

DOCKET	
07-BSTD-1	
DATE	NOV 16 2007
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NOTICE OF PROPOSED ACTION

REVISIONS TO THE CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARDS CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 1 and PART 6 (CALIFORNIA ENERGY CODE)

2008 BUILDING ENERGY EFFICIENCY STANDARDS

California Energy Commission

DOCKET NO. 07-BSTD-1

NOVEMBER 16, 2007

Notice is hereby given that the California Energy Commission (Energy Commission) proposes to adopt changes to the Building Energy Efficiency Standards contained in the California Code of Regulations (CCR), Title 24, Part 6 (also known as the California Energy Code) and associated administrative regulations in Part 1. The proposed amended standards are called the "2008 Building Energy Efficiency Standards" and will go into effect in 2009.

The Energy Commission has prepared this Notice of Proposed Action (NOPA) and an Initial Statement of Reasons (ISOR) regarding the need for the proposed revisions. The Energy Commission has also published the Express Terms (45-Day Language) of the proposed amendment language. These documents can be obtained from the contact persons designated below or from the Energy Commission website at:

www.energy.ca.gov/title24/2008standards/rulemaking/

PUBLIC COMMENT PERIOD AND HEARINGS

The Energy Commission's Energy Efficiency Committee will hold a public hearing to receive public comments on the proposed action. At this hearing, any person may present statements or arguments relevant to the proposed regulatory action summarized below. The proposed language (45 Day Language Express Terms) is posted on the Energy Commission's website at:

www.energy.ca.gov/title24/2008standards/rulemaking/

and is also available from the Energy Commission's Residential Buildings and Appliance Standards Office (contact persons are listed later in this NOPA). The Committee Hearing will be held as follows:

Monday, December 17, 2007

10 a.m.

CALIFORNIA ENERGY COMMISSION

Hearing Room A

1516 Ninth Street

Sacramento, California

(Wheelchair Accessible)

Audio for the December 17, 2007 Energy Efficiency Committee meeting will be broadcast over the Internet. For details, please go to:

www.energy.ca.gov/webcast

If you have a disability and require assistance to participate in these hearings, please contact Lou Quiroz at (916) 654-5146 at least 5 days in advance.

The Energy Efficiency Committee may hold another hearing on Tuesday, December 18, 2007 if necessary. Written comments will be accepted regarding the proposed changes until the adoption date listed below.

The hearing before the full Energy Commission for final adoption of the 45 Day Language Express Terms will be held on the date below unless the Energy Commission decides to make substantive changes to the Express Terms through 15 Day Language, in which case the public hearing will be continued to a later noticed date.

PROPOSED ADOPTION DATE – FULL ENERGY COMMISSION HEARING

Wednesday, January 30, 2008

10 a.m.

CALIFORNIA ENERGY COMMISSION

Hearing Room A

1516 Ninth Street

Sacramento, California

(Wheelchair Accessible)

Audio for the January 30, 2008 Energy Efficiency Committee meeting will be broadcast over the Internet. For details, please go to:

www.energy.ca.gov/webcast

If you have a disability and require assistance to participate in these hearings, please contact Lou Quiroz at (916) 654-5146 at least 5 days in advance.

If the Energy Commission decides to propose 15 Day Language modifications to the Express Terms, a separate notice of the adoption hearing for the 15 Day Language will be provided.

The public comment period for this NOPA will be from November 16, 2007 through January 30, 2008. Any interested person may submit written comments on the proposed amendments. Regarding the Energy Efficiency Committee, and Adoption Hearings, the Energy Commission appreciates receiving written comments at the earliest possible date: for the December 17, 2007 hearing, please provide written comments by December 14, 2007; for the January 30, 2008 Adoption Hearing, please provide written comments by January 29, 2008. However, written comments will still be accepted at the adoption hearing. In addition, written comments will be considered if they are received by 10:00 a.m. on January 30, 2008. Written comments shall be emailed to Docket@energy.state.ca.us or mailed or delivered to the following address (emailing is preferred):

CALIFORNIA ENERGY COMMISSION

Attention: Docket No. 07-BSTD-1

Dockets Office

1516 Ninth Street, MS-4

Sacramento, CA 95814

All written comments must indicate "Docket No. 07-BSTD-1." When comments are emailed on behalf of an organization, the comments should be a scanned copy of the original on the organization's letterhead and include a signature of an authorized representative.

Comments may also be filed electronically by emailing cgekas@energy.state.ca.us or FAXing them to (916) 654-4304.

POST-HEARING MODIFICATIONS TO THE TEXT OF THE REGULATIONS

Interested persons should be aware that any of the provisions of the amendments under consideration by the Energy Commission could be substantively changed as a result of public comment, staff recommendations, or conclusions of the Energy Commission's Energy Efficiency Committee. Also, additional language not indicated in the Express Terms could be added if it is within the scope of the rulemaking proceeding. If the Energy Commission makes substantive changes to the 45 Day Language Express Terms, it will make the full text of the modified amendments available to the public at least 15 days before adoption, as required by Government Code 11346.8.

NOTE: To be notified of any modifications, you must submit written/oral comments or request that you be notified of any modifications

AUTHORITY AND REFERENCE

The California Energy Commission proposes to adopt these building standards under the authority granted by Public Resources Code Sections 25213, 25402, 25402.1, 25402.4, 25402.5, 25402.8 and 25910.

INFORMATIVE DIGEST

Summary of Existing Laws

Public Resources Code Sections 25402 and 25402.1 were enacted in 1975 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. Enacted at that same time, Section 25910 directed the Energy Commission to adopt standards for the minimum amount of additional insulation installed [as an alteration] in existing buildings. Senate Bill (SB) 639 (Statutes of 1993) added Section 25402.5 which expressly directed the Energy Commission to consider both new and replacement [as an alteration to an existing building], and both interior and exterior, lighting devices as lighting which is subject to Section 25402. SB 639 also made the express finding that the mandate to consider exterior lighting and replacement lighting is declarative of existing law, clarifying that the Energy Commission's authority related to exterior lighting and to alterations to existing buildings was included in the Legislature's original intent in enacting Section 25402. SB 5X (Statutes of 2001) added subsection (c) to Section 25402.5 to clarify and expand the Energy Commission's authority to adopt standards for outdoor lighting (defined as all electrical lighting not subject to the Energy Commission's current standards).

Assembly Bill 32 (Nuñez, Chapter 488, Statutes of 2006), the Global Warming Solutions Act of 2006, mandated that California must reduce its greenhouse gas emissions to 2000 levels by 2010 and to 1990 levels by 2020. Increasing the stringency of the 2008 Building Energy Efficiency Standards has been identified as an early response to this climate change policy directive.

Senate Bill 1 (Murray, Chapter 132, Statutes of 2006) enacted Governor Schwarzenegger's Million Solar Roofs Initiative. The statute added sections to the Public Resource Code that require building projects applying for ratepayer-funded incentives for photovoltaic (PV) systems to meet minimum energy efficiency levels and recommended that PV system components and installations meet rating standards and specific performance requirements.

Summary of Existing Regulations

The Building Energy Efficiency Standards were first adopted in 1976 and have been updated periodically since then as directed by statute. In 1975 the Department of Housing and Community Development had adopted rudimentary energy conservation standards, under their State Housing Law authority, that were a precursor to the first generation of the Building Energy Efficiency Standards. However, the Warren-Alquist Act was passed that year with explicit direction to the Energy Commission

to adopt and implement the Building Energy Efficiency Standards. The Energy Commission's statute created completely separate authority and specific direction to the Energy Commission regarding what the Standards are to address, what criteria are to be met in developing standards, and what implementation tools, aids, and technical assistance are to be provided. The Standards contain energy efficiency and indoor air quality requirements for newly constructed buildings, additions to existing buildings, alterations to existing buildings and in the case of nonresidential buildings, repairs to existing buildings. The Standards have contained requirements for alterations to existing buildings for both nonresidential buildings and residential buildings since 1976.

