CALIFORNIA ENERGY COMMISSION

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FINAL STATEMENT OF REASONS

PROPOSED BUILDING STANDARDS
OF THE CALIFORNIA ENERGY COMMISSION:

CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 1 and PART 6 (CALIFORNIA ENERGY CODE)

CALIFORNIA ENERGY COMMISSION
NONRESIDENTIAL ACCEPTANCE TESTING CERTIFICATION
DOCKET NUMBER 12-BSTD-2:
2013 BUILDING ENERGY EFFICIENCY STANDARDS

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TABLE OF CONTENTS

I. INTRODUCTION 1

A. A Brief History of the Energy Commission's Building Energy Efficiency Standards 1

B. Summary of the Changes Proposed in This Rulemaking Proceeding 1

1. Sections Affected 1

2. Summary of Existing Laws and Regulations; Policy Overview 1

3. Summary of the Proposed Regulations 3

II. FSOR ANALYSES REQUIRED BY THE ADMINISTRATIVE PROCEDURE ACT 5

A. Update of the Information Contained in the Initial Statement of Reasons 5

1. The specific purpose of each adoption, amendment, or repeal; 5

a. The purpose, rationale, and necessity of the proposed regulations in general 5

b. The specific purpose, rationale, and necessity of each section of the proposed regulations 6

2. Technical, theoretical, and empirical studies, reports, and similar documents relied upon 17

3. Documents referenced in the proposed building energy efficiency standards 18

4. The reasons why mandating the use of specific technologies or equipment is required 18

5. Consideration of reasonable alternatives, including those that would lessen any adverse impact on small business 18

6. Facts, evidence, documents, testimony, or other evidence of no significant adverse economic impact on business 20

7. Duplication or conflicts with federal regulations 22

B. Mandate on Local Agencies or School Districts 22

C. Objections and Recommendations, and the Energy Commission’s Responses 22

III UPDATED INFORMATIVE DIGEST 29

A. Summary of Existing Laws and Regulations Related Directly to the Proposed Action or to the Effect of the Proposed Action 30

B. Consistency with Existing Comparable Federal Regulations and Statutes 30

C. Policy Statement Overview and Specific Benefits of the Proposed Regulations 31

D. Evaluation of Consistency with Existing State Regulations.....32
E. Other Applicable Matters Prescribed by Statute 32

I. INTRODUCTION

This Final Statement of Reasons ("FSOR") describes the purposes, rationales, and necessity of the California Energy Commission's proposed Acceptance Testing Certification Requirements, which would amend its energy efficiency standards for buildings and would go into effect on January 1, 2014, if approved by the California Building Standards Commission. This FSOR fulfills the requirements of California's Administrative Procedure Act (see Government Code section 11340 et seq.). These amendments are in Parts 1 and 6 of Title 24 of the California Code of Regulations (Title 24 is known as the State Building Code, and Part 6 and its associated administrative regulations in Part 1 are known as the Energy Code or State Building Energy Efficiency Standards).

A. A Brief History of the Energy Commission's Building Energy Efficiency Standards

In 1976 the Commission adopted its first Building Energy Efficiency Standards, which addressed space heating and cooling, water heating, and windows, in addition to insulation. Since then the Commission has updated the Standards in conjunction with the Building Standards Commission's publication of all the State's building codes, usually every three years. The updates incorporate the most advanced developments in energy conservation (e.g., new lighting technologies, new types of roofs that reflect unneeded heat) to ensure that new construction in California will be as energy-efficient as possible, consistent with the requirement that the Standards be cost-effective for consumers. Today, the Standards contain energy efficiency – and, as recently required by statute, water efficiency requirements for newly constructed buildings, additions to existing buildings, alterations to existing buildings, and, in the case of nonresidential buildings, repairs to existing buildings.

B. Summary of the Changes Proposed in This Rulemaking Proceeding

1. Sections Affected

The sections affected are found in Title 24, Part 1 and Title 24, Part 6, and include sections 10-102,10-103, 120.5, and 130.4. New definitions are added to 10-102. Within section 10-103, the Energy Commission proposes to add sections 10-103A and 10-103B. Sections 120.5 and 130.4 are each amended with new requirements.

2. Summary of Existing Laws and Regulations; Policy Overview

Public Resources Code Sections 25402 and 25402.1 were enacted in the 1970s as

part of the enabling legislation establishing the Energy Commission and its basic mandates. These sections require the Energy Commission to adopt, implement, and periodically update energy efficiency standards for both residential and nonresidential buildings. In addition, Public Resources Code Section 25910 directs the Commission to adopt standards for the minimum amount of additional insulation installed in existing buildings. Senate Bill (SB) 639 (Statutes of 1993, Chapter 1067) added Section 25402.5, which expressly directs the Commission to consider both new and replacement, and both interior and exterior, lighting devices when adopting building standards. SBX1 5 (Statutes of 2001, Chapter 7) added subsection (c) to Section 25402.5 to clarify and expand the Commission's authority to adopt standards for outdoor lighting.

The Global Warming Solutions Act (Assembly Bill (AB) 32, Núñez, Chapter 488, Statutes of 2006) has been the foundation of California's efforts over the past five years to reduce greenhouse gas emissions (GHG); AB 32 requires that by 2020 the state reduce its GHG emissions to the level that existed in 1990. *Improving the energy efficiency of existing residential and commercial buildings is the single most important activity to reduce greenhouse gas emissions that result from electricity and natural gas use*. The Energy Commission's 2007 edition of the Integrated Energy Policy Report (IEPR), which is California's official statement of the State's energy policy, concludes that climate change is the single most important environmental and economic challenge of the century, that greenhouse gas emissions are the largest contributors to climate change, and that California's ability to slow the rate of greenhouse gas emissions will depend first on energy efficiency.

Similarly, the California Long-Term Energy Efficiency Strategic Plan (2008) adopted by the California Public Utilities Commission (CPUC) identifies the importance of the Energy Commission's Building Energy Efficiency Standards in reaching the State's goal of having new homes be "zero net energy" by 2020 and of having commercial buildings be "zero net energy" buildings by 2030. ("Zero net energy" means that the buildings would be so energy efficient, and would where necessary have on-site energy production facilities (such as solar photovoltaic electricity-generating panels on rooftops), that the buildings would produce at least as much energy as they consumed from electricity and natural gas utility service.)

The CPUC's Strategic Plan also discusses the Energy Commission's development of voluntary "Reach Standards" as a critical component of the Building Energy Efficiency Standards. In each update of the mandatory standards, the Reach Standards establish a "market pull strategy" to encourage the building industry

to anticipate that additional standards improvements will be coming in the following cycle, and for a substantial portion of newly constructed buildings to build to meet higher levels of efficiency than just what the mandatory standards require. This is accomplished by the Energy Commission's collaboration with the CPUC and with utility programs that provide incentives to builders who meet the Reach Standards. The voluntary Reach Standards appear in the State's California Green Building Standards Code (California Code of Regulations, Title 24, Part 11) and in other agencies' regulations and programs.

Governor Brown's Clean Energy Jobs Plan (2010) combines existing state energy policy with economic recovery and growth goals by focusing on developing renewable energy and energy efficiency technologies and creating more than half a million green jobs. In the area of building efficiency, the Governor's Plan calls for:

- Adopting stronger appliance standards for lighting, consumer electronics, and other products;
- Creating new efficiency standards for new buildings;
- Increasing public education and enforcement efforts so that the gains promised by California's efficiency standards are realized;
- Adopting a plan for achieving "zero-net-energy" homes and businesses;
- Making existing buildings more efficient, especially the half of California homes that were built before the advent of modern building standards; and
- Providing information to commercial investors and homebuyers by disclosing building energy consumption prior to building sale.

