describe the operation of the occupant sensor.	No	Staff find that occupant sensor behavior is specified in Section 110.9, and thus that the proposed changes would create unnecessary redundancy and would not be appropriate.
75428.007	Residential Lighting GU-24	Acuity	In the March 2015 workshop, CEC staff indicated that they intend to allow GU-24 lamps with LED light sources as high efficacy and are not required to comply with JA8. This is not included in the 2/24/2015 "Staff Intended Changes" to the 45-day language, so it is unclear whether GU-24 LED lamps will be required to meet JA8 or not. We recommend that CEC clarify in the 15-day language that the requirements of JA8 shall not apply to indoor luminaires with integral LED or OLED light sources. If CEC decides to continue the requirement of JA8 for indoor luminaires with integral solid state light sources, then we request the technical and cost justification why these luminaires are subject to a different standard from GU-24 base lamps and outdoor luminaires. We would also suggest that additional test requirements be placed on luminaires using a replaceable lamp to ensure high quality photometric and thermal performance.	No	The requirements applied by JA8 to LED lighting are both feasible and cost effective, and found in products available on the market today. These requirements are necessary to ensure that manufacturers designing products to achieve a lumens-per-watt threshold do not do so by unnecessarily diminishing the overall performance of the product. Reducing the performance or benefit of a product in order to save energy is not efficiency, but conservation. LED products with GU24 bases are required to comply with JA8 in order to be installed in residential construction regulated by Title 24 Part 6, per the proposed language in Table 150.0-A. The commenter is incorrect that these products are held to differing requirements. The technical and cost justifications for proposed changes are found in the Documents Relied Upon noted in the Initial Statement of Reasons and published on the Energy Commission's website. The proposed changes to JA8 include adding procedures for determining photometric and thermal performance; the commenter does not specify in what way these procedures are inadequate for determining these performance aspects, and staff cannot evaluate additional requirements without associated cost analysis.

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75615.072	Residential Lighting GU-24	MaxLight	I really support the G-24 sockets remaining and immediately high-efficacy source as identified by your changes.	N/A	Staff appreciates this comment of support.
75615.101	Residential Lighting GU-24	David Peak	Why would you create two standards for LED, one for GU-24 and one for all others? Big mistake.	No	Staff found that retaining the GU-24 specification in the 2013 Standards was appropriate given the limited number and availability of non-LED GU-24 products, and the risk of products designed to meet this requirement becoming stranded in inventory. Staff notes that GU-24 LED products must still comply with JA8.
75910.002	Residential Lighting GU-24	Hinkley Lighting	Only a dedicated test of a lamp in luminaire should be accepted by the Commission in the use of lamping. Requiring this of GU24 lamps but not Edison has no technically sound merit.	No	Staff finds that the requirements of Gu-24 and non-GU-24 LED lamps are identical, and that no change is necessary to address the commenter's concern.
75917.001	Residential Lighting GU-24	MaxLite	MaxLite and others have worked with luminaire manufacturers for years to ensure that certain GU24 CFL light sources operate properly in enclosed fixtures, and there is a high volume of (mostly ENERGY STAR Certified) enclosed fixture products being sold for residential use through builders and through big box retailers that operate very successfully using GU24 CFLs that are enclosed rated. Eliminating their use would needlessly limit customer choice and availability of products. Therefore, remove the requirement that all light sources used in enclosed luminaires must be JA8 compliant.	No	Staff finds that there are incidents of using lamps with inadequate thermal management in enclosed luminaires, and as a result the lamp burns out prematurely. Staff finds the requirement of using elevated temperature rated light sources in enclosed luminaires appropriate to avoid premature failure of light sources in enclosed luminaires.
75929.007	Residential Lighting Joint Appendix 0	Eaton Cooper Lighting	JA8.4.5(a) states a lumen maintenance requirement of 25,000 hours while JA8.4.5(b) states a rated life requirement of 15,000 hours. This could be confusing and recommend it be changed to 35,000 hours or at least L/70 hour value..	No	Staff finds that the relationship between the IES TM-21 projected L70 and the rated minimum lamp life is clear, noting that the 15,000 hours is a minimum, not an average, life and thus is expected to be a lower value than the TM-21 projection. Staff does not find, and the commenter does not provide, any further rationale for increasing the stringency of the minimum rated life requirement to either 25,000 or 35,000 hours, noting that for staff to consider increasing this requirement a cost analysis showing that this increased requirement was cost effective would need to be provided.
75929.006	Residential Lighting Joint Appendix 1	Eaton Cooper Lighting	We believe the CRI requirement and the color rendering R9 value will severly restrict customer choice if the requirement is in all product categories. 2.We would ask that (CEC) reconsider both the CRI 90 requirement and the color rendering R9 value drafted in the board application of JA8 for High Efficacy products other than downlights. 3.We would also ask that the commission consider if the inclusion of 90 CRI and a 50 R9 value inadvertently provides preferential treatment to those that have patents written specifically around those performance characteristics creating a potential for restriction of trade that drives product costs up for those that comply with US laws.	No	The CRI requirement is part of the existing 2013 Standards, and the current rulemaking does not propose to revisit this requirement. The addition of an R9 requirement addresses a known deficiency of the CRI test. Staff does not find, and the commenter does not provide, any evidence that the R9 50 requirement provides inappropriate preferential treatment of patent holders, noting that a 50 is a very low value in a test of CRI color swatches.
75929.009	Residential Lighting Joint Appendix 1	Eaton Cooper Lighting	We would like the Commission to clarify the CCT of 4000K or less is a nominal value. The requirement of being within 0.0033 Duv is too restrictive and could inadvertently provide preferential treatment to those that have patents written specifically around those performance characteristics. We suggest aligning this requirement more closely with ENERGY STAR at a requirement of 0.006 Duv.	No	The CCT of 4000K or less is a nominal value. Staff find that the 0.0033 Duv requirement is necessary to ensure that lighting is perceived to be the same color when directly viewed, and to prevent gaming of color values. Staff therefore does not find that moving to 0.006 Duv would be appropriate.
75916.015	Residential Lighting Joint Appendix 10	Lutron	Focus more on energy monitoring over disaggregation of circuits as disaggregation of circuits doesn't save energy or add value to the owner unless monitoring is done. Plus this aligns better with ASHRAE 90.1-2010 and 2013. We suggest bringing the Section 130.5 language so that the buildings that have a system to monitor energy per Table 130.5.	No	Staff does not find that energy monitoring have been proven cost effective as a measure. Staff therefore finds that requiring buildings be designed for compatibility with such systems is appropriate, as separating circuits can be done at minimal cost when designing a new building, and avoids requiring monitoring equipment whose costs may exceed their benefit.
75916.015	Residential Lighting Joint Appendix 11	Lutron	Add some clarification language to the User's Manual in the Standards so that electrical contractor know that one sensor can be used to control lighting separately in skylit daylit zone, primary sidelit daylight (daylit) zone, and secondary daylit zone for meeting Section 130.1(d).	N/A	The comment neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language: the comment instead refers to the compliance documents and educational material published by the Energy Commission. Nonetheless, staff will consider adding appropriate languaeg to the Nonresidential Compliance Manual for the 2016 Standards.

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75916.014	Residential Lighting Joint Appendix 12	Lutron	The current language of Section 150.0(k)2J prevents homeowners from using an automatic partial-on/automatic-off occupant sensor instead of a vacancy sensor even though partial-on sensors have been proven to save more energy than vacancy sensors. What's more is that these are key spaces where users want lighting to automatically come on.	No	The commenter misunderstands the regulations: a vacancy sensor ensures that lights are turned off when not in use. Staff does not find that automatic on functions, either partial or full, result in any energy savings: by definition they cause lights to begin using energy, not to cease using energy. Staff therefore does not find that changing the regulations to specify automatic-on functions as an alternative to automatic-off functions would be appropriate.
75916.013	Residential Lighting Joint Appendix 13	Lutron	The Section 130.1(c)5 requirements have changed to allow either partial-on sensors or vacancy sensors. We support these requirements but want to ensure that occupancy sensors that are programmed to operate as partial-on or vacancy sensors can comply.	No	Staff appreciates commenter's statement of support and can confirm their understanding. A lighting control device that can be programmed as a vacancy sensor or a partial-ON sensor, can be used to meet Section 130.1(c)5 requirement as long as the user would not normally have the ability to change its programmed control functionality of vacancy sensing and partial-ON occupancy sensing.
75916.012	Residential Lighting Joint Appendix 14	Lutron	Footnote 1 should be corrected so that it's clear that using a thermostat system with a bridge or gateway device connected via Ethernet to a WiFi router and communicates to the rest of the system in any protocol complies.	No	Staff does not find that any clarification of the language is necessary. Section 5.3.1 specifies that the OCST must be "capable of" connecting to a WiFi or Zigbee network, and intentionally avoids prescribing or otherwise specifying how this capability can or should be achieved. The footnote specifies that, for a networked systems of devices performing OCST and DR functions, this capability may come from a wired or wireless gateway or access point that is part of said system. Staff finds that adding language relating to specific methods of achieving the required functionality risks implying a prescriptive requirement and creating confusion regarding how this requirement can be met, and therefore would not be appropriate.
75916.011	Residential Lighting Joint Appendix 15	Lutron	The much need Ethernet addition to JA5.3.1 Communication Interface was limited to non-residential buildings. Ethernet must be an option for residential buildings too.	No	Ethernet is necessary to account for large commercial buildings where the location of the OCST system may be too remote or too isolated to establish connections wirelessly, or that may house equipment that generates intereference that precludes wireless communication. Staff does not find that these conditions exist for low-rise residential construction, and thus finds that wireless communication remains appropriate as a minimum specification for residential equipment. Staff notes that residential equipment may include, and may use, an Ethernet connectivity option provided that the required wireless ability is also present.
75916.01	Residential Lighting Joint Appendix 16	Lutron	i. The new ENERGY STAR specifications for luminaire and lamps recognized this start time issue and have made the appropriate accomodation for this smart technology.	No	Comments submitted to the ENERGY STAR and referenced by the commenter opposed a 0.5 start time requirement, and the ENERGY STAR chose to pursue a lower standard as a result; staff does not find that this provides evidence that the requirement is not feasible, and thus does not find that reducing the standard based on this would be appropriate.
75916.009	Residential Lighting Joint Appendix 17	Lutron	h. State of the art lighting has 0.75 to 1.00 second start time as recognized by the new ENERGY STAR lamp and luminaire standards.	No	Staff finds that the proposed requirement of 0.5 second is feasible and cost effective.
75916.008	Residential Lighting Joint Appendix 18	Lutron	g. We believe that LED driver boot up times are going to be getting longer not shorter over time as additional control functionality is added	No	Staff does not find that reducing the requirement based on speculation about future products would be appropriate.
75916.007	Residential Lighting Joint Appendix 19	Lutron	f. There are no feasible alternatives that consumers want. Customers don't want lights to flash and flicker. Compliance to this specification would add cost to consumers for worse performance.	No	Staff finds that fade-to-on lighting is not prohibited by this requirement.
75929.005	Residential Lighting Joint Appendix 2	Eaton Cooper Lighting	We strongly support the ban of screw base lamps in all recessed luminaires and support he addition of enclosed luminaires to that ban.	N/A	Staff appreciates this comment of support.
75929.01	Residential Lighting Joint Appendix 2	Eaton Cooper Lighting	The 45 lumens per watt favors lamps suspended in air. The LED standards have been written around LM-79 with luminaire efficacy paramount. This allows for a 45 LPW lamp that will deliver less than 20 LPW in a luminaire. We would propose continuing the use of a matrix by luminaire application and/or type using LightingFacts® data analytics to establish the targets.	No	The 45 lumens per watt requirement is proposed for consistency with current federal law for lamp products that becomes effective at the federal level in 2020 and effective within California in 2018. As federal law preempts state law with regard to federally regulated appliances, which includes lamps, staff find that the 45 lumens per watt requirement is necessary for ensuring that a single standard is applied to all lighting products that is neither inconsistent with nor at risk of preemption by federal law.

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75916.006	Residential Lighting Joint Appendix 20	Lutron	e. In our experience, users are comfortable with up to 1 second start time and there is no evidence that suggests less than 1 second is problematic.	No	Staff finds that the proposed requirement of 0.5 second is feasible and cost effective. As noted in the CASE report study and the 2014 CLTC study on LED replacement lamps, products with 0.3 second are available in the market. Staff finds that consumers prefer and expect lighting that comes on immediately, consistent with the behavior of incandescent lighting.
75916.005	Residential Lighting Joint Appendix 21	Lutron	d. We do not want the government dictating to consumers that they can't have features they want such as fade-to-on. This feature is intentionally built on our products to provide customers with the aesthetically pleasing lighting effect when turning lights on and off. Customers do not want their lights to abruptly come on.	No	Staff finds that fade-to-on lighting is not prohibited by this requirement.
75916.004	Residential Lighting Joint Appendix 22	Lutron	c.Universal input voltage increases start time since it is not acceptale to have just 120V products.	No	Staff finds that the standard household voltage of 120V is also standard for lighting sockets and circuits. Staff does not find, and the commenter does not provide, any evidence that dedicated lighting operating at a voltage other than 120V would be unable to meet the start time requirement.
75916.003	Residential Lighting Joint Appendix 23	Lutron	b.A longer start time is needed for the startup sequence which includes steps for the LED driver ramping up the output to LEDs to provide a fade-to-on of the light output.	No	Staff finds that fade-to-on lighting is not prohibited by this requirement.
75916.002	Residential Lighting Joint Appendix 24	Lutron	a. It would eliminate all smart LED drivers from qualifying as they perform checks of various controloptions and provide homeowners desired advanced functionality such as fade-to-on.	No	Staff finds that fade-to-on lighting is not prohibited by this requirement, nor are checks of control options performed by "smart" LED drivers.
75916.001	Residential Lighting Joint Appendix 25	Lutron	The changes in the 15-Day Language have clarified the scope to include non-integral ballasts and drivers. This scope shift has now called into question the start time specification that smart LED drivers will not be able to meet. The current proposed language of no greater than 0.5 seconds start time is unacceptable for the following reasons:	No	Staff finds that the majority of Lutron's comments stem from a misunderstanding of how fade-to-on lighting would be tested to determine its start time: the start time test does not require that lighting complete its boot up and its entire fade-in progression within 0.5 seconds, which commenter correctly assesses would effectively prohibit fade-in lighting. Staff did not find that a change to the language was necessary to resolve this misunderstanding: staff finds that additional instructions or directions related to performing the required start time test are more appropriately included in compliance documentation, and not within regulatory language.
75912.001	Residential Lighting Joint Appendix 26	Once Innovations	Commenter disagrees with the findings of the CASE reports related to flicker, and requests a change to the flicker requirements to allow LED technologies operate at or above 100Hz or 120Hz. "Thus we request California adopt the same standard on flicker/modulation as Energy Star or The European LED Quality Charter and put an end to the “flicker” boogieman."	No	As indicated in commenter's letter , some participants of the flicker research experiments have indicated that lighting flicker or stroboscopic effect of 100Hz is objectionable, and some populations can detect (and find objectionable) flicker at 120 Hz in some conditions. Staff finds, also, that the ENERGY STAR test for flicker does not provide a complete description of flicker, given that the fourier transform to account for both amplitude modulation and frequency is not performed. Staff does not find that the Wilkins report is in error in concluding that flicker can contribute to headaches, nor that because the study was conducted with fluorescent lamps that the results are not applicable to flicker from other types of light sources. Staff finds that retaining current flicker requirements is appropriate to prevent installation of lighting that would be unsuitable to a significant percentage of California residents, per the content of the CASE report cited by the commenter; staff does not find that the Bullough study overrides the studies cited in the CASE report. Separately, staff notes that flicker thresholds are established to prevent unsuitable or unacceptable lighting from being installed in dwellings under Title 24, and are not based on biological effect thresholds or health impacts. Flicker requirements are directly copied from the flicker requirements for dimming controls under Title 20 that are also required by Title 24 under Section 110.9. Staff do not find commenter's studies regarding health impacts to be relevant to whether a resident would find flickering light to be suitable or objectionable.

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75903.002	Residential Lighting Joint Appendix 27	Philips	We strongly urge the CEC to align with other existing agency marking requirements and simplify formats to consolidate and reduce required marking text. We feel that the proposed two label options described in the 15-day language will be confusing to consumers and add unneeded complexity for manufacturers.	No	Staff finds that the revised marking requirements simplify and consolidate the required marking to a short compliance mark of either "JA8-2016" or "JA8-2016-E". Both indicate compliance with JA8, and the "E" indicates products for elevated temperature applications such as recessed luminaires and enclosed luminaires. The marking provides a tool to consumers and building inspectors to verify that appropriate lighting is installed in fixtures in new construction, consistent with allowing removable lamps to be used for compliance with JA8. Staff do not find that eliminating the marking requirement and leaving no way for either consumers or inspectors to verify compliance of installed lighting would be appropriate.
75903.001	Residential Lighting Joint Appendix 28	Philips	Most comments are the same as those comments of the 03/17/2015 Philips letter. Revised and newly added comments are as follows.	No	This comment letter resubmits comments provided in the March 17, 2015 letter from the same commenter. The responses to the comments in that letter are applicable to the same comments here. Staff note one novel comment relating to marking requirements, responded to below.
75600.003	Residential Lighting Joint Appendix 29	MaxLite	JA 8.5 Marking: In lieu of the marking requirements stated. MaxLite supports the idea of an icon or symbol of some type that indicates the light source is JA8 compliant. Such a symbol makes the labeling of light source a bit easier for light source manufacturers. Still, some miniature LED lamp types that are used to replace halogen such as G4, G9, etc. may have some challenges to include the necessary compliance and date code information. We recommend an exception to full marking language on lamps of diameter 1.6” or less. Such lamps could potentially need to show the JA8 compliance symbol only.	Yes	Staff have reduced the marking requirements for all products to a short mark of either "JA8-2016" or "JA8-2016-E", consistent with the commenter's request relating to small mark for small diameter products.
75929.004	Residential Lighting Joint Appendix 3	Eaton Cooper Lighting	We suggest that CEC give more consideration to the proposal that would allow screw base lamps in all luminaires with the exception of recessed downlights. Less energy efficiency technologies could and will be installed after the initial inspection.	No	Staff finds that the risk of less efficient technologies replacing efficient, compliant lighting installed in screw-base sockets is minimal. Lamps meeting the specifications of JA8 will produce lighting suitable for use in all areas of the home, and will perform for a period exceeding 15,000 hours. Staff therefore finds that the risks of either dissatisfaction or replacement due to failure are minimized such that the benefits of allowing the use of screw-base products outweigh these risks.
75929.011	Residential Lighting Joint Appendix 3	Eaton Cooper Lighting	We are concerned with the inclusion of LED linear tubes in the standards. There are many elements for LED linear tubes that need to be addressed before considering this as a component of the equipment standards.	N/A	Staff understand the commenter to be referring to the Title 20 Appliance Efficiency Regulations (the "equipment standards"), and not to the building energy efficiency standards being considered within this rulemaking. Staff notes that the requirements of the building standards do not speak directly to LED linear tube lamps, and that the concerns expressed by the commenter appear to apply to product design and instructions for safe installation and operation of products, both of which are outside the scope of the Standards.
75600.002	Residential Lighting Joint Appendix 30	MaxLite	JA 8.4.6 Dimming: MaxLite strongly opposes the dimming requirement of 3%, which is significantly down from the draft’s 10% requirement. 3% is a particularly odd number to select, and it is unclear where this requirement originated. It is particularly challenging and costly to some lamp types to achieve 3% dimming, and including such a rigorous requirement will limit customer choice and potentially make some desirable items unattainable. We strongly encourage the Commission to maintain the dimming requirement at 10%.	Yes	Staff have retained the 10% dimming specification in JA 8.

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75600.001	Residential Lighting Joint Appendix 31	MaxLite	Section 150.0, (k): In multiple places in this section, there are references to luminaires containing or being supplied with light sources that meet the necessary requirements. It is in the best interest of the consumer if the fixture manufacturer selects the appropriate light source and includes this selected source in the package with the fixture. Else, there is a strong chance that a contractor, distributor, etc. could place a lamp into the fixtures after the point of installation that could be a Title 24 acceptable source, but could be thermally, aesthetically, or otherwise inappropriate for the particular fixture. Even if the Commission elects NOT to require including the light source in the carton with the fixture as a requirement, care should be taken to properly select the wording in this section so the intentions of the Commission are clear and not misinterpreted.	No	The requirements of Section 150.0 are consistent in applying to the builder or installer, and in specifying what must be included or installed in the building. Thus, in context, staff finds that the regulations are clear in specifying what must be installed within the building, not what must be included in the box with manufactured products. Manufacturers of fixtures are free to include appropriate lamps with their products, but are not required to do so under this Section. Staff does not find that additional edits to the regulatory language are needed to make their application clearer. Staff also finds that while there is a risk that an installer may pair an inappropriate lamp with a given luminaire, the majority of lighting installers are lighting professionals that are highly unlikely to make such an error: for this reason, staff does not find that the benefit of restricting installers to products that include lamps, and of requiring manufacturers to pack and ship lamps within the same box as their fixtures, to be justified.
75429.023	Residential Lighting Joint Appendix 32	NEMA	We strongly disagree with the IOU proposals that State-specific label or labeling requirements be established, as described in JA8.5 and Table JA-8. In addition to the valuable surface area consumed by these unnecessary labels, the additional costs and difficulty of assuring proper distribution are not justified by the intangible benefits pursued by the proposals. CEC has routinely stated their intent to set a trend for other States to follow. A State specific label is not in keeping with their attempts to set a standard that can be adopted at the national level. An acceptance of our proposal to not create State-specific requirements also respects manufacturer's tendencies to produce and label products for sale in multiple regions. We strongly urge the CEC to align with other existing agency marking requirements and formats to consolidate and reduce required marking text.	Partially	Staff amended the marking requirement based on this and other comments from commenters. The marking requirement proposed in the 15-Day Language is reduced to require a compliance mark consisting solely of "JA8-2016" or "JA8-2016-E", which staf finds to resolve the majority of issues relating to space and cost of applying a mark and is consistent with the commenter's request consolidate and reduce required marking text. Staff does not find state-specific markings to be conceptually inappropriate, as the Energy Commission continuously receives requests for the use of Title-24 compliance markings or logos, and also notes that State marking requirements have been an effective portion of California's Appliance Efficiency Regulations. Staff therefore finds that the current marking requirement is justified.
75429.022	Residential Lighting Joint Appendix 33	NEMA	we propose the title of this section be changed to Description of Test Apparatus and Test Lab Certification, as there is no way to certify the test apparatus; it is simply described in UL 1598.	Yes	Staff have removed the language in JA 8.2 referring to the UL 1598 test apparatus, consistent with the commenter's comment.
75429.021	Residential Lighting Joint Appendix 34	NEMA	While the wording for the requirements in JA8.2 implies that labs accredited under other agencies (i.e. A2LA) is acceptable, the new Table JA-8 in the 45-day language implies that only data from an accredited NVLAP test lab will be acceptable. We ask that this point be clarified. We also propose that for noise and flicker measurements, the CEC add an exception in Section JA8.4.6 that NVLAP accreditation is not required for these measurements (similar to the DOE Laboratory Accreditation Program requirements described in 10 CFR 430.25), or simply state that these measurements may also be conducted by an accredited ISO/IEC 17025 test lab.	Partially	The proposed language allows measurements to be conducted by a laboratory accredited to ISO/IEC 17025, consistent with this request. The requirement in 10 CFR 430.25 specifies that the accreditation body must be "a signatory member to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA)." Per the ILAC web page for the MRA at http://ilac.org/ilac-mra-and-signatories/, "The accreditation bodies that are signatories to the ILAC MRA have been peer evaluated in accordance with the requirements of ISO/IEC 17011 to demonstrate their competence." Thus, the ILAC MRA meets the requirements specified in JA8.2, meaning that staff understand this request for alignment to be met by the proposed regulatory language.
75429.02	Residential Lighting Joint Appendix 35	NEMA	We do not support the CEC's stance to have different performance specifications for different lighting technologies. None of these parameters should be stricter than ENERGY STAR, for a minimum State specification.	No	Staff find that the proposed requirements for lighting are feasible and cost effective, and do not find that reducing these requirements to the level specified in the ENERGY STAR program is either appropriate or beneficial. Staff also finds that JA8 is technology neutral, and specifies the same performance specifications for all lighting technologies: this appendix specifies a higher color temperature is allowed for non-removable lighting, but this is based on the difference between removable lamps (bulbs) and non-removable or integrated lighting, not on the light-producing technology of the lamps or luminaires.

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75429.019	Residential Lighting Joint Appendix 36	NEMA	We are concerned at the expanding list of non-efficiency-related requirements for components and appliances that CEC has proposed to the building regulations. For example, we note that many non-energy attributes are being added for various lighting products in Joint Appendix 8, and they are not applied uniformly across all technologies.	No	Efficiency means gaining the same or greater benefit at a reduced cost. Spending less energy while receiving a reduced benefit, or spending less energy on an inadequate or unsuitable result, is not energy efficiency as it does not represent a more efficient use of energy. Staff find that the specifications in JA8 are necessary to ensure that lighting installed within dwellings is suitable to that purpose and that complying with efficiency standards is not accomplished by reducing or diminishing lighting performance.
75429.006	Residential Lighting Joint Appendix 37	NEMA	The proposed Joint Appendix 8 requirements add significant restrictions to product availability and are applied inconsistently by technology. The requirements applied to recessed luminaires are not technically substantiated. Many of the requirements appear to relate to LED test methods for light sources or lamps, but are included in the appendix with the intent to apply to residential luminaires. As we note in a preceding comment, certain proposed requirements are based n assumptions about consumer preference which actually may vary depending on architectural design or finishes. The restrictive prescriptive requirements in JA8 have the potential to revert the marketplace to lighting of lower quality and efficiency as a result of the costs associated with the testing and performance requirements in JA8.Appendix JA8 needs substantial work to clarify the application of test methods and to validate the justification and cost effectiveness of the proposals. NEMA members believe that the list of attributes for performance criteria should be balanced so as to allow adequate choices by consumers rather than fixed to single-choice options via arbitrary and unsubstantiated thresholds.	Partially	Staff edited JA8 for clarity, including edits to the language describing the application of test procedures and standards. Staff does not find, and the commenter does not articulate, how the requirements of JA8 are applied inconsistently; JA8, as proposed, uniformly applies a set of requirements regardless of the technology used to generate light. Staff finds that the requirements are technically substantiated and shown to be feasible and cost effective based on the CASE reoorts and other materials identified in the Documents Relied Upon. Staff notes that efficiency fundamentally describes effectiveness relative to energy use, and that less effective or unsuitable lighting is not cured or made more effective by architectural design or finishes. Staff finds that the proposed requirements are both appropriate and flexible, and allow extensive choices by consumers; the commenter does not specify what is meant by "balanced", and staff does not find that the requirements are either arbitrary or unsubstantiated.
75429.005	Residential Lighting Joint Appendix 38	NEMA	The current residential lighting proposals assert that superior performance in each attribute is required for every application in a residence. The proposals have not provided the substantiation with regard to consumer preference for specific threshold levels of performance and may not be technically justified. There is no consideration in the proposals to account for different consumer needs with respect to the applications such as kitchens, bathrooms, garages, and outdoor lighting. Furthermore, no economic justification has been provided for the cost analysis of systems that require the combination of all of the performance attributes.	No	Staff find that the requirements proposed for lighting are shown to be both feasible and cost effective by the CASE report, and does not find that including these features within the same product leads to costs above those estimate in those reports. Staff did not find that differing lighting requirements for differing areas of a residential dwelling would be appropriate. Staff observe that products meeting the proposed requirements of JA8 are readily available on the market at prices comparable to products that would not meet these requirements, and thus different standards for different rooms or areas would result in more complex requirements that do not provide any benefit in energy or cost savings.
75418.02	Residential Lighting Joint Appendix 39	Phillips	Align with DOE Laboratory Accreditation Program requiremetns described in 10 CFR 430.25. An alternative is to require measurements to be conducted by an accreditated ISO/IEC 17025 test lab.	No	The proposed language allows measurements to be conducted by a laboratory accredited to ISO/IEC 17025, consistent with this request. The requirement in 10 CFR 430.25 specifies that the accreditation body must be "a signatory member to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA)." Per the ILAC web page for the MRA at http://ilac.org/ilac-mra-and-signatories/, "The accreditation bodies that are signatories to the ILAC MRA have been peer evaluated in accordance with the requirements of ISO/IEC 17011 to demonstrate their competence." Thus, the ILAC MRA meets the requirements specified in JA8.2, meaning that staff understand this request for alignment to be met by the proposed regulatory language.
75929.003	Residential Lighting Joint Appendix 4	Eaton Cooper Lighting	We strongly support the requirement of high efficacy in all spaces.	N/A	Staff appreciates the comment of support for the high efficacy lighting requirements.
75929.013	Residential Lighting Joint Appendix 4	Eaton Cooper Lighting	The 0.5 (0.05) second required start time will addd cost to a product when we have no data to substantitate that start time is an issue. We recommend to change this to 0.75 second.	No	Staff finds that the proposed requirement of 0.5 second is feasible and cost effective. As noted in the CASE report study and the 2014 CLTC study on LED replacement lamps, products with 0.3 second are available in the market.

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75418.019	Residential Lighting Joint Appendix 40	Phillips	The test procedure should be no more complicated than the Energy Star procedure. See no reason of 5 different frequency cutoffs. See no reason of requiring additional dimmer set points. Propose to raise the lower frequency limit to 10 Hz to allow some	Yes	Testing has been simplified to require tests at only two dimmer set points (100% and 20% of full light output, removing the 80% and 50% set points). As the commenter notes, a test at 0Hz is physically impossible: staff did not propose a lower frequency bound on testing as staff felt a specific law or requirement is unneeded. While the 200Hz frequency cutoff is used for determining compliance, public disclosure at other cutoff points is important for lighting designers attempting to meet specific needs, such as designing lighting for a person with photosensitive epilepsy (the CASE report provides this example and notes that 1 in 4,000 Californians may fall into this category and would be sensitive to highly modulated light at frequencies less than 70Hz).
75418.018	Residential Lighting Joint Appendix 41	Phillips	We propose that CEC to require manufacturers to maintain compatibility list for dimmer/lamp combintations (as is now required in Energy Star specification).	Partially	Staff have clarified the testing requirements to more clearly state that representative testing is required, meaning that a given light should be tested with a representative dimmer control and representative transformer (ballast or driver) of a given type. By doing so, staff have addressed the perceived need for combinatoric testing, and made it clear that a complete (product-to-product) compatibility list is not required for compliance with JA8.
75418.017	Residential Lighting Joint Appendix 42	Phillips	We strongly urge the CEC to align with other existing agency marking requirements and simplify formats to consolidate and reduce required marking text.	Partially	The marking requirement for JA8 lighting has been reduced to a mark of either "JA8-2016" or "JA8-2016-E" in order to address commenter concerns about the complexity, size, or length of required markings.
75418.016	Residential Lighting Joint Appendix 43	Phillips	We propose that for noise and flicker measurements, the CEC add an exception in Section JA8.4.6 that NVLAP accreditation is not required for these measurements (similar to the DOE Laboratory Accreditation Program requirements described in 10 CFR 430.25), or simply state that these measurements may also be conducted by an accredited ISO/IEC 17025 test lab.	No	Section 8.4.6 does not include language describing NVLAP accreditation; the requirement in Section JA 8.2 would continue to apply, which already includes the requested language allowing labortories to meet ISO/IEC requirements rather than participate in NVLAP. Thus, staff understands this request to already be met.
75418.015	Residential Lighting Joint Appendix 44	Phillips	We propose the title of this section be changed to Description of Test Apparatus and Test Lab Certification, as there is no way to certify the test apparatus; it is simply described in UL 1598.	Yes	The term "test apparatus"has been removed from the title of this Section (JA8.2).
75418.014	Residential Lighting Joint Appendix 45	Phillips	Regarding requirements for laboratories conducting measurements described in JA8.2, while the wording for these requirements in JA8.2 implies that labs accredited under other agencies (i.e A2LA) is acceptable, the new Table JA-8 in the 45-day language implies that only data from accredited NVLAP test labs will be acceptable. We ask that this point be clarified.	Yes	The table entry has been updated to include the phrase "or accreditation body operating in accordance with ISO/IEC 17011", to be consistent with Section JA8.2.
75418.013	Residential Lighting Joint Appendix 46	Phillips	It is our belief that Appendix JA8 does a poor job of defining acceptable flicker levels and, as a result we feel that the test procedure in appendix JA10 does a poor job of determining flicker acceptability. This specification makes no allowance for the dependence of human flicker sensitivity either on frequency or on wave shape. Sensitivity to flicker also depends on the application, and different curves may be needed for different applications. CEC should at the very least modify the present specification to allow use of the acceptable flicker region denoted by the red triangle in the figure above. The commenter proposes the following language: Dimmer controls that can directly control lamps shall provide electrical outputs to lamps for reduced flicker operation through the dimming range so that the light output has an amplitude modulation below the line, Modulation Depth = 20% + Frequency/10, for frequencies from 100 to 200 Hz, without causing premature lamp failure.	No	The proposed flicker requirement is not a new requirement for the Standards and it has been a requirement for dimmer control devices for usage with lamp products since 2008 Title 24 Standards and 2012 Title 20 Standards. Also, according to the 2013 LED Replacement Lamp Quality study performed by PG&E/SDG&E, more than half of the tested lamp products can meet the proposed flicker requirement. The suggested flicker requirement at less than 40 percent at 200 Hz frequency is a less stringent requirement which would weaken the proposed requirement effort to prohibit the most objectionable flicker. The Energy Commission has intentionally established a single, broadly applicable standard that ensures that the light source is acceptable to all persons in all circumstances, not to most persons in specific circumstances. As noted by the commenter, the region in their graph that they would prefer to be allowed is not visible to most observers, implying that some percentage of California's population would be senstivie to flicker in this range and would be harmed by allowing light with this amount of flicker. Allowing different flicker levels for different applications would require separate designations and marking requirements that would drastically complicate the standards and increase compliance costs with no clear benefit.

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75418.012	Residential Lighting Joint Appendix 47	Phillips	While equipment pairing requirements for testing/listing purposes have been clarified, for non-incandescent lamp sources, the testing is proposed to be repeated for every dimmer, driver & lamp combination. This is a recipe for near-infinite testing, if manufacturers want their products to be usable with multiple dimmers.	Yes	Staff have clarified the testing requirements to more clearly state that representative testing is required, meaning that a given light should be tested with a representative dimmer control and representative transformer (ballast or driver) of a given type. It is not necessary to test with every product combination.
75418.011	Residential Lighting Joint Appendix 48	Phillips	We do not support the CEC's stance to have different performance specifications for different lighting technologies. We believe that none of these parameters should be stricter than ENERGY STAR for a minimum State specification.	No	Staff's analysis has found that the specified requirements are feasible and cost effective for new construction in California, and thus adopted the level of stringency found to be appropriate by this analysis. In addition, the purpose of broadening JA-8 is specifically to apply the same requirements to differing lighting technologies.
75418.01	Residential Lighting Joint Appendix 49	Phillips	We continue to oppose over-specified performance parameters and requirements such as CRI >90, R9>50, SDCM<4 (or, in the case of JA8, |Duv|<0.0033), CCT limited to <3000K, PF>0.9, minimum dim level <10%, start time < 0.3s (Note: this is given as 0.5s in JA8.4.3), and a 5 year warranty, as minimum requirements in code. The 2016 proposal widens the requirement for these over-specified parameters, both by increasing the number of specifications from 2013, and by its extended reliance on Appendix JA8.	No	Staff removed the warranty requirement and made the start time requirement consistent in being 0.5 seconds. The remaining requirements are both feasible and cost effective, and found in products available on the market today. These requirements are necessary to ensure that manufacturers designing products to achieve a lumens-per-watt threshold do not do so by unnecessarily diminishing the overall performance of the product or its suitability for use in residential dwellings. Reducing the performance or benefit of a product in order to save energy is not efficiency, but conservation.
75921.005	Residential Lighting Joint Appendix 5	American Lighting Association	The problem of luminaire-mounted photocell control to luminaries using integral CFL or LED source are well known and a source of frustration to consumers. The ALA feels that such controls should not be required as part of the luminare.	No	The Standards is non-specific about the whereabouts of photocell control in related to controlling residential luminaires. Photocell control is allowed to be installed in a different location from luminaire, and is not required to be integral to the luminaire. Thus, staff does not find that any change is needed to address the commenter's concern.
75929.014	Residential Lighting Joint Appendix 5	Eaton Cooper Lighting	We ask the Commission to consider the requirement for minimum warranty.	Yes	The requirement related to warranty has been removed.
75392.004	Residential Lighting Joint Appendix 50	Kichler	Wonder if the month/year manufacturing date can be accomplished on the packaging? Are there enough spaces to put JA8 markings on light source? Wonder if a T-24 logo could be established indicating compliance.	Yes	The marking requirement was reduced in 15-Day Language to a mark either of "JA8-2016" or "JA8-2016-E", addressing concerns voiced by several commenters about the space needed for the mark. In addition, exceptions to the marking requirement are available for small diameter lamps. Marking on the package is not allowed, as the mark would not be visible to a building inspector examining installed lamps. A logo is not allowed due to potential conflict with the California Business and Professions Code.
75392.003	Residential Lighting Joint Appendix 51	Kichler	Is JA8 dimming optional?	Yes	The language of this Section was clarified based on this comment. Dimming is a requirement of JA8: lighting that does not dim as specified in JA8 does not comply with JA8.
76095.049	Residential Lighting Joint Appendix 52	Once Innovations	Commenter (Mr. Makley) estimates the AC based LED technology market share is at about 20 percent and the proposed regulations would hold out that market share. He notes that could result in antitrust litigation and he suggests the Commission to consult with Energy Star for their previous experience in these areas.	No	Staff does not find there to be a risk of litigation relating to market share created by the language in the Final Express Terms.
76095.048	Residential Lighting Joint Appendix 53	Once Innovations	Commenter (Mr. Makley) notes that the the 200Hz operation requirement has no basis in science, nor in real life application. In addition, he suggests the reduce flickering operation requirement be reduced to 100Hz.	No	Staff find that the flicker requirement is identical to existing requirements for dimming controls that were present in the 2008 Standards and moved into the Title 20 Appliance Efficiency Standards; staff notes that as Section 110.9(b)3 requires that dimmers "shall meet all requirements for Dimmer Control devices in the Title 20 Appliance Efficiency Regulations", this level of flicker performance remains required for dimmers in both the 2013 and 2016 Standards. Staff finds that the specified level of flicker performance is feasible and cost effective, and that it provides consistency with the control requirements for dimmers. Staff therefore finds that the specified 200Hz operation requirement is appropriate.
76095.046	Residential Lighting Joint Appendix 54	Once Innovations	Commenter (Mr. Makley) suggests to include CCTs of 5000 and 5500 (to JA8) so as to give the consumer a preference for a higher efficacy lamp and lamp colors that more closely resemble daylight.	No	Staff finds that while natural daylight has a high color temperature, natural daylight has other color attributes that are not provided by high-CRI lamps and that color temperatures in excess of 4000 are generally considered unsuitable as general lighting within dwellings. Staff therefore does not find that allowing CCTs of 5000 or higher to be appropriate.

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76095.045	Residential Lighting Joint Appendix 55	Once Innovations	Commenter (Mr. Makley) notes that some of the new specifications claim to be protecting the quality of the light and hence consumer acceptance, but they've gone far beyond what a normal consumer would consider acceptable and are bordering on favoring high end and high cost lighting solutions and favoring a subset of suppliers.	No	Staff find that the specification of JA8 are necessary to ensure that light installed within dwelling is energy efficient, and to ensure that complying with efficiency standards is not accomplished by reducing or diminishing lighting benefits. Staff notes that the purpose of minimum standards is to prevent installation of poorly performing lighting; staff finds that lighting meeting the required performance specifications is available at a variety of price points.
76095.044	Residential Lighting Joint Appendix 56	Feit Electric Co.	Commenter (Brian Wilcox) notes that the NEMA SSL7A proposal will have a similar impact on further excluding these same driver solutions and more that are still undefined. Commente also urges the Commission to … focus on increasing the high efficiency luminaire requirements to be high efficiency, above the current 45 lumens per watt benchmark.	No	The commenter misunderstands the regulations: this requirement applies specifically to "forward phase cut dimmers used with LED light sources", and a driver that does not use forward phase cut dimming is not required to comply with NEMA SSL-7A. Staff therefore finds that the existing language is responsive to the commenter's concern, and that no change is needed to allow alternate approaches to dimming.
76095.042	Residential Lighting Joint Appendix 57	Feit Electric Co.	Commenter (Brian Wilcox) notes that increasing the CRI requirement and R9 value, decreases efficiency and it is in direct opposition to the program goal of efficiency.	No	Staff finds that the specification of CRI and R9 values are necessary to ensure that compliance with efficiency standards for lighting installed within dwellings is not achieved by reducing or diminishing lighting benefits. Spending less energy while receiving a reduced benefit, or spending less energy on an inadequate or unsuitable result, is not energy efficiency as it does not represent a more efficient use of energy.
75895.001	Residential Lighting Joint Appendix 58	CREE	Cree supports the currently proposed [lighting] requirements, and believes that by establishing a basis of high-quality light for energy efficient lighting products, California has recognized the importance of meeting consumers' expectations in driving adoption. Gone are the days when consumers had to accept "good enough" in order to save energy. "Good enough" is not good enough.	No	Staff appreciates the support for the proposed requirements for residential lighting.
75888.001	Residential Lighting Joint Appendix 59	Once Innovations	Commenter disagrees with the findings of the CASE reports related to flicker, and requests a change to the flicker requirements to allow LED technologies operate at or above 100Hz or 120Hz. "Thus we request California adopt the same standard on flicker/modulation as Energy Star or The European LED Quality Charter and put an end to the "flicker" boogieman."	No	As indicated in commenter's letter , some participants of the flicker research experiments have indicated that lighting flicker or stroboscopic effect of 100Hz is objectionable, and some populations can detect (and find objectionable) flicker at 120 Hz in some conditions. Staff finds, also, that the ENERGY STAR test for flicker does not provide a complete description of flicker, given that the fourier transform to account for both amplitude modulation and frequency is not performed. Staff does not find that the Wilkins report is in error in concluding that flicker can contribute to headaches, nor that because the study was conducted with fluorescent lamps that the results are not applicable to flicker from other types of light sources. Staff finds that retaining current flicker requirements is appropriate to prevent installation of lighting that would be unsuitable to a significant percentage of California residents, per the content of the CASE report cited by the commenter; staff does not find that the Bullough study overrides the studies cited in the CASE report. Separately, staff notes that flicker thresholds are established to prevent unsuitable or unacceptable lighting from being installed in dwellings under Title 24, and are not based on biological effect thresholds or health impacts. Flicker requirements are directly copied from the flicker requirements for dimming controls under Title 20 and required by Title 24. Staff do not find commenter's studies regarding health impacts to be relevant to whether a resident would find flickering light to be suitable or objectionable.
75921.004	Residential Lighting Joint Appendix 6	American Lighting Association	CCT restrictions should be eliminated to allow for the growing preference being shown by consumers for warm dim as well as higher CCT products.	Partially	Staff edited the CCT requirement to allow certain types of lighting to have a CCT of 4000 or less, and staff notes that lighting can be capable of other color temperatures provided it is capable of operating in the range specified in JA8. In addition, lighting installed under the first column in Table 150.0-A is not held to a CCT requirement, as it is not required to comply with JA8. Staff did not find that completely removing the CCT requirement from JA8 would be appropriate, as CCT is a critical component in whether lighting is considered suitable for use within the home.
75931.001	Residential Lighting Joint Appendix 6	Naomi Miller (PNNL)	A flicker requirement for LED lighting systems is advisable for public health and well-being.	N/A	Staff appreciates this comment of support for establishing minimum flicker standards.

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75567.001	Residential Lighting Joint Appendix 60	Acuity	We request that the CEC respond to each of these cost considerations for integrated LED luminaires and provide detailed information regarding the determination of quality attributes, thresholds, price sensitivity, cost analysis, data and assumptions. We also challenge the CEC to reconsider the mandate for integrated LED luminaires to meet all the JA8 requirements for every application in a residence. An approach that allows a percentage of products to be exempt from the quality or "gold standard" attributes such as dimming, Duv, CCT and R9 while maintaining high energy performance will be more aligned with consumer demand for cost effective solutions and will promote a greater impact toward the California energy reduction goals.	No	Staff does not find an exemption from the requirements of JA8 to be necessary or warranted. Cost analysis information is found in the identified Documents Relied Upon; staff find that products meeting or exceeding all of the JA8 specifications are already part of, and successful within, the competitive marketplace. Staff further note that the requirements for installation of high efficacy lighting apply to builders, not consumers (residents).
75559.005	Residential Lighting Joint Appendix 61	Juno Lighting Group	Marking: Aside from the physical constraints of any additional markings; total luminous flux is not something that should be marked on the product.	Yes	Staff revised the marking requirement, and the revised marking requirement no longer includes luminous flux.
75559.004	Residential Lighting Joint Appendix 62	Juno Lighting Group	Lumen Maintenance and Rated Life: Under section (c), survival rate is defined as 90% after 6000 hours of operation. In Table JA-8, this survival rate is inaccurately identified as a "3,000 hour survival rate" Recommendation: Table JA-8. Change "3,000 hour survival rate" to "6,000 hour survival rate"	Yes	Staff have made the change suggested by the commenter.
75559.003	Residential Lighting Joint Appendix 63	Juno Lighting Group	Color Rendering: CRI and R9 are consumer preferences which have efficacy tradeoffs. These should not be more restrictive than Energy Star. Recommendation: JA8.4.5 and Table JA-8. Change "(CRI) of 90 or higher and color rendering R9 value of 50 or higher" to "(CRI) of 80 or higher and color rendering R9 value of 0 or higher"	No	The 90 Color Rendering Index requirement for lighting complying with JA-8 was adopted in 2013 for the reasons stated within that rulemaking. Staff does not find alignment with the ENERGY STAR to provide a sufficient benefit to justify reducing this standard. Staff proposed the added requirement of an R9 value of 50 or greater to address an identified deficit in the CRI test, finding this to be a feasible and cost effective way of addressing the deficit; the commenter does not provide any rationale for discarding the R9 requirement, and staff finds that retaining the requirement is appropriate.
75559.002	Residential Lighting Joint Appendix 64	Juno Lighting Group	Color Temperature: CCT is a consumer preference which is provided for when using a GU-24 base lamp according to Table JA-8. There should be no preferential acceptance of a GU-24 base lamp over a complete fixture. Restrictions for complete fixtures should be opened up to allow for an equivalent CCT range as found for GU-24 base lamps. Additionally, this should not be more restrictive than Energy Star. Recommendation: JA8.4.4 and Table JA-8. Change "3000 Kelvin or less" to "5000 Kelvin or less".	Partially	Staff revised the requirements in JA8 relating to color temperature, allowing inseparable luminaries to have a 4000K or less CCT. Staff do not find that allowing 5000K is appropriate, as such lighting is generally understood to be unsuitable for use within a dwelling. Staff notes that the separate requirement for GU-24 luminaires is retained for consistency with the 2013 Standards and to prevent unnecessary market disruption, and that it does not apply to LED luminaires.
75559.001	Residential Lighting Joint Appendix 65	Juno Lighting Group	A Source Start time of 0.5 seconds can place undue stress on drivers while not providing the user with any greater perception of quality. No documented evidence that users find a 1 second delay problematic. The quicker start time will create higher ripple on the outputs, faster switching times, and compromised EMI. This results in a negative cost impact and compromised life of electrolytic capacitors. There are performance tradeoffs that will be objectionable to users. Limiting the source start time will exclude the smart drivers which perform checks of various control options. Recommendation: JA8.4.3 and Table JA-8. Increase Start Time from "no greater than 0.5 seconds to "no greater than 1 second". It would also be ideal to include an exclusion of smart driver from this requirement.	No	Staff finds that there are at least 230 Energy Star lamp products that meet this start time requirement, as of the time of this writing. Among those lamp products, there are over 80 models that come in below 0.1 seconds. Staff finds no evidence that these devices "create higher ripple on the outputs, faster switching times, and compromised EMI", nor does the commenter provide any evidence to this effect. Staff therefore finds that the 0.5 start time requirement is feasible and cost effective, per the findings of the identified Documents Relied Upon, and appropriate to adopt as regulation.
75921.003	Residential Lighting Joint Appendix 7	American Lighting Association	Much has been learned about flicker since the standards referenced in the 15-Day language has been written. The ALA feels that the IEEE PAR1789 should be used for flickering.	No	Staff finds that the suggested IEEE PAR1789 had not been finalized in time for consideration within this rulemaking. Staff would have needed to propose requiring compliance with the draft document; staff does not find that requiring draft documents, or requirements that are otherwise subject to change, would be appropriate.

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75938.001	Residential Lighting Joint Appendix 7	Lutron	The requirement for smart LED drivers in the 15-Day language is a scope shift and smart LED drivers may not be able to comply with the start time requirement.	No	Staff does not find that the language relating to drivers changes the scope of JA8, as this Appendix covers light sources inclusive of any and all components necessary for their operation; the change to expressly identify this in relation to ballasts and drivers was made to improve clariy and avoid ambiguity. Staff finds that ballast and driver driven products meeting the 0.5 second start time are available on the market currently.
75424.001	Residential Lighting Joint Appendix 8	Lutron	We would like for the language to be clear on who is responsible for the testing. And make it clear in Section 10.2 on equipment combinations that only one dimmer from any dimmer manufacturer must be tested for each dimmer type for which compatibility is claimed.	Partially	Staff have clarified the testing requirements to more clearly state that representative testing is required, meaning that a given light should be tested with a representative dimmer control and representative transformer (ballast or driver) of a given type. A test of one dimmer from each manufacturer for which compatibility would be claimed is not required. Manufacturers are responsible for testing any product that they would like to be able to be installed within Title 24 regulated residential construction, however as doing so is ultimately elective (i.e., manufacturers can decide not to test their product and leave it ineligible for installation), regulatory language requiring testing by a specific party is not appropriate. The Energy Commission will clarify in its compliance documents that the manufacturers of light sources are expected to be responsible for their products.
75428.001	Residential Lighting Joint Appendix 8	Acuity	We are very concerned about the overly prescriptive nature of the requirements for residential lighting. The proposed requirements have not considered the utility of the quality attributes in Appendix JA8 for specific areas of a residential installation. The term “quality” has been discussed throughout this rulemaking process without any technical or consumer validation for the thresholds. We believe that many of the quality attributes have not been evaluated with fact-based decisions, nor have they been cost justified for all covered products or for applications that do not warrant the proposed performance. We recommend that the CEC reconsider the application of quality attributes to all areas of a home and provide builders and owners the ability to manage tradeoffs in installations that are less demanding.	No	The requirements applied by JA8 to residential lighting are both feasible and cost effective, and found in products available on the market today. These requirements are necessary to ensure that manufacturers designing products to achieve a lumens-per-watt threshold do not do so by unnecessarily diminishing the overall performance of the product. Reducing the performance or benefit of a product in order to save energy is not efficiency, but conservation. The proposed changes to Section 150.0(k) also intentionally simplify the requirements of the Standards. Staff do not find that applying differing requirements for installed lighting to different spaces of a home to be beneficial, and both builders and building officials have expressed frustration with determining compliance under that approach. Staff also does not find that there is less of a need for lighting meeting the specifications of JA8 in particular areas of a home. The proposed language reduces the differences in requirements between spaces both for lighting and for lighting controls.
75428.002	Residential Lighting Joint Appendix 8	Acuity	We believe that the proposed standard has extended the scope beyond lighting products typically considered as “residential” because the building standard includes multi-family and institutional housing. These facilities often utilize commercial, industrial, specification and architectural grade lighting products. Therefore, thousands of products that were never intended to include a compliance marking must be labeled and submitted to the database since manufacturers do not control where luminaires are installed. These requirements will result in significant costs associated with markings and submittals to the database. We believe the cost implications have not been fully evaluated in this context.	No	Multifamily and institutional housing have consistently been regulated as residential construction by previous versions of the Standards; the residential lighting requirements of the Standards are expressly applicable to dwelling units of multi-family and institutional housing as specified in 2013 and the proposed 2016 regulations in Section 130.0(b). Staff do not find that the proposed regulations expand the scope of residential lighting requirements in the way stated by the commenter, as Title 24 Part 6 already includes these spaces as "residential". Additionally, manufacturers are only required to certify their lighting products to the Energy Commission under Title 24 when they want those products to be able to be installed in regulated residential construction. Installers that place uncertified lighting within a residential space would be asked by the building official to remove that lighting and replace it with a certified lighting product; this responsibility to install certified lighting products in residential areas does not fall upon the manufacturer, and manufacturers of products that are not intended to be installed in Title 24 regulated residential construction are neither compelled to certify their products nor subject to liability if an installer errneously installs their product in a residential space.

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75428.003	Residential Lighting Joint Appendix 8	Acuity	We recommend that CEC reevaluate the objectives of inspections for compliance and implement a process based on a submittal package comprised of specification sheets and other documentation rather than markings on the product and submission to the appliance database.	No	Staff have evaluated alternative approaches to compliance. The requirements adopted in the Standards were found to be the most appropriate and effective approach to implementing the Standards. The proposed Standards do not alter the findamental approach to compliance, but build upon it.
75428.006	Residential Lighting Joint Appendix 8	Acuity	Support revision to Table 150.0-A that outdoor luminaires using integral LEDs are not requirement to meet JA8 to be considered high efficacy.	Yes	Inseparable LED (SSL) luminaires that are installed outdoors were added to the first column in Table 150.0-A, and therefore are not required to meet JA8 requirements in order to be considered high efficacy.
75428.008	Residential Lighting Joint Appendix 8	Acuity	Appendix JA8 has defined an extensive list of performance attributes that are intended to apply to LED residential products. When asked about the inclusion of these quality attributes, the CEC has indicated the attributes are intended to ensure that homes will be built with products that will be pleasing to the owner.CEC has not provided technical or consumer preference studies that support the thresholds proposed. We have not been presented with evidence to substantiate the technical or consumer preference thresholds for color rendering, R9, correlated color temperature, Duv, dimming, flicker, noise, rated life or lumen maintenance. Furthermore, these attributes have not been cost justified. We recommend that CEC provide the technical and consumer preference studies, as well as the cost analysis for the requirements in JA8 relative to LED and OLED luminaires.	No	The Energy Commission received extensive written and oral comments from stakeholders (lighting manufacturers, including NEMA members; lighting designers; and academic researchers) about the importance of scotopic attributes broadly referred to as “quality” elements. Staff has found 80 CRI to be an insufficient criteria to prevent gaming of the color rendering test, and know from experience the consequences of failing to prevent lighting with unacceptable attributes from being installed. Poor color temperature, color rendering, noise, flicker, and lifespan can all cause lighting to be unacceptable in the context of a home, leading at best to replacement with inefficient incandescent lighting and at worst to a wholesale rejection of the lighting technology. Economic analysis has been conducted for these measures, both individually within CASE proposals and collectively in the required Economic and Fiscal Impact Statement. The CASE proposal for the residential lighting proposal and the Economic and Fiscal Impact Statement are both available on the Energy Commission’s website. These measures are found to be feasible and cost effective.
75428.009	Residential Lighting Joint Appendix 8	Acuity	We recommend that the CEC modify the requirements to only require the highest level of quality attributes in areas of a residence that warrant that quality, allowing builders and owners the choice to install the most effective and efficient products for the intended application.	No	The proposed changes to Section 150.0(k) intentionally simplify the requirements of the Standards. Staff does not find that applying differing requirements for installed lighting to different spaces of a home to be beneficial, and both builders and building officials have expressed frustration with determining compliance under that approach. Staff also does not find that there is less of a need for lighting meeting the specifications of JA8 in particular areas of a home. The proposed language reduces the differences in requirements between spaces both for lighting and for lighting controls.
75428.01	Residential Lighting Joint Appendix 8	Acuity	We recommend that the CEC review the test procedures and requirements in JA8 and make the necessary revisions or exemptions as requires to accurately define the requirements for light sources, luminaires and controls.	Partially	Staff made several edits to JA8 to clarify and in some cases correct the specifications stated in that Appendix. Staff considered the commenter's noted areas of concern, and made corrections to specified induction lamp test procedures, removed reference to the UL 1578 test apparatus, and improved the language regarding lamp orientation consistent with the commenter's recommendations. Staff does, however, find that the ENERGY STAR Ambient and Elevated Life Test, though designed for lamps, is able to be applied to other lighting technologies and produce reliable results.
75428.011	Residential Lighting Joint Appendix 8	Acuity	We recommend that the 0.3 seconds value in the JA8 reporting requirement be revised to 0.5 seconds.	Yes	Staff revised this requirement consistent with the commenter's request.
75428.012	Residential Lighting Joint Appendix 8	Acuity	If CRI and R9 are to be included in this regulation to promote color quality, we recommend the incorporation of exemptions to allow a more acceptable and cost effective level for areas of a residence that do not require the highest level of color performance.	No	The requirements of JA8 are both feasible and cost effective, and found in products available on the market today. Staff does not find that there is less of a need for lighting meeting the specifications of JA8 in particular areas of a home.
75428.013	Residential Lighting Joint Appendix 8	Acuity	We recommend that CCT requirements be removed from JA8 due to the subjective preference associated with vision or interior design. If the CEC believes that this metric is justified based on technical and financial merit, then it should be modified to allow a broader range of performance.	No	Staff find that CCT requirements are appropriate based on the Documents Relied Upon for establishing the CCT requirements for LEDs in the 2013 Standards, and while staff has revised these requirements within this rulemaking staff does not find that fully eliminating these requirements would be appropriate. Staff did broaden the CCT requirement to allow specific types of lighting operating at a CCT of 4,000.

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75428.019	Residential Lighting Joint Appendix 8	Acuity	Table JA-8 which outlines the data submittal requirements for CEC certification as a high efficacy light and includes a line item for the measured valued of the Light Output of Elevated Temperature Light Output Ratio test, however this test (method) is not referenced or specified elsewhere in JA8.	Yes	Staff removed this line item.
75482.002	Residential Lighting Joint Appendix 8	AccurIC	The minimum Efficacies proposed in Chapter 13 are higher than that proposed by the Commission in Appendix JA-8 of the CASE report (Ref 5) relating to new-build residential lighting – namely, 45 lm/W. We therefore suggest that in order to establish consistency, the proposed minimum efficacy for high efficacy lighting in new-build should be increased in line with at least the corresponding proposed Tier 1 standard given in Chapter 13 of the 2014 Appliance Efficiency Pre-Rulemaking document – namely 55 lm/W.	No	The 45 lumens per watt requirement is proposed for consistency with current federal law for lamp products that becomes effective at the federal level in 2020 and effective within California in 2018. As federal law preempts state law with regard to federally regulated appliances, which includes lamps, staff find that the 45 lumens per watt requirement is necessary for ensuring that a single standard is applied to all lighting products that is neither inconsistent with nor at risk of preemption by federal law.
75510.001	Residential Lighting Joint Appendix 8	CBIA	The CBIA is strongly supportive of the direction the Commission took with respect to lighting in the 2016 Standards. The decision to focus on the quality and efficacy of the light source itself rather than using complicated strategies to regulate lighting controls and lamp mounts-types will simplify code compliance while improving efficiency and customer satisfaction.	N/A	Staff appreciates this comment of support.
75615.073	Residential Lighting Joint Appendix 8	MaxLight	I'm concerned, when looking at JA8 for the other screw-based lamps, and non-screw-based, that smaller decorative lamps aren't being approached, particularly candle-based lamps. Some of those requirements, particularly groups in dimming, and labeling, and others are going to be particularly challenging for some of the more decorative lamps. I'm also curious as to why you picked the three percent number. I know you wanted to go below 10 percent, but why the three percent number, particularly?	Yes	Staff changed the marking requirements in JA8 to address concerns of lamp size. In addition, the final percent dimming requirement specifies dimming to 10 percent of output, not three percent of output; staff finds that this addresses the commenter's concern for a three percent dimmability level.
75615.075	Residential Lighting Joint Appendix 8	MaxLight	There's a statement at the very end, on page 2, where you talked about life had to be 15,000 hours. Just curious, what lumen maintenance is that and is that just life of the entire product?	N/A	The comment neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language. Nonetheless, staff provided the following response at the hearing where the question was asked: MR. STRAIT: I can speak to the lumen maintenance. I think the lumen maintenance is based on a 6,000 hour. We're not expecting -- we understand that between that 6,000 hour lumen maintenance and when you hit 15,000 hours that there's going to be additional drop off. We would just figure if you can hit that 86.7 target at 6,000 hours, that's still going to be acceptable over the life of the product.
75615.097	Residential Lighting Joint Appendix 8	Alex Bosenberg	Commenter support Mr. Horowitz's comments about wattage and cost tradeoffs (for energy efficient light bulbs). (Mr. Horowitz states there is a tradeoff between CRI and lumen output and notes that one manufacturer's bulbs give out same amont of light but uses more power. Another manufacturer's bulbs give out less amount of light but uses same power.)	N/A	The comment neither objects to specific language in the proposed regulation nor makes a recommendation to modify the proposed language: the 90 CRI requirement is an existing requirement of the 2013 Standards which the 2016 Standards do not propose to modify.
75615.104	Residential Lighting Joint Appendix 8	Philips	JA8 Table - Are only certified labs allowed to conduct this testing?	No	Staff amended the language in this Section to more clearly specify the requirements applying to test laboratories, including accreditation requirements.
75921.002	Residential Lighting Joint Appendix 8	American Lighting Association	Object to the special California-only marking of products which raise costs and complicates ordering. Furthermore, requiring printed markings ignore the practice of marking lighting products using stickers.	Partially	Staff revised the marking requirement to minimize size and associated costs, based on this and other commenters' comments. The requirement specifies only that the marking be "permanent", and does not speak to the use of stickers or other methods of permanently marking a product.

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75928.001	Residential Lighting Joint Appendix 8	Acuity	We have not seen any information to validate the cost effectiveness of the JA8 requirements for integrated LED luminaires. It is our opinion that the Commission has failed to meet the cost effectiveness requirement for the 2016 code proposal.	No	The requirements for CCT, CRI, flicker, and other attributes apply equally to integrated and non-integrated products. Staff does not find any evidence that there is any difference between integrated and non-integrated products that would make achieving these performance thresholds more costly for integrated products.
75928.003	Residential Lighting Joint Appendix 8	Acuity	B. The term "inseparable" used in Section JA8.1 has not been defined and will likely be linked to the "inseparable SSL luminaire" definition, leaving it unclear if separable luminaires, i.e. luminaire employing connectors and screws to replace LEDs and/or drivers, have to meet JA8.	No	In JA8.1 the term "inseparable" is used to describe that the light source is inseparable from the luminaire. In Section 100.1, "inseparable SSL luminaires" refers more specifically to solid state lighting components. As noted, the term "inseparable" is not the same as "inseparable SSL luminaires" and they are used in different ways in different context.
75937.001	Residential Lighting Joint Appendix 8	NEMA	The start time of 0.5s is not sufficient to avoid unnecessary, cost, and compliance burdens.	No	Start Time is one of the specified requirements for high efficacy light sources in the Standards to ensure an insignificant time delay between switching the light on and the illumination of the source. As noted in the CASE report study and the 2014 CLTC study on LED replacement lamps, products with 0.3 second are available in the market. Staff finds that the proposed requirement of 0.5 second is feasible and cost effective.
75937.002	Residential Lighting Joint Appendix 8	NEMA	The extension of the Energy Star Lamps start time test to other products through the addition of the word "not" preceding the words "withstanding the scope of the [Energy Star] test". However, no testing for non-screw base products of any kind has accompanied this change proposal. This is a serious oversight.	No	The ENERGY STAR Start Time test applies to light sources that are integral to luminaires as well as replacement lamps as specified in the ENERGY START Program Requirements Product Specification for Lamps and Luminaires. Both the proposed Start Time test and the ENERGY STAR Start Time test are time measurement tests that are technology neutral and can be applied to any light source technologies. Staff does not find that the proposed start time test cannot be applied to additional light source technologies.
75937.003	Residential Lighting Joint Appendix 8	NEMA	Furthermore the PNNL study cited in the CASE report is seriously outdated and was confined to CFLs.	No	Although the PNNL study is now 10 years old, the facts cited in the study are still relevant as they describe common frustrations experienced by users of lighting products; the fact that the light sources are legacy does not change that individuals found a slow start time to be frustrating and unsuitable within the home. Staff does not find that the "Lessons Learned" including dissatisfaction for reasons of slow start-up time to be outdated or confined to CFLs.
75937.003	Residential Lighting Joint Appendix 8	NEMA	Again, the ENERGY STAR Lamps program only applies to CFL and LED lamps, and no analysis has been conducted regarding application to other types as have been added to the JA8 scope. This lack of analysis and study is a violation of the CEC's legal obligation to review cost burden and technical feasibility analysis as part of the proposal.	No	The ENERGY STAR Start Time test applies to light sources that are integral to luminaires as well as replacement lamps as specified in the ENERGY START Program Requirements Product Specification for Lamps and Luminaires. The test is a time measurement test, recording when power is supplied to the light source and when emitted light stabilizes; staff finds that the time measurement is ultimately technology neutral and can be applied to any light source technology. The commenter does not specify in what way the test would be more costly to perform on other technologies, and staff does not find that performing the test would impose any greater costs on other technologies.
75937.005	Residential Lighting Joint Appendix 8	NEMA	With respect to Joint Appendix 8, we again question why the CEC has undertaken to establish requirements based on "consumer satisfaction" without sufficiently in-depth, representative studies into consumer preferences and needs. The studies cited are anecdotal, outdated, or insufficient in scope and practice so as to be useful regulatory tools. It follows that CEC should withdraw the new or proposed changes to requirements for CRI, R9, CCT accuracy (|Duv|<0.0033), CCT limitations, the unsubstantiated IOU insistence on high Power Factor, and finally the proposed minimum dim level of <10%.	No	Efficiency means gaining the same or greater benefit at a reduced cost. Spending less energy while receiving a reduced benefit, or spending less energy on an inadequate or unsuitable result, is not energy efficiency as it does not represent a more efficient use of energy. Staff finds that the specifications in JA8 are necessary to ensure that lighting installed within dwellings is suitable to that purpose and that complying with efficiency standards is not accomplished by reducing or diminishing lighting performance.
75938.002	Residential Lighting Joint Appendix 8	Lutron	We suggest that the Standard harmonize with the Energy Star start time threshold and also to publish an interpretation of the start time test method to allow for the use of smart LED drivers.	No	Staff finds that there are at least 230 Energy Star lamp products that meet the 0.5 second start time requirement. Among those lamp products, there are over 80 models that come in below 0.1 seconds. Staff finds that the requirement is feasible and cost effective; staff can provide additional guidance as requested by the commenter, but does not find that changes to the regulatory language are either necessary or appropriate.

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75921.001	Residential Lighting Joint Appendix 9	American Lighting Association	We understand the concerns about the thermal management of LED products in downlights and enclosed fixtures. GU-24 and E type products in downlights have similar thermal characteristics. The proposed language of residential luminaires limits options rather than allowing the choice of the best option.	No	The proposed language allows any light source technologies meeting JA8 elevated temperature requirement to be installed in downlight luminaires. GU-24 and E type light sources are permitted as long as the light source meet the JA8 elevated temperature requirement. Staff finds that the JA8 performance based and non-technology specific requirement provides design flexibility to manufacturers and end users.
75615.102	Residential Lighting Labeling	Benningfield Group	Proposed lighting requirements way too complex. Need clear labels, and a label for noncompliance.	Partially	Staff amended the marking requirement to have a clear text mark showing "JA8-2016" or "JA8-2016-E" on JA8-compliant light source products. Staff does not find that requiring a label for noncompliance would be appropriate, as the lack of a compliance mark performs the same function at a lower cost.
75428.015	Residential Lighting Marking	Acuity	The content required on the label is unreasonable if the intended purpose is to promote compliance and ease of inspection. Because of the amount of information required, the label will be large in reference to the shrinking size of lighting products, and will interfere with the aesthetics and/or optical performance of the product.	Yes	Staff condensed the marking requirement to "JA8-2016" or "JA8-2016-E".
75428.017	Residential Lighting Marking	Acuity	Furthermore, there has not been any discussion about the CEC's ability to validate the use of the label or submissions to the appliance database. This presents an unfair burden on LED and OLED lighting solutions and may inhibit the speed of adoption of these technologies in California.	No	The Energy Commission includes employees assigned to compliance and enforcement of regulations, which includes the Title 24 Part 6 requirements for residential lighting. Staff does not find that compliance and enforcement would have an unfair burden relative to LED and OLED products or would impede their adoption, and the commenter does not articulate why this would be the case.
75615.099	Residential Lighting Marking	David Peak	A normal chandelier with medium-based sockets in the market, today, would be marked with a re-lamping label that indicates max 100 watt, type A/type SCL/type SBLED. This is a safety marketing. One of the new rules with this impact compliance of a JA8 bulb's installed.	No	Staff amended the marking requirement of JA8 to reduce the total size of the mark and avoid creating issues of competing space.
75917.003	Residential Lighting Marking	MaxLite	Keep language in JA8.5 precisely as written, do not provide any supplemental documents that prohibit the use of stickers without specific clarification and/or allowance of certain types of stickers.	No	Staff edited the language in JA8.5 with regard to the required marking; the requirements continue to specify that the marking must be permanent. The regulations intentionally do not speak to the issue of stickers, and while staff finds that there are permanent stickers used to label products, that the word "sticker" often implies a removable or non-permanent application. To the extent the commenter is suggesting specific language be adopted as part of the Standards, staff find that the final language is appropriate.
75615.092	Residential Lighting Recessed Luminaires	NRDC	Commenter notes that the requirements for recessed ceiling luminaires should also apply to enclosed luminaires.	No	Staff finds that a variety of enclosed luminaires are available with venting designed for LED lighting. which permits installation of either ambient or elevated temperature lamps. In addition, staff find that fully enclosed luminaires are comparitively rare in residential dwellings, and are typically selected by lighting professionals that would be aware of associated issues. Staff therefore does not find that establishing definitions for "partly enclosed" and "fully enclosed" necessary to support requirements applicable to fully enclosed luminaires would be appropriate, as staff finds the added complexity of the regulations would be likely to outweigh their benefit.
75923.001	Residential Lighting Skylights and Daylighting	Solatube	The current references (to the NFRC 203-2014 Procedure for Determining Visible Transmittance of Tubular Daylight Device) do not accurately apply this new product rating. The NFRC 203-2014 introduces a new metric of VTannual which is different from the existing metric of VT as the two VT metrics reflects different illumination measurement. The proposed language (of Section 140.3(c)) uses the two metrics interchangeably, which is incorrect.	No	The language of Section 140.3(c) is based on the same VT rating as exixting language and they refer to the same VT raring in Section 140.3(a)6D, Table 140.3-B and Table 140.3-C. There is no introduction of the metric, Vtannual, to the proposed Standards language. There should not be confusions of the two metrics as only one metric, VT, is being used in the Standards. For this reason, staff does not find that a change is needed to address the commenter's concern.
75616.024	Residential PV PV Credit	Nehemiah Stone	Commenter asked if a proposed PV Credit in the Energy Commission's compliance software would apply to MF projects.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking.

