

**NINE-POINT CRITERIA ANALYSIS
OF
PROPOSED BUILDING STANDARDS
OF THE
CALIFORNIA ENERGY COMMISSION**

**REGARDING THE BUILDING ENERGY EFFICIENCY STANDARDS
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PARTS 1, 6 and 11**

Building standards submitted to the California Building Standards Commission (CBSC) for approval are required, by Health and Safety Code section 18930, subd. (a), to be accompanied by an analysis which will, to the satisfaction of the CBSC, justify their approval. The Energy Commission's proposed update to the Building Energy Efficiency Standards is justified as follows:

1) The proposed building standards do not conflict with, overlap, or duplicate other building standards.

There are no other standards, including federal standards, which conflict with, duplicate, or overlap the proposed revisions to the California Energy Commission's Building Energy Efficiency Standards (other than those existing standards which are being amended by the Energy Commission). Additionally, no federal regulations exist that prescribe building standards for non-federal buildings.

2) The proposed building standards are within the parameters established by enabling legislation, and are not expressly within the exclusive jurisdiction of another agency.

The Energy Commission has determined that the proposed building standards are within the parameters established by enabling legislation, and are not expressly within the exclusive jurisdiction of another agency. The California Energy Commission has statutory authority under Public Resources Code sections 25213, 25402, 25402.1, 25402.4, 25402.5, 25402.8 and 25910 to promulgate and update energy efficiency standards for residential and nonresidential buildings, including newly constructed buildings, and additions and alterations to existing buildings. The California Energy Commission is the only state agency with this authority.

Further direction has been established within the 2011 Integrated Energy Policy Report, California's Clean Energy Futures Initiative (2010), Governor Brown's Clean Energy Jobs Plan (2010), the California Long-Term Energy Efficiency Strategic Plan (2008), California's Energy Action Plan 2008 Update, and Assembly Bill (AB) 32, the Global Warming Solutions Act (Núñez, Statutes of 2006, Chapter 488).

3) The public interest requires the adoption of the building standards.

The Energy Commission has determined that the public interest, as established by the Legislature and policies of the Executive Branch, requires the adoption of the Building Energy Efficiency Standards. The Warren-Alquist Act was passed in 1975 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, and have been updated periodically since then as directed by statute.

The California economy, and indeed the well-being of all California's citizens, depends on an adequate, reasonably-priced, and environmentally-sound supply of energy. Pub. Resources Code, § 25001.) Growth in electricity demand has strained the reliability of California's electricity system and has in some circumstances contributed to a substantial rise in electricity prices. (See Pub. Resources Code, §§ 25002.) Similarly, natural gas supplies are becoming tighter.

Improvements in energy efficiency are among if not the cheapest and most environmentally-friendly methods to help bring demand and supply into balance. Thus existing law (Public Resources Code §§ 25213, 25402, 25402.1, 25402.4, 25402.5, 25402.8, and 25910) requires the Energy Commission to adopt standards that prescribe minimum efficiency levels for buildings and outdoor lighting. The standards setting the minimum efficiency levels must be feasible and cost-effective. Past rulemakings have described the feasibility and cost-effectiveness of each of the efficiency standards adopted by the Energy Commission, and this revision proposes feasible and cost effective amendments to the current 2010 Building Energy Efficiency Standards.

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, Chapter 1067) 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. SBX1 5 (Statutes of 2001, Chapter 7) 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 (, 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. Improving the energy efficiency of existing residential and commercial buildings is the single most important activity to reduce greenhouse gas emissions in the electricity and natural gas sectors. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards is a key recommendation of the adopted AB 32 Scoping Plan.

SB 1 (Murray, Statutes of 2006, Chapter 132,) 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.

As a result of AB 32 and SB 1, 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 Commission adopted Energy Action Plan 2008 Update. Among other directives, this plan directs the Energy Commission to adopt new, more stringent building standards to implement all cost-effective design and construction strategies to improve the efficiency of California's buildings.

The California Long-Term Energy Efficiency Strategic Plan (2008) published by the California Public Utilities Commission identifies the importance of the Building Energy Efficiency Standards in reaching the State's policy goal of zero net energy homes by 2020 and zero net energy buildings by 2030. This 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 cycle the Reach Standards establish a "market pull strategy" to encourage the industry to anticipate that additional standards improvements will be coming in the following cycle, and for a substantial portion of newly constructed buildings to be built to meet higher levels of efficiency than just what the mandatory standards require. This is accomplished by collaboration with the CPUC and the utility new construction programs to provide incentives to builders who build to the Reach Standards. It also is achieved by incorporation of the Reach Standards as voluntary in the State's California Green Building Standards Code (Title 24, Part 11) and by other governmental agencies incorporating the Reach Standards in their regulations and programs.

The California Clean Energy Futures Initiative (2010) is a collaborative effort of the State energy and environmental agencies and the California Independent System Operator (California ISO) to advance carbon-cutting innovation and green job creation. It points the way toward new investments in energy efficiency, transmission, smart grid applications, and increased use of renewable resources.

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 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 and timeline 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 Integrated Energy Policy Report (IEPR) 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 December 2011 the Energy Commission released the proposed 2011 IEPR.¹ The IEPR includes an energy efficiency chapter that emphasizes the zero net energy policy goals for the state's residential and nonresidential buildings, which articulates how the Building Energy Efficiency Standards, including the voluntary standards in Title 24, Part 11, will be updated periodically to attain the aggressive levels of energy efficiency required to make zero net energy buildings cost-effective for consumers.

4) The proposed building standards are not unreasonable, arbitrary, unfair, or capricious, in whole or in part.

The Energy Commission has determined that the proposed building standards are not unreasonable, arbitrary, unfair or capricious, in whole or in part. The proposed 45-Day Language for the Building Energy Efficiency Standards respond to the mandates of the Warren-Alquist Act of 1974, SB 5X, AB32, SB1, California's Energy Action Plan 2008 Update, the California Energy Efficiency Long-Term Strategic Plan, the 2011 Integrated Energy Policy Report, the California's Clean Energy Futures Initiative, and Governor Brown's Clean Energy Jobs Plan. As required by statute, Standards requirements must first

¹ The 2011 IEPR is on the Energy Commission Business Meeting Agenda for February 8, 2012, for possible adoption.

be found cost-effective when amortized over the life of the building. The Energy Commission and its contractors prepared extensive cost-effectiveness analyses on every measure incorporated into the proposed Standards, and conducted public workshops and hearings to receive feedback thereon and on proposed revisions. Over the course of the pre-rulemaking activities to develop proposed changes to the Standards, 15 full day public meetings were held to obtain public comment on potential Standards revisions. The Commission received extensive public comments at those workshops and also received written comments submitted to Docket Number 10-BSTD-1, the administrative record for the pre-rulemaking.

5) The cost to the public is reasonable, based on the overall benefit to be derived from the building standards.

The Energy Commission has determined that the cost to the public is reasonable, based on the overall benefit to be derived from the building standards adopted. The Standards are relatively unique among all the regulations that government can adopt in that they pay for themselves many fold through reduced energy bills, increase the disposable income of homeowners, reduce operating costs, and increase the profitability of businesses that own and occupy buildings built to the Standards.

The Commission made an economic assessment on business during the pre-rulemaking proceeding based on the extensive evaluation and documentation of measure costs and energy bill savings, and the lengthy series of workshops held to review draft proposals and obtain public comment from interested persons.

The Statement of Economic and Fiscal Impacts (“Form 399”) estimated statewide costs and energy savings over the lifetime of this revision of the Standards, as shown in Table 1.

Table 1. Summary of Statewide Costs and Energy Bill Savings

Sector	Statewide Measure Costs	Statewide Energy Bill Savings	Statewide Net Savings
Residential	\$132.46 Million	\$319.77 Million	\$187.31 Million
Nonresidential	\$1.08 Billion	\$1.37 Billion	\$285.29 Million
Total	\$1.21 Billion	\$1.68 Billion	\$472.60 Million

The Standards revisions will require cost effective energy efficiency measures for nonresidential buildings other than institutional occupancies. Some of the requirements will not increase costs relative to current good practice. However, often the requirements will result in an incremental increase in construction costs. The Standards revisions will result in important reductions in energy bills over the economic life of the structures. These savings will be substantially greater than the incremental increase in costs due to the requirements. The homeowners and building owners who are the beneficiaries of these cost reductions will receive increased business profits due to reductions in operating costs. Businesses that

provide energy efficiency products and services associated with the Standards requirements will have expanded business opportunities. As a result, there is the potential for creation of new jobs and an increase in California business competitiveness.

6) The proposed building standards are not unnecessarily ambiguous or vague, in whole or in part.

One of the major objectives of this Standards update is to improve the clarity of the language. Many of the sections of the Standards and supporting documents have been substantially rewritten and reorganized for clarity and accuracy. Energy Commission staff have been working with the California Building Officials (CalBO) and the California Building Energy Consultants (CABEC) organizations, among others, to identify, discuss and edit the Title 24, Parts 1, 6 and 11 code language to improve clarity and increase simplicity. The result will be energy efficiency requirements in the California Building Code that are readily understood and consistently enforced.

7) The applicable national specifications, published standards, and model codes have been incorporated therein as provided in this part, where appropriate.

Title 24, Parts 1 and 6, incorporate by reference or, where it is clearer to do so, incorporate specific requirements from many national consensus codes and standards, including the:

- California Mechanical Code (UMC),
- California Building Code,
- California Electrical Code,

and test procedures and standards published by the:

- Air-conditioning and Refrigeration Institute (ARI),
- Air Conditioning Contractors of America (ACCA),
- American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE), American National Standards Institute (ANSI),
- American Society of Testing of Materials (ASTM),
- Association of Home Appliance Manufacturers (AHAM),
- Cooling Tower Institute (CTI),
- Cool Roof Rating Council (CRRC),
- Hydronics Institute,
- Illuminating Engineering Society of North America,
- International Organization for Standardization (ISO),
- National Fenestration Rating Council (NRFC),
- Sheet Metal and Air Conditioning Contractors National Association, and
- Underwriters Laboratories Inc. (UL).

These have been cited and referenced as appropriate.

8) The format of the proposed building standards is consistent with that adopted by the Commission.

The format of the Express Terms developed for these regulations follows that prescribed by the California Building Standards Commission and conforms to Government Code section 11346.2, subd. (a).

9) The proposed building standards, if they promote fire and panic safety as determined by the State Fire Marshal, have the written approval of the State Fire Marshal.

The proposed revisions to the Standards have been discussed in part with the State Fire Marshal. The entirety of the 45-Day Language has been delivered to the State Fire Marshal for review during the 45-Day Language comment period.