The Energy Commission's Integrated Energy Policy Report (2011) includes an energy efficiency chapter that emphasizes the zero net energy policy goals for the state's residential and nonresidential buildings. It articulates how the Building Energy Efficiency Standards, including Reach Standards, will be updated periodically to attain the aggressive levels of energy efficiency required to make zero net energy buildings cost-effective for consumers.

Given the above, the broad objectives of these regulations are to ensure installed energy efficiency technology properly works resulting in the savings of money and energy, coupled with a decrease in pollution and green house gas emissions associated with energy generation.

3. Summary of the Proposed Regulations

Since 2005 Building Energy Efficiency Standards have required that specific equipment and controls installed in nonresidential buildings be tested according

to Energy Commission adopted "acceptance testing" protocols to demonstrate their proper installation before the building is approved for occupancy. Compliance documentation must be signed by both the Field Technician who completed the acceptance testing and the licensed person who is legally responsible for the installation under the Business and Professions Code. The current Standards do not specify qualifications or training that the Field Technician must meet to be authorized to complete the acceptance testing.

Studies and stakeholder comments provided to the Energy Commission and discussed below indicate that acceptance testing occurring in the field is currently inadequate. The 2011 study by the California Commissioning Collaborative, Evaluation of Title 24 Acceptance Testing Enforcement and Effectiveness, found that contractor training is insufficient and that approximately half of the existing acceptance tests could not be successfully performed by the contractors participating in the study. Because of inconsistent levels of training, Field Technicians as a whole are not providing the assurances necessary that the installed systems are delivering the energy efficiencies and monetary savings expected by building owners and which are required by state law. This is the problem the Commission seeks to address with the regulations.

The proposed regulations create an independent third party certification and training program to ensure Field Technicians and their employers acquire minimal level of training and skill to verify nonresidential lighting controls and mechanical systems comply with existing energy efficiency building standards.

These newly proposed regulations will be amended to the 2013 Standards that were adopted by the Energy Commission in May, 2012. The combined 2013 Standards update will be considered for approval by the Building Standards Commission in January of 2013.

II. FSOR ANALYSES REQUIRED BY THE ADMINISTRATIVE PROCEDURE ACT

A. Update of the Information Contained in the Initial Statement of Reasons

1. The specific purpose of each adoption, amendment, or repeal; the problem the Energy Commission intends to address; and the rationale for the Energy Commission's determination that the regulation is reasonably necessary to carry out the purpose and address the problem for which it is proposed.

The Initial Statement of Reasons ("ISOR") described, among other things, the purposes of the initially-proposed Standards (the "45-Day Language"), the problems they were designed to address, and the necessity for their adoption to carry out their purposes and address the specified problems. As a result of the oral and written comments made on the 45-Day Language during the Energy Commission's extensive public review process, changes were made to the 45-Day Language; those modifications were published in 15-Day Language and were adopted by the Energy Commission. This part of the FSOR describes the Standards as adopted by the Energy Commission.

a. The purpose, rationale, and necessity of the proposed regulations in general

The Legislature has found:

> . . . that electrical energy is essential to the health, safety and welfare of the people of this state and to the state economy, and that it is the responsibility of state government to ensure that a reliable supply of electrical energy is maintained at a level consistent with the need for such energy for protection of public health and safety, for promotion of the general welfare, and for environmental quality protection.
>
> [T]he present rapid rate of growth in demand for electric energy is in part due to wasteful, uneconomic, inefficient, and unnecessary uses of power and a continuation of this trend will result in serious depletion or irreversible commitment of energy, land and water resources, and potential threats to the state's environmental quality.

(Pub. Resources Code, §§ 25001, 25002.) Accordingly:

> It is . . . the policy of the state and the intent of the Legislature to employ a range of measures to reduce wasteful, uneconomical, and

> unnecessary uses of energy, thereby reducing the rate of growth of energy consumption, prudently conserve energy resources, and assure statewide environmental, public safety, and land use goals.

(Pub. Resources Code, § 25007.)

Improvements in energy efficiency are among the best, and often the cheapest and most environmentally-friendly, methods of balancing the state's electricity demand and supply. Thus existing law (e.g., Public Resources Code §§ 25213, 25402(a-(b), 25402.1, 25402.4, 25402.5, 25402.8, and 25910) requires the Energy Commission to adopt energy efficiency standards for buildings. The benefits of the Standards – both previous editions of the Standards as well as the comprehensive 2013 Standards proposed for approval by the Building Standards Commission – are considerable:

- Promotion of a reliable electrical system;
- Elimination or mitigation of wasteful, uneconomic, inefficient, and unnecessary uses of electricity;
- Reductions in the trend of increasing electricity consumption;
- Protection of energy, land and water resources, and the state's environmental quality;
- Creation of jobs; and
- Reduced energy costs for consumers and businesses.

And all of these benefits are achieved in a manner that saves money for consumers, because the Standards must, by law, be cost-effective. (Pub. Resources Code, § 25402, subd.(b)(3).)

b. The specific purpose, rationale, and necessity of each section of the proposed regulations

TITLE 24, PART 1, CHAPTER 10 (ADMINISTRATIVE REGULATIONS), ARTICLE 1 – ENERGY BUILDING REGULATIONS

The specific purpose, rationale, and necessity of each section of the proposed amendments, in accordance with Government Code section 11346.2, subd. (b)(1), is provided below.

SECTION 10-102 – DEFINITIONS

Definitions are necessary when terms are not commonly known or may be subject to multiple meanings. The proposed regulations use terms which are not commonly known therefore requiring definitions so that entities and individuals regulated by the proposed regulations, as well as the public, can understand the

scope and elements of the program. Providing definitions also eliminates potential ambiguity by ensuring consistency as to the meaning of terms and the function of the proposed program.

The proposed regulations add new definitions for those regulated by the proposed nonresidential acceptance test Technician certification requirements. New definitions are proposed for Acceptance Test Technician, Lighting Controls Acceptance Test Technician, Mechanical Acceptance Test Technician, Acceptance Test Technician Certification Provider, (ATTCP), Lighting Controls Acceptance Test Technician Certification Provider, and Mechanical Acceptance Test Technician Certification Provider. These definitions will improve the clarity of the newly proposed certification requirements in Section 10-103-A, thereby increasing the ability of the building industry to comply with these regulations.

SECTION 10-103-A – NONRESIDENTIAL LIGHTING CONTROLS ACCEPTANCE TEST REQUIREMENTS

The proposed regulations in this section add requirements for Acceptance Test Technician Certification Providers to train and certify Nonresidential Lighting Controls Acceptance Test Technicians. In addition:

Subsection 10-103-A(a) Scope. This subsection explains that the scope of these newly proposed certification requirements apply only to the technicians who complete the lighting controls acceptance tests required in Title 24, Part 6, Section 130.4, their employers, and the organizations that train and certify these professionals. This subsection provides clarity and specificity to these newly proposed regulations.

Subsection 10-103-A(b) Industry Certification Threshold. In order to ensure an adequate number of certified technicians are available to perform inspections, the two thresholds described in this section must be met before Acceptance Test Technicians are required to be certified. The first threshold is the requirement of at least 300 certified Acceptance Test Technicians. The Commission found 300 to be an adequate number based on an estimate that at least 20,000 nonresidential buildings will require acceptance testing each year and a reasonable inspection rate of 60 systems per year per technician. It is of primary importance to ensure that this new compliance program does not result in a back log of systems that need to be inspected. The threshold of 300 certified technicians will address this issue.

The second threshold that must be met before the activation of the certification

requirements in Section 10-103-A is that the majority of qualified testing professionals must be given the opportunity to become certified. The Energy Commission will review the Acceptance Test Technician Certification Provider applications required in Subsection 10-103-A(c) to determine if, in their entirety, qualified professional groups have been given an opportunity to become certified. Establishing these industry certification thresholds allows time for acceptance testing professionals to become certified, ensures that there are sufficient certified professionals to deliver the testing services required in Title-24, Part 6, and prevents one or more professional groups from gaining a market advantage by becoming certified before other professional groups have been given that same opportunity. These requirements ensure that these newly proposed regulations minimize the added costs of complying with the requisite acceptance testing in Title-24, Part 6, for both building owners and acceptance test Technicians, thereby improving the cost-effectiveness of these regulations.

Subsection 10-103-A(c) Qualifications and Approval of Certification Providers. The heart of the new program is the Energy Commission's certification of entities, called Providers, which will train and certify the Acceptance Test Technicians. Section (c) and corresponding subsections lay out criteria for the Energy Commission's approval of a Provider and the required training Providers must give to prospective Acceptance Test Technicians and their employers. These sections also require documentation of training by Providers so the Energy Commission receives the appropriate data to oversee the certification program and ensure consistent quality among Providers.

These sections are necessary to allow industry and the public to understand what information is required to become a Provider and what training Acceptance Test Technicians must undergo to be certified. Without this section the program could not function as the regulated community would not know what is required to become a Provider and there would be no consistency or quality control over the training of Acceptance Test Technicians.

Subsection 10-103-A(c)1. **Requirements for Applicant ATTCPs to Document Organizational Structure.** This subsection explains that ATTCPs must provide documentation on the structure of their organization as part of the application to the Energy Commission, when seeking approval to provide certification services to the Acceptance Test Technicians. This requirement is necessary to ensure, at a minimum, that the organizations providing certification services to the building industry have a business structure that will effectively train and certify Acceptance Test Technicians. The requirements in this subsection will improve

compliance with the Standards by providing certification services that will produce Acceptance Test Technicians better qualified to perform the acceptance tests required in the Standards.

Subsection 10-103-A(c)2. Requirements for Certification of Employers and Technicians. This subsection requires the ATTCPs to provide certification and oversight of both Acceptance Test Employers and Acceptance Test Technicians. The intent of this requirement is to improve the quality of lighting control acceptance testing in nonresidential buildings by making sure that both the technicians and their employers are properly aware of all aspects of the lighting controls acceptance test procedures and compliance documentation. This requirement will improve the effectiveness of the lighting control acceptance tests required in the Standards.

Subsection 10-103-A(c)3. **Requirements for Applicant ATTCPs to Document Training and Certification Procedures**. This subsection requires the ATTCPs to document their training and certification procedures in the application provided to the Energy Commission, when seeking approval to provide certification services to Acceptance Test Technicians. This requirement is critical to the success of these regulations because it will provide the documentation necessary for the Energy Commission to determine the appropriateness and effectiveness of the training and certification processes used by ATTCPs to ready Acceptance Test Technicians for acceptance testing according to the requirements of the Standards. This subsection also requires ATTCPs to assign a unique certification number to each Acceptance Testing Technician. The requirements in this subsection will improve compliance with the Standards by providing certification services that will produce Acceptance Test Technicians better qualified to perform the acceptance tests required in the Standards. Standards compliance will also be facilitated by requiring the Acceptance Testing Technician to include their assigned certification number on the compliance documentation, thereby allowing the building departments and the Energy Commission to track the effectiveness of this certification program.

Subsection 10-103-A(d). **Requirements for ATTCPs to Provide Annual Reports**. This subsection requires the ATTCPs to provide annual reports to the Energy Commission documenting the training and certification activity during that year, including any administrative actions taken by the ATTCP to correct problems with Acceptance Test Technician field performance. The Energy Commission will also use these annual reports to review the performance of ATTCPs as part of its oversight responsibilities for these proposed regulations. The requirements

in this subsection are necessary for the Energy Commission to effectively implement the training and certification of Acceptance Test Technicians for lighting controls acceptance testing, as specified in Title 24, Part 6.

Energy Commission staff determined that an annual report is the least burdensome method to enable the Commission to receive timely information to appropriately regulate the program. The report would also serve as the primary means for the Commission to assess the number of Acceptance Technicians being trained to ensure inspection backlogs are not developing.

Subsection 10-103-A(e) Interim Approval of Lighting Controls Acceptance Test Technician Certification Provider. The Acceptance Testing Certification program should start as soon as possible to ensure statewide energy efficiency goals are met and that building owners are receiving the economic benefits of efficient lighting systems. It will take some time for the Commission to certify Providers who in turn train and certify Acceptance Test Technicians.

This subsection specifies that the California Advanced Lighting Controls Training Program (CALCTP) shall be given interim approval as a lighting controls ATTCP, conditioned on its submittal of an application that contains the information listed in Subsections 10-103-A(c)1, 10-103-A(c)2, and 10-103-A(c)3. The interim approval of CALCTP as an ATTCP is also conditioned on CALCTP complying will all future requirements of ATTCPs.

This subsection also specifies that the electrical contractors and their employers who have been certified by CALCTP shall qualify as Lighting Controls Acceptance Test Technicians upon successful completion of training on the Title 24, Part 6, lighting controls acceptance testing procedures and compliance documentation. The interim approval of CALCTP will expire on July 1, 2014 or six months after the implementation date of the 2013 Standards, whichever is later. The Energy Commission believes that interim approval is not necessary after CALCTP completes its application to become an ATTCP and the Energy Commission reviews and approves the application, which should take six months or less.

These requirements ensure that these newly proposed regulations minimize the added costs of complying with the requisite acceptance testing in Title 24, Part 6, for both building owners and acceptance test technicians, by streamlining the certification of electrical contractors to complete lighting controls acceptance testing, and the approval of CALCTP as an ATTCP. Since the CALCTP-certified

electrical contractors are a significant portion of the market providing acceptance testing services, these proposed regulations should reduce the costs of providing high quality acceptance tests, thereby improving the cost-effectiveness of these regulations.

Subsection 10-103-A(f) Application Review and Determination. This subsection lists the steps that the Energy Commission will take to review, take public comment on, and approve or deny ATTCP applications. The requirements in this subsection are necessary for the Energy Commission to effectively implement the training and certification of Acceptance Test Technicians for lighting controls acceptance testing, as specified in Title 24, Part 6. Without this section there may not be consistency in how applications are reviewed and approved, leading to confusion and uncertainty.

Subsection 10-103-A(g) Review by the Energy Commission. This subsection specifies the authority of the Energy Commission to revoke ATTCP authorization to perform training and certification services to the building industry, according to the procedures described in the Energy Commission's regulations in Section 1230 et. seq. of Title 20 of the California Code of Regulations, given evidence that an ATTCP is no longer following the procedures documented in its application to the Energy Commission for approval as an ATTCP. The requirements in this subsection are necessary for the Energy Commission to effectively implement the training and certification of Acceptance Test Technicians for lighting controls acceptance testing, as specified in Title 24, Part 6. This section is necessary as part of the Energy Commission's regulatory oversight of the Acceptance Test program. The Commission must have the authority to review the performance of Providers and de-certify if necessary to maintain the quality and reputation of the program. This section provides notice to the regulated community and the public that the Energy Commission retains the authority to revoke certification.

SECTION 10-103-B – NONRESIDENTIAL MECHANICAL ACCEPTANCE TEST REQUIREMENTS

The proposed regulations in this section add requirements for Acceptance Test Technician Certification Providers to train and certify Nonresidential Mechanical Acceptance Test Technicians. In addition:

Subsection 10-103-B(a) Scope. This subsection explains that the scope of these newly proposed certification requirements apply only to the technicians who complete the mechanical acceptance tests required in Title 024, Part 6, Section 120.5, their employers, and the organizations that train and certify these

professionals. This subsection provides clarity and specificity to these newly proposed regulations.

Subsection 10-103-B(b) Industry Certification Threshold. In order to ensure an adequate number of certified technicians are available to perform inspections, the two thresholds described in this section, must be met before Acceptance Test Technicians are required to be certified. The first threshold is the requirement of at least 300 certified Acceptance Test Technicians. The Commission found 300 to be an adequate number based on an estimate that at least 20,000 nonresidential buildings will require acceptance testing each year and a reasonable inspection rate of 60 systems per year per technician. It is of primary importance to insure that this new compliance program does not result in a back log of systems that need to be inspected. The threshold of 300 certified technicians will address this issue. This threshold of 300 certified technicians applies to the entire list of mechanical acceptance tests in Title 24, Part 6, Section 120.5. If technicians are only certified to complete a subset of these tests, then there must be 300 such certified technicians before these certification requirements takes effect for this subset of mechanical tests. The Energy Commission established a separate certification requirement threshold for a specific subset of mechanical tests because these are the tests that are expected to be installed in the smaller (less than 50,000 square feet) nonresidential buildings, which are the majority of buildings expected to be constructed or modified in the future. With this separate certification threshold, these requirements can potentially take effect sooner than the certification requirements for the entirety of the mechanical acceptance tests, and therefore improve the majority of future mechanical system installations and operations by way of improving the quality of the inspection and testing processes employed by certified technicians who focus their work on the mechanical systems in small and medium commercial buildings.

The second threshold that must be met before the activation of the certification requirements in Section 10-103-B is that the majority of qualified testing professionals must be given the opportunity to become certified. The Energy Commission will review the Acceptance Test Technician Certification Provider applications required in Subsection 10-103-B(c) to determine if, in their entirety, qualified professional groups have been given an opportunity to become certified. Establishing these industry certification thresholds allows time for acceptance testing professionals to become certified, ensures that there are sufficient certified professionals to deliver the testing services required in Title 24, Part 6, and prevents one or more professional groups from gaining a market advantage by becoming certified before other professional groups have been

given that same opportunity. These requirements ensure that these newly proposed regulations minimize the added costs of complying with the requisite acceptance testing in Title 24, Part 6, for both building owners and acceptance test Technicians, thereby improving the cost-effectiveness of these regulations.

Subsection 10-103-B(c) Qualifications and Approval of Certification Providers. The heart of the new program is the Energy Commission's certification of entities, called Providers, which will train and certify the Acceptance Test Technicians. Section (c) and corresponding subsections lay out criteria for the Energy Commission's approval of a Provider and the required training Providers must give to prospective Acceptance Test Technicians and their employers. These sections also require documentation of training by Providers so the Energy Commission receives the appropriate data to oversee the certification program and ensure consistent quality among Providers.

These sections are necessary to allow industry and the public to understand what information is required to become a Provider and what training Acceptance Test Technicians must undergo to be certified. Without this section the program could not function as the regulated community would not know what is required to become a Provider and there would be no consistency or quality control over the training of Acceptance Test Technicians.

Subsection 10-103-B(c)1. **Requirements for Applicant ATTCPs to Document Organizational Structure.** This subsection explains that ATTCPs must provide documentation on the structure of their organization as part of the application to the Energy Commission, when seeking approval to provide certification services to the Acceptance Test Technicians. This requirement is necessary to ensure, at a minimum, that the organizations providing certification services to the building industry have a business structure that will effectively train and certify Acceptance Test Technicians. The requirements in this subsection will improve compliance with the Standards by providing certification services that will produce Acceptance Test Technicians better qualified to perform the acceptance tests required in the Standards.

Subsection 10-103-B(c)2. **Requirements for Certification of Employers and Technicians.** This subsection requires the ATTCPs to provide certification and oversight of both Acceptance Test Employers and Acceptance Test Technicians. The intent of this requirement is to improve the quality of mechanical acceptance testing in nonresidential buildings by making sure that both the technicians and their employers are properly aware of all aspects of the mechanical acceptance

test procedures and compliance documentation. This requirement will improve the effectiveness of the lighting control acceptance tests required in the Standards.

Subsection 10-103-B(c)3. **Requirements for Applicant ATTCPs to Document Training and Certification Procedures**. This subsection requires the ATTCPs to document their training and certification procedures in the application provided to the Energy Commission, when seeking approval to provide certification services to Acceptance Test Technicians. This requirement is critical to the success of these regulations because it will provide the documentation necessary for the Energy Commission to determine the appropriateness and effectiveness of the training and certification processes used by ATTCPs to ready Acceptance Test Technicians for acceptance testing according to the requirements of the Standards. This subsection also requires ATTCPs to assign a unique certification number to each Acceptance Testing Technician. The requirements in this subsection will improve compliance with the Standards by providing certification services that will produce Acceptance Test Technicians better qualified to perform the acceptance tests required in the Standards. Standards compliance will also be facilitated by requiring the Acceptance Testing Technician to include their assigned certification number on the compliance documentation, thereby allowing the building departments and the Energy Commission to track the effectiveness of this certification program.

Subsection 10-103-B(d). **Requirements for ATTCPs to Provide Annual Reports**. This subsection requires the ATTCPs to provide annual reports to the Energy Commission that document the training and certification activity during that year, including any administrative actions taken by the ATTCP to correct problems with Acceptance Test Technician field performance. These annual reports will also be used to review the performance of ATTCPs as part of the Energy Commission's oversight responsibilities for these proposed regulations. The requirements in this subsection are necessary for the Energy Commission to effectively implement the training and certification of Acceptance Test Technicians for mechanical acceptance testing, as specified in Title 24, Part 6.

Energy Commission staff determined that an Annual report is the least burdensome method to allow the Commission to receive timely information to appropriately regulate the program. The report would also serve as the primary means for the Commission to assess the number of Acceptance Technicians being trained to ensure inspection backlogs are not developing.

Subsection 10-103-B(e) Interim Approval of Mechanical Acceptance Test Technician Certification Provider. The Acceptance Test program should start as soon as possible to ensure statewide energy efficiency goals are met and that building owners are receiving the economic benefits of efficient mechanical systems. It will take some time for the Commission to certify Providers who in turn train and certify Acceptance Test Technicians. To address this problem this subsection specifies that the Associated Air Balance Council (AABC), the National Environmental Balancing Bureau (NEBB), and the Testing Adjusting and Balancing Bureau (TABB) shall be given interim approval as mechanical ATTCPs for specific mechanical system acceptance tests, conditioned on their submittal of applications that contain the information listed in Subsections 10-103-B(c)1, 10-103-B(c)2, and 10-103-B(c)3. This interim approval is limited to the specific mechanical system acceptance tests that the Energy Commission determined, based on the review of representative training materials provided by NEBB and TABB, that technicians certified by any one of these organizations are qualified to complete. The interim approval of AABC, NEBB, and TABB as ATTCPs is also conditioned on each organization complying will all future requirements of ATTCPs. This subsection also specifies that the technicians and employers who have been certified by AABC, NEBB, or TABB shall qualify as Mechanical Acceptance Test Technicians upon successful completion of training on the Title 24, Part 6 mechanical acceptance testing procedures and compliance documentation. The interim approval of AABC, NEBB, and TABB will expire on July 1, 2014 or six months after the implementation date of the 2013 Standards, whichever is later. The Energy Commission believes that interim approval is not necessary after these entities complete their applications to become ATTCPs and the Energy Commission reviews and approves these applications, which should take six months or less. These requirements ensure that these newly proposed regulations minimize the added costs of complying with the requisite acceptance testing in Title 24, Part 6, for both building owners and acceptance test technicians, by streamlining the certification of Test And Balance (TAB) contractors to complete mechanical acceptance testing, and the approval of AABC, NEBB, and TABB as ATTCPs. Since the TAB contractors are a significant portion of the market providing acceptance testing services, these proposed regulations should reduce the costs of providing high quality acceptance tests, thereby improving the cost-effectiveness of these regulations.

