

DOCKETED

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Project Title:	Acceptance and Training Certification
TN #:	228901
Document Title:	CALCTP 2019 Lighting Controls Acceptance Test Technician Adjustments to the 2019 Training Curriculum
Description:	Includes addendum to initial submission.
Filer:	Mark Ouellette
Organization:	CALCTP
Submitter Role:	Applicant
Submission Date:	7/3/2019 2:20:08 PM
Docketed Date:	7/3/2019



July 2, 2019

Veronica Olvera
Compliance and Enforcement Unit
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Subject: CALCTP Lighting Controls Acceptance Test Technician Adjustments to the 2019 Training Curriculum

Dear Ms. Olvera:

ICF (formerly ICF International), in its capacity as program administrator for the California Advanced Lighting Controls Training Program (CALCTP), is submitting adjustments to its approved application to the California Energy Commission (CEC) as outlined in California Code of Regulations, Title 24, Part 1, § 10-103.1(d).

Curriculum related materials were sent in advance of these items on June 20, 2019. Included in this submission are the three standards that were outlined in a letter received from you on January 17, 2019. We look forward to your review and approval of our application.

If you have any questions, please do not hesitate to contact me.

Sincerely,

Mark V. Ouellette

Mark V. Ouellette
Director
On Behalf of CALCTP

Enclosure/Attachment:

cc: Joe Loyer, CEC Compliance and Enforcement Unit
Bernie Kotlier
Tom Enslow
Doug Avery

Staff identified changes in the 2019 Energy Standards that affect ATTCPs at the organization level are bolded and CALCTP's response to the changes are stated below.

- 1. Section §10-103.1(c)2A: This change moves the ATE recertification requirements from §10-103.1(c)3B(vi) to §10-103.1(c)2A.**

Noted, no impact on the CALCTP application.

- 2. Section §10-103.1(c)3Biii: This change adds a note that ATTCPs may specify additional qualifications for participation in their programs such as not being currently listed as "decertified" by another ATTCP.**

Noted. CALCTP's handbook (page 9) has been updated to include the additional qualification for participation as an Acceptance Test Technician and/or Acceptance Test Employer in CALCTP that the applicant can not have been "decertified" by another ATTCP.

- 3. Section §10-103.1(c)3Bvi: These changes explicitly state that ATT recertification training curricula should be consistent with the training requirements in §10-103.1(c)3A-B and that proposed recertification training curricula should be submitted to the Energy Commission in the update report specified by §10-103.1(d)2.**

Noted. CALCTP's recertification curriculum will follow this procedure.

- 4. Section §10-103.1(c)3E: This change states that an ATTCP application must describe the procedures for decertified ATTs or ATEs seeking to regain their certification status, including recertification eligibility requirements (if any).**

Noted. CALCTP already addresses in their handbook. No changes needed.

- 5. Section §10-103.1(c)3G: These changes state that an ATTCP application must describe the procedures for recording, tracking, and communicating certification statuses of ATTs and ATEs. The changes also state that an ATTCP's record of ATT and ATE certification statuses must be public and include any decertified ATTs or ATEs.**

Noted. CALCTP already addresses in their handbook, this procedure is already followed.
No changes needed.

- 6. Section §10-103.1(d)1: These changes expand the annual report requirements to include a summary of the quality assurance and accountability activities conducted (including desk and onsite audits), a summary of the number and type of acceptance tests performed in each local jurisdiction, and a signed certification that the ATTCP continues to meet the §10-103.1 requirements.**

Noted. CALCTP follows these requirements.

- 7. Section §10-103.1(d)2: These changes clarify that the update reports should include all proposed application amendments to address changes to the Energy Standards and a signed certification that the ATTCP continues to meet the §10-103.1 requirements.**

Noted. CALCTP will continue to comply with these procedures.

- 8. Section §10-103.1(f)1A: These changes expand the required materials for application amendments making nonsubstantive changes to include a copy of the affected application sections with the changes in underline/strikeout format and a clean copy with the changes incorporated.**

Noted. CALCTP will continue to comply with these procedures.

Addendum to Original Submission: Per Section §10-103.1(f)1, CALCTP is requesting one change to it's original submission. In it's original submission CALCTP required an instructor-led Systems Course as a pre-requisite to taking the CALCTP-AT course. This pre-requisite verified the participant had a knowledge of advanced lighting controls. For the 2019 code cycle, CALCTP still has the requirement but is allowing the candidate to either take the course in-person or online through Lighting Controls Association (LCA) website. Since the selected LCA courses cover the same material in the CALCTP pre-requisite this option allows candidates the ability to take the pre-requisite courses at their convenience as opposed to when a System class is offered. The current system has limited some participants from becoming a CALCTP acceptance test technician.

A signed certification that CALCTP Continues to meet §10-103.1 requirements.