The enabling statute stressed the importance of building design and construction flexibility by requiring the Energy Commission to establish performance standards, in the form of an "energy budget" in terms of the energy consumption per square foot of floor space, and to support the performance Standards with compliance software to do the necessary energy calculations. The Energy Commission establishes specific requirements for input, output, and calculational uniformity, enabling private firms to develop compliance software to be approved by the Energy Commission, as long as the software programs meet the specific requirements in the Alternative Calculation Method (ACM) Approval Manuals adopted by regulation in support of the Standards.

The Standards include a basic set of mandatory requirements that apply in all cases. In addition to the mandatory requirements, the performance standards establish energy budgets that vary by climate zone and building type. As an alternative to the performance standards, there are prescriptive requirements that are basically a "checklist" compliance approach that allows little flexibility (the Overall Envelope Approach, a prescriptive option, allows a limited tradeoff method for nonresidential building envelopes). Mandatory requirements that apply to all building types are in Sections 110 - 119. The requirements for nonresidential buildings, high-rise residential buildings and hotels/motels are in Sections 120 to 149 with additional mandatory requirements in Sections 120 to 132; performance standards requirements in Section 141 (supported by the detailed requirements in the Nonresidential ACM Manual); prescriptive requirements in Sections 142 to 146; and requirements for additions, alterations, and repairs to existing buildings in Section 149. The requirements for low-rise residential buildings are in Sections 150 to 152 with additional mandatory requirements in Section 150; performance standards requirements in Sections 151 (b) to 151 (e) (supported by the detailed requirements in the Residential ACM Manual); prescriptive requirements in Section 151 (f); and requirements for additions and alterations to existing buildings in Section 152. The administrative regulations for the Standards are in Part I, Chapter 10.

Summary of Effect

The 2008 Standards focus on several key areas to improve the energy efficiency of new buildings and also include requirements that will enable demand reductions during critical peak periods. The most significant efficiency improvements to the residential Standards are proposed for windows and roof systems. A requirement for mechanical ventilation in new homes is also proposed. Efficiency improvements in insulation and lighting levels, as well as lighting and water heating controls, are proposed for the nonresidential Standards. The 2008 Standards also include expanded criteria for acceptance testing of mechanical and lighting systems.

Enabling new buildings to respond to electricity demand curtailments by reducing air conditioning loads at peak times is a new aspect of the 2008 Standards. Communication capabilities are proposed as requirements for all thermostats controlling unitary heating and air conditioning systems. These programmable, communicating thermostats (PCTs) are required to accept both a price and an emergency signal for demand response, and must respond by increasing the setpoint temperature for the cooling system. For nonresidential buildings with energy management systems (EMS), a new requirement is proposed to ensure that the EMS is capable of issuing a global setpoint adjustment. This will enable automatic demand response in new large commercial buildings.

As part of SB1 implementation, the Energy Commission has established the New Solar Homes Partnership (NSHP) program for renewable energy incentives in the residential sector. In NSHP, new residential buildings must achieve energy efficiency levels substantially greater than the requirements of the Standards. The builder can choose to comply with either of two tiers of energy efficiency measures:

- 1) Tier I – 15 percent reduction in the residential building's combined space heating, cooling, and water heating energy compared to the current Standards;
- 2) Tier II – 35 percent reduction in the residential building's combined space heating, cooling, and water heating energy and 40 percent in the residential building's space cooling energy compared to the current Standards.

Compliance with these NSHP energy efficiency requirements require the use of a certified Title 24 Alternative Calculation Method software program and verification from a California certified Home Energy Rater. The 2008 Standards provide a separate compliance option for buildings that participate in the NSHP.

CHANGES TO THE ALTERNATIVE CALCULATION METHOD APPROVAL MANUALS

The Residential and Non-residential Alternative Calculation Method Approval (ACM) Manuals are adopted by regulation to support the Standards in Part 6. The ACM Manuals contain detailed requirements that developers of computer software must meet for the Energy Commission to approve their software for showing compliance with the Standards. They also contain detailed information regarding compliance options, including specific calculation algorithms that have been approved for assessing the compliance credit or penalty due to installation of the compliance option.