Subsection 10-103-B(f) Application Review and Determination. This subsection lists the steps that the Energy Commission will take to review, take public comment on, and approve or deny ATTCP applications. The requirements in this subsection are necessary for the Energy Commission to effectively

implement the training and certification of Acceptance Test Technicians for mechanical acceptance testing, as specified in Title 24, Part 6. Without this section there may not be consistency in how applications are reviewed and approved, leading to confusion and uncertainty.

Subsection 10-103-B(g) Review by the Energy Commission. This subsection specifies the authority of the Energy Commission to revoke ATTCP authorization to perform training and certification services to the building industry according to the regulations in Section 1230 et. Seq. of Title 20 of the California Code of Regulations, given evidence that an ATTCP is no longer following the procedures documented in their application to the Energy Commission for approval as an ATTCP. The requirements in this subsection are necessary for the Energy Commission to effectively implement the training and certification of Acceptance Test Technicians for mechanical acceptance testing, as specified in Title 24, Part 6.

This section is necessary as part of the Energy Commission's regulatory oversight of the Acceptance Test program. The Commission must have the authority to review the performance of Providers and de-certify if necessary to maintain the quality and reputation of the program. This section provides notice to the regulated community and the public that the Energy Commission retains the authority to revoke certification.

TITLE 24, PART 6 – EFFICIENCY STANDARDS

SECTION 120.5 – REQUIRED NONRESIDENTIAL MECHANICAL SYSTEM ACCEPTANCE

The proposed regulations add a requirement in this section that all nonresidential mechanical acceptance tests be completed by a certified Mechanical Acceptance Test Technician when certification is required, as specified in Section 10-103-A. This new requirement will improve code compliance by ensuring that mechanical systems are inspected and tested by professionals specifically trained and credentialed to provide these services.

SECTION 130.4 – REQUIRED NONRESIDENTIAL LIGHTING CONTROL ACCEPTANCE

The proposed regulations add a requirement in this section that all nonresidential lighting controls acceptance tests be completed by a certified Lighting Controls Acceptance Test Technician when certification is required, as specified in Section 10-103-A. This new requirement will improve code

compliance by ensuring that lighting controls are inspected and tested by professionals specifically trained and credentialed to provide these services.

2. Technical, theoretical, and empirical studies, reports, and similar documents relied upon

The documents listed below are in the record of the Energy Commission's rulemaking proceeding on the proposed standards and are available to the public. They were listed in the Initial Statement of Reasons. Additional documents relied upon in drafting the 15-Day Language are listed at the end of this section.

- Mills, Evan: Building commissioning: a golden opportunity for reducing energy costs and greenhouse gas emissions in the United States, Energy Efficiency, ISSN 1570-646X, Volume 4 Number 2, http://evanmills.lbl.gov/pubs/pdf/cx-enef-mills.pdf. (2011).
- UC Berkeley: California Workforce, Education and Training Needs Assessment for Energy Efficiency, Distributed Generation and Demand Response. (2011)
- California Commissioning Collaborative: Evaluation of Title-24 Acceptance Testing Enforcement and Effectiveness, September 2011.
- Joint Committee on Energy and Environmental Policy: 2013 Building Energy Efficiency Standards Acceptance Testing and Documentation, October 25, 2011.
- International Brotherhood of Electrical Workers: 2013 Building Energy Efficiency Standards Acceptance Testing and Documentation, November 3, 2011.
- California Commissioning Collaborative: Letter regarding the Energy Commission's Proposal to Certify Lighting Controls and Mechanical System Acceptance Test Field Technicians, March 5, 2012.

Additional Documents Relied On.

The following documents were relied upon to make specific changes to the 45-Day Language.

- Rob Falke, National Comfort Institute, Public Comment Letter, Docket 12-BSTD-2 Item No. 68491.
- Rob Falke, National Comfort Institute, Additional Public Comment Letter, 12-BSTD-02 Date: 11/20/12 Item No. 68576.
- Chris Ruch, Final Air Balance Co. Inc., Comments on Proposed Threshold for Implementing Nonresidential Mechanical Acceptance Test Requirements, Docket 12-BSTD-2 Item No. 68262.
- Cyndi Marshall, California Association of Sheet Metal and Air Conditioning Contractors, National Association's Comment Letter, Docket 12-BSTD-2 Date: 11/09/2012 Item No. 68482.
- RNM Engineering, Inc., Comments on Acceptance Test Provider, Docket 12-

BSTD-2 Date: 09/26/2012 Item No. 67338.

- Thomas A. Enslow, Adams Broadwell Joseph & Cardozo, CALCTP Comments on the Acceptance Testing Rulemaking, Docket 12-BSTD-2 Date: 11/06/2012 Item No. 68397.

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3. Documents referenced in the proposed building energy efficiency standards

The document, which is incorporated by reference in the Parts 1 and 6 Standards, is in the record of the Energy Commission's rulemaking proceeding. In addition, it is reasonably available to the affected public from a commonly known or specified source. (See OAL Regulations, California Code of Regulations, title 1, section 20(c)(2).) .

The document incorporated by reference is of such length, and is subject to copyright restrictions, that it would be cumbersome, unduly expensive, or otherwise impractical to expressly publish it as part of the Standards. (See OAL Regulations, California Code of Regulations, title 1, section 20(c)(2).)

- IESNA Lighting Handbook, 10th Edition, 2011 ISBN-13: 978-0-87995-241-9, available from the Illuminating Engineering Society (at http://www.ies.org/store/) as well as many other secondary sources.

4. The reasons why mandating the use of specific technologies or equipment is required

The proposed standards do not mandate a specific technology but create an independent third party certification and training program to ensure Field Technicians and their employers acquire minimal level of training and skill to verify nonresidential lighting controls and mechanical systems comply with existing energy efficiency building standards.

5. Consideration of reasonable alternatives, including those that would lessen any adverse impact on small business

For more than thirty-five years, legislative enactments and State energy policies have directed the Energy Commission to adopt cost-effective building standards to improve energy efficiency and thereby improve the state's economy, energy security, and environment. (See, e.g., Public Resources Code §§ 25007 and 25402, subd. (a)(1), (a)(3), & (b)(3); 2007 Integrated Energy Policy Report.)

At this time the Commission is not aware of alternatives to the proposed regulations that would be more effective than the proposed regulations in

achieving the energy-efficiency goals of these directives, would be equally effective and less burdensome to affected persons, or would be more cost effective to affected private persons and equally effective in implementing the statutory policies described above. (See Gov. Code, § 11346.9, subd. (a)(4).)

Nor has the Commission identified any reasonable alternative that would lessen any adverse impact on small businesses (or any other economic interests), and which were considered but rejected. (See Gov. Code, §§ 11346.2, subd. (b)(5), 11346.9, subd. (a)(5)). Stakeholders from the potentially regulated community recommended the Acceptance Test program because the data and studies cited above indicate that current testing and system approval, which lacks standardized methodology and quality control, is inadequate to ensure electrical and mechanical systems are correctly functioning to reduce energy usage.

A number of alternatives proposed by stakeholders to the initially contemplated regulations were considered and accepted as part of the pre-rulemaking public participation process. (See Public Resources Code § 25402, subd. (c)(2)). In response to comments from mechanical and electrical contractors, commissioning providers, engineers, and controls contractors who are concerned that the certification requirements may decidedly and unjustly favor the test and balance technicians and contractors, the Energy Commission established threshold criteria such that the proposed regulations will not take effect until the Energy Commission determines that there is a sufficient number of certified technicians and that the majority of known acceptance test professionals, such as those represented by the docketed concerns, have been given legitimate opportunities to gain Acceptance Test Technician certification.

The test and balance (TAB) certification organizations (TABB, AABC, and NEBB) requested that the proposed regulations grant interim approval to each TAB organization because the TAB technicians and contractors are already trained and certified to complete the mechanical acceptance tests. In response, the Energy Commission revised the proposed regulations to grant interim approval to TABB, AABC, and NEBB for specific mechanical acceptance tests. The Energy Commission reviewed TAB training curricula and determined that the TAB technicians should be competent to complete a subset of the mechanical system acceptance tests, once they have received training on the specific inspection, testing and documentation requirements of each test.

The California Advanced Lighting Controls Training Program (CALCTP) requested that the proposed regulations grant interim approval to CALCTP

because its certified electrical contractors are already trained to complete the lighting controls acceptance tests. In response, the Energy Commission revised the proposed regulations to grant interim approval to CALCTP for the lighting controls acceptance tests. The Energy Commission reviewed CALCTP training curricula and determined that the CALCTP-certified electrical contractors should be competent to complete the lighting control acceptance tests, once they have received training on the specific inspection, testing and documentation requirements of each test.

After engaging stakeholders the Commission concluded that the use of regulations to create an Acceptance Test Program is the lowest cost mechanism to ensure that energy efficiency measures installed in commercial buildings are actually working and providing energy and economic benefit to the building owner and public in general.

Further, during the formal rule-making process, a number of additional alternatives were proposed and many were incorporated into the 15-Day Language that was ultimately adopted. These proposals are described below in the section on Objections and Recommendations, and the Energy Commission's Responses.

It is important that the public and building owners have confidence that mandated energy efficient measures, which do have a cost, are actually producing a real, quantifiable economic benefit as well as a general environmental benefit. No other process has been proposed other than regulations to best ensure public confidence in building standards through an Acceptance Testing Certification process.

Any alternatives that lessen any adverse economic impacts, but likewise do not achieve the energy savings of the proposed regulations, would not be a reasonable fulfillment of the Energy Commission's statutory obligations. As described in the Informative Digest section of the Notice of Proposed Action, the energy savings anticipated from these measures are being counted on and are required in order to achieve the State's policy goals of reducing greenhouse gas emissions and having new buildings that require zero net energy.

6. Facts, evidence, documents, testimony, or other evidence of no significant adverse economic impact on business

The discussion in the immediately preceding section, on the consideration of

alternatives, demonstrates that the Commission has already made extensive changes in preliminary versions of the proposed regulations in order to reduce impacts on businesses, especially small businesses. (See Gov. Code, § 11346.2, subd. (b)(6).) By pre-certifying Providers and ensuring an adequate number of Acceptance Testing Technicians from a variety of industry sectors, the regulations will keep testing competitively priced, thereby reducing overall costs to businesses, both large and small, purchasing and leasing new buildings.

The proposed regulations may increase the costs of construction slightly – but the cost of certifying mechanical or lighting systems is a small percentage of the total cost of the systems and equipment. Independent of requirements in the Administrative Procedure Act to assess impacts on small business, Public Resources Code section 25402(b)(3) requires that energy efficiency regulations "be cost-effective when taken in their entirety and when amortized over the economic life of the structure compared with historic practice." Here this requirement is met because the energy efficiency standards save more money on energy bills over the life of the building, than the cost of implementing the requirement. Therefore, the entities that ultimately pay the increased costs of construction - building purchasers and owners - will save substantially more money on their energy bills than the increase in the construction cost due to the certification requirements.

The Energy Commission has assumed a cost per certification that is commensurate with a 40-hour process of training for technicians ($2,000) and an 8-hour process of training for technician supervisors ($500). The total first year costs of complying with these proposed regulations for all of the technicians and employers expected to become certified will be approximately $3.75 million.

The total statewide benefit from these proposed regulations is estimated conservatively at $4 million per year, estimated by assuming that a small fraction of the total savings expected from the 2013 Standards update for nonresidential buildings are due to the proper installation of lighting and mechanical systems that are the subject of these proposed regulations. This small fraction is derived from the expectation that: (1) at least half (50%) of the energy savings from the 2013 Standards will be from the installation of lighting controls and mechanical systems, the same systems that require verification through the acceptance testing that is the subject of these regulations, and (2) verifying that these systems are installed and operating properly will improve the realized energy efficiency of these systems by at least one percent (1%) on average.

These proposed regulations will not have an adverse statewide economic impact because the expected costs are largely one-time certification expenses, whereas the energy savings that will accrue will continue to be realized year after year. Even in the first year of implementation, the costs of these regulations will be more than offset by energy savings. The financial benefits of completing acceptance testing of newly

installed lighting and mechanical equipment is confirmed by the national study on the benefits of commissioning by Evan Mills, Lawrence Berkeley National Laboratory (see Documents Relied On, above).

7. Duplication or conflicts with federal regulations

The proposed revisions to the Standards do not duplicate or conflict with any federal regulations. (See Gov. Code, § 11346.2, subd. (b)(7)). There are no federal regulations that prescribe building standards for non-federal buildings.

B. Mandate on Local Agencies or School Districts

The proposed modifications to the standards will not impose new mandates on local agencies. Existing law already obligates local building departments to serve as enforcement agencies for the Standards. (Pub. Resources Code §§ 25402(a)-(b), 25402.1).

C. Objections and Recommendations, and the Energy Commission's Responses

Comment letter from Mr. Christopher Ruch of Final Air Balance Co. Inc.

Docket Number: 12-BSTD-2, TN# 68262, Oct 30, 2012
Mr. Ruch also made summary comments during the Oct 1 Hearing.

Summary of Comment:
The threshold to require acceptance testing after 1,000 technicians are certified, as initially proposed, is too high and is not adequately justified. Mr. Ruch recommends an algorithm based on the annual number of permits likely to require Title 24, Part 6 HVAC acceptance tests (approximately 20,000 per year) and the minimum number of jobs per year per technician needed to provide sufficient incentive for the technician to seek certification (120 work days divided by 2 days of work per system equals 60 jobs per year) to lower the trigger level from 1,000 to 334 certified technicians.

Response to Comment:
The Energy Commission concurs with Mr. Ruch and accepts his proposed algorithm to lower the trigger level from 1,000 to 300 certified technicians.

Comment letter from Mr. Noah Horowitz, Senior Scientist, Natural Resources Defense Council.

Docket Number: 12-BSTD-2, TN# 68260, Oct. 30, 2012

Summary of Comment:
While the NRDC strongly supports the Energy Commission's decision to require acceptance testing and establish objective training for technicians, the drafted regulations allow for the same person that designed, manufactured or installed the system to perform the acceptance testing as well. This creates a potential conflict of interest by allowing the person performing the work to also be the one verifies its quality.

Response to Comment:
While the Energy Commission agrees with the concept of the NRDC's position on this issue, the scope of the regulations being considered does not include actual field activities and restrictions of the acceptance testing technicians, only their training. Moreover, potential conflicts of interest issues may be addressed in the Compliance Manual.

Comment letter from Mr. Robert Falke, President of National Comfort Institute.

Docket Number: 12-BSTD-2, TN# 68491, Nov. 9, 2012

Mr. Falke made essentially two comments, which may be summarized as follows:

Summary of First Comment:
Based on the implementation of similar certification and inspection voluntary programs implemented by National Comfort Institute in California, Mr. Falke warns that if contractors are required to bear the expense of compliance by hiring an additional third party, that the future success of the proposed requirements will be hampered.

Docket Number: 12-BSTD-2, TN# 68576, Nov. 20, 2012.

Summary of Second Comment:
MR. Falke made several specific recommendations to add language to the proposed requirements. These are: (1) until the number of trigger technicians is reached, mechanical contractors and mechanical energy professionals should continue to be permitted to complete the test as required under Title 24, Part 6; and (2) during the interim period, the Energy Commission may approve additional qualified certifiers.

Response to Both Comments:
The Energy Commission appreciates the comments made by Mr. Falke, and have incorporated requirements that meet the intent of the protections and authorities recommended.

Comment letter from Mr. Rick Miller of RNM Engineering, Inc.

Docket Number 12-BSTD-2, TN# 67338, Sept. 27, 2012.
Comments were made at the Oct 1 Hearing and submitted to the Docket in written form.

Summary of Comment:
Mr. Miller recommended minor corrections throughout the 45-Day Language and two significant additions. First, Mr. Miller recommended adding lamp and ballast systems, line and low voltage switching controls, dimming controls, occupancy sensors and photosensors to the curricula for lighting controls acceptance testing technician training. Second, Mr. Miller recommended adding quality assurance independent assessment similar to ISO/IEC 17024 Standards to the qualifications and approval of certification providers for mechanical acceptance testing technicians.

Response to Comments:
The Energy Commission appreciates Mr. Miller's comments and has generally incorporated suggested changes where appropriate. The Energy Commission agrees with Mr. Miller's comment to add elements to the curricula for lighting control acceptance testing technicians and has incorporated those suggestions. The Energy Commission also agrees with Mr. Miller's recommendation to include independent assessment similar to ISO/IEC 17024 requirements and has incorporated that suggestion.

Comment letter from Mr. Steve Mesh of Lighting Education & Design

Docket Number: 12-BSTD-2, TN# 67416, Oct 1, 2012
Comments were made at the Oct 1 Hearing and submitted to the Docket in written form.

Summary of Comments:
Mr. Mesh recommends that CALCTP and other similar programs that would be approved as Certification Providers by the Energy Commission adopt a three-tiered approach to course work for lighting controls acceptance testing technicians. Mr. Mesh recommends that Tier 1 be the foundation level similar to the 50-hour course already available at

CALCTP. Tier 2 should be an advanced level course work in lighting control systems and Tier 3 should be dedicated to lighting control commissioning. Mr. Mesh observes that the CALCTP training is currently only available to California certified electrical contractors; he recommends this training for other engineers and code enforcement as well.

Response to Comments:
The Energy Commission appreciates the comments by Mr. Mesh. However, it is the Energy Commission's opinion that the Compliance Manual is the more appropriate place to deal with these issues. There is nothing in the Standards that precludes a three-tier (of four-tier) curriculum. However, requiring a three-tier curriculum in code would preclude a four-tier curriculum, which might be detrimental if it is discovered that a four-tier curriculum is the superior choice. Similarly, there is nothing in the regulations to preclude the training of other qualified engineers, technicians or code enforcement personnel. These issues will be taken into consideration in the development of the Compliance Manual.

Comment letter from Mr. Jack Yapp of California Electrical Training, Inc.
Docket Number: 12-BSTD-2, TN# 68263, Oct 30, 2012

Summary of Comments:
Mr. Yapp recommends that OSHA 10 and OSHA 30 should be the basis for safety training with a focus on Lock/out Tag/out and Arc-flash personal protective equipment. Additionally, Mr. Yapp identifies that Nonresidential Lighting Technician is a recognized certification by the California Department of Labor Statistics and Enforcement. Mr. Yapp also submitted the California Electrical Training, Inc., curriculum for Nonresidential Lighting Technician Certification.

Response to Comments:
The Energy Commission appreciates Mr. Yapp's comments and recognizes the need for compliance with all OSHA requirements. However, the Energy Commission does not agree that such requirements should be referenced from within the Standards. It is the Energy Commission's opinion that the issue of OSHA compliance is not related to energy efficiency and that an artificial link should be avoided. An acceptance testing technician will not be allowed on a worksite without proof of proper OSHA training.

Comment letter submitted by Thomas Enslow of Adams, Broadwell, Joseph & Cardozo on behalf of the California State Labor Management Cooperation Committee and Bernie Kotlier, Co-Chair of the California Advanced Lighting Controls Training Program (CALCTP).

Docket Number: 12-BSTD-2, TN# 68397, Nov. 6, 2012

Summary of Comments:
While supportive of the Standards, the comments include extensive and specific suggestions regarding hands-on and laboratory training for lighting control systems and devices. These extensive suggestions were restricted to Sections 10-103-A(c)(A), (B)(ii) and (v).

Response to Comments:
The Energy Commission appreciates the comments submitted and has incorporated all except for bulleted requirements for the lighting controls systems and devices hands-on requirements in Section 10-103-A(c)(B)(ii). The Energy Commission finds that these suggestions are repetitive of the curricula requirements established in Section 10-103-A(c)(B)(i).

Comment letter from Cyndi Marshall, Executive Vice President of the California Association of Sheet Metal and Air Conditioning Contractors National Association (CAL SMACNA).

Docket Number: 12-BSTD-2, TN# 68482, Nov. 9, 2012

Summary of Comments:
While supporting the Standards, Ms. Marshall makes several suggestions. (1) a "Test Out" option be incorporated into the curriculum of the Mechanical Acceptance Testing Technician training which may result in the awarding of a Certificate by Examination. (2) The interim requirements laid out in Sections 10-103-B(e)(1) and (3) are open to interpretation that relies on a piecing together of different parts of the Building Energy Efficiency Standards. (3) Ms. Marshall recommends that the mechanical acceptance testing employer training should not exceed four hours. (4) Ms. Marshall advises that the Economic Impact Analysis (Form 399) be revised to account for technician travel, per diem and missed work. (5) Ms. Marshall suggests that the recertification requirements (Section 10-103-B(c)(3)(B)(vi) be revised to require only those elements that are modified by future updates to the California Building Energy Efficiency Standards. (6) Finally, Ms. Marshall suggests that

building officials be required to have similar training as Acceptance Testing Technicians focusing on inspection and enforcement.

Response to Comments:
The Energy Commission appreciates the efforts Ms. Marshall has made to improve the Standards with her comments. (1) The Energy Commission generally agrees with this concept, however, it is the Energy Commission's opinion that a Certificate by Examination is permissible with the current language in the Standards and that further clarification can be made within the Compliance Manual if necessary. (2) It is the Energy Commission's opinion that further clarification of the interim requirements is not warranted within the Standards, but the Energy Commission will endeavor to make clarifications within the Compliance Manual. (3) It is the Energy Commission's opinion that the employers' training requirements should not have an upper limit, but a lower limit. Therefore, the Energy Commission modified the Standards to require *at least* four hours of training for employers. (4) The termination of the interim period is dependent on two elements: the number of certified technicians (300) and the industry coverage by certification providers (Section 10-103-B(b)(2)). When the coverage of certification providers is adequate, it is the Energy Commission's opinion that there will be little or no cost for training due to travel per diem and missed work. Therefore, it is the Energy Commission's opinion that the Economic Impact Analysis (Form 399) needs no modification. (5) The Energy Commission has incorporated these suggestions into the Standard. (6) While the Energy Commission agrees that building officials can greatly benefit from training similar to that of Acceptance Testing Technicians, the Energy Commission does not agree that such training should be required at this time.

Further comments from Cyndi Marshall, CAL SMACNA.

Docket Number: 12-BSTD-2, TN# 68851, Dec. 12, 2012
These comments were also made at the Dec 12th Business Meeting where the standards were approved.

Summary of Comments:
Ms. Marshall raised six (6) issues with her original comment letter of Nov. 9, 2012 and is satisfied that all of these issues have been resolved by the 15-Day Language and conference with Staff. Specifically, Ms. Marshall (mistakenly) points out the reduced burden on employers to complete their training within four (4) hours and the clarification that recertifying

technicians need only address the changes in future updates of the Building Energy Efficiency Standards that affect acceptance testing. Finally, Ms. Marshall acknowledges that the implicit effects of the regulation resolve the other concerns she raised. Ms. Marshall specifically cites the "test out" option and access to training and certification requirements.