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75616.025	Residential PV PV Credit	Meg Waltner	Will we publish methodology for calculating PV credit?	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking. Staff nonetheless provided the following answer at the hearing where the question was asked: *MR. SHIRAKH: It will be part of the ACM reference manuals, that's where it will be.* *MR. WILCOX: I was just going to say it's going to be in the ACM reference manual.* *MS. WALTNER: Okay. And that'll be a public process where we'll be able to review and comment again?* *MR. SHIRAKH: Yes. (P209)*
75616.026	Residential PV PV Credit	Matt Brost	Supported the PV Credit. ICC has a similar coompliance path. Wants to work with staff on technical details.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking.
75616.027	Residential PV PV Credit	Bob Raymer	Supports PV Credit. NSHP will expire and it is important to have a compliance credit to move small and medium builders towards PV.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking.
75616.030	Residential PV PV Credit	George Nesbitt	where in the Standards or the Appendices, or the ACM Approval Manual is there any mention in the Code itself to the credit, even though the details of the credit and the calculations are in the ACM Reference Manual? I mean, certainly a lot of things are either in the Standards mentioned, or they're part of the residential Appendices, or somewhere else? If it's a prescriptive requirement, then it would be in the Standards or something else?	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking. Staff nonetheless provided the following answer at the hearing where the question was asked: *MR. SHIRAKH: Well, we don't make references to the compliance credit in the Standards or, I mean, the only place where I can think there may be a reference would be the ACM Approval Manual, but not even there.* *MR. SHIRAKH: I realize you can develop or propose compliance credits, even in between cycles, so I mean that's an ongoing continuing process, that's why we have the ACM Reference Manuals, so it would be outside of the rulemaking, it would be easier to develop compliance options and comment between cycles.* *MR. SHIRAKH: Prescriptive Requirements, yeah, that's a different matter.* *COMMISSIONER MCALLISTER: Yeah, that's exactly right. (P243-244)*
75616.031	Residential PV PV Credit	George Nesbitt	Commenter wants PV systems verified by a HERS Rater.	No	The compliance software will not require any detailed information about the system be provided so there will be nothing for the Rater to verify. For this reason, staff does not find adding provisions to the Standards that would require HERS rating of PV systems to be appropriate or necessary at the current time.
75616.032	Residential PV PV Credit	George Nesbitt	It seems that the PV credit essentially allows you to build a non-code house because you have solar offset, which I somewhat dislike.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking.

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75771.001	Residential PV PVCC	North American Insulation Manufacturers Association	The North American Insulation Manufacturers Association ("NAIMA") is concerned that the PVCC exchanges cost-effective building envelope efficiency measures that deliver demonstrable energy savings for the life of a home, for measures that deliver benefits unrelated to building energy efficiency.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking.
75814.001	Residential PV PVCC	Polyisocyanurate Insulation Manufacturers Association	PIMA believes that the proposed PV compliance credit could have a significant negative impact on consumers and the long-term energy performance of residential buildings. A proposal with these possible negative effects should have been considered under the regular rulemaking and included in the 45-day language.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking.
75824.001	Residential PV PVCC	American Chemistry Council	We request that the CEC set aside the proposed tradeoff for the 2016 standards development process. The tradeoff should be brought forward during the next standards development cycle with a full CEC staff analysis including a cost-benefit assessment so that its merits may be fully considered during the public comment process.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking.
75870.001	Residential PV PVCC	XPSA Extruded Polystyrene Foam Association	We urge the CEC to present a full, transparent technical and cost/benefit analysis so that all interested parties may carefully determine its impact of the PVCC and provide comments to the Commission.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking.
76095.059	Residential PV PVCC	Mr. Raymer	We look forward to working with CEC staff and other interested parties in updating the ACM Reference Manual over the next six months. CBIA strongly supports this increasing amount of the existing compliance credit that can be gained from the use of rooftop solar PV.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking.
76095.060	Residential PV PVCC	Ms. Waltner	One important issue for 2016 that isn't addressed in the 15-day language is the PV Credit. NRDC has supported the concept of a limited PV credit, but believe the details on this are really important and so we'd like to see this developed in an open and transparent process and specifically would like 45-day language on the PV Credit.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking.
76095.061	Residential PV PVCC	Ms. Stovall	The Proposed Standards continue to recognize the benefits of energy efficiency by including requirements for High Performance Attics and Walls; however, we share concerns with others in the Building Energy Efficiency community regarding a proposed compliance credit tradeoff between PV systems and building thermal envelope requirements. We look forward to continuing this discussion with the Commission on the PV credit and possible alternatives during future meetings, as well as at the workshops that are planned for this summer.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking.
76095.062	Residential PV PVCC	Mr. Rich	I want to focus my comments today on the changes to the 2016 Title 24 Energy Efficiency Standards that are not explicitly detailed in the documents that you are considering today. I'm referencing the Draft PVCC outline that was first presented to the public at a meeting on March 2nd. This compliance credit allows a builder to avoid complying with the new high performance attic and wall insulation requirements when a rooftop PV system is installed. NAIMA is concerned with the lack of public transparency behind this proposal, particularly when it's inconsistent with California's longstanding energy policy of the past decade.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking.

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76095.063	Residential PV PVCC	Mr. Rich	We're also concerned with the proposed outline of PVCC on substantive grounds. On process, there's been a lack of opportunity for public review and engaged comment prior to the adoption of a policy which allows power generation to be substituted for improved energy efficiency. Language specific to the PVCC has not been presented, and the credit is not being subjected to 45 or even 15-day language.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking. Staff notes that language specific to the credit has not been presented within this rulemaking proceeding because it is not part of this rulemaking but is part of a separate proceeding.
76095.064	Residential PV PVCC	Mr. Rich	Lifetime envelope efficiency should never be traded for distributed residential power generation, including PV, particularly when these are likely to be owned by third parties and influenced by a separate set of policies and incentive programs.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking.
76095.065	Residential PV PVCC	Mr. Rich	While the credits being proposed is outside the mandatory Code requirements and therefore does not require a cost benefit analysis, our independent analysis of the proposal shows it to be significantly less cost-effective in most climate zones than the new envelope efficiency requirements that it will be traded against in the vast majority of these climate zones.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking.
76095.066	Residential PV PVCC	Mr. Rich	Some might say that this proposal simply builds on the rooftop solar credits established in 2013. That measure allowed a modest credit for installed rooftop solar if the builder used the more efficient HVAC system than was required by Federal Law. In contrast, this proposal allows for a significantly larger credit and allows for the construction of a less efficient home so long as the roof is made available for power production. That's a policy that deeply troubles us and we believe the Commission should give great pause before moving down this path.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking.
76095.067	Residential PV PVCC	Mr. Rich	I conclude my remarks by asking the Commission to proactively and publicly ensure that the proposed PVCC does not proceed without establishing a clear, open and deliberative process for its full evaluation.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking.
76095.069	Residential PV PVCC	Ms. Winn	This morning there was some talk about the PV Compliance Credit. PG&E shares some of those concerns on energy efficiency being first in the loading order and we share some of those concerns about the inclusion of PV as a compliance measure; but in the effort to move things forward, we feel that there's an appropriate balance there and that, while there may be some energy savings that are not captured because PV is a compliance option, we don't feel that those lost savings are such a huge issue that can't be overcome, that the balance that's struck is a reasonable balance there.	N/A	These comments and questions neither object to specific language in the proposed regulation nor make a recommendation to modify the proposed language. The ACM Reference Manual is not part of the current rulemaking proceeding, and is part of a separate proceeding; comments relating to the Reference Manual or CBECC Compliance Software are therefore not related to the rulemaking.
75552.001	Residential PV Solar Ready	The Engineering Enterprise	Language should be revised to change 'main service panel' to simply 'service panel'.	No	Solar Ready requirements for electrical panels only apply to single family residences in subdivisions with ten or more homes. Homes built in subdivisions have a single electric panel which will be the main service panel. In the event that homes have multiple panels, these regulations only require that the main panel have adequate space and markings for a future installation and an acutal installation may use different tie-in points. Thus, staff finds that the term "main service panel" is clear and appropriate, and does not find changing the term to be necessary or to improve the clarity of the code.

Comment Numbers	Subject	Name of Commenter	Summary of the Comment	Was the Change Made?	The Commission's Response to the Comment
75552.002	Residential PV Solar Ready	The Engineering Enterprise	Language should be revised to required a three-pole breaker depending on the size of the PV system rather than a two-pole breaker.	No	Single family homes built in subdivisions are served with single phase power supplies which require two-pole breakers, and do not have three-phase power supplies which would necessitate using a three-pole breaker. For this reason staff does not find that changing the language in the way requested by the commenter would be appropriate.
75552.002	Residential PV Solar Ready	The Engineering Enterprise	Section 100.10(e) is trying to mandate requirements that are all ready well established in the NEC and common PV practices.NEC requires that the bussing be no less than 80% of all the input breakers, if my PV breaker is only 50A that gives a total of 110A and I would be allowed to have a 100A rated bus in the panelboard. Why does title 24 require the bussing to be a minimum 200A?	N/A	Staff has not proposed a change to the busbar rating requirement of Section 110.10(e). The commenters proposed change is outside of the scope of the current rulemaking; the commenter is encouraged to submit a fully developed proposal for this change for the 2019 code cycle.
75616.033	Residential PV Solar Ready	Mr. Hodgson	For some homes such as narrow lots, or 3 story homes, the solar zone requirement of 150 sq. feet cannot be met.	Yes	Staff have developed appropriate Exceptions to the Solar Zone requirement based on performing other efficiency improvements that provide a benefit equivalent to the Solar Zone.
75623.018	Residential PV Solar Ready		High efficacy lighting requirements in 2016 make one Solar Ready exception obsolete. Recommended requiring either EV chargers or MaP certified premium toilets	Partially	Staff developed a set of measures to replace the high efficacy specifications that became mandatory in the 2016 Standards. Staff considered the recommended measures of a MaP certified toilet and an EV charger; staff found that including language related to EV chargers risks potential overlap and conflict with CALGreen requiirements, and similarly found that MaP requirements risk potential overlap and conflict with emergency water efficiency regulations that were under development at the time of this rulemaking proceeding. For this reason, staff did not include these specific measures among those in the revised Exceptions to the solar ready zone.