

DOCKETED

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June 27, 2022

Daniel Wong
Senior Electrical Engineer
Compliance and Enforcement Unit
California Energy Commission
715 P Street
Sacramento, CA 95814

Subject: CALCTP Lighting Controls Acceptance Test Technician Adjustments to the 2022 Training Curriculum

Dear Daniel,

ICF, in its capacity as program administrator for the California Advanced Lighting Controls Training Program (CALCTP), is submitting an update to its approved application to the California Energy Commission (CEC) as outlined in 2022 Energy Code, defined in § 10-103.1(f). In addition, CALCTP is addressing the information outlined in the updated report guidance letter dated February 8, 2022.

Confidential materials were sent in advance of these items on June 27, 2022, including CALCTP lighting control acceptance test documents, training curricula, and test materials.

Additional changes made to CALCTP operations are indicated in the CALCTP-AT Handbook (attached).

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

Sincerely,

Mark V. Ouellette

Mark Ouellette
Administrator

Enclosure/Attachment:

cc: Joe Loyer, CEC Compliance and Enforcement Unit
Bernie Kotlier
Leslie Hughes-Nardoni
Tom Enslow
Kevin Johnson

Energy Commission staff identified in Attachment 1 -2022 Changes Affecting the ATTCP Requirements are addressed below. The identified changes are bolded and CALCTP's response to the changes are stated below.

- 1. Section §10-103.1: The change to this section and its subsections is to add references to §160.5(e) alongside existing references to §130.4 consistent with the separation of multifamily building requirements, including acceptance testing requirements, into separate chapters in §160, §170 and §180 (inclusive).**

Noted, CALCTP added references §160.5(e) alongside existing references to §130.4 consistent with the separation of multifamily building requirements. No impact on the CALCTP application.

- 2. Section §10-103.1(c)3H: This change adds express criteria for electronic storage, within a database system, of compliance forms prepared and collected by Acceptance Test Technicians.**

Noted, CALCTP under previous codes has complied with §10-103.1(c)3H subsections i., ii, iii, and iv. No changes for these sections are made to the CALCTP application. Under subsection iv, CALCTP will utilize the Application Programming Interface (API) developed by the Energy Commission within a year of development to provide the required including project address, permit numbers, acceptance test technician, and acceptance test employer certification numbers, certificates of acceptance, installation forms, and record of quality assurance review.

- 3. Section §10-103.1(c)3I. The purpose of the addition of this section is to add specifications for recording, maintaining, and providing certificate of compliance, certificate of installation and certificate of acceptance documents collected by Acceptance Test Technician Certification Providers to the Energy Commission.**

Noted, CALCTP has an upload document feature in its existing database. ATT and ATE will have to attest to the uploading of the certificate of compliance, installation, and

acceptance testing forms prior to being allowed to sign-off on the project. The required certificate of compliance, installation, and acceptance forms include:

- Nonresidential/High-rise multifamily buildings: NRCC-LTI-E, NRCI-LTI-E, NRCC-LTO-E, NRCI-LTO-E, NRCC-ELC-E, NRCI-ELC-E
- Low-rise multifamily buildings: LMCC-LTI-E, LMCI-LTI-E, LMCC-LTO-E, LMCI-LTI-E, LMCC-ELC-E, LMCI-ELC-E

Attachment 2 - Changes Affecting the Training Curricula

Section	Description of Change	Location in Curriculum for New ATT Applicants (redline version)	Location in Curriculum for ATT Recertification (redline version)
§10-102, Definition “Nonresidential Data Registry”	This change excludes certificates of acceptance recorded by an Acceptance Test Technician Certification Provider from requiring additional submittal to separate data registries.	Part 1, slide 56, slide speaker notes	35, slide speaker notes for all
§10-103(a)4B	This change excludes certificates of acceptance recorded by an Acceptance Test Technician Certification Provider from requiring additional submittal to separate data registries.	Part 1, slide 56, slide speaker notes	35, slide speaker notes for all
§10-103(a)4C	The change removes reference to registration or the use of data registries as it relates to certificates of acceptance.	Part 1, slide 56, slide speaker notes	35, slide speaker notes for all
§10-103(d)	The change removes reference to registration or the use of data registries as it relates to certificates of acceptance.	Part 1, slide 56, slide speaker notes	35, slide speaker notes for all
§10-109(i)1B	This change exempts NRCA forms recorded by an ATTCP from nonresidential data registry registration requirements.	Part 1, slide 56, slide speaker notes	35, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New ATT Applicants (redline version)	Location in Curriculum for ATT Recertification (redline version)
§10-114, Table 10-114-A	This change revises default rural lighting zone classifications as lighting zone 1 and to add urban clusters as the default classification for lighting zone 2. Building types deemed appropriate for lighting zones 1, 2 and 3 are added to Table 10-114-A. These changes align, where feasible, to the outdoor lighting zone default classification with the Illuminating Engineering Society/International Dark-sky Association (IES/IDA) Outdoor Lighting Model Ordinance lighting zone classification.	n/a to new student acceptance testing	109, slide speaker notes for all
§100.0	The changes to these sections, their subsections and associated Table are to relocate provisions describing the application of the Energy Code and, in doing so, to reflect changes occurring later in the document that relocate provisions applicable to multifamily buildings (inclusive of low-rise and high-rise multifamily buildings) into their own subsections. These edits include removing references to “high-rise residential” where no longer applicable, replacing low-rise residential” with “single-family”, and updating references to include the new sections of the Energy Code relating to multifamily buildings (§160, §170, and §180 inclusive) consistent with the relocation.	Part 1, slides 11, 14, slide speaker notes, various updates throughout	10, 11, 15, slide speaker notes for all Update slide 11 to 2022 BEES and Appendices when finalized by CEC

Section	Description of Change	Location in Curriculum for New ATT Applicants (redline version)	Location in Curriculum for ATT Recertification (redline version)
§100.0, Table 100.0-A	The changes to this table are to separate multifamily from the nonresidential and single-family building categories, and to add the new electric-ready sections to this table. Additionally, existing section references were updated to account for any change in section numbering resulting from additional changes to the Energy Code.	Part 1, slides 11, 14, Part II slides 181-187, slide speaker notes	10, 11, 15, slide speaker notes for all Update slide 11 to 2022 BEES and Appendices when finalized by CEC
§100.1(b), definition of “IES LM-79-19”	The specific purpose of the change is to <u>update the reference document title</u> and numbering to the most recent version of the document as issued by the Illuminating Engineering Society.	Part 1, Slide Part 1,	18, 63, 104, slide speaker notes for all, slide speaker notes for all
100.1(b), definition of “IES LS-1-20”	The specific purpose of the change is to update the reference document title and numbering to the most recent version of the document as issued by the Illuminating Engineering Society.	Part 1, Slide 1 Part 1, Slide 26	18, 63, 104, slide speaker notes for all, slide speaker notes for all.
§100.1(b), definition of “IES TM-15-20”	The specific purpose of the change is to update the reference document title and numbering to the most recent version of the document as issued by the Illuminating Engineering Society.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New ATT Applicants (redline version)	Location in Curriculum for ATT Recertification (redline version)
§100.1(b), definition of “Accent Lighting”	The specific purpose of the change is to update the definition to align, where feasible, with the nomenclature and definitions for Illuminating Engineering of the reference document, ANSI/IES LS-1-20, and to include examples of accent lighting.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all, slide speaker notes for all
§100.1(b), definition of “Automatic Daylight Control”	This change revises the definition to provide clear and specific definitions for technical terms used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all, slide speaker notes for all
§100.1(b), definition of “Automatic Multilevel Daylight Control”	This change removes the definition to provide clear and specific definitions for technical terms used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code, and to remove obsolete terms, removing unnecessary complexity.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all, slide speaker notes for all
§100.1(b), definition of “Color Rendering Index (CRI)”	This change updates the definition to align with the nomenclature and definitions for Illuminating Engineering of the reference document, ANSI/IES LS-1-20.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New ATT Applicants (redline version)	Location in Curriculum for ATT Recertification (redline version)
§100.1(b), definition of “Correlated Color Temperature (CCT)”	This change updates the definition to align with the nomenclature and definitions for Illuminating Engineering of the reference document, ANSI/IES LS-1-20.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Colored Light Source”	This change revises the reference measurement methods and the reference calculation method for colored light sources.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Compact Fluorescent Lamp”	This change updates the definition to align with the nomenclature and definitions for Illuminating Engineering of the reference document, ANSI/IES LS-1-20.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Daylight Continuous Dimming Controls”	This change adds the definition to provide clear and specific definitions for technical terms used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Decorative (lighting/luminaires)”	This change updates the definition to include examples in the definition for decorative lighting/luminaires.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Dimmer”	This change revises the definition to provide clear and specific definitions for technical terms used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New ATT Applicants (redline version)	Location in Curriculum for ATT Recertification (redline version)
§100.1(b), definition of “Dimmer, Continuous” (was Dimmer, Full Range)	This change revises the term to “Dimmer, Continuous” from “Dimmer, Full Range”.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Display Lighting, Floor” (was Display Lighting and Floor)	This change revises the definitions to combine both definitions for display lighting and floor as one definition for ‘Display Lighting, Floor’.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Display Lighting, Wall”	This change revises the definitions to combine both definitions for display lighting and wall as one definition for ‘Display Lighting, Wall’.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Display Lighting, Window”	This change revises the definitions to combine both definitions for display lighting and window as one definition for ‘Display Lighting, Window’.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Display Lighting, Case”	This change revises the definitions to combine both definitions for display lighting and case as one definition for ‘Display Lighting, Case’.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Illumination”	This change updates the definition to align, where feasible, with the nomenclature and definitions for Illuminating Engineering of the reference document, ANSI/IES LS-1-20.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New ATT Applicants (redline version)	Location in Curriculum for ATT Recertification (redline version)
§100.1(b), definition of “Inseparable Solid State Lighting (SSL) Luminaire”	This change updates the definition to align, where feasible, with the nomenclature and definitions for Illuminating Engineering of the reference document, ANSI/IES LS-1-20, and to add examples to the definition for inseparable solid state lighting luminaires.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Light”	This change updates update the definition to align, where feasible, with the nomenclature and definitions for Illuminating Engineering of the reference document, ANSI/IES LS-1-20.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Lighting”	This change updates the definition to align, where feasible, with the nomenclature and definitions for Illuminating Engineering of the reference document, ANSI/IES LS-1-20.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Light Emitting Diode” (LED)	This change updates the definition to align, where feasible, with the nomenclature and definitions for Illuminating Engineering of the reference document, ANSI/IES LS-1-20.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “LED Driver”	This change updates the definition to align, where feasible, with the nomenclature and definitions for Illuminating Engineering of the reference document, ANSI/IES LS-1-20.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New ATT Applicants (redline version)	Location in Curriculum for ATT Recertification (redline version)
§100.1(b), definition of “LED Light Engine”	This change updates the definition to align with the nomenclature and definitions for Illuminating Engineering of the reference document, ANSI/IES LS-1-20.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Luminaire Alteration” (new)	This change adds the definition to provide clear and specific definitions for technical terms used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Luminous Maintenance” (was Lumen Maintenance)	This change updates the definition to align, where feasible, with the definition of the ENERGY STAR Program Product Specification for Luminaires (Light Fixtures) Version 2.2.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Luminaire”	This change revises the definition to provide clear and specific definitions for technical terms used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Luminous Flux”	This change revises the definition to provide clear and specific definitions for technical terms used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New ATT Applicants (redline version)	Location in Curriculum for ATT Recertification (redline version)
§100.1(b), definition of “Occupant Sensing Controls” (was Occupant Sensor)	This change updates the definitions (including Motion Sensor; Occupant Sensor; Partial-ON Occupant or Motion Sensor; Partial-OFF Occupant or Motion Sensor; Vacancy Sensor) with a change of phrase from “sensor” to “sensing control” to the terms of definition. These changes are to align with the use of the term in §130.1(c) of Automatic Shutoff Controls, and the revised terms more accurately reflects of their characters as lighting controls.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Pendant Luminaire” (Suspended Luminaire) (was Pendant)	This change adds luminaire to the name of the definition.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “One-to-One Alteration” (new)	This change adds the definition to provide clear and specific definitions for technical terms used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Ornamental Lighting/Luminaires” (was Ornamental Lighting; Luminaires)	This change combines both definitions for ornamental lighting and luminaires as one definition for “Ornamental Lighting/Luminaires”. The other change is to separate out the sub-definition for decorative luminaires as an independent and separate definition for “Decorative Lighting/Luminaires”.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§100.1(b), definition of “Portable Lighting”	This change revises the definition to provide clear and specific definitions for technical terms used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Radiant Power”	This change revises the definition to provide clear and specific definitions for technical terms used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Security Cameras”	This change adds the definition to provide clear and specific definitions for technical terms used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Task Lighting”	This change updates the definition to align, where feasible, with the nomenclature and definitions for Illuminating Engineering of the reference document, ANSI/IES LS-1-20.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Track Lighting”	This change updates the definition to align, where feasible, with the nomenclature and definitions for Illuminating Engineering of the reference document, ANSI/IES LS-1-20.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§100.1(b), definition of “Tunable Lighting”	This change adds the definition to provide clear and specific definitions for technical terms used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Dim-to-Warm”	This change adds the definition to provide clear and specific definitions for technical terms used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Tunable White” (new)	This change adds the definition to provide clear and specific definitions for technical terms used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Color Tunable” (new)	This change adds the definition to provide clear and specific definitions for technical terms used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Multifamily Building” (new)	This change adds the definition to provide clear and specific definitions for technical terms used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Museum Building” (Nonresidential Building Occupancy Types) (new)	This change adds the definition to provide clear and specific definitions for technical terms used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§100.1(b), definition of “Barber, Beauty Salon, Spa Area” (was Beauty Salon Area)	This change updates the name of the nonresidential function areas to include barber and spa areas for the nonresidential function area definition.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Lobby, Main Entry” (was Main Entry Lobby)	This change reorders the name of the nonresidential function areas with “Lobby” as the preceding term for the nonresidential function area definition.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Laboratory, Scientific Area” (was Scientific Laboratory Area)	This change reorders the name of the nonresidential function areas with “Laboratory” as the preceding term for the nonresidential function area definition.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Manufacturing, Commercial and Industrial Area” (was Commercial and Industrial Manufacturing Area)	This change reorders the name of the nonresidential function areas with “Manufacturing” as the preceding term for the nonresidential function area definition.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Storage, Commercial and Industrial Area” (was Commercial and Industrial Storage Area)	This change reorders the name of the nonresidential function areas with “Storage” as the preceding term for the nonresidential function area definition.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Parking Zone and Ramps” (was Parking Zone and Dedicated Ramps)	This change revises the definitions to combine both definitions for parking zone and dedicated ramps as one definition for “Parking Zone and Ramps”.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§100.1(b), definition of “Daylight Adaptation” Zone	This change revises the definition to clarify adjacent areas of a parking garage are applicable to the nonresidential function area definition of daylight adaptation zone.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Dedicated Ramps” (removed)	This change removes the definition to provide clear and specific definitions for technical terms used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code, and to remove obsolete terms, removing unnecessary complexity.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Overhang Projection” (removed)	This change removes the definition to provide clear and specific definitions for technical terms used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code, and to remove obsolete terms, removing unnecessary complexity.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all
§100.1(b), definition of “Overhang Rise” (removed)	This change removes the definition to provide clear and specific definitions for technical terms used within other updates to Part 6, aligned with the use of the term where it is proposed to occur later in the Energy Code, and to remove obsolete terms, removing unnecessary complexity.	Part 1, Slide 26	18, 63, 104, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§110.9(b)5	This change removes part-night outdoor lighting controls and its functionality requirements. The criteria of this section define what a control installed to meet “part-night” requirements is required to do, however the underlying requirements to install “part-night” controls (distinct from other outdoor lighting controls) were removed in the 2019 update to the Energy Code.	n/a, part night controls were not included in the previous version	104 - 112, slide speaker notes for all
§110.12(a)	The changes to this section more clearly state the communication requirements applicable to demand responsive controls. The term “hard-wiring” in particular was observed to be a common source of confusion and is adequately covered by “wired or wireless bi-directional communication pathway”.	Part 2, slide 109	81-84, 103, slide speaker notes for all
§110.12(c)	The changes to this section revise the floor area threshold to an equivalent wattage threshold, and more clearly state that the requirement of this section applies to lighting to which multi-level lighting requirements in §130.1(b) also apply.	Part 2, slide 104-106, slide speaker notes	81-84, 103, slide speaker notes for all
§110.12(c)2 (new)	This addition clarifies which lighting systems are required to be controlled and can be controlled optionally when demand responsive lighting controls are required.	Part 2, slide 104-107, slide speaker notes	81-84, 103, slide speaker notes for all.
§110.12(c)3 (new)	This addition relocates language related to uniform illumination in §110.12(c) to new subsection §110.12(c)3.	Part 2 – slide 104	82, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§110.12(c), Exception 1 to §110.12(c) (removed)	This change removes the exception for spaces with lighting power density of 0.5 watts per square foot or less.	Part 2 - 106, slide speaker notes	84, 86, slide speaker notes for all
§110.12(c), Exception to §110.12(c)	This change revises the exception from a floor area threshold to an installed wattage threshold.	Part 2 – Slide 106, speaker notes	83, 84, 86, slide speaker notes for all
§110.12(e) (new)	The addition of §110.12(e) adds specific requirements for the behavior of demand responsive controlled receptacles.	Part 2, slide 128, speaker notes	84-86, slide speaker notes for all
Subchapter 4	This change removes high-rise residential buildings from the scope of Subchapter 4 (§130.0 - §130.5). Lighting and electrical power distribution system requirements for multifamily buildings (including high-rise residential buildings) are covered in Subchapter 10.	Part 1, slide 11 and 14, speaker notes	114-117, slide speaker notes for all
§130.0, §130.0(a) and §130.0(b)	The changes to these sections remove high-rise residential buildings and high-rise residential dwellings from the scoping requirements of §130.0 because high-rise residential buildings and dwellings are being moved to new chapters of the proposed Energy Code.	Part 1, slide 11 and 14, speaker notes	114-117, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§130.0(c)	The changes update the luminaire classification and luminaire power determination for luminaires with line voltage lamp holders and revise the requirement to be based on the luminaire maximum rated wattage of §130.0(c)1 and remove the 50 watts per socket threshold for recessed luminaires with line-voltage medium screw base socket.	N/A	54, slide speaker notes
§130.1	This change removes high-rise residential buildings from the scope of §130.1. Lighting requirements for multifamily buildings (including high-rise residential buildings) are covered in new §160.5.	Part 1 – slide 11, 14, speaker notes	114-119, slide speaker notes for all
§130.1(a), Exception to 130.1(a)	This change revises the exception for lighting that are continuously illuminated for the means of egress illumination to be up to the same amount as permitted in §130.1(c).	Part 2 – Slide 72, speaker notes	105, slide speaker notes
§130.1(a)1, Exception to §130.1(a)1	This change clarifies that any restroom with two or more stalls and adds areas intended for access by the public to the list of areas exempt from the readily accessible requirement.	Part 2, slide 15, and Slide 185 speaker notes	105, slide speaker notes
§130.1(a)2, Exception 1 to §130.1(a)2	This change adds main entry lobbies and dining areas to the list of areas that do not require manual area controls to be in the same space as lighting being controlled.	Part 2, slide 15, speaker notes	105, slide speaker notes
§130.1(a)3	This change allows scene controllers to be installed as specified for meeting the separate lighting control requirement of §130.1(a)3.	Part 2, slide 15, speaker notes	105, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§130.1(b)	These changes relocate certain exceptions to this subsection's multilevel lighting control requirements from Table 130.1-A to the text body of §130.1(b) and lowers the lighting power density threshold.	Part 2, slide 15, 70, speaker notes	106, slide speaker notes for all
§130.1(b), Exception 1 to §130.1(b)	This change exempts enclosed spaces with one inseparable SSL luminaire from the multilevel lighting control requirement.	Part 2, slide 15, 70, slide speaker notes.	106, slide speaker notes for all
§130.1(c) Exception 2 (removed)	This change relocates the exception to Exception 3 to §130.1(c)1.	Part 2, slide 72, speaker notes	106, slide speaker notes for all
§130.1(c)1D (removed)	This change removes separate shut-OFF controls requirement for general lighting, display lighting, ornamental lighting, and display case lighting.	Part 2, slide 72, speaker notes	107, slide speaker notes for all
§130.1(c)1E (removed)	This change removes language that is duplicative with §130.1(a). Because all indoor lighting controls already require compliance with §130.1(a), which requires manual on switches, it is not necessary to duplicate that requirement in §130.1(c).	Part 2, slide 72, speaker notes	107, slide speaker notes for all
§130.1(c)1, Exception 3 to §130.1(c)1 (Moving Exception 2 to §130.1[c])	This change moves 'Exception 2 to §130.1(c)' to 'Exception 3 to §130.1(c)1' as part of the Exception 3.	Part 2, slide 72, speaker notes	107, slide speaker notes for all
§130.1(c)3B, Exception	This change adds "laboratories" to the list of areas to be allowed to have an automatic time-switch control override of longer than two hours.	Part 2, slide 94, speaker notes	107, slide speaker notes for all
§130.1(c)5	This change replaces the phrase 'sensor' with 'sensing controls'.	Part 2, slide 71, 73	107, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§130.1(c)6	This change adds the mandatory requirements for full or partial OFF occupancy sensing controls for aisle ways, open area in warehouses, library book stack aisles, corridors and stairwells, and office spaces greater than 250 square feet. The other specific purpose of the change is to revise the term “general lighting” to “lighting” for meeting the requirements of §130.1(c)6.	Part 2, slide 72, slide speaker notes	108, slide speaker notes for all
§130.1(c)6D (new)	This addition establishes requirements for partial OFF occupancy sensing controls in offices greater than 250 square feet and functionality requirements for these controls.	Part 2, slide 76, slide speaker notes	108, slide speaker notes for all
§130.1(c)7	This change revises the term “general lighting” to “lighting” for meeting the requirements of §130.1(c)7.	Part 2, slide 72, slide speaker notes	107, slide speaker notes for all
§130.1(c)7A	This change removes high-rise residential buildings and high-rise residential dwellings from the scoping requirements of §130.1(c)7A.	Part 1, slide 11 and 14, speaker notes	104, slide speaker notes for all
§130.1(d)	This change adds secondary sidelit daylight zones to the mandatory automatic daylighting control requirements. This change also revises the numbering of the exception for parking garage areas, areas with glazing and opening, and retail merchandise sales and wholesale showroom areas.	Part 2, slide 19, speaker notes	71 and 72, slide speaker notes for all
§130.1(d)1	This change specifies that secondary sidelit daylight zones must be shown on the plans.	Part 2, slide 38	71, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§130.1(d)2	This change clarifies how general lighting in overlapping primary and secondary sidelit daylight zones must be controlled.	Part 2, slide 28, speaker notes	73, slide speaker notes for all
§130.1(d)3C	This change increases the minimum controlled lighting power reduction from 65 to 90 percent.	Part 2, slide 49, 52-53, 62-63, speaker notes	72, slide speaker notes for all
§130.1(d)3D	This change clarifies that the combination of primary and secondary sidelit daylight zones must be reduced to 100 percent when daylight illuminance is greater than 150 percent of the design illuminance.	Part 2, slide 19, speaker notes	72, slide speaker notes for all
§130.1(d)4	This change requires that all photosensors be located such that they are not accessible to unauthorized personnel, rather than at least one in a daylight zone.	Part 2, slide 38	72, slide speaker notes for all
§130.1(d) Exception 3 to §130.1(d)	This change is to rephrase the exception for rooms with total general lighting power in skylit daylight zone and primary sidelit daylight zone of less than 120 watts. This change also exempts rooms with total general lighting power in secondary sidelit daylight zone less than 120 watts from the automatic daylighting control requirements for these zones.	Part 2, slide 32	73-74, slide speaker notes for all
§130.1(d), Exception 4 to §130.1(d)	This change relocates the exception for parking garage areas from Exception 3 to Exception 4.	Part 2, slide 34	75, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§130.1(d), Exception 6 to §130.1(d)	This change removes dedicated ramps in parking garages from being exempted from automatic daylighting control requirements.	Part 2, slide 35, speaker notes	75-76, slide speaker notes for all
§130.1(f)9	This change adds new occupant sensing control requirements for space conditioning systems as specified in Table 120.1-A.	Part 2, slide 15, speaker notes	61-63, slide speaker notes for all
§130.1, Table 130.1-A	The changes include editorial changes for re-ordering the light source technologies, combine some luminaire types with common characteristics into the same category, <u>move the footnote outside of Table 130.1-A, and to reformat the table for ADA compliance.</u>	Part 2, slide 15, speaker notes	61-63, slide speaker notes for all
§130.2, 130.2(b), and Exception 7 to §130.2(b)	The changes to this section remove high-rise residential buildings and high-rise residential dwellings from the scoping requirements of §130.2 and provide grammatical changes for clarity.	Part 1, slide 11, 14, speaker notes	109-110 slides 111 slide and speaker notes
§130.2(b), Exception 2 to §130.2(b)	This change exempts outdoor public art lighting from the luminaire shielding requirements.	n/a to new student acceptance testing	111-113, slide speaker notes for all
§130.2(b), Exception 6 to §130.2(b)	This change exempts utility-maintained roadways, sidewalks, and bikeways from the luminaire shielding requirements.	n/a to new student acceptance testing	111-113, slide speaker notes for all
§130.2(c)2A	This change relocates the automatic scheduling control requirements from the bottom of the subsection to the top.	n/a to new student acceptance testing	111-113, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§130.2(c)3A	This change relocates the motion sensing control requirements from the bottom of the subsection to the top.	n/a to new student acceptance testing	111 - 113, slide speaker notes for all
§130.2(c)3Aii	This change adds “wall packs” as the luminaire example for outdoor wall mounted luminaires and to remove the following text: “have a bilaterally symmetric distribution such as Type II, III, and IV light distributions, as described in the IES Lighting Library TM”.	Part 2, slide 169	111 - 113, slide speaker notes for all
§130.4	This change removes high-rise residential buildings and high-rise residential dwellings from the scoping requirements of §130.4.	Part 1, slide 11 and 14, speaker notes	114-120, slide speaker notes for all
§130.4(a)	The changes include editing wording to clarify how the lighting control acceptance requirements can be met by testing in accordance with Reference Nonresidential Appendix Section NA7.6 and NA7.8 and change reference to institutional tuning requirement from Section NA7.7 to Section NA7.6.	n/a to new student acceptance testing	Slide 62
§130.4(a)8 (new)	This change adds demand responsive receptacle controls to the list of controls subject to acceptance testing in nonresidential buildings.	Part 2, slide 128-135, speaker notes	Slide 62
§130.4(b)	This change removes the installation certificate requirement for track lighting integral current limiters and track lighting supplementary overcurrent protection panels.	n/a to new student acceptance testing	33, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§130.5	This change removes high-rise residential buildings and high-rise residential dwellings from the scoping requirements of §130.5.	n/a to new student acceptance testing	104, slide speaker notes for all
§130.5(d)	This change revises “occupancy sensing controls” to “occupant sensing controls”.	n/a to new student acceptance testing	108, slide speaker notes for all
§130.5(e)	This change expressly states that “demand responsive controls and equipment” includes demand responsive controls associated with controlled receptacles.	Part 2, slide 128-135, speaker notes	82-84, slide speaker notes for all
§140.6	This change removes mention of secondary daylight zone provisions, consistent with the relocation of these provisions to mandatory sections.	Part 1, slide 11, speaker notes	54, slide speaker notes for all
§140.6(a)2	The changes to subsection H, I and K revise the power adjustment factor (PAF) for daylight dimming plus OFF controls, for occupant sensing controls in office, and for demand responsive control.	Part 1, slide 53	55-57, slide speaker notes for all
§140.6(a)3F	This change removes the text “In office buildings with medical and clinical areas and healthcare facilities” from §140.6(a)3F.	n/a to new student acceptance testing	55-57, slide speaker notes
§140.6(a)3M	This change removes the requirement for high-rise residential buildings from the nonresidential chapter.	Part 1, slide 11 and 14, speaker notes	55 - 57, slide speaker notes

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§140.6(a)3W	This change adds an exception for horticultural lighting in CEH spaces (indoor growing and greenhouses) complying with Section 120.6(h).	n/a to new student acceptance testing	54, slide speaker notes
§140.6(a)4B	This change adds the term luminaire aperture to the qualifying luminaire descriptions of small aperture tunable-white and dim-to-warm luminaires lighting power adjustment. The other change revises the lighting power adjustment values for these luminaires.	n/a to new student acceptance testing	54, slide speaker notes
§140.6(c)2Gvii	The changes to this section is to delete the specific lighting wattage amount for videoconferencing studio and instead to refer to Table 140.6-C for the lighting power allotment for videoconferencing studio.	Part 1, slide 54	54, slide speaker notes
§140.6(d) (removed)	This change removes the secondary sidelit daylit zone requirements from this section and to move the requirements to §130.1(d).	Part 2, slide 19, speaker notes	64-66, slide speaker notes
§140.6, Table 140.6-A	The changes revise Daylight Continuous Dimming plus OFF control to be the type of control qualified for the power adjustment factors (PAF) as specified in Table 140.6-A and revise power adjustment factor values for occupant sensing controls in offices larger than 250 square feet.	Part 2, slide 52-53	55 - 57, slide speaker notes

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§140.6, Tables 140.6-B, C, D, and G	<p>The changes amend the indoor lighting power allotments for using complete building method, area category method, and tailored method in Table 140.6-B, Table 140.6-C, Table 140.6-D, and Table 140.6-G.</p> <p>The other changes are to replace the term, “ornamental lighting”, with the term, “decorative lighting” and separate “concourse and atria area” and “convention, conference multipurpose and meeting area” into separate rows.</p>	n/a to new student acceptance testing	54 - 57, slide speaker notes
§140.7, Table 140.7-A	<p>The changes revise the lighting power allowance values of general hardscape lighting. The concrete and asphalt surface distinction are removed, and these LPAs are reduced to align with the lighting levels recommendations in the ANSI/IES documents of Illuminating Engineering Society (IES) for parking lots and general hardscape lighting applications.</p>	n/a to new student acceptance testing	54, slide speaker notes
§140.7, Table 140.7-B	<p>The changes add a new additional lighting allowance for security cameras. Another change is to update the ornamental lighting 100-watt limit to 50 watts and to correct the reference to §130.0(c) for luminaire rated wattage determination.</p>	n/a to new student acceptance testing	54, slide speaker notes

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§141.0	This change removes reference to high-rise residential (now labeled multifamily buildings), such that the requirements of this section and its subsections now only apply to nonresidential, hotel/motel buildings. Multifamily requirements are being relocated into new §160, §170, and §180. A second note has also been added explaining that relocating a relocatable public-school building does not meet the definition of an alteration.	Part 1, slide 11 and 14, speaker notes	10-11, slide speaker notes Slide 11 will be updated when clean 2022 BEES is available
§141.0(b)	This change removes multifamily “high rise residential” from the scope of this requirement.	Part 1, slide 11 and 14, speaker notes	10-11, slide speaker notes Slide 11 will be updated when clean 2022 BEES is available
§141.0(b)2I	This change revises the terminology “ornamental lighting” to “decorative lighting” to match the change of the terminology in the new construction section of the code.	n/a to new student acceptance testing	N/A
§141.0(b)2L	The changes clarify application, remove unintended alternate readings, and move the threshold for limited numbers of luminaires into an exception.	n/a to new student acceptance testing	N/A
§141.0(b)2Piv	This change requires that new controlled receptacles as applicable meet demand responsive control requirements.	Part 2, slide 128 – 135, speaker notes	81-84, slide speaker notes

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§141.0, Table 141.0-F	The changes to Table 141.0-F clarify applicability by replacing “and” with “or” and update section references consistent with changes made elsewhere in the Energy Code (e.g., moving the demand response provisions to §110.12). The added language also specifies that the new occupant sensing control requirement added to §130.1(c)6D are not intended to apply to alterations meeting specified requirements.	n/a to new student acceptance testing	11, 110, slide speaker notes Slide 11 will be updated when clean 2022 BEES is available

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§160.0 through §180.4	<p>The addition of §160.0 through §180.4 is to relocate requirements applicable to multifamily buildings to one area of the Energy Code, and merge requirements where cost effective and technically feasible. The mandatory requirements for multifamily buildings have been relocated to the newly created Subchapter 10, §160.0 through §160.9. The performance and prescriptive requirements for multifamily buildings have been relocated to the newly created Subchapter 11, §170.0 through §170.2. The requirements for additions and alterations to multifamily buildings have been relocated to the newly created Subchapter 12, §180.0 through §180.4.</p> <p>Most of this relocation is non-substantive, though note that substantive changes proposed for residential and/or nonresidential Energy Code in §120 through §150.2 are duplicated here where applicable, for consistency as well as for the reasons stated in the statements for changes made to those sections. Additional substantive changes have been made where feasible to create consistency across the former categories of low-rise and high-rise buildings, i.e., buildings with three or fewer habitable / residential stories and those with four or more (respectively). Specific changes requiring additional detail are described below.</p>	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§160.5(b)	This new section contains the mandatory lighting requirements for common use areas in multifamily buildings. These requirements mostly align with mandatory requirements in §130.0 through §130.5 with specific changes for multifamily buildings.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes
§160.5(b), Exception to §160.5(b)	This change adds an Exception to §160.5(b) for lighting systems installed in common use areas providing shared provisions for living, eating, cooking or sanitation to dwelling units. Lighting systems in the specified common use areas may instead comply with lighting requirements for dwelling units.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes
§160.5(b)4A, Exceptions to §160.5(b)4Aii	This change exempts areas where placement of area control poses a health and safety hazard. This exception differs from the corresponding exceptions in §130.1(a)1. References to nonresidential function areas have been removed.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes
§160.5(b)4B, Exceptions to §160.5(b)4B	This change exempts restrooms and spaces with one luminaire from multilevel requirements. The exception differs from the corresponding exceptions in §130.1(b). References to classrooms and healthcare facilities have been removed.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§160.5(b)4Cii	This section differs from corresponding nonresidential §130.1(c)2. Provisions for countdown timer switches to be used in server aisles in server rooms have been removed.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes
§160.5(b)4Ciii	This section differs from corresponding nonresidential §130.1(c)3B. The exception that applies to nonresidential building spaces has been removed.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes
§160.5(b)4Civ	This section differs from corresponding nonresidential §130.1(c)4. The exception that applies to nonresidential building spaces has been removed.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes
§160.5(b)4Cv	This section differs from corresponding nonresidential §130.1(c)5. References to classrooms have been removed.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes
§160.5(b)4Cvi	This section differs from corresponding nonresidential §130.1(c)6. References to aisle ways and open areas in warehouses and library book stack aisles have been removed.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes
§160.5(b)4Cvii	This section differs from corresponding nonresidential §130.1(c)7. References to stairwells and common area corridors have been removed. Stairwells and corridors in multifamily common use areas comply with §160.5(b)4Cvi.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§160.5(c)1, Exception 7 to §160.5(c)1	This change adds an exception for outdoor lighting attached to a multifamily building that is separately controlled from the inside of a dwelling unit.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes
§160.5(c)2Ci	This change requires motion sensors for wall mounted general hardscape parking lot lighting located within 1 mounting height of a parking space and 24 feet above grade or lower.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes
§160.5(e)	This new section contains the mandatory lighting controls acceptance testing requirements for common use areas in multifamily buildings.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes
§160.5(e)1H	This change adds demand responsive receptacle controls to the list of controls subject to acceptance testing in multifamily common use areas. Identical language was added to §130.4 for nonresidential buildings.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes
§160.5(e)2E	This change removes certification requirements for the additional lighting wattage for videoconference studios.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes
§160.5(e)3	This change specifies that a certified lighting controls acceptance test technician must perform acceptance testing specified by §160.5(e) for multifamily common areas.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§160.6(d)	This section differs from nonresidential §130.5(d). References to hotel and motel guest rooms have been removed.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes
§160.6(d), Exception 2 to §160.6(d)	This change adds Exception 2 to §160.6(d) – for receptacles in common use areas providing shared provisions for dwelling units. This change permits receptacles in the specified common use areas to instead comply with receptacles requirements for dwelling units.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes
§160.6(e)	This addition references the demand responsive controlled receptacles requirements in §110.12(e) that apply to multifamily common use areas.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes
§170.2(e)	This change relocates the prescriptive lighting requirements for common use areas in multifamily buildings to this section. These requirements mostly align with prescriptive requirements in §140.6 to §140.8 with specific changes for multifamily buildings.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes
§170.2(e), Exception to §170.2(e)	This change adds an Exception to §170.2(e) for lighting systems installed in common use areas providing shared provisions for living, eating, cooking or sanitation to dwelling units. Lighting systems in the specified common use areas may instead comply with lighting requirements for dwelling units.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§170.2(e)2C	This section differs from corresponding nonresidential §140.6(a)3. References to nonresidential spaces that must comply with the section have been removed.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes
§170.2(e)3	This section differs from corresponding nonresidential §140.6(b). Multifamily common use areas may only use the area category method or tailored method (and not the complete building method) for calculating allowed indoor lighting power.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes
§170.2(e)6A, Exceptions to §170.2(e)6A	The exception to this section differs from corresponding exception in §140.7(a). References to nonresidential outdoor lighting applications have been removed.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes
§170.2(e), Tables 170.2-M, N, O	These tables differ from corresponding nonresidential Tables 140.6-C, D and E. Many space types and lighting power density values have been revised specifically for multifamily common use areas.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes
§170.2(e), Tables 170.2-R, S	These tables differ from corresponding nonresidential Tables 140.7-A and B. Many space types and lighting power density values have been revised specifically for multifamily buildings.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
§180.2(b)4	This change relocates the prescriptive lighting and electrical power distribution alteration requirements for common use areas in multifamily buildings to this section. These requirements mostly align with prescriptive alteration requirements in §141.0(b)2I, §141.0(b)2L, §141.0(b)2M, §141.0(b)2P with specific changes for multifamily buildings.	Part 2, slide 181-187, speaker notes	114-120, slide speaker notes
NA7.6.1	The changes to this section and subsections include clean-up to address minor issues with the grammar, punctuation, structure, consistency, and wording of the procedures in NA7.6.1.	n/a to new student acceptance testing	61-62, slide speaker notes
NA7.6.1.1	This change revises the construction inspection to directly incorporate specific requirements found in the Energy Code, replacing general language, and avoiding the need to interpret vague, nonspecific language.	Part 2, slide 39-44, speaker notes	61-62, 77, slide speaker notes for all
NA7.6.1.2	This change revises the protocols to NA7.6.1.4 and NA7.6.1.5 in Section NA7.6.1.2. These changes are reasonably necessary to clarify the protocols to be used for the functional testing of Section NA7.6.1.2.	Part 2, slide 46-68, various, speaker notes	61-62, 77, slide speaker notes for all
NA7.6.1.3	This change adds the term “Reserved” for the section to indicate that the section has been removed.	n/a to new student acceptance testing	61-62, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
NA7.6.1.4(b)	This change removes the requirement “For lighting system with institutional tuning of NA7.6.4, include documentation for luminaires claiming the power adjustment factors (PAF) for institutional tuning.” from item 2.	Part 2, slide 46-68, various, speaker notes	61-62, slide speaker notes for all
NA7.6.1.4(c)	This change revises the controlled lighting power reduction to 90 percent consistent with changes to §130.1(d) and §160.5(b)4D and specifies 100 percent power reduction for parking garages. Changes for item 4 include replacing “complaint” with “compliant” and revising “daylight dimming” to “daylight continuous dimming”.	Part 2, slide 46-68, various, speaker notes	72
NA7.6.1.4(e)	This addition specifies a new alternative partial daylight testing procedure.	Part 2, slide 58, speaker notes	77-79, slide speaker notes for all
NA7.6.1.6	The changes to this section include removing unneeded parenthetical text where it occurs in this section’s subsections, remove reference to continuous dimming for consistency with the section’s title and contents (stepped dimming), remove procedure for documenting daylight dimming plus off behavior, and remove unneeded reference to documenting of institutional tuning (documentation requirements relating to institutional tuning are already specified in the section on institutional tuning).	Part 2, slide 46-68, various, speaker notes	61-62, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
NA7.6.1.6(c)	The changes include revising the controlled lighting power reduction to 90 percent consistent with changes to §130.1(d) and §160.5(b)4D and specifies 100 percent power reduction in parking garages, replacing “(Light output is stable with no visible flicker.)” with “RESERVED” in item 2, and deleting item 4 since the PAF now requires a continuous dimming system to qualify for the PAF.	Part 2, slide 46-68, various, speaker notes	72-77, slide speaker notes for all
NA7.6.2	The changes to this section and subsections include clean-up to address minor issues with the grammar, punctuation, structure, consistency, and wording of the procedures in NA7.6.2.	Part 2, slide 70-87, various, speaker notes	61-62, slide speaker notes for all
NA7.6.2.1	This change revises the construction inspection to remove items that are verified during functional testing and revise item c so that the inspection verifies controls are installed per manufacturer instructions.	Part 2, slide 80-87, various, speaker notes	61-62, slide speaker notes for all
NA7.6.2.3	This change adds explicit requirements for each type of occupant sensing control including partial on, partial off and vacancy sensing controls. This change also adds explicit requirements for occupant sensing controls in parking garages, parking areas, and loading and unloading areas.	Part 2, slide 70-87, various, speaker notes	108, slide speaker notes

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
NA7.6.2.4	This addition specifies new functional testing procedures for multizone occupant sensing controls consistent with new requirements in §130.1(c)6D and §160.5(b)4Cvib.	Part 2, slide 85-86, speaker notes	109-110, slide speaker notes
NA7.6.3	The changes revise language to match §110.12 more closely. Other changes to this section and subsections include clean-up to address minor issues with the grammar, punctuation, structure, consistency, and wording of the procedures in NA7.6.3.	Part 2, slide 102-125, various, speaker notes	81, 88, slide speaker notes for all
NA7.6.3.1	This change revises the construction inspection to directly incorporate specific requirements found in the Energy Code §110.12 that can be verified through visual inspections before functional testing.	Part 2, slide 109, various speaker notes	81, 88, slide speaker notes for all
NA7.6.3.2.3	This addition specifies a new demand responsive control testing procedure using full facility current measurements.	Part 2, Slide 111, 122-125, speaker notes	89-94, slide speaker notes for all
NA7.6.4	This change relocates the institutional tuning power adjustment factor acceptance testing procedures from NA7.7 to NA7.6.	Part 2, slide 10	61-62, slide speaker notes for all
NA7.6.5	This addition specifies new demand responsive controlled receptacle testing procedures consistent with new requirements in §110.12(e), §130.4(a)8, and §160.5(e)1H.	Part 2, slide 128-134, speaker notes	96-102, slide speaker notes for all

Section	Description of Change	Location in Curriculum for New Applicants (Redline version)	Location in Curriculum for Recertification (Redline version)
NA7.8	The changes to this section and subsections include clean-up to address minor issues with the grammar, punctuation, structure, consistency, and wording of the procedures in NA7.8.	Part 2, slide 154, speaker notes	108, 113, slide speaker notes for all
NA7.8.1	The changes to this section consolidate motion sensing controls testing procedures to NA7.8.1, eliminating redundancy with motion sensing control testing procedures in NA7.8.7 and NA7.8.8 (removed).	Part 2, slides 154, 168-177, various, speaker notes	113, slide speaker notes for all
NA7.8.2	This change adds sampling provisions for functional testing of photosensors.	Part 2, slide 161, speaker notes	89, 99, slide speaker notes for all
NA7.8.5 (was NA7.8.7 and NA7.8.8)	This change relocates the automatic scheduling control construction inspection and functional testing procedures from NA7.8.7 and NA7.8.8 to NA7.8.5 (NA7.8.5.1 and NA7.8.5.2). Other changes include removing testing procedures for automatic scheduling controls used in conjunction with motion sensing controls. Motion sensing control testing procedures have been consolidated to NA7.8.1.	Part 2, slide 154-157, various, speaker notes	111-113, slide speaker notes for all
NA7.8.5, NA7.8.6 (removed)	The changes to these sections remove the testing procedures for astronomical time switch controls which are redundant with the testing procedures for automatic scheduling controls.	n/a to new student acceptance testing	111-113, slide speaker notes for all

Attachment 3: 2022 Changes to Lighting Controls Acceptance Documents

Changes to reflect the 2022 Energy Code and Reference Appendices

NRCA-LTI-02-A

Action	Location on Form Header/Page #	Completed
Updated the automatic time switch construction inspection and functional testing sections to reflect changes to NA7.6.2.5 and NA7.6.2.6 which include clean-up to address minor issues with the grammar, punctuation, structure, consistency, and wording of the procedures in NA7.6.2.	Table A-1 page 2, Table B-1 page 3	Yes
Updated the occupant sensing lighting controls construction inspection and functional testing sections to reflect changes in NA7.6.2.1 and NA7.6.2.3 which include clean-up to address minor issues with the grammar, punctuation, structure, consistency, and wording of the procedures in NA7.6.2.	Table A-2 page 3	Yes
Added functional testing procedures for multi-zone occupant sensing controls to reflect new requirements in NA7.6.2.4.	Table B-3 page 5	Yes

NRCA-LTI-03-A

Action	Location on Form Header/Page #	Completed
Updated the construction inspection and functional testing sections to reflect changes to NA7.6.1 which include clean-up to address minor issues with the	Intent section page 1, Table A page 1	Yes

grammar, punctuation, structure, consistency, and wording of the procedures in NA7.6.1.		
Added alternative partial daylight test for continuous dimming systems to reflect expanded requirements in NA7.6.1.4(e).	Table B-1 Page 4	Yes
Removed functional testing procedure for daylight dimming plus off controls for stepped switching or stepped dimming control systems.	N/A (this is a removal)	Yes

NRCA-LTI-04-A		
Action	Location on Form Header/Page #	Completed
Updated the construction inspection and functional testing sections to reflect changes to NA7.6.3 which include clean-up to address minor issues with the grammar, punctuation, structure, consistency, and wording of the procedures in NA7.6.3.	Intent section page 1 Table A-1 page 1	Yes
Added a third functional testing method for full facility current measurements to reflect expanded requirements in NA7.6.3.2.3.	Table B-3 page 5	Yes
Added construction inspection and functional testing sections for demand responsive controlled receptacles to reflect expanded requirements in NA7.6.5, §110.12(e), §130.4(a)8, and 160.5(e)1H.	Table A-2 page 7 Table B-4 Page 7	Yes

NRCA-LTI-05-A		
Action	Location on Form Header/Page #	Completed
<p>Updated references to NA7.6.4 to reflect the relocation of institutional tuning acceptance testing from NA7.7.5.2 to NA7.6.4.</p> <p>Updated the construction inspection to reflect changes to NA7.6.4.1.</p>	<p>Intent section page 1 Table A page 1 note: references to NA7.7.5.2 have been removed</p>	Yes

NRCA-LTO-02-A		
Action	Location on Form Header/Page #	Completed
Updated the construction inspection and functional testing sections to reflect changes to NA7.8 which include clean-up to address minor issues with the grammar, punctuation, structure, consistency, and wording of the procedures in NA7.8.	<p>Intent section page 1 Table A page 1</p>	Yes
Added photocontrol sampling procedure to reflect updates to NA7.8.2.2.	Table B-1 page 1	Yes
Updated the form to include a separate motion sensing control section and automatic scheduling control section. The automatic scheduling control used in conjunction with motion sensing controls section has been removed to reflect updates to NA7.8.1 and NA7.8.5.	<p>Table A-2 page 2 Table A-3 page 3</p>	Yes

Formatting Changes: Update all documents to be ADA compliant, as follows:	
Action	Completed
Changed font style and size	Yes, completed
Alternate text for images and tables	Yes, completed
Removed merged cells in tables	Yes, completed
Specify column header rows in tables	Yes, completed
Eliminate empty table cells	Yes, completed
Standardize table formatting and numbering	Yes, completed