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## **STAFF REPORT**

# **Lighting Controls Acceptance Test Technician Certification Provider 2019 Updates Review: National Lighting Contractors Association of America**

*Compliance Review to the California 2019  
Building Energy Efficiency Standards*

**Gavin Newsom, Governor**  
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# California Energy Commission

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## ABSTRACT

Per the requirements in Section 10-103.1(d)2 of the *Building Energy Efficiency Standards*, acceptance test technician certification providers shall submit an update report to the California Energy Commission reporting what adjustments have been made to the training curricula, if any, to address adopted updates to the standards. The *2019 Building Energy Efficiency Standards* were adopted by the California Energy Commission on May 8, 2018, and all acceptance test technician certification providers were notified to begin development of their 2019 update reports.

Staff has evaluated the training curricula adjustments and other application amendments that the National Lighting Contractors Association of America submitted in its 2019 update report, which staff first received in its entirety on July 19, 2019. The National Lighting Contractors Association of America submitted revised materials on November 13, 2019, to address staff's evaluation of the report. Staff has found that the proposed training curricula adjustments and other application amendments submitted, including the National Lighting Contractors Association of America's November supplement, satisfy the requirements for acceptance test technician certification providers in Section 10-103.1(c) of the *2019 Building Energy Efficiency Standards*, which will go into effect January 1, 2020. Staff recommends that the California Energy Commission approve the National Lighting Contractors Association of America's 2019 update report.

**Keywords:** Nonresidential lighting controls acceptance test technician certification provider, ATTCP, National Lighting Contractors Association of America, NLCAA, lighting controls, acceptance testing, Building Energy Efficiency Standards, update report

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## EXECUTIVE SUMMARY

The acceptance test technician certification provider program provides training, certification, and oversight of acceptance test technicians who perform the acceptance tests required by the California *Building Energy Efficiency Standards*, as well as the employers of the technicians. The providers are professional organizations approved by the California Energy Commission to provide training curricula for technicians and employers, certification procedures, complaint resolution (including disciplinary procedures), quality assurance, and accountability measures.

In accordance with Section 10-103.1(d)2 of the *Building Energy Efficiency Standards*, providers must report to the California Energy Commission any adjustments made to the training curricula to address changes to lighting controls acceptance testing requirements or any adopted updates to the *Building Energy Efficiency Standards*. Each provider must submit an update report at least six months before the effective date of any newly adopted *Building Energy Efficiency Standards*, and the report must contain a signed certification that the provider has met all requirements for this program. Providers must demonstrate to the California Energy Commission that their acceptance testing certification services will comply with any applicable updates to the *2019 Building Energy Efficiency Standards*.

Update reports for the *2019 Building Energy Efficiency Standards* shall be approved through the amendment process in Section 10-103.1(f) of the *Building Energy Efficiency Standards*. Amendments containing any substantive changes are subject to the same review and approval process as new provider applications, meaning they must be approved by the California Energy Commission at a business meeting. Approval of amendments containing only nonsubstantive changes may be delegated to the California Energy Commission's executive director. Staff will evaluate the training curricula adjustments and other application amendments contained within a provider's 2019 update report to determine if the provider's services comply with the criteria and procedures in Section 10-103.1(c)3 of the *2019 Building Energy Efficiency Standards*.

The California Energy Commission approved the National Lighting Contractors Association of America as a lighting controls acceptance test technician certification provider on November 17, 2014. The association began submitting components of its 2019 update report for review on June 27, 2019, with the final component submitted on July 19, 2019, in response to staff's initial review for completeness. The association submitted revised materials to address staff's evaluation for compliance on November 13, 2019. The amendments the association proposes in response to 2019 regulatory changes are nonsubstantive. However, the association is including additional amendments in its 2019 update report that make nonsubstantive and substantive changes. Staff has found that the association's 2019 update report application amendments comply with all applicable requirements in the *Building Energy Efficiency Standards*. Staff recommends that the California Energy Commission approve the association's application amendments proposed in its 2019 update report.





# CHAPTER 1:

## Background

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### **The Acceptance Test Technician Certification Provider Program**

Acceptance testing ensures that installed equipment, controls, and systems in nonresidential buildings operate as required by the *Building Energy Efficiency Standards* (Energy Code) (codified in Title 24, Part of the California Code of Regulations). The California Energy Commission (CEC) developed the acceptance test technician certification provider (ATTCP) program to improve compliance with lighting controls and mechanical acceptance test requirements.

The ATTCP program provides training, certification, and oversight of acceptance test technicians (ATTs) who perform the acceptance tests required by the Energy Code, as well as the acceptance test employers (ATEs) that employ ATTs. ATTCPs are professional organizations approved by the CEC to provide training curricula for ATTs and ATEs, certification procedures, complaint resolution (including disciplinary procedures), quality assurance, and accountability measures.

### **2019 Update Report Requirements**

In accordance with Section 10-103.1(d)2 of the Energy Code, lighting controls ATTCPs must report to the CEC any adjustments or amendments made to the training curricula to address changes to lighting controls acceptance testing requirements or any adopted updates to the Energy Code. These reports are referred hereafter as “update reports.” Each ATTCP must submit an update report at least six months before the effective date of any newly adopted Energy Code, and the report must contain a signed certification that the ATTCP has met all requirements for this program. ATTCPs must also demonstrate to the CEC that their acceptance testing certification services will comply with any applicable updates to the Energy Code if their approved application does not comply with any new or revised ATTCP requirements as previously approved.

Update reports for the 2019 Energy Code submitted by lighting controls ATTCPs shall be approved through the amendment process in Section 10-103.1(f) of the Energy Code. Amendments containing any substantive changes are subject to the same review and approval process as new ATTCP applications, meaning they must be approved by the CEC at a business meeting. Approval of amendments containing only nonsubstantive changes may be delegated to the CEC's executive director. Although staff's review of the 2019 update reports will follow the procedures in the 2016 Energy Code, the contents of each 2019 update report will be evaluated for compliance with the 2019 Energy Code. Staff will evaluate the training curricula adjustments and other application amendments contained within an ATTCP's 2019 update report to determine if the ATTCP's services comply with the criteria and procedures in Section 10-103.1(c)3 of the 2019 Energy Code.

## **Updates to the 2019 Energy Code**

The 2019 Energy Code includes various updates that affect the lighting controls ATTCP program on different levels. Staff considers most of these updates minor, as these changes do not require the lighting controls ATTCPs to alter their approved applications substantively. However, there are updates to the 2019 Energy Code that could result in a substantive amendment. These substantive and nonsubstantive updates to the Energy Code will be discussed as part of the staff evaluation in Chapter 2 of this report.

## **National Lighting Contractors Association of America**

The National Lighting Contractors Association of America (NLCAA), a nonprofit corporation, is one of two organizations approved by the CEC as a nonresidential lighting controls ATTCP on November 17, 2014. NLCAA began submitting components of its 2019 update report for review on June 27, 2019, with the final component submitted on July 19, 2019, in response to CEC staff's initial review for completeness. NLCAA submitted revised materials to address staff's evaluation for compliance on November 13, 2019.

NLCAA's 2019 update report was submitted under the 2016 Energy Code. The report was evaluated in accordance with the amendment review requirements in Section 10-103.1(f)2 of the 2016 Energy Code. The amendments NLCAA proposes in response to 2019 regulatory changes are mostly nonsubstantive; however, NLCAA included additional amendments in its 2019 update report that make nonsubstantive and substantive changes to its approved application.

Staff has summarized the relevant sections from NLCAA's 2019 update report application amendment as they pertain to the requirements in Section 10-103.1(c) of the 2019 Energy Code in Chapter 2 of this report. Furthermore, staff has assessed whether NLCAA's application amendments satisfy the ATTCP requirements in Section 10-103.1(c) of the 2019 Energy Code and provides recommendations for approval in Chapter 3 of this report.

# CHAPTER 2:

## 2019 Update Report Evaluation

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This chapter separates the 2019 update report evaluation into two main sections: evaluation of the amendments proposed in response to 2019 Energy Code regulatory changes and evaluation of voluntary amendments submitted as part of the 2019 update report. Within those two main sections, the staff evaluation is further separated based on what the specific proposed amendments will change in the approved application materials.

### Amendments for 2019 Regulatory Changes

To help ATTCPs understand regulatory changes in the 2019 Energy Code that would likely require updates to an approved lighting controls ATTCP application, CEC staff identified relevant sections and descriptions of the changes. Staff communicated these changes to the lighting controls ATTCPs in an expectations letter on January 17, 2019.

Based on the scope of the 2019 regulatory changes, there are three main types of amendments that a lighting controls ATTCP may propose in response to the regulatory changes: program modifications, certification training adjustments, and new recertification training materials. The subsequent sections present the relevant regulatory changes, ATTCP requirements, compliance method used by NLCAA, and CEC staff's assessment of NLCAA's compliance for each of the three types of amendments.

### Program Modifications to Address Revised ATTCP Requirements

#### Regulatory Changes

**Table 1** summarizes the changes to the ATTCP requirements in Section 10-103.1 of the 2019 Energy Code that may prompt a lighting controls ATTCP to amend its approved application.

**Table 1: 2019 Regulatory Changes Affecting the ATTCP Requirements**

Section	Description of Change
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.
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).
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.

Source: California Energy Commission staff

## ATTCP Requirements

If an ATTCP's approved application does not already meet the 2019 requirements in **Table 1**, then the ATTCP must amend its application and demonstrate to the CEC how its modified program will satisfy the ATTCP requirements under the 2019 Energy Code. The first change listed in **Table 1** would only require an amendment if an ATTCP chooses to specify additional qualifications for participation in its program. The requirement does not make it mandatory for an ATTCP to specify additional qualifications.

## Summary of Compliance Method for ATTCP

In response to the revised ATTCP requirements in **Table 1**, NLCAA proposes the following modifications to its approved program:

- NLCAA will not allow ATT or ATE applicants that have been decertified by another ATTCP to participate in the NLCAA certification program.
- NLCAA will not allow decertified ATTs or ATEs to regain certification through NLCAA.
- NLCAA will list all of its ATTs and ATEs on the NLCAA website and indicate whether the certification status for each is "active" or "inactive."
- NLCAA will make a list of the ATTs and ATEs with revoked or surrendered certifications available to CEC staff or other ATTCPs upon request. (NLCAA defines "revoked" to be the same as "decertified.") NLCAA will list these ATTs and ATEs as "inactive" on the NLCAA website.