The only modifications or deviations to the CALCTP application approved by the CEC on November 16, 2014 are the revisions to the certification and recertification curriculum for

acceptance test technicians and acceptance test employers that were developed to meet the new and amended acceptance test requirements set forth in the 2019 edition of Title 24. By the signature below, CALCTP certifies that it meets all requirements for this program as specified in its application and its amendments to its application approved by the CEC.

Mark V. Ouellette

Mark V. Ouellette
 CALCTP Administrator on behalf of the CALCTP Board

Summary of Changes for CALCTP-AT Technician Training

Section	Description of Change	Location in Curriculum for New Applicants	Location in Curriculum for Recertification
§10-103(a)	These changes specify that healthcare facilities must comply with the applicable provisions in Chapter 7 instead of the compliance documentation requirements in §10-103(a).	Part 2 - Slide 5	Slide 13, speaker notes
§100.1(b), definition of "DEMAND RESPONSE SIGNAL"	This change clarifies that any signal designed to convey the specified demand response information meets the definition.	Part 2, Slide 105 and 109, speaker notes	Slide 114, speaker notes
§100.1(b), definition of "DEMAND RESPONSIVE CONTROL"	This change clarifies and simplifies the definition.	Part 2, Slide 105 and 109, speaker notes	Slide 112 – 114
§100.1(b), definition of "ENERGY MANAGEMENT CONTROL SYSTEM (EMCS)"	This change clarifies that the system must be designed for, and actually be capable of performing, the specified operations. It also removes an unnecessary lists of examples in the definition and constraints that are no longer consistent with the use of this term.	Part 1, Slide 50 including speaker notes	Slide 58, speaker notes
§100.1(b), definition of "CLERESTORY"	This addition defines a key term related to the new clerestory power adjustment factor measure in §140.6.	Part 1, Slide 51 including speaker notes	Slide 56, speaker notes
§100.1(b), definition of "HORIZONTAL SLATS"	This addition defines a key term in the new horizontal slats power adjustment factor measure in §140.6.	Part 1, Slide 51 including speaker notes	Slide 56 speaker notes

Section	Description of Change	Location in Curriculum for New Applicants	Location in Curriculum for Recertification
§100.1(b), definition of "LIGHT SHELF"	This addition defines a key term in the new horizontal slats power adjustment factor measure in §140.6.	Part 1, Slide 51 including speaker notes	Slide 56 speaker notes
§100.1(b), definition of "Compact Fluorescent Lamp"	This change aligns the definition in Part 6 with the definition in the Title 20 Appliance Efficiency Regulations.	Part 1, Slide 25, speaker notes	Slide 18 speaker notes
§100.1(b), definition of "Lamp"	This change clarifies that a lamp is not a luminaire or an LED retrofit kit.	Part 1, Slide 25, speaker notes	Slide 18 speaker notes
§100.1(b), definition of "LED Retrofit Kit"	This addition defines "LED retrofit kit" in order to provide clarification for a class of products that exist between removable lamps and fully integrated luminaires.	Part 1, Slide 25, speaker notes	Slide speaker notes 18
§100.1(b), definition of "Non-integrated LED lamp"	This change updates the verbiage consistent with a general update to the latest version on ANSI/IES RP-16.	Part 1, Slide 25, speaker notes	Slide 18 speaker notes
§100.1(b), definition of "Integrated LED"	This change updates the verbiage consistent with a general update to the	Part 1, Slide 25, speaker notes	Slide 18 speaker notes
§100.1(b), definition of "Narrow Band Spectrum"	This addition defines "narrow band spectrum" to recognize a specific class of lighting products with distinct	Part 1, Slide 25, speaker notes	Slide 18 speaker notes
§100.1(b), definition of "Ornamental Lighting"	This change updates a wattage value consistent with other section revisions changing wattage values to be consistent with typical LED performance.	Part 1, Slide 25, speaker notes	Slide 18 speaker notes
§100.1(b), definition of "Solid State Lighting (SSL)"	This change clarifies that solid state lighting includes both LEOs and OLEOs.	Part 1, Slide 25, speaker notes	Slide 18 speaker notes
§100.1(b), definition of "Driver"	This change specifies the functions of semiconductors that define it as a driver for solid state lighting and separate it from other functions that semiconductors may perform.	Part 1, Slide 25, speaker notes	Slide 18 speaker notes
§100.1(b), definition of "Astronomical Time-Switch Control"	This change eliminates an unnecessary nesting of lighting control definitions.	Part 2, Slide 71, speaker notes	Slide 90, speaker notes
§100.1(b), definition of "Automatic Scheduling Control"	This change clarifies phrasing and recognizes partial-on and partial-off behavior.	Part 2, Slide 71, speaker notes	Slide 92 speaker notes
§100.1(b), definition of "Dimmer"	This change clarifies phrasing and accounts for digital control strategies.	Part 2, Slide 14, speaker notes	Slide 18 speaker notes