The ACMs include information from the appendices that detail building material characteristics data, weather data, and other information necessary for completing calculations for showing compliance with the Standards. The ACM Manuals will be extensively revised to improve their clarity and organization and incorporate new efficiency measures initially introduced through compliance options, and improve the data needed for Standards calculations. The ACMs will also be revised to include more accurate modeling assumptions for attics, slab perimeter losses and water heating systems.

Residential Alternative Calculation Methods Approval Manual

Approved compliance software will be required to produce a revised Certificate of Compliance form (CF-1R). In addition, updated procedures and values for implementing Time Dependent Valuation (TDV) will be incorporated. A number of modeling algorithm and assumptions changes will be made, including new modeling rules for attics, slab perimeter losses, and water heating distribution systems. The modeling and compliance procedures for air conditioner refrigerant charge and air flow will be revised to match recent research findings on the energy consequences of these measures and to update air flow diagnostic testing protocols.

New compliance options will be established for evaporative cooling, evaporatively cooled condensers, and distributed ice energy storage systems. New procedures will be required and new accuracy tests will be established for computer compliance software to match changes in the Standards, modeling algorithms, assumptions, and rules.

Nonresidential Alternative Calculation Methods Approval Manual

The Nonresidential ACM Manual will be substantially re-written and reorganized to improve clarity and accuracy. Procedures for implementing Time Dependent Valuation will be updated. All U-factors for building envelope assemblies will be required to be determined using extensive look-up tables in Joint Appendix IV. U-factors for unique assemblies that diverge from the table values will be required to be approved by the Energy Commission. In addition, compliance rules which reference the prescriptive package requirements to generate the energy budget will be updated.

New compliance options will be established for distributed ice energy storage systems and thermal energy storage. New procedures will be required and new accuracy tests will be established for computer compliance software to match changes in the Standards, modeling algorithms, assumptions, and rules.

Section 2.3.6 of the Nonresidential ACM Manual has been amended to incorporate a more accurate method of calculating the heat flows through portions of the building envelope that are in direct contact with soil, such as slab floors on grade, basement walls and basement floors.

Reference Appendices

In 2005, the Energy Commission adopted the Joint Appendices which were used as a common reference for all Standards documents. For the 2008 Standards, this document has been reorganized into three sections under the general heading of Reference Appendices. The three sections are the Joint Appendices, Residential Appendices, and the Nonresidential Appendices. The 2005 Residential and Nonresidential ACM Manuals included many appendices that were not indented for software certification; these appendices have now been transferred to the new Reference Appendices.

COMPARABLE FEDERAL STATUTES OR REGULATIONS

There are no federal building energy efficiency standards applicable to nonfederal buildings. The California Building Energy Efficiency Standards do, however, reference federal energy efficiency standards for particular appliances.

POLICY STATEMENT OVERVIEW

In the last decade the State of California experienced energy crises resulting in rolling blackouts, sharply rising utility prices and an economic floundering of California's utilities and many industries that were heavily reliant on energy. Concern for maintaining a reliable supply of energy is still paramount, in ensuring California's citizens and businesses an affordable supply of energy that guarantees economic strength and health. In retrospect the changes made to the 2001 and 2005 building standards which were focused on demand reduction, contributed to California's success in reducing the repetition of the circumstances that created these crises.

California continues to place a high priority on energy policy by continued efforts to update the Building Energy Efficiency Standards in the 2008 and subsequent update cycles. The key elements of legislative action, through Senate Bill 1, which defined a goal for California to implement, and Assembly Bill 32, as well as public concern, which defined the incentive to these aggressive goals for the building standards, are discussed below.

As a result of these two legislations a number of derivative actions took place including:

The California's Energy Action Plan is developed jointly by the California Public Utilities Commission and the California Energy Commission with active participation from other state agencies with energy-related responsibilities. The Energy Action Plan establishes energy efficiency as the resource of first choice for meeting California's energy needs (i.e., energy efficiency is at the "top of the loading order"). On September 21, 2005 the Energy Commissions adopted Energy Action Plan II. Among other directives, Energy Action Plan II directs the Energy Commission to adopt new building standards for implementation in 2008 that include new energy efficiency measures, cost effective demand response technologies (such as programmable communicating thermostats) and the integration of photovoltaic systems. The Energy Action Plan II can be viewed at www.energy.ca.gov/energy_action_plan/.

The Integrated Energy Policy Report is the Energy Commission's biennial report to the Legislature that assesses California's major energy trends and issues and makes policy recommendations to conserve resources, protect the environment, ensure reliable, secure and diverse energy supplies, enhance the state's economy, and protect public health and safety. In September the Energy Commission released the

Committee draft 2005 Integrated Energy Policy Report (IEPR). The 2005 IEPR concludes that California could face severe shortages of electricity in the next few years as the state's demand intensifies, and the high demand for natural gas is likely to continue to cause high prices for natural gas. The 2005 IEPR places top priority on energy efficiency to combat both electricity and natural gas problems. The IEPR finds that Standards are the most cost effective means to achieve energy efficiency, and expects the Building Energy Efficiency Standards to continue to be upgraded over time to reduce electricity and peak demand and recognizes the role of the Standards in reducing energy related to meeting California's water needs and in reducing greenhouse gas emissions. The Committee Draft 2005 Integrated Energy Policy Report is available at www.energy.ca.gov/2005_energypolicy/documents/index.html#draftreports.

Governor Arnold Schwarzenegger joined the governors of Washington and Oregon to approve the West Coast Governors' Global Warming Initiative. The Initiative commits to a series of tri-state collaborative actions including adding aggressive energy efficiency measures into updates of state building codes, with a goal of achieving at least 15 percent additional savings by 2015 in each state. Information about the West Coast Governors' Global Warming Initiative can be found at www.climatechange.ca.gov/westcoast/.

Governor Schwarzenegger issued Executive Order S-20-04, the Green Building Initiative, which lays out a comprehensive set of actions for California to improve the energy efficiency of nonresidential buildings. The Energy Commission is directed to undertake all actions within its authority to increase the efficiency requirements in the Building Energy Efficiency Standards for nonresidential buildings by 20 percent by 2015. More information about the Green Building Initiative can be found at www.energy.ca.gov/greenbuilding.

Governor Schwarzenegger issued Executive Order S-3-05, the Climate Action Initiative, which establishes California as a world leader by setting greenhouse gas emissions reduction goals. The ambitious goals are to reduce California's greenhouse gas emissions to 2000 levels by 2010, 1990 levels by 2020, and to reduce 1990 levels by 80 percent by 2050. Increased requirements in the Building Energy Efficiency Standards are identified as an explicit strategy in a portfolio of actions that will be necessary to meet these goals. More information about the Climate Action Initiative can be found at www.climatechange.ca.gov/.

The Standards proceeding continue to pursue the major objectives of the Energy Commission, including the adaptation of the Standards to emphasize energy efficiency measures that save energy at peak periods and seasons, encouragement of improvements in the quality of installation of energy efficiency measures, and adoption of requirements based on the findings of recent publicly funded building science research. The proceeding also represents collaboration with the California utilities to coordinate upgraded building standards with publicly funded market incentive programs, regarding technologies that have been demonstrated through those programs to be appropriate for incorporation into Standards.

OTHER MATTERS PRESCRIBED BY STATUTE APPLICABLE TO THE AGENCY OR TO ANY SPECIFIC REGULATION OR CLASS OF REGULATIONS

The foundation law governing adoption and implementation of the California Building Energy Efficiency Standards (California Energy Code), Public Resources Code 25402 and 25402.1, provides specific direction to the Energy Commission, as the adoption authority, regarding the scope of the Standards, their required approaches, and the criteria for their adoption. The Standards must be adopted and periodically updated as determined appropriate by the Energy Commission.

The Standards must contain both prescriptive and performance standards. The Standards must be supported by energy calculation computer programs and other methods that are consistent with the programs used for developing the Standards. The Standards must be cost effective when taken in their entirety and when amortized over the economic life of the structure when compared with historic practice.

MANDATE ON LOCAL AGENCIES OR SCHOOL DISTRICTS

The Energy Commission has determined that the proposed regulatory action **would not** impose a new mandate on local agencies. The statute obligates local building departments to serve as enforcement agencies for the Standards. The Standards contain energy efficiency requirements for schools. Enforcement of the Standards for public school buildings is required by Title 24, Part I administrative

ASSESSMENT OF EFFECT OF REGULATIONS UPON JOBS AND BUSINESS EXPANSION, ELIMINATION OR CREATION

The Energy Commission has assessed whether or not and to what extent this proposal will affect the following:

The creation or elimination of jobs within the State of California.

It is possible that new jobs may be created due to adoption of the Standards, including approval of new compliance options, and may result from reduced operating costs due to energy bill savings.

The creation of new businesses or the elimination of existing businesses within the State of California.

It is possible that new businesses will be created to provide field verification and other contractor services and to supply energy efficiency products.

The expansion of businesses currently doing business with the State of California.

It is likely that businesses currently doing business in California to provide compliance related services and products will be expanded.

INITIAL DETERMINATION OF SIGNIFICANT EFFECT ON HOUSING COSTS

The Energy Commission has made an initial determination that this proposal **would not** have a significant effect on housing costs. Homeowners and occupants will be the beneficiaries of energy bill savings substantially in excess of compliance costs, making housing more affordable.

CONSIDERATION OF ALTERNATIVES

The Energy Commission has determined that no reasonable alternative considered by the state agency or that has otherwise been identified and brought to the attention of the Energy Commission would be more effective in carrying out the purpose for which the action is proposed or would be as effective and less burdensome to affected private persons than the proposed action.

AVAILABILITY OF RULEMAKING DOCUMENTS

All of the information upon which the proposed regulations are based is contained in the rulemaking file, which is available for public review at the Energy Commission's Dockets Office, by contacting the persons named below, or on this website:

www.energy.ca.gov/title24/2008standards/rulemaking/

Interested parties may obtain a copy of the Final Statement of Reasons once it has been prepared by making a written request to the contact persons named below or through this website.

ENERGY COMMISSION CONTACT PERSON FOR PROCEDURAL AND ADMINISTRATIVE QUESTIONS

General questions regarding procedural and administrative issues should be addressed to

Chris Gekas, Contract Manager
CALIFORNIA ENERGY COMMISSION
1516 Ninth Street, MS-25
Sacramento, CA 95814
(916) 654-8435

Email: cgekas@energy.state.ca.us

**CONTACT PERSON FOR SUBSTANTIVE AND/OR TECHNICAL QUESTIONS ON THE PROPOSED
CHANGES TO BUILDING STANDARDS**

Specific questions regarding the substantive and/or technical aspects of the proposed changes to the building standards should be addressed to:

Mazi Shirakh
CALIFORNIA ENERGY COMMISSION
1516 Ninth Street, MS-25
Sacramento, CA 95814
(916) 654-3839
Email: mshirakh@energy.state.ca.us

If Mr. Shirakh is not available, contact:

Rob Hudler
CALIFORNIA ENERGY COMMISSION
1516 Ninth Street, MS-25
Sacramento, CA 95814
(916) 654-4072
Email: rhudler@energy.state.ca.us

PUBLIC PARTICIPATION

For assistance in participating in the rulemaking proceeding, please contact the Energy Commission's Public Adviser's Office, at (916) 654-4489, toll free (800) 822-6228, or by email at pao@energy.state.ca.us.

If you have a disability and require special accommodations, please contact Lou Quiroz at (916) 654-5146 (five days prior to the public hearing).

FINAL STATEMENT OF REASONS

If the proposed amendments are adopted, the Energy Commission will prepare a Final Statement of Reasons. This document will update the Initial Statement of Reasons and respond to public comments. This document can be obtained after the conclusion of the rulemaking by contacting Chris Gekas at (916) 654-8435 or by email at cgekas@energy.state.ca.us.

WEBSITE INFORMATION

The Initial Statement of Reasons, Express Terms, this Notice, and any 15-day language issued subsequently can be accessed at the Energy Commission's website at:

www.energy.ca.gov/title24/2008standards/rulemaking/

Mail Lists: 50, 52, 53, and 480

Mailing Date: November 16, 2007