## Staff Assessment

Staff evaluated the program modifications that NLCAA proposes in response to revised ATTCP requirements in Section 10-103.1 of the 2019 Energy Code. Staff has found that NLCAA's proposed program modifications satisfy the 2019 Energy Code requirements in Section 10-103.1. **Table 2** summarizes NLCAA's compliance with the revised ATTCP requirements for its proposed program modifications.

**Table 2: Summary of ATTCP Compliance With 2019 ATTCP Requirements**

Requirement	Amendment Location(s)	Staff Assessment
ATT Prequalification (Section 10-103.1[c]3Biii)	NLCAA Twelfth Application Amendment NLCAA 2019 Update Report (Confidential) NLCAA Application to the CEC—Rev 05	Complies
Decertification Procedures (Section 10-103.1[c]3E)	NLCAA Twelfth Application Amendment NLCAA 2019 Update Report (Confidential) Appendix 2 to NLCAA Application to the CEC	Complies
Certification Identification Number and Verification of Certification Status (Section 10-103.1[c]3G)	NLCAA Twelfth Application Amendment NLCAA 2019 Update Report (Confidential) NLCAA Application to the CEC—Rev 05	Complies

Source: California Energy Commission staff

## Certification Training Adjustments to Address Regulatory Changes

### Regulatory Changes

**Table 3** summarizes the changes in the 2019 Energy Code and *2019 Reference Nonresidential Appendices* that may prompt a lighting controls ATTCP to make adjustments to its ATT and ATE trainings.

**Table 3: 2019 Regulatory Changes Affecting the Training Curricula**

Section	Description of Change
10-103(a)	These changes specify that health care facilities must comply with the applicable provisions in Title 24, Part 1, Chapter 7 instead of the compliance documentation requirements in Section 10-103(a).
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.
100.1(b), definition of "DEMAND RESPONSIVE CONTROL"	This change clarifies and simplifies the definition.
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 list of examples in the definition and constraints that are no longer consistent with the use of this term.
100.1(b), definition of "CLERESTORY"	This addition defines a key term related to the new clerestory power adjustment factor measure in Section 140.6.
100.1(b), definition of "HORIZONTAL SLATS"	This addition defines a key term in the new horizontal slats power adjustment factor measure in Section 140.6.
100.1(b), definition of "LIGHT SHELF"	This addition defines a key term in the new light shelf power adjustment factor measure in Section 140.6.
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.
100.1(b), definition of "Lamp"	This change clarifies that a lamp is not a luminaire or a light emitting diode (LED) retrofit kit.
100.1(b), definition of "LED Retrofit Kit"	This addition defines "LED retrofit kit" to provide clarification for a class of products that exist between removable lamps and fully integrated luminaires.
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.
100.1(b), definition of "Integrated LED lamp"	This change updates the verbiage consistent with a general update to the latest version on ANSI/IES RP-16.

<b>Section</b>	<b>Description of Change</b>
100.1(b), definition of "Narrow Band Spectrum"	This addition defines "narrow band spectrum" to recognize a specific class of lighting products with distinct features.
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.
100.1(b), definition of "Solid State Lighting (SSL)"	This change clarifies that solid state lighting includes LEDs and organic LEDs.
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.
100.1(b), definition of "Astronomical Time-Switch Control"	This change eliminates an unnecessary nesting of lighting control definitions.
100.1(b), definition of "Automatic Scheduling Control"	This change clarifies phrasing and recognizes partial-on and partial-off behavior.
100.1(b), definition of "Dimmer"	This change clarifies phrasing and accounts for digital control strategies.
100.1(b), definitions of "Motion Sensor," "Occupant Sensor," "Partial-ON Occupant or Motion Sensor," and "Partial-OFF Occupant or Motion Sensor"	These changes improve phrasing and harmonize definitions for occupant and motion sensors with those for partial-on and partial-off behavior.
100.1(b), definition of "OpenADR 2.0a"	This addition defines a key term related to the new demand responsive measures in Section 110.12.
100.1(b), definition of "OpenADR 2.0b"	This addition defines a key term related to the new demand responsive measures in Section 110.12.
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 by reference into requirements for demand responsive equipment.
110.9(a)	These changes remove the terms "Self-Contained Lighting Controls" and "Lighting Control Systems."
110.12	These changes consolidate all demand responsive controls and demand management requirements throughout Part 6 into a single new section. The changes also exclude health care facilities from the scope of the demand response and management requirements in Part 6.
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 virtual end node.

Section	Description of Change
110.12(c)	These changes clarify that the requirement for lowering lighting by 15 percent 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 the device can provide. The changes also reorganize existing verbiage as an exception to clarify that spaces with a lighting power density of 0.5 watts per square foot or less do not count toward the 10,000-square-foot threshold and do not need to install demand responsive controls.
130.1(a)	These changes improve the language readability and clarity, add health care facilities to an existing exception relating to the location of controls, and add a separate exception related to restrooms and bathing rooms in health care facilities.
EXCEPTION 1 to Section 130.1(a)2	This change includes psychiatric and secure areas in health care facilities where the controls may be located outside the controlled area in the exception to Section 130.1(a)2.
EXCEPTION 2 to Section 130.1(a)2	This addition exempts single-occupant restrooms and bathing rooms in health care facilities from control location requirements.
130.1(b)	These changes improve the language readability and clarity, add a new exception for restrooms, and add a new exception for health care facilities. The provisions in two 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 Section 130.1(f).
EXCEPTION to Section 130.1(c)	This addition exempts health care facilities from the shutoff controls requirements in Section 130.1(c).
130.1(c)1E	This addition expressly permits automatic time-switch controls to operate in manual-on mode.
130.1(c)2	This change incorporates the two 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 shutoff control requirements in Section 130.1(c)1.
130.1(c)3	This change clarifies that an override to an automatic time-switch control must be manual.
130.1(c)5	This change adds restrooms to the areas required to have occupancy sensing controls.
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.
EXCEPTION 2 to Section 130.1(c)	This addition harmonizes the automatic shut-off requirements of Section 130.1(c) with the minimum egress illumination requirements of the California Building Code Section 1008.
130.1(d)	These changes amend the requirement that all photosensors be located in nonreadily 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 Section 100.1.



<b>Section</b>	<b>Description of Change</b>
130.1(d)4 (new)	This change specifies that at least one photosensor shall be located so that it is not readily accessible to unauthorized personnel.
EXCEPTION 1 and EXCEPTION 2 to Section 130.1(d) (new)	These additions address circumstances where sunlight is blocked by an outside object such a daylight area will receive a significantly reduced amount of daylight.
EXCEPTION 5 to Section 130.1(d) (previously EXCEPTION 1 to Section 130.1(d)3)	This change replaces the word "transition" with "adaption" to better align with industry terms.
EXCEPTION 6 to Section 130.1(d) (new)	This addition addresses the need for uniform lighting in merchandise sales and wholesale showroom areas.
130.1(e)	The demand response requirements previously in Section 130.1(e) were moved to Section 110.12 to consolidate all demand response requirements in a single section.
130.1(f)	These changes add a new section to consolidate and clarify the expected interactions between the controls required to be installed by Section 130.1. Most specifications are either relocated from or previously implied by the requirements of preceding sections.
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 Section 130.2(c).
EXCEPTION 7 to Section 130.2(b)	This addition directly restates the existing language in Section 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.
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 façade, ornamental hardscape, and outdoor lighting. The term "automatic scheduling control" is used in place of "part-night control," and the required behavior is specified in the section instead of a separate definition.
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 off are separate requirements, and that an override function is optional.
130.2(c)3 (new)	These changes expressly state that the motion sensing controls may be installed in combination with other lighting controls.
EXCEPTION 1 to Section 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.
EXCEPTION 2 to Section 130.2(c)3	This change directly states that applications listed as exceptions to Section 140.7(a) are not required to have motion sensing controls.

<b>Section</b>	<b>Description of Change</b>
EXCEPTION 3 to Section 130.2(c)3	This addition creates an exception consistent with EXCEPTION 3 to Section 130.2(b) and similar exception for demand responsive controls.
130.4	This change directly states that health care facilities must comply with the applicable acceptance and installation documentation requirements of California's Office of Statewide Health Planning and Development instead of the applicable requirements in Sections 130.4(a) through 130.4(c).
140.6(a)2L	This addition states that to qualify for the clerestory fenestration, horizontal slats, or light shelves power adjustment factor (PAF) in TABLE 140.6-A, the daylighting design must meet Section 140.3(d) requirements. These PAFs apply only to lighting in a primary or secondary sidelit daylight zone where continuous dimming daylighting controls meeting the Section 130.1(d) requirements are installed. (Note: The three new daylighting design 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.)
EXCEPTION to Section 141.0	This addition exempts alterations to licensed health care facilities from compliance with Section 141.0 requirements.
141.0(b)2I, J, K	These changes merge the content previously in Sections 141.0(b)2I-K into Section 141.0(b)2I and eliminate distinctions among different types of alterations to the indoor lighting system of a building. The changes also standardize requirements for lighting system alterations, limit an existing exception for spaces with no more than two luminaires, and impose limits on when calculations of area square footage can be avoided in favor of calculating existing installed lighting wattage.
TABLE 141.0-F (previously TABLE 141.0-E)	This reorganizes the control requirements for indoor lighting system alterations consistent with the revisions in Section 141.0(b)2I.
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.
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.
NA7.6.2.5(a)5	This addition specifies a functional testing procedure for an automatic time-switch control with manual-ON mode configured.
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 is specified in case construction documents do not specify a schedule.
NA7.8.6(c)	This change expands the functional testing procedure for an astronomical time-switch control during nighttime simulation.

Section	Description of Change
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.
NA7.8.7 (new)	These changes 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 is specified in case 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.
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.

Source: California Energy Commission staff

### ATTCP Requirements

Any changes to the requirements that an ATTCP must cover in its trainings, as specified in Section 10-103.1(c)3Bi and Section 10-103.1(c)3C of the Energy Code, will require the ATTCP to adjust its certification training curricula. Staff considers the regulatory changes listed in **Table 3** to be minor because they do not require an ATTCP to make substantive changes to its approved application—such as entirely new laboratory components or lecture sections. An ATTCP must demonstrate that its certification trainings reflect the 2019 Energy Code updates to comply with the ATT curricula requirements in Section 10-103.1(c)3Bi and the ATE training requirements in Section 10-103.1(c)3C.

### Summary of Compliance Method for ATTCP

As part of the 2019 update report, NLCAA has listed where the changes in **Table 3** are addressed in its 2019 ATT and ATE certification trainings and has submitted the revised materials. These materials are confidential.

### Staff Assessment

Staff evaluated NLCAA's confidential certification materials for the 2019 Energy Code, comparing the listed training adjustments to the regulatory changes in **Table 3**. Staff has found that NLCAA's 2019 certification trainings satisfy the 2019 Energy Code requirements in Section 10-103.1(c)3Bi for ATTs and in Section 10-103.1(c)3C for ATEs. **Table 4** summarizes NLCAA's compliance with the certification training requirements.

**Table 4: Summary of ATTCP Compliance With 2019 Training Requirements**

Requirement	Amendment Location(s)	Staff Assessment
Lighting Controls ATT Training Curricula (Section 10-103.1[c]3Bi)	NLCAA 2019 Update Report (Confidential) NLCAA 2019 ATT Handbook (Confidential)	Complies
Lighting Controls ATE Training (Section 10-103.1[c]3C)	NLCAA 2019 Update Report (Confidential) NLCAA 2019 ATE Handbook (Confidential)	Complies

Source: California Energy Commission staff

## 2019 Recertification Training

### Regulatory Changes

Changes to the lighting controls acceptance test requirements in Section 130.4 of the 2019 Energy Code and in Sections NA7.6 and NA7.8 of the *2019 Reference Nonresidential Appendices* are included in **Table 3**.

### ATTCP Requirements

Recertification for the 2019 Energy Code is intended to take place before the effective date of January 1, 2020, and is subject to the requirements in Section 10-103.1(c)3B(vi) of the 2016 Energy Code. The 2016 Energy Code requires each ATTCP to recertify all its ATTs and ATEs before the implementation of an adopted update to the Energy Code when the updates affect the lighting controls acceptance test requirements. Recertification requirements and procedures apply only to those specific elements that are new or modified in the Energy Code. In preparation for the 2019 Energy Code, an ATTCP must demonstrate that its recertification training includes the minor updates in **Table 3** that are related to the lighting controls acceptance test requirements.

The Energy Code does not specify what form the training should take, as long as the regulatory changes are communicated to the ATTs and ATEs. While the Energy Code does not exclude the possibility of online training for ATTs, staff has requested that ATTCPs limit online recertification training to nonsubstantive content to remain consistent with the intent of the program requirements. Staff reasons that the 2016 certification training combined with the 2019 recertification training that existing ATTs receive should be equivalent to the 2019 Energy Code certification training that new ATT applicants will receive. The Energy Code specifies that ATE certification training may be online, so the ATE recertification training may also be online regardless of whether the changes communicated are substantive or nonsubstantive.

### Summary of Compliance Method for ATTCP

As part of the 2019 update report, NLCAA has submitted the 2019 recertification training presentation slides with instructor notes and has indicated where the **Table 3** changes are addressed. Although not all the regulatory changes are directly related to the lighting controls acceptance test requirements, NLCAA is addressing all of the **Table 3** changes in its 2019 recertification training. NLCAA proposes to offer the same recertification training for its ATTs and ATEs in a recorded webinar format. These materials are confidential.

## Staff Assessment

Staff evaluated NLCAA's confidential recertification materials for the 2019 Energy Code using the changes in **Table 3** that are related to the lighting controls acceptance test requirements as a minimum baseline for what should be covered in the recertification training. Staff has found that NLCAA's 2019 recertification training satisfies the recertification requirements in Section 10-103.1(c)3Bvi of the Energy Code for ATTs and ATEs. **Table 5** summarizes NLCAA's compliance with the ATT and ATE recertification requirements. Staff also thinks NLCAA's proposal for online recertification training is appropriate for the 2019 code cycle since there were only nonsubstantive changes related to the lighting controls acceptance test requirements.

**Table 5: Summary of ATTCP Compliance With 2016 Recertification Requirements**

Requirement	Amendment Location(s)	Staff Assessment
Lighting Controls ATT and ATE Recertification (Section 10-103.1[c]3Bvi)	NLCAA 2019 Update Report (Confidential) NLCAA 2019 ATT/ATE Recertification Course Curriculum (Confidential)	Complies

Source: California Energy Commission staff

## Voluntary Amendments Included in Update Report

In addition to the application amendments in response to regulatory changes, each ATTCP may choose to propose additional application amendments in its 2019 update report. These amendments are considered voluntary because they are not in response to 2019 Energy Code regulatory changes. Any voluntary amendments submitted as part of an update report are evaluated and considered for approval by the CEC with the other necessary amendments proposed in response to regulatory changes.

This section is organized into subsections based on which portions of the approved application are being amended. Each subsection is further organized to present the relevant code requirements, NLCAA's proposed amendment, the compliance method used by NLCAA, and CEC staff's assessment of how NLCAA's amendments comply with the applicable requirements.

## ATT Certification Training Amendments

In addition to changes made to the ATT certification training presentation because of the 2019 regulatory changes, NLCAA requests CEC approval of other revisions to the ATT certification training curriculum and materials.

### Requirements

According to Section 10-103.1(c)3 of the Energy Code, ATTCPs must submit a complete copy of all training and testing procedures, manuals, handbooks, and materials. ATTCPs must explain in writing how their training and certification procedures meet the following ATT training requirements from Section 10-103.1(c)3:

- The training scope must include hands-on experience and theoretical training to certify competency in the technologies and skills necessary to perform the lighting controls acceptance tests.

- The training curricula must include the analysis, theory, and practical application of:
  - Lamp and ballast systems.
  - Line voltage and low voltage switching controls.
  - Dimming controls, occupancy sensors, and photosensors.
  - Demand responsive signal inputs to lighting control systems.
  - Energy Code-required lighting control systems and the related analytical and problem-solving skills.
  - Integration of mechanical and electrical systems for Energy Code-required lighting control installation and commissioning.
  - Safety procedures for low-voltage retrofits (<50 volts) to control line voltage systems (120 to 480 volts).
  - Accurate and effective tuning, calibration, and programming of Energy Code-required lighting control systems.
  - Measurement of illuminance according to the Illuminating Engineering Society's procedures as provided in the *IES Lighting Handbook, 10<sup>th</sup> Edition, 2011*.
  - Energy Code lighting controls acceptance testing procedures and compliance documentation.

ATTCP applications must also provide the following in writing:

- Describe the design and technical specifications of the laboratory boards, equipment, and other elements that will be used to meet the hands-on requirements.
- Document why the ATTCP's instructor-to-trainee ratio is sufficient to ensure the integrity and efficacy of the curriculum and program based on industry standards and other relevant information.
- Describe the written and practical tests used to demonstrate each certification applicant's competence in all specified subjects.

### **Proposed Application Amendment**

NLCAA requests CEC approval of the following amendments to its ATT certification training:

- NLCAA has revised its ATT certification training presentation as follows:
  - Removed redundancies.
  - Reordered the presentation content to follow the order of the 2019 Energy Code.
  - Added interactive activities to the lecture portions of the training course so that the class is reading code excerpts aloud together and discussing the requirements throughout the presentation.
  - Added new lecture sections to cover requirements in Sections 141.0 and 140.6 of the 2019 Energy Code.
- NLCAA has updated the ATT certification course outline to reflect the changes to the training presentation. NLCAA has also revised the appearance of the course outline.
- NLCAA has updated the laboratory specification documents with new graphics and has made minor cleanup changes. NLCAA has also separated the institutional tuning laboratory into its own activity using a board that was previously part of the demand

response activity. The institutional tuning activity was previously part of the daylighting controls activity.

- NLCAA has changed the instructor-to-trainee ratio for the laboratory activities to be the same as the ratio for the lecture portions of the training. This ratio is one instructor to 18 students.

NLCAA requests approval to implement this revised ATT certification training for the 2019 code cycle.

### Summary of Compliance Method for ATTCP

NLCAA submitted a revised version of its approved ATT handbook that will be provided to ATT applicants for use during the 2019 certification training course. The handbook contains the training presentation slides with instructor's notes, all quiz questions, class exercise and laboratory activity handouts, code excerpts, certificate of acceptance compliance documents, and additional resources. For CEC review, NLCAA submitted the answer keys for the quiz and test questions and the instructor's version of the code excerpts with highlights and notes. NLCAA also submitted a summary of the amendments to the course outline, laboratory specifications, and portion of the application that discusses the instructor-to-trainee ratios, along with revised versions of the amended documents. All of these materials are confidential, except for those related to the instructor-to-trainee ratios. The nonconfidential materials are available online in the CEC's docket log for docket number 13-ATTCP-01.

### Staff Assessment

Staff evaluated the voluntary ATT training amendments that NLCAA proposes to implement for the 2019 ATT certification training course. Staff has found that NLCAA's proposed ATT training amendments satisfy the applicable requirements in Section 10-103.1(c)3 of the 2019 Energy Code, which is summarized in **Table 6**.

**Table 6: Summary of ATTCP Compliance With ATT Training Requirements**

Requirement	Amendment Location(s)	Staff Assessment
Training Scope (Section 10-103.1[c]3A)	NLCAA Thirteenth Application Amendment (Confidential) NLCAA 2019 Update Report (Confidential) NLCAA ATT Handbook (Confidential) Attachment 2 to NLCAA Application to the CEC (Confidential) Appendix 1 to NLCAA Application to the CEC (Confidential)	Complies

<b>Requirement</b>	<b>Amendment Location(s)</b>	<b>Staff Assessment</b>
Curricula (Section 10-103.1[c]3Bi)	NLCAA Thirteenth Application Amendment (Confidential) NLCAA 2019 Update Report (Confidential) NLCAA ATT Handbook (Confidential) Attachment 2 to NLCAA Application to the CEC (Confidential) Appendix 1 to NLCAA Application to the CEC (Confidential)	Complies
Hands-On Training (Section 10-103.1[c]3Bii)	NLCAA Thirteenth Application Amendment (Confidential) Appendix 1 to NLCAA Application to the CEC (Confidential)	Complies
Instructor-to-Trainee Ratio (Section 10-103.1[c]3iv)	NLCAA Twelfth Application Amendment NLCAA Application to the CEC—Rev 05	Complies

Source: California Energy Commission staff

## **ATE Certification Training Amendments**

In addition to changes made to the ATE certification training presentation because of the 2019 regulatory changes, NLCAA requests CEC approval of other revisions to the ATE certification training curriculum and materials.

### **Requirements**

ATE training must consist of a single class or webinar of at least four hours of instruction that covers the scope and process of the lighting controls acceptance tests required by Section 130.4 of the Energy Code.

### **Proposed Application Amendment**

NLCAA requests CEC approval of the following amendments to its ATE certification training:

- NLCAA has revised its ATE certification training presentation as follows:
  - Removed redundancies.
  - Reordered the presentation content to follow the order of the 2019 Energy Code.
  - Added interactive activities to the lecture portions of the training course so that the class is reading code excerpts aloud together and discussing the requirements throughout the presentation.
  - Added new lecture sections to cover requirements in Sections 141.0 and 140.6 of the 2019 Energy Code.
- NLCAA has updated the ATE certification course outline to reflect the changes to the training presentation. NLCAA has also revised the appearance of the course outline.



## Summary of Compliance Method for ATTCP

NLCAA submitted a revised version of its approved ATE Handbook that will be provided to ATE applicants for use during the 2019 certification training course. The handbook contains the training presentation slides with instructor's notes, code excerpts, certificate of acceptance compliance documents, and additional resources. For CEC review, NLCAA submitted the answer keys for the test questions and the instructor's version of the code excerpts with highlights and notes. NLCAA also submitted a summary of the amendments to the course outline and the revised course outline. These materials are confidential.

## Staff Assessment

Staff evaluated the voluntary ATE training amendments that NLCAA proposes to implement for the 2019 code cycle ATE certification training course. Staff has found that NLCAA's proposed ATE training amendments satisfy the applicable requirements in Section 10-103.1(c)3C of the 2019 Energy Code, which is summarized in **Table 7**.

**Table 7: Summary of ATTCP Compliance With ATE Training Requirements**

Requirement	Amendment Location(s)	Staff Assessment
ATE Training (Section 10-103.1[c]3C)	NLCAA Thirteenth Application Amendment (Confidential) NLCAA 2019 Update Report (Confidential) NLCAA ATE Handbook (Confidential)	Complies

Source: California Energy Commission staff

## Application Documentation and Program Amendments

As part of the 2019 update report, NLCAA proposes amendments to its approved application documentation and its own program requirements.

### Requirements

According to Section 10-103.1(c) of the Energy Code, an ATTCP applicant must submit a written application to the CEC with a summary and the related background documents to explain how the criteria and procedures in Section 10-103.1(c) have been met. This submission includes, but is not limited to, the following:

- Explain the organization type, bylaws, and ownership structure.
- Explain the training, certification, and oversight procedures of ATTs and ATEs.
- Describe the procedures for accepting and addressing complaints regarding the performance of any ATT or ATE certified by the ATTCP.
- Describe the procedures for conducting quality assurance and accountability activities.

Any amendments to an approved application must also meet these application requirements.

## Proposed Application Amendment

NLCAA has revised its approved application documents to reflect the following program amendments:

- Made minor revisions to the document titled "NLCAA Application to the CEC" to update the revision date, update code section references, implement general language and formatting cleanup, and update page numbering as a result of all changes.
- Added new and revised existing requirements imposed by NLCAA for ATTs and ATEs participating in its program or applying to participate. The CEC does not intervene with these program requirements set by NLCAA or other business practices, as long as they do not interfere with NLCAA's ability to provide adequate ATTCP services.
- Eliminated the document titled "Building Department Survey Form." Instead, NLCAA's website has a public place for anyone to submit comments, complaints, or suggestions to allow quality assurance.
- Updated information on NLCAA's organizational structure and administrative procedures.
- Restructured where certain information is located within the application documents.
- Revised the scheduled audit procedures. (These scheduled audits do not include the randomly selected audits to comply with the minimum quality assurance and accountability requirements in Section 10-103.1[c]3F of the Energy Code.)
- Changed the way NLCAA determines a random sample for the required paper and onsite audits to generate the random numbers using software instead of the previously approved human process for random sampling.

## Summary of Compliance Method for ATTCP

NLCAA submitted descriptions of all amendments its approved application and supplemental documents, copies of the affected documents with the changes shown in underline and strikeout format, and clean copies of the affected documents with the changes incorporated. For changes that substantively altered the requirements for its ATTs and ATEs, NLCAA provided further explanation beyond just a description of the changes. These materials are available online in the CEC's docket log for docket number 13-ATTCP-01.

## Staff Assessment

Staff evaluated NLCAA's voluntary amendments proposing changes to its application documentation and program requirements. Staff has found that NLCAA's amendments satisfy all applicable requirements in Section 10-103.1(c) of the 2019 Energy Code, as well as the 2016 Energy Code. Therefore, it would be appropriate for NLCAA to implement the proposed amendments during the 2019 code cycle and the remainder of the 2016 code cycle. **Table 8** summarizes NLCAA's compliance with the applicable ATTCP requirements for its voluntary amendments to the application documentation and program requirements.

**Table 8: Summary of ATTCP Compliance With Applicable ATTCP Requirements**

<b>Requirement</b>	<b>Amendment Location(s)</b>	<b>Staff Assessment</b>
Organization Structure (Section 10-103.1[c]1)	NLCAA Twelfth Application Amendment NLCAA Application to the CEC—Rev 05 Attachment 1 to NLCAA Application to CEC	Complies
Certification of ATEs (Section 10-103.1[c]2)	NLCAA Twelfth Application Amendment NLCAA Application to the CEC—Rev 05 Attachment 7 to NLCAA Application to the CEC	Complies
Training and Certification Procedures (Section 10-103.1[c]3)	NLCAA Twelfth Application Amendment NLCAA Application to the CEC—Rev 05 Attachment 7 to NLCAA Application to CEC Attachment 8 to NLCAA Application to the CEC Appendix 2 to NLCAA Application to the CEC Appendix 3 to NLCAA Application to the CEC	Complies
Prequalification (Section 10-103.1[c]3Biii)	NLCAA Twelfth Application Amendment NLCAA Application to the CEC—Rev 05	Complies
Complaint Procedures (Section 10-103.1[c]3D)	NLCAA Twelfth Application Amendment NLCAA Application to the CEC—Rev 05 Attachment 5 to NLCAA Application to the CEC Attachment 6 to NLCAA Application to the CEC	Complies
Quality Assurance and Accountability (Section 10-103.1[c]3F)	NLCAA Twelfth Application Amendment NLCAA Application to the CEC—Rev 05 Attachment 4 to NLCAA Application to the CEC	Complies

Source: California Energy Commission staff

## **CHAPTER 3:**

# **Staff Recommendations**

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Under Section 10-103.1(f)2 of the Energy Code, staff has completed its evaluation of the application amendments submitted by NLCAA in its 2019 update report. Staff has found that NLCAA's proposed 2019 training curricula adjustments and other application amendments listed below comply with the applicable requirements in Section 10-103.1(c) of the 2019 Energy Code.

- 2019 ATT certification training
- 2019 ATE certification training
- 2019 ATT and ATE recertification training
- Program modifications

Staff recommends that the CEC approve NCLAA's proposed application amendments.

# APPENDIX A:

## Glossary

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Term	Definition
<p>ATTCP</p> <p>Acceptance test technician certification provider</p>	<p>An agency, organization, or entity approved by the California Energy Commission to train, certify, and oversee acceptance test technicians and acceptance test employers relating to either lighting controls or mechanical systems. ATTCPs are authorized to certify only those technicians and employers for which they are approved. ATTCPs approved to certify technicians and employers relating to lighting controls acceptance testing are sometimes referred to as “lighting controls ATTCPs,” and ATTCPs approved to certify technicians and employers relating to mechanical systems acceptance testing are sometimes referred to as “mechanical ATTCPs.”</p>
<p>ATT</p> <p>Acceptance test technician</p>	<p>A field technician who is certified by an authorized acceptance test technician certification provider to perform acceptance testing of either lighting controls or mechanical systems. ATTs are authorized to perform only those acceptance tests for which they are certified. ATTs certified to perform lighting controls acceptance testing are sometimes referred to as “lighting controls ATTs,” and ATTs certified to perform mechanical systems acceptance testing are sometimes referred to as “mechanical ATTs.”</p>
<p>ATE</p> <p>Acceptance test employer</p>	<p>A person or entity who employs an acceptance test technician and is certified by an authorized acceptance test technician certification provider. ATEs are authorized to employ only those technicians for which they are certified. ATEs certified to employ technicians that perform lighting controls acceptance testing are sometimes referred to as “lighting controls ATEs,” and ATEs certified to employ technicians that perform mechanical systems acceptance testing are sometimes referred to as “mechanical ATEs.”</p>
<p>CEC</p> <p>California Energy Commission</p>	<p>The California State Energy Resources Conservation and Development Commission</p>

<b>Term</b>	<b>Definition</b>
Energy Code Building Energy Efficiency Standards	The regulations contained in Title 24, Part 6 and Title 24, Part 1, Chapter 10 of the California Code of Regulations.
NLCAA National Lighting Contractors Association of America	A California nonprofit corporation that provides service, support, training, and certification to acceptance test technicians and employers.
Reference Appendices	The support documentation for the <i>Building Energy Efficiency Standards</i> . The document consists of three sections: the <i>Reference Joint Appendices</i> , the <i>Reference Residential Appendices</i> , and the <i>Reference Nonresidential Appendices</i> .