Section	Description of Change	Location in Curriculum for New Applicants	Location in Curriculum for Recertification
§100.1(b), definitions of "Motion Sensor," "Occupant Sensor," "Partial-ON Occupant or Motion Sensor," and "Partial-OFF Occupant or Motion"	These changes improve phrasing and harmonize definitions for occupant and motion sensors with those for partial-on and partial-off behavior.	Part 2, Slide 73, speaker notes	Slide 92 speaker notes
§100.1(b), definition of "OpenADR 2.0a"	This addition defines a key term related to the new demand responsive measures in §110.12.	Part 2, Slide 104 including speaker notes	Slide 116, speaker notes
§100.1(b), definition of "OpenADR 2.0b"	This addition defines a key term related to the new demand responsive measures in §110.12.	Part 2, Slide 104 including speaker notes	Slide 114, speaker notes
§100.1(b), definition of "VIRTUAL END NODE (VEN)"	This change adds a definition for a term used in the OpenADR 2.0a and 2.0b documents that are incorporated	Part 2, Slide 104 including speaker notes	Slide 114, speaker notes
§110.9(a)	These changes remove the terms "Self-Contained Lighting Controls" and "Lighting Control Systems."	N/A	N/A
§110.12	These changes consolidate all demand responsive controls and demand management requirements throughout Part 6 into a single new	Part 2, Slides 103-105 including speaker notes	Slide 113-115, including speaker notes
§110.12(a)1	These changes require that all demand responsive controls have the ability to either contain or communicate with an OpenADR 2.0a or 2.0b VEN.	Part 2, Slide 104 including speaker notes	Slide 113-115, including speaker notes
§110.12(c)	These changes clarify that the requirement for lowering lighting by 15% is a minimum necessary to demonstrate correct installation and ability to function, and does not otherwise restrict the types of demand responsive functions or behaviors that	Part 2, Slide 105-106 including speaker notes	Slide 116, including speaker notes
§130.1(a)	These changes improve the language readability and clarity, add healthcare facilities to an existing exception relating to the location of controls, and add a separate exception related to restrooms and bathing rooms in healthcare facilities.	Part 2, Slide 14, speaker notes	Slide 62 speaker notes

Section	Description of Change	Location in Curriculum for New Applicants	Location in Curriculum for Recertification
EXCEPTION 1 to §130.1(a)2	This change includes psychiatric and secure areas in healthcare facilities where the controls may be located outside of the controlled area in the exception to §130.1(a)2.	Part 2, Slide 14, speaker notes	Slide 62 speaker notes
EXCEPTION 2 to §130.1(a)2	This addition exempts single-occupant restrooms and bathing rooms in healthcare facilities from control location requirements.	Part 2, Slide 14, speaker notes	Slide 62 speaker notes
§130.1(b)	These changes improve the language readability and clarity, add a new exception for restrooms, and add a new exception for healthcare facilities. The provisions in 2 exceptions have been moved to TABLE 130.1-A, and the provisions relating to the interactions of multilevel controls with other controls have been moved to §130.1(f).	Part 2, Slide 14, speaker notes	Slide 62 speaker notes
EXCEPTION to §130.1(c)	This addition exempts healthcare facilities from the shut-off controls requirements in §130.1(c).	Part 2, Slide 72, speaker notes; Slide 90, speaker notes.	Slide 91
§130.1(c)1E	This addition expressly permits automatic time-switch controls to operate in manual-on mode.	Part 2, Slide 88, speaker notes	Slide 92
§130.1(c)2	This change incorporates the 2 exceptions previously listed under this section directly into the section. The change also no longer permits countdown timer switches in single-stall bathrooms less than 70 square feet to comply with automatic shut-off control requirements in §130.1(c)1.	Part 2, Slide 88, speaker notes	Slide 90, 92
§130.1(c)3	This change clarifies that an override to an automatic time-switch control must be manual.	Part 2, Slide 93 including speaker notes	Slide 96
§130.1(c)5	This change adds restrooms to the areas required to have occupancy sensing controls.	Part 2, Slide 75 including speaker notes	Slide 100

