

CALIFORNIA ENERGY COMMISSION 1516 Ninth Street Sacramento, California 95814

Main website: www.energy.ca.gov



INITIAL STATEMENT OF REASONS

**FOR
PROPOSED BUILDING STANDARDS
OF THE
CALIFORNIA ENERGY COMMISSION**

**REGARDING THE CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 11
(2019 CALIFORNIA GREEN BUILDING STANDARDS CODE)**

DOCKET NUMBER 17-BSTD-03

(The State agency shall draft the regulations in plain, straightforward language, avoiding technical terms as much as possible and using a coherent and easily readable style. The agency shall draft the regulation in plain English. A notation shall follow the express terms of each regulation listing the specific statutes authorizing the adoption and listing specific statutes being implemented, interpreted, or made specific. (PART 1 – ADMINISTRATIVE CODE)

LEGEND FOR EXPRESS TERMS

1. New amendments: All such language appears underlined.
2. Repealed text: All such language appears in ~~strikeout~~.

Table of Contents

<i>I. INTRODUCTION</i>	<i>3</i>
A. A Brief History of the Energy Commission's Building Standards	3
B. How the Standards Work.....	4
C. Summary of the Changes Proposed in This Rulemaking Proceeding	5
<i>II. THE SPECIFIC PURPOSE OF EACH REGULATION, THE PROBLEM IT ADDRESSES, AND WHY IT IS REASONABLY NECESSARY</i>	<i>5</i>
A. The General Purpose, Rationale, and Necessity of the Proposed Amendments and the General Benefits the Energy Commission Anticipates From the Regulatory Action, Including the Benefits or Goals Provided In the Authorizing Statute	6
B. The Specific Purpose, Rationale, and Necessity of Each Section of the Proposed Amendments	7
<i>III. INCLUSION OF THE ECONOMIC IMPACT ASSESSMENT.....</i>	<i>9</i>
<i>IV. TECHNICAL, THEORETICAL, AND EMPIRICAL STUDIES, REPORTS, AND OTHER DOCUMENTS RELIED UPON</i>	<i>10</i>
<i>V. CONSIDERATION OF REASONABLE ALTERNATIVES, INCLUDING THOSE THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS</i>	<i>11</i>
<i>VI. FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS</i>	<i>13</i>
<i>VII. DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS.....</i>	<i>13</i>

I. INTRODUCTION

This Initial Statement of Reasons (“ISOR”) describes the purposes, rationales, and necessity of the California Energy Commission’s proposed amendments to its energy efficiency standards for buildings, which would go into effect on January 1, 2020, if adopted by the Energy Commission and approved by the California Building Standards Commission.¹ These standards are in the California Code of Regulations, Title 24, Part 11 (and are also known as the CALGreen), Appendices A4 & A5. This ISOR fulfills the requirements of California’s Administrative Procedure Act (see Government Code section 11340 et seq.).

The Energy Commission welcomes comments on the ISOR and on the proposed building standards that the ISOR describes. Please see the accompanying Notice of Proposed Action (“NOPA”), also dated January 19, 2018, for instructions on how to submit comments electronically, on paper, and orally at Energy Commission hearings.

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

In 1975 the Department of Housing and Community Development adopted the state’s first energy conservation standards for buildings, under the State Housing Law authority, which required basic levels of insulation. Also in that year the Energy Commission began operations, under the Warren-Alquist Act (Public Resources Code section 25000 et seq.). That Act gives specific directives 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. (Public Resources Code sections 25402(a)-(b), 25402.1, - 25402.8.) The most important requirement is that the standards save building owners more money in reduced bills for electricity and natural gas than any additional construction costs that the standards impose. The building standards must also meet the requirements of the Administrative Procedure Act (e.g., that they carry out the purpose of the enabling statute, that they are clear, and that they have been adopted in an open public process in which alternatives are thoroughly considered) and the California Environmental Quality Act (“CEQA”, Public Resources Code section 21000 et seq.), which requires that state agency actions not cause undue environmental harm. These requirements help ensure that the standards promote the State’s goal to have a reliable, economic, and environmentally-sound energy supply (see, e.g., Public Resources Code sections 25001, 25300(a)-(b)).

In 1976 the Commission adopted its first building 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.

¹ The ISOR refers to the proposed voluntary standards in various ways, e.g., “2016 CALGreen energy provisions,” “proposed standards,” and “2016 Standards”; in addition, it uses “amendments” or “proposed regulations” as a shorthand reference for new provisions, revisions to existing provisions, and deletions of existing provisions, in Parts 11 of Title 24 of the California Code of Regulations.

The California Green Building Standards (CALGreen) program is, in many ways, a direct outgrowth of these successful mandatory minimum building efficiency standards. Development of CALGreen began in 2007 when the California Building Standards Commission (CBSC) directed its staff to develop green building standards for new construction of buildings within its authority and to submit those regulations during the 2007 annual code adoption cycle. CBSC also requested and encouraged its collaborating agencies, including the Energy Commission, to develop green building standards for their respective areas of authority within the Building Code. This initial effort was successful, resulting in adoption of the 2008 California Green Building Standards Code. Effective August 1, 2009, the 2008 California Green Building Standards Code regulations were primarily voluntary building standards, paired with mandatory provisions that were, in part, required in other building standards codes.

The Energy Commission's building energy efficiency standards are contained in two parts of Title 24 of the California Code of Regulations. Administrative regulations, such as how the standards' requirements are integrated with local governments' building permit processes, are in Part 1, Chapter 10, of Title 24, and the substantive requirements for building construction are in Part 6 of Title 24. In addition, voluntary, or "reach" guidelines for sustainable building practices that are more protective of the environment than the minimum standards are in Part 11 of Title 24, (CALGreen). The Energy Commission is responsible for the Energy Chapters (separate chapters are published for residential and nonresidential buildings) of the California Green Building Standards. This document will only concern the proposed changes to regulations in Title 24, Part 11. A separate, parallel rulemaking addresses proposed changes to Parts 1 and 6 of Title 24.

B. How the Standards Work

The standards are divided into several sections, some of which apply to all buildings and all types of construction, and some of which apply only to specified subsets. The first division in the standards is between administrative regulations in Part 1, Chapter 10, of Title 24, and substantive regulations in Part 6 of Title 24. The former describe procedural requirements, such as what information must be on building permit applications; the latter describe how buildings must be constructed. In addition, there are voluntary, or "reach," Green Building Standards in Part 11, which are the subject of this Rulemaking.

The Green Building Standards in Part 11 of Title 24 are composed of several chapters, some of which apply to all buildings and all types of construction, while others apply to specified subsets. Part 11 is further divided into mandatory measures that must be met by a qualifying building and voluntary or "reach" measures that are not mandatory unless adopted by a local jurisdiction. The Energy Commission is responsible for adopting both mandatory and voluntary energy provisions in Part 11 of Title 24 with other state agencies being responsible for approving and adