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Background

One of the key cornerstones of the CA Title 24, Part 6 Building Energy Efficiency Standards are the Acceptance Test requirements that, when properly carried out, ensure code compliance and verification that lighting control equipment is installed and operates in compliance with Energy Standards requirements.

As with any testing requirements, the effectiveness of these Acceptance Tests is dependent upon the quality of the training and certification of the testers, therefore Section 10-103-A sets forth the requirements that apply to nonresidential lighting control Acceptance Test Technicians (ATTs), Acceptance Test Employers (ATE), and the Acceptance Test Technician Certification Providers (ATTCs) that train and certify them. This section of the energy code states that the ATTCs are required to submit a written application to the Energy Commission with a summary and the related background documents to explain how their training criteria and procedures meet the qualification requirements of Title 24, Part 1, Section 10-103-A(c). Furthermore, the ATTCs must explain how their organizational structure and procedures include independent oversight, quality assurance, supervision and support of the acceptance test training and certification processes.

The required training and certification, provided by the ATTCs, requires both hands-on experience and theoretical training such that ATTs demonstrate their ability to apply the Building Energy Efficiency Standards acceptance testing and documentation requirements to a comprehensive variety of lighting control systems and networks that are reflective of the range of systems currently encountered in the field. However, it is also understood that proper preparation is also a product of experience and therefore participation in the technician certification program is limited to persons who have at least three years of verifiable professional experience and expertise in lighting controls and electrical systems as determined by the Lighting Controls ATTCs, to demonstrate their ability to understand and apply the Lighting Controls Acceptance Test Technician certification training. Also, because the energy code is on a 3 year cycle, there are additional requirements and procedures for recertification of ATTs each time the Building Energy Efficiency Standards is updated with new and/or modified acceptance test requirements. The ATTCs are not limited to simply training and certifying the ATTs, they shall describe in their applications to the Energy Commission procedures for accepting and addressing complaints regarding the performance of any certified ATT or ATE, and explain how building departments and the public will be notified of these procedures. Finally, the ATTCs shall describe in their applications to the Energy Commission procedures for revoking the certification of ATTs and ATEs based upon poor quality or ineffective work, failure to perform acceptance tests, falsification of documents, failure to comply with the documentation requirements of these regulations or other specified actions that justify decertification.

The training and certification requirements, found in Section 10-103-A, not only set the standard for the ATT to be certified to perform the acceptance tests but also serve as the process to establish the ATT as the most experienced, best trained, verified professional, with ongoing requirements for recertification when code changes occur. Furthermore, the procedures that are set in place to address complaints and revocation of their certification in the event of poor or ineffective work ensures that the ATT is accountable and held to a high standard in ensuring code compliance and verification that lighting control equipment is installed and operating in compliance with Energy Standards requirements.

The importance of the ATT, as a resource, became apparent when on July 1, 2014 the 2013 CA Title 24, Part 6 went into effect and SECTION 130.4(a) set forth the Lighting Control Acceptance Test requirements. This code section stated that before an occupancy permit is granted for a newly constructed building or area, or a new lighting system serving a building, area, or site is operated for normal use, indoor and outdoor lighting controls

serving the building, area, or site shall be certified as meeting the Acceptance Requirements for Code Compliance in accordance with Section 130.4. The certification was based on the Certificate of Acceptance that was to be submitted to the enforcement agency under Section 10-103(a) of Part 1. Therefore, if the lighting control system was not installed and did not operate in compliance with Energy Standards requirements, the project would not pass the required Acceptance Tests and the occupancy permit would not be granted. This often results in considerable impact to project costs, due to extensive changes to an installed system, compounded by pressure from the building occupant to get the project signed off so they can occupy the building.

For this reason, the Enforcement Agencies were able to rely on the ATTs, because 2013 CA Title 24, Part 6, SECTION 130.4(a)1 required the ATT to certify the plans, specifications, installation certificates, and maintenance information meet the requirements of Part 6. When properly carried out, this requirement provided a method for the ATT to address any lack of information and inexperience due to the design team or the installing contractor not being properly versed in the energy code requirements, not understanding how the lighting control system is supposed to be installed, or how it is to be properly programmed to meet energy code requirements.

Current Issue

However, on January 1, 2017, when the 2016 CA Title 24, Part 6 went into effect, SECTION 130.4(a) removed the requirement for the Acceptance Test Technician (ATT) to certify the plans, specifications, installation certificates, and maintenance information meet the requirements of Part 6. It is our understanding that the reason for this change was that it was determined that the ATT could not overrule the Energy Code Enforcement Agency (EA) once plans were through plan check and stamped.

This change in SECTION 130.4(a) has resulted in significant and ongoing challenges that are the result of no longer requiring the ATT to be involved in the verification of the design and installation of the lighting control system prior to installation. The ATT is then brought in, at the last minute, to perform the Acceptance Tests after everything has already been installed. Unfortunately, there are often problems with the design, the installation and/or the commissioning. These challenges have resulted in considerable costs to resolve issues or often contribute to the ongoing and pervasive use of non-compliant building designs coupled with inconsistent enforcement of acceptance testing requirements at the local level.

In order to attempt to address these challenges, Energy Code Ace is offering an interactive, hands-on course that is designed to provide Plans Examiners and Building Inspectors with the knowledge and skills needed to more quickly and effectively enforce California's Building Energy Efficiency Standards (Energy Code or Title 24, Part 6) for nonresidential projects. The course objective is to assist in determining nonresidential construction's top areas of typical greatest impact on Energy Code compliance, identify essential Plans Examiner and Building Inspector review tasks associated with top Nonresidential Energy Code compliance categories, and describe how review strategy shifts based on project type, use given Plans Examiner and Building Inspector Nonresidential checklists to guide review, and identify where checklist line items correspond to compliance documentation, practice ways to address noncompliance, as well as methods for communicating effectively, during plan check and building inspection phases. However, these courses have highlighted the challenge that the plan check process and the project inspection process is already very limited in the amount of time that is allocated to the EAs. Furthermore, these courses have also shown that the Plan Checkers and EAs performing the inspections have not received the same level of training, experience, or verification of the lighting control system requirements that the ATT was subject to.

In order to address any concerns of the ATT overruling the EAs once the plans have made it through plan check and were stamped, we recommend that the ATT certify the plans, specifications, installation certificates, and maintenance information meet the requirements of Part 6 as part of the completion of the NRCC document, prior to the plan review process. This would also address a commonly used practice of submitting plan design as 80% complete when submitting to plan review, which often results in plans being approved that are not 100% complete or compliant. While this may add a minimal cost to the project, for this work to be done by the ATT, it has been proven that the additional cost implications of having to resolve the noncompliance issues after they are installed often results in the changes not being made and contributes to an ongoing and pervasive use of non-compliant buildings coupled with inconsistent enforcement of acceptance testing requirements at the local level. Furthermore, the EAs could rely on the work of the ATTs, which would assist to in consistent acceptance test accountability and ensure building compliance.

NLCAA Proposal

To resolve these challenges, NLCAA proposes:

1. Having an ATT review the plans/specifications and the NRCCs for compliance and then have a required signature of the ATT on the NRCC form.
 - a. This will increase compliance of the NRCC document as a whole and provide the EAs with properly completed compliance documents. We have found that many of the compliance documents that the ATTs review don't even have the correct NRCC, NRCI or NRCA forms selected on the NRCC leading to confusion with EAs unsure of what is required of the project.
 - b. The ATT would also need to review the plans, helping to eliminate designs that may not pass functional testing; i.e. cardinal direction issues that arise during the daylight test, as explained in the NLCAA ATT course, placement of occupancy sensors, etc. This review will be needed to verify the NRCCs.
 - c. Many ATTs are excellent at understanding the various manufacturers' lighting control systems, even more so than many engineers or third parties. As a plus, this could also provide a glimpse of the lighting controls system design, MFG specific, that could address any issues that may arise from a poor design or specification, as it did during the 2013 code cycle.
2. Ensuring the ATT has these capabilities.
 - a. NLCAA is partnering up with Energy Code Ace (ECA). ECA will be hosting a new online version of their 8-hour training course "2019 Title 24, Part 6 Essentials — Nonresidential Standards: Indoor Lighting" which is an in-depth training course on all aspects of the NRCCs.
 - b. NLCAA is going to utilize the Energy Code Ace course to create a new certification, potentially called the LCATT-P (Lighting Controls Acceptance Test Technician-Plan). After attending the certification course, passing a rigorous written test including plan reviews utilizing the NRCCs, the LCATT would be able to become an LCATT-P.
 - c. NLCAA will take the additional, nonrequired, step to create further training on the NRCCs and plan specifications, beyond what is currently offered in the LCATT courses.

Conclusion

The review and signing of the NRCCs by the ATTs will support the California Energy Commission's overall goal of compliance of the Building Energy Codes. The unique training that the ATT receives per Section 10-103-A makes them the most accountable in ensuring code compliance and the best qualified for plan review, adding the additional ATT-P training would further qualify the ATT to sign off on the NRCC forms. This plan review process



will help support designers and save the end user money by eliminating change orders and project delays and ensuring energy efficient building savings are realized. Many Acceptance Testing companies have already added the process of plan review to their business model to ensure compliance and it has been proven to reduce overall project costs. Making this review process a requirement and adding the ATT signature to the NRCC forms will go a long way to address compliance issues and to support California's overall energy initiatives.