Section	Description of Change	Location in Curriculum for New Applicants	Location in Curriculum for Recertification
§130.1(c)8	This change updates the timeout limit for hotel/motel guestrooms lighting power to be switched off after 20 minutes of vacancy.	Part 2, Slide 75, speaker notes	Slide 100
EXCEPTION 2 to §130.1(c)	This addition harmonizes the automatic shut-off requirements of §130.1(c) with the minimum egress illumination requirements of the California Building Code §1008.	Part 2, Slide 72, speaker notes	Slide 91
§130.1(d)	These changes amend the requirement that all photosensors be located in non-readily accessible locations and add exceptions to address circumstances where daylighting would be ineffectual or problematic. The definitions for skylit, primary sidelit, and secondary sidelit daylit zones were moved to §100.1.	Part 2, Slide 27-29	Slides 71-76
§130.1(d)4 (new)	This change specifies that at least 1 photosensor shall be located so that they are not readily accessible to unauthorized personnel.	Part 2, Slide 20, speaker notes	Slide 83
EXCEPTION 1 and EXCEPTION 2 to §130.1(d) (new)	These additions address circumstances where sunlight is blocked by an outside object such a daylit area will receive a significantly reduced amount of daylight.	Part 2, Slide 27-29	Slides 71-73
EXCEPTION 5 to §130.1(d) (previously EXCEPTION 1 to	This change replaces the word "transition" with "adaption" to better align with industry terms.	Part 2, Slide 32	Slide 76
EXCEPTION 6 to §130.1(d) (new)	This addition addresses the need for uniform lighting in merchandise sales and wholesale showroom areas.	Part 2, Slide 32	Slide 76
§130.1(e)	The demand response requirements previously in §130.1(e) were moved to §110.12 to consolidate all demand response requirements in a single section.	Part 2, Slide 103 including speaker notes	Slide 119

Section	Description of Change	Location in Curriculum for New Applicants	Location in Curriculum for Recertification
§130.1(f)	These changes add a new section to consolidate and clarify the expected interactions between the controls required to be installed by §130.1. The majority of the specifications are either relocated from or previously implied by the requirements of preceding sections.	Part 2, Slide 14, speaker notes	Slide 62
§130.2(a)	This change removes a requirement applicable to incandescent luminaires that is redundant with the requirements applicable to all lighting, irrespective of technology, stated in §130.2(c).	Removed references. Slide 157	Removed references.
EXCEPTION 7 to §130.2(b)	This addition directly restates the existing language in §130.0(b)2 to clarify that outdoor lighting attached to a high-rise residential or hotel/motel building falls under the residential lighting requirement.	Slide 143, speaker notes	Slide 130
§130.2(c)	These changes reduce stated wattage thresholds to account for low-wattage LED lighting, and remove specific reference to outdoor sales frontage, building facade, ornamental hardscape, and outdoor lighting. The term "automatic scheduling control" is used in place of "part-night control" and its required behavior is specified in the section instead of a separate definition.	Slides 143-157	Slide 128-149
§130.2(c)2 (new)	These changes state that the automatic scheduling controls may be installed in combination with other lighting controls, that the ability to turn the light down and turn it <i>off</i> are separate and distinct requirements, and that an override function is optional.	Part 2, Slide 151, Slide 156 speaker notes	Slide 136
§130.2(c)3 (new)	These changes expressly state that the motion sensing controls may be installed in combination with other lighting controls.	Part 2, Slide 145	Slide 141

Section	Description of Change	Location in Curriculum for New Applicants	Location in Curriculum for Recertification
EXCEPTION 1 to §130.2(c)3 (new)	This change directly states that luminaires with a maximum rated wattage of 40 watts each are not required to have motion sensing controls.	Part 2, Slide 157, speaker notes	Slide 142 speaker notes
EXCEPTION 2 to §130.2(c)3	This change directly states that applications listed as exceptions to §140.7(a) are not required to have motion sensing controls.	Part 2, Slide 157, speaker notes	Slide 142 speaker notes
EXCEPTION 3 to §130.2(c)3	This addition creates an exception consistent with EXCEPTION 3 to §130.2(b) and similar exception for demand responsive controls.	Part 2, Slide 160, speaker notes	Slide 142 speaker notes
§130.4	This change directly states that healthcare facilities must comply with the applicable acceptance and installation documentation requirements of OSHPD instead of the applicable requirements in §130.4(a) through §130.4(c).	Part 1, Slide 14, speaker notes	Slide 13, 15 speaker notes
§140.6(a)2L ¹	This addition states that to qualify for the clerestory fenestration, horizontal slats, or light shelves PAF in TABLE 140.6-A, the daylighting design must meet §140.3(d) requirements. These PAFs only apply to lighting in a primary or secondary sidelit daylight zone where continuous dimming daylighting controls meeting the §130.1 (d) requirements are installed.	Part 1, Slide 41, speaker notes	Slide 56 speaker notes
EXCEPTION to §141.0	This addition exempts alterations to licensed healthcare facilities from compliance with §141.0 requirements.	Part 1, Slide 9, speaker notes	Slide 9 speaker notes

Section	Description of Change	Location in Curriculum for New Applicants	Location in Curriculum for Recertification
§141.0(b)21, J, K	These changes merge the content previously in §141.0(b)21-K into §141.0(b)21 and eliminate distinctions between different types of alterations to a building's indoor lighting system. The changes also standardize requirements for lighting system alterations, limit an existing exception for spaces with no more than 2 luminaires, and impose limits on when calculations of area square footage can be avoided in favor of calculating existing installed lighting wattage.	Part 1, Slide 9, speaker notes	Slide 9 speaker notes
TABLE 141.0-F (previously TABLE 141.0-E)	This reorganizes the control requirements for indoor lighting system alterations consistent with the revisions in §141.0(b)21.	Part 1, Slide 9, speaker notes	Slide 9 speaker notes
NA7.6.2.5(a)3	This addition specifies a functional testing procedure for an automatic time switch control with a time override located in the controlled area.	Part 2, Slide 95 including speaker notes	Slide 97 speaker notes
NA7.6.2.5(a)4	This addition specifies a functional testing procedure for an automatic time switch control with an automatic holiday shut-OFF feature.	Part 2, Slide 96 including speaker notes	Slide 97 speaker notes
NA7.6.2.5(a)5	This addition specifies a functional testing procedure for an automatic time switch control with manual-ON mode configured.	Part 2, Slide 96 including speaker notes	Slide 97 speaker notes
NA7.8.5(b)	This change expands the existing construction inspection procedure for verifying the programmed ON and OFF schedule for an astronomical time switch control. A default schedule for acceptance testing purposes is specified in the case that construction documents do not specify a schedule.	Part 2, Slide 152 including speaker notes	Slide 137 including speaker notes

Section	Description of Change	Location in Curriculum for New Applicants	Location in Curriculum for Recertification
NA7.8.6(c)	This change expands the functional testing procedure for an astronomical time switch control during nighttime simulation.	Part 2, Slide 153 including speaker notes	Slide 139
NA7.8.7 through NA7.8.10	These changes remove the part-night outdoor lighting controls sections and renumber the automatic scheduling controls sections accordingly.	Part 2, Slides 151-155 including speaker notes	Slides 136 - 140
NA7.8.7 (new)	These change expand the existing construction inspection procedure for verifying the programmed ON and OFF schedule for an automatic scheduling control. A default schedule for acceptance testing purposes is specified in the case that construction documents do not specify a schedule. Procedures previously included in the part-night outdoor lighting control section have been retained in the automatic scheduling control section to be applicable if a motion sensor is used in conjunction with an automatic scheduling control.	Part 2, Slides 151-155 including speaker notes	Slides 136-140
NA7.8.8 (new)	These changes expand the functional testing procedure for an automatic scheduling control during nighttime simulation. The changes also add procedures to be applicable if a motion sensor is used in conjunction with an automatic scheduling control.	Part 2, Slides 151-155 including speaker notes	Slides 138-140

Summary of Changes for CALCTP-AT Employer Certification

Section	Description of Change	Location in Curriculum for New Applicants	Location in Curriculum for Recertification
§10-103(a)	These changes specify that healthcare facilities must comply with the applicable provisions in Chapter 7 instead of the compliance documentation requirements in §10-103(a).	Slide 12, 14 Speaker notes	Slide 13, 15 Speaker notes
§100.1(b), definition of "DEMAND RESPONSE SIGNAL"	This change clarifies that any signal designed to convey the specified demand response information meets the definition.	Slide 118, 119 Speaker notes	Slide 121, 122 speaker notes
§100.1(b), definition of "DEMAND RESPONSIVE CONTROL"	This change clarifies and simplifies the definition.	Slide 118, 119 Speaker notes	Slide 121, 122 speaker notes
§100.1(b), definition of "ENERGY MANAGEMENT CONTROL SYSTEM (EMCS)"	This change clarifies that the system must be designed for, and actually be capable of performing, the specified operations. It also removes an unnecessary lists of examples in the definition and constraints that are no longer consistent with the use of this term.	Slide 74 Speaker notes	Slide 58 speaker notes
§100.1(b), definition of "CLERESTORY"	This addition defines a key term related to the new clerestory power adjustment factor measure in §140.6.	Slide 75-76 Speaker notes	Slide 57-58 speaker notes
§100.1(b), definition of "HORIZONTAL SLATS"	This addition defines a key term in the new horizontal slats power adjustment factor measure in §140.6.	Slide 75-76 Speaker notes	Slide 57-58 speaker notes
§100.1(b), definition of "LIGHT SHELF"	This addition defines a key term in the new horizontal slats power adjustment factor measure in §140.6.	Slide 75-76 Speaker notes	Slide 57-58 speaker notes
§100.1(b), definition of "Compact Fluorescent Lamp"	This change aligns the definition in Part 6 with the definition in the Title 20 Appliance Efficiency Regulations.	Slide 25 Speaker notes	Slide 18 speaker notes
§100.1(b), definition of "Lamp"	This change clarifies that a lamp is not a luminaire or an LED retrofit kit.	Slide 25 Speaker notes	Slide 18 speaker notes

Section	Description of Change	Location in Curriculum for New Applicants	Location in Curriculum for Recertification
§100.1(b), definition of "LED Retrofit Kit"	This addition defines "LED retrofit kit" in order to provide clarification for a class of products that exist between removable lamps and fully integrated luminaires.	Slide 25 Speaker notes	Slide 18 speaker notes
§100.1(b), definition of "Non-integrated LED lamp"	This change updates the verbiage consistent with a general update to the latest version on ANSI/IES RP-16.	Slide 25 Speaker notes	Slide 18 speaker notes
§100.1(b), definition of "Integrated LED"	This change updates the verbiage consistent with a general update to the	Slide 25 Speaker notes	Slide 18 speaker notes
§100.1(b), definition of "Narrow Band Spectrum"	This addition defines "narrow band spectrum" to recognize a specific class of lighting products with distinct	Slide 25 Speaker notes	Slide 18 speaker notes
§100.1(b), definition of "Ornamental Lighting"	This change updates a wattage value consistent with other section revisions changing wattage values to be consistent with typical LED performance.	Slide 25 Speaker notes	Slide 18 speaker notes
§100.1(b), definition of "Solid State Lighting (SSL)"	This change clarifies that solid state lighting includes both LEOs and OLEOs.	Slide 25 Speaker notes	Slide 18 speaker notes
§100.1(b), definition of "Driver"	This change specifies the functions of semiconductors that define it as a driver for solid state lighting and separate it from other functions that semiconductors may perform.	Slide 25 Speaker notes	Slide 18 speaker notes
§100.1(b), definition of "Astronomical Time-Switch Control"	This change eliminates an unnecessary nesting of lighting control definitions.	Slide 79 Speaker notes	Slide 90 speaker notes
§100.1(b), definition of "Automatic Scheduling Control"	This change clarifies phrasing and recognizes partial-on and partial-off behavior.	Slide 79 Speaker notes	Slide 90 speaker notes
§100.1(b), definition of "Dimmer"	This change clarifies phrasing and accounts for digital control strategies.	Slide 79 Speaker notes	Slide 90 speaker notes
§100.1(b), definitions of "Motion Sensor," "Occupant Sensor," "Partial-ON Occupant or Motion Sensor," and "Partial-OFF Occupant or Motion"	These changes improve phrasing and harmonize definitions for occupant and motion sensors with those for partial-on and partial-off behavior.	Slide 93 Speaker notes	Slide 98 speaker notes
§100.1(b), definition of "OpenADR 2.0a"	This addition defines a key term related to the new demand responsive measures in §110.12.	Slide 118 Speaker notes	Slide 121 speaker notes

Section	Description of Change	Location in Curriculum for New Applicants	Location in Curriculum for Recertification
§100.1(b), definition of "OpenADR 2.0b"	This addition defines a key term related to the new demand responsive measures in §110.12.	Slide 118 Speaker notes	Slide 121 speaker notes
§100.1(b), definition of "VIRTUAL END NODE (VEN)"	This change adds a definition for a term used in the OpenADR 2.0a and 2.0b documents that are incorporated	Slide 118 Speaker notes	Slide 121 speaker notes
§110.9(a)	These changes remove the terms "Self-Contained Lighting Controls" and "Lighting Control Systems."	N/A	N/A
§110.12	These changes consolidate all demand responsive controls and demand management requirements throughout Part 6 into a single new	Slide 117, including speaker notes	Slide 120 including speaker notes
§110.12(a)1	These changes require that all demand responsive controls have the ability to either contain or communicate with an OpenADR 2.0a or 2.0b VEN.	Slide 118, including speaker notes	Slide 121 including speaker notes
§110.12(c)	These changes clarify that the requirement for lowering lighting by 15% is a minimum necessary to demonstrate correct installation and ability to function, and does not otherwise restrict the types of demand responsive functions or behaviors that	Slide 120, 126 including Speaker notes	Slide 123, 126 including speaker notes
§130.1(a)	These changes improve the language readability and clarity, add healthcare facilities to an existing exception relating to the location of controls, and add a separate exception related to restrooms and bathing rooms in healthcare facilities.	Slide 79 Speaker notes	Slide 62 speaker notes
EXCEPTION 1 to §130.1(a)2	This change includes psychiatric and secure areas in healthcare facilities where the controls may be located outside of the controlled area in the exception to §130.1(a)2.	Slide 79 Speaker notes	Slide 62 speaker notes
EXCEPTION 2 to §130.1(a)2	This addition exempts single-occupant restrooms and bathing rooms in healthcare facilities from control location requirements.	Slide 79 Speaker notes	Slide 62 speaker notes

Section	Description of Change	Location in Curriculum for New Applicants	Location in Curriculum for Recertification
§130.1(b)	These changes improve the language readability and clarity, add a new exception for restrooms, and add a new exception for healthcare facilities. The provisions in 2 exceptions have been moved to TABLE 130.1-A, and the provisions relating to the interactions of multilevel controls with other controls have been moved to §130.1(f).	Slide 79 Speaker notes	Slide 62 speaker notes
EXCEPTION to §130.1(c)	This addition exempts healthcare facilities from the shut-off controls requirements in §130.1(c).	Slide 92 Speaker notes	Slide 91 speaker notes
§130.1(c)1E	This addition expressly permits automatic time-switch controls to operate in manual-on mode.	Slide 107-108 including speaker notes	Slide 92 speaker notes
§130.1(c)2	This change incorporates the 2 exceptions previously listed under this section directly into the section. The change also no longer permits countdown timer switches in single-stall bathrooms less than 70 square feet to comply with automatic shut-off control requirements in §130.1(c)1.	Slide 107 Speaker notes	Slide 92 speaker notes
§130.1(c)3	This change clarifies that an override to an automatic time-switch control must be manual.	Slide 107-108 including speaker notes	Slide 93 speaker notes
§130.1(c)5	This change adds restrooms to the areas required to have occupancy sensing controls.	Slide 95 including speaker notes	Slide 100 including speaker notes
§130.1(c)8	This change updates the timeout limit for hotel/motel guestrooms lighting power to be switched <i>off</i> after 20 minutes of vacancy.	Slide 95 including speaker notes	Slide 100 including speaker notes
EXCEPTION 2 to §130.1(c)	This addition harmonizes the automatic shut-off requirements of §130.1(c) with the minimum egress illumination requirements of the California Building Code §1008.	Slide 92 Speaker notes	Slide 91 speaker notes

Section	Description of Change	Location in Curriculum for New Applicants	Location in Curriculum for Recertification
§130.1(d)	These changes amend the requirement that all photosensors be located in non-readily accessible locations and add exceptions to address circumstances where daylighting would be ineffectual or problematic. The definitions for skylit, primary sidelit, and secondary sidelit daylight zones were moved to §100.1.	Slide 83 Speaker notes; Slide 86	Slides 71-76 including speaker notes, slide 83 speaker notes
§130.1(d)4 (new)	This change specifies that at least 1 photosensor shall be located so that they are not readily accessible to <u>un</u> authorized personnel.	Slide 83-87 including speaker notes	Slide 83 including speaker notes
EXCEPTION 1 and EXCEPTION 2 to §130.1(d) (new)	These additions address circumstances where sunlight is blocked by an outside object such a daylit area will receive a significantly reduced amount of daylight.	Slide 83 Speaker notes	Slide 71-72 including speaker notes
EXCEPTION 5 to §130.1(d) (previously EXCEPTION 1 to	This change replaces the word "transition" with "adaption" to better align with industry terms.	Slide 83 Speaker notes	Slide 76 speaker notes
EXCEPTION 6 to §130.1(d) (new)	This addition addresses the need for uniform lighting in merchandise sales and wholesale showroom areas.	Slide 83 Speaker notes	Slide 76 including speaker notes
§130.1(e)	The demand response requirements previously in §130.1(e) were moved to §110.12 to consolidate all demand response requirements in a single section.	Slide 117 including speaker notes	Slide 120 including speaker notes
§130.1(f)	These changes add a new section to consolidate and clarify the expected interactions between the controls required to be installed by §130.1. The majority of the specifications are either relocated from or previously implied by the requirements of preceding sections.	Slide 79 Speaker notes	Slide 62 speaker notes
§130.2(a)	This change removes a requirement applicable to incandescent luminaires that is redundant with the requirements applicable to all lighting, irrespective of technology, stated in §130.2(c).	Slide 162	Slide 144

Section	Description of Change	Location in Curriculum for New Applicants	Location in Curriculum for Recertification
EXCEPTION 7 to §130.2(b)	This addition directly restates the existing language in §130.0(b)2 to clarify that outdoor lighting attached to a high-rise residential or hotel/motel building falls under the residential lighting requirement.	Slide 148 Speaker notes	Slide 131 speaker notes
§130.2(c)	These changes reduce stated wattage thresholds to account for low-wattage LED lighting, and remove specific reference to outdoor sales frontage, building facade, ornamental hardscape, and outdoor lighting. The term "automatic scheduling control" is used in place of "part-night control" and its required behavior is specified in the section instead of a separate definition.	Slide 146-150 including speaker notes; Slide 162 speaker notes	Slide 137-141 including speaker notes; Slide 144
§130.2(c)2 (new)	These changes state that the automatic scheduling controls may be installed in combination with other lighting controls, that the ability to turn the light down and turn it <i>off</i> are separate and distinct requirements, and that an override function is optional.	Slide 155	Slide 137
§130.2(c)3 (new)	These changes expressly state that the motion sensing controls may be installed in combination with other lighting controls.	Slide 161	Slide 143
EXCEPTION 1 to §130.2(c)3 (new)	This change directly states that luminaires with a maximum rated wattage of 40 watts each are not required to have motion sensing controls.	Slide 162 Speaker notes	Slide 144 speaker notes
EXCEPTION 2 to §130.2(c)3	This change directly states that applications listed as exceptions to §140.7(a) are not required to have motion sensing controls.	Slide 162 Speaker notes	Slide 144 speaker notes
EXCEPTION 3 to §130.2(c)3	This addition creates an exception consistent with EXCEPTION 3 to §130.2(b) and similar exception for demand responsive controls.	Slide 162 Speaker notes	Slide 144 speaker notes

Section	Description of Change	Location in Curriculum for New Applicants	Location in Curriculum for Recertification
§130.4	This change directly states that healthcare facilities must comply with the applicable acceptance and installation documentation requirements of OSHPD instead of the applicable requirements in §130.4(a) through §130.4(c).	Slides 12, 14 Speaker notes	Slide 13, 15 speaker notes
§140.6(a)2L ¹	This addition states that to qualify for the clerestory fenestration, horizontal slats, or light shelves PAF in TABLE 140.6-A, the daylighting design must meet §140.3(d) requirements. These PAFs only apply to lighting in a primary or secondary sidelit daylight zone where continuous dimming daylighting controls meeting the §130.1(d) requirements are installed.	Slide 75-76 including speaker notes	Slide 56 and 57 including speaker notes
EXCEPTION to §141.0	This addition exempts alterations to licensed healthcare facilities from compliance with §141.0 requirements.	Slide 9 Speaker notes	Slide 9 speaker notes
§141.0(b)21, J, K	These changes merge the content previously in §141.0(b)21-K into §141.0(b)21 and eliminate distinctions between different types of alterations to a building's indoor lighting system. The changes also standardize requirements for lighting system alterations, limit an existing exception for spaces with no more than 2 luminaires, and impose limits on when calculations of area square footage can be avoided in favor of calculating existing installed lighting wattage.	Slide 9 speaker notes	Slide 9 speaker notes
TABLE 141.0-F (previously TABLE 141.0-E)	This reorganizes the control requirements for indoor lighting system alterations consistent with the revisions in §141.0(b)21.	Slide 9 speaker notes	Slide 9 speaker notes

Section	Description of Change	Location in Curriculum for New Applicants	Location in Curriculum for Recertification
NA7.6.2.5(a)3	This addition specifies a functional testing procedure for an automatic time switch control with a time override located in the controlled area.	Slide 111-112 including speaker notes	Slide 96-97 speaker notes
NA7.6.2.5(a)4	This addition specifies a functional testing procedure for an automatic time switch control with an automatic holiday shut-OFF feature.	Slide 111-112 including speaker notes	Slide 96-97 speaker notes
NA7.6.2.5(a)5	This addition specifies a functional testing procedure for an automatic time switch control with manual-ON mode configured.	Slide 111-112 including speaker notes	Slide 96-97 speaker notes
NA7.8.5(b)	This change expands the existing construction inspection procedure for verifying the programmed ON and OFF schedule for an astronomical time switch control. A default schedule for acceptance testing purposes is specified in the case that construction documents do not specify a schedule.	Slide 156-159 including speaker notes	Slide 139-141 including speaker notes
NA7.8.6(c)	This change expands the functional testing procedure for an astronomical time switch control during nighttime simulation.	Slide 158 including speaker notes	Slide 140 including speaker notes
NA7.8.7 through NA7.8.10	These changes remove the part-night outdoor lighting controls sections and renumber the automatic scheduling controls sections accordingly.	Slide 156-159 including speaker notes	Slide 137-141 including speaker notes

Section	Description of Change	Location in Curriculum for New Applicants	Location in Curriculum for Recertification
NA7.8.7 (new)	These change expand the existing construction inspection procedure for verifying the programmed ON and OFF schedule for an automatic scheduling control. A default schedule for acceptance testing purposes is specified in the case that construction documents do not specify a schedule. Procedures previously included in the part-night outdoor lighting control section have been retained in the automatic scheduling control section to be applicable if a motion sensor is used in conjunction with an automatic scheduling control.	Slide 158-159 including speaker notes	Slide 140-141 including speaker notes
NA7.8.8 (new)	These changes expand the functional testing procedure for an automatic scheduling control during nighttime simulation. The changes also add procedures to be applicable if a motion sensor is used in conjunction with an automatic scheduling control.	Slide 159 including speaker notes	Slide 141 including speaker notes

¹ The three new daylighting design power adjustment factors (PAFs) in TABLE 140.6-A are not the responsibility of lighting controls ATTs and are therefore not required to be covered in the training curricula. However, it would be good for the ATTs to be generally aware of the PAFs in case they encounter projects claiming those PAFs.