Response to Comments:
Staff appreciates the supportive comments made Ms. Marshall, but we feel it necessary to reminder her that the requirements (Sections 10-103-A(c)(C) and 10-103-B(c)(C)) state that the employer training must consist of a single class or webinar of *at least* 4 hours. This is intended as a minimum, these classes can be longer or over several days.

Comment letter from Assembly Member Steven Bradford, 51st Assembly District.

Docket Number: 12-BSTD-2, TN# 68781, Nov. 29, 2012

Summary of Comments:
Assembly Member Bradford wrote in support of the Standards and urged the Commissioners to approve them at the Dec 12, 2012 Business Meeting.

Response to Comments:
The Energy Commission appreciates the time and effort by the Assembly Member in support of the Standards.

Comment letter from Sean Bunting, Vice President of the National Air Balance Quality Assurance Services, Inc.

Docket Number: 12-BSTD-2, TN# 68220, Oct. 19, 2012

Summary of Comments:
Mr. Bunting wrote in support of the Standards.

Response to Comments:
The Energy Commission appreciates the time and effort by Mr. Bunting in support of the Standards.

Comment letter from Paul Chapling and a letter from Brian Lehmkuhl of Airco Automation, Inc.

Docket Number: 12-BSTD-2, TN# 68487, Oct. 30, 2012

Summary of Comments:
Mr. Chapling and Mr. Lehmkuhl wrote in support of the Standards.

Response to Comments:
The Energy Commission appreciates the time and effort by Mr. Chapling and Mr. Lehmkuhl in support of the Standards.

Approximately 1100 form letters from Journeyperson and Apprentice HVAC/Sheet Metal Installations and Inspection Professionals currently within the TABB organization.

Docket Number: 12-BSTD-2

Summary of Comments:
The form letters expressed general support for the Standards and specific support for the interim period reliance on professionals from TABB, AABC, NEBB and AABC. Additionally, the form letters raised the concern for adequate background experience and education of acceptance testing technicians. They recommend that a technician should have all of the following: (1) post-secondary training in a state-approved or nationally accredited educational program (including the state-certified apprenticeship system; nationally accredited colleges and universities); (2) a minimum number of hours of work experience equal to or exceeding the number of hours to meet any contractor licensure, trade journey card, or any other licenses or regulations affecting contractors or workers working in the field; (3) training and competency testing that includes hands-on training and testing.

Response to Comments:
The Energy Commission appreciates the time and effort by the commenter's in support of these regulations. The specific issues raised above are not suitable for inclusion in the Standards, but will be considered for the Compliance Manual.

III UPDATED INFORMATIVE DIGEST

This section updates the Informative Digest[1] that was published in the Notice of Proposed Action[2] for these regulations.

A. Summary of Existing Laws and Regulations Related Directly to the Proposed Action or to the Effect of the Proposed Action

There have been no changes in the existing laws or regulations related directly to these regulations (or to their effects) from those described in the Informative Digest in the Notice of Proposed Action.[3]

B. Consistency with Existing Comparable Federal Regulations and Statutes

As stated in the Informative Digest in the Notice of Proposed Action, there are no federal energy standards applicable to nonfederal buildings. (The current and proposed California building standards do, however, reference federal energy standards for particular appliances.)[4] However, there is a complex series of federal actions that can affect state energy standards.

The United States Department of Energy (DOE) is required by law (in the Energy Conservation and Production Act (ECPA, Public Law 94-385)) to determine whether the latest edition of ASHRAE Standard 90.1 (for commercial and multi-family high-rise residential buildings) or the latest version of the International Energy Conservation Code (for low-rise residential buildings) will improve energy efficiency compared to the previous edition of the corresponding standard or code. DOE has one year to publish a determination in the Federal Register after each new edition of the standard/code is published.[5]

Federal law also requires that DOE publish determinations as to whether new editions of ASHRAE Standard 90.1 and the International Energy Conservation Code will improve energy efficiency. The determinations are based on analyses by the Building Energy Codes Program (BECP) and

[1] See Gov. Code §§ 11346.2, subd. (a)(3), 11346.9, subd. (b).
[2] Notice of Proposed Action, Revisions to the California Building Energy Efficiency Standards, Cal. Code of Regulations, Tit. 24, Parts 1 and 6 (California Energy Code), Sept. 5, 2012 (NOPA).
[3] See NOPA, pp. 4-6.
[4] See NOPA, p. 6.
[5] See http://www.energycodes.gov/regulations.

are required by Section 304 of ECPA, as modified by the Energy Policy Act of 1992 (EPAct 1992). DOE has one year to publish the determinations after the newest edition of the standard is published.

If DOE finds that the newest version of ASHRAE Standard 90.1 is more energy efficient than the previous version, states are required by EPAct 1992 to certify that their building energy codes or standards meet or exceed the requirements of the new standard within two years. Ever since the federal requirement went into effect, the Title 24 Building Energy Efficiency Standards have exceeded not only ASHRAE Standard 90.1 but also all other nationwide building standards, and the same is true of the 2013 Standards.

C. Policy Statement Overview and Specific Benefits of the Proposed Regulations

Since 2005 Building Energy Efficiency Standards (California Code Regulations, Title 24, Part 6) have required that specific equipment and controls installed in nonresidential buildings be tested according to Energy Commission adopted "acceptance testing" protocols to demonstrate their proper installation before the building is approved for occupancy. Compliance documentation must be signed by both the Field Technician who completed the acceptance testing and the licensed person who is legally responsible for the installation under the Business and Professions Code. The current Standards do not specify qualifications or training that the Field Technician must meet to be authorized to complete the acceptance testing.

Studies and stakeholder comments provided to the Energy Commission and discussed below indicate that acceptance testing occurring in the field is currently inadequate. Because of inconsistent levels of training Field Technicians as a whole are not providing the assurances necessary that the installed systems are delivering the energy efficiencies and monetary savings expected by building owners and which are required by state law. This is the problem the Commission seeks to address with the proposed regulations.

The proposed regulations create an independent third party certification and training program to ensure Field Technicians and their employers acquire minimal level of training and skill to verify nonresidential lighting

controls and mechanical systems comply with existing energy efficiency building standards.

These regulations will deliver many benefits to the health and welfare of California residents, to worker safety, and to the state's environment. (See Gov. Code, § 11346.5, subd. (a)(3)(C).) They will provide building owners with a high quality verification of the energy saving features of their buildings' lighting and mechanical components therefore ensuring the building owner is obtaining the benefits of their investment in various technologies. The people of California benefit as less energy is used, eliminating the need for development of additional generation and the environmental damage associated with such energy projects including greenhouse gas emissions. In addition, by developing a rigorous training and certification program the state will benefit by increasing the awareness among the building industry of the economic and environmental value of energy efficiency that may lead to over all gains in energy efficiency in other areas of building systems.

These newly proposed regulations will be amended to the 2013 Standards that were adopted by the Energy Commission in May, 2012. The combined 2013 Standards update will be considered for approval by the Building Standards Commission in December, 2012.

D. Evaluation of Consistency with Existing State Regulations

There is no inconsistency or incompatibility with existing state regulations. As described in the Resolution adopting the regulations,[6] the regulations are consistent with the Energy Code, the California Building Code,[7] the Warren-Alquist Act,[8] and the California Building Standards Law.[9]

E. Other Applicable Matters Prescribed by Statute

Other applicable matters prescribed by statute are described in the Final Statement of Reasons, pages 2 - 6 and 19 – 22, 29, and in the Nine Point

[6] See Resolution Adopting Proposed Regulations, Nonresidential Acceptance Testing Certification, Reso. No. 12-1212-7, Dec. 12, 2012, pp. 4-7. 9-12.
[7] Cal. Code Regs., tit. 24.
[8] Pub. Resources Code § 25000 et seq.
[9] Health & Safety Code § 18901 et seq.

Criteria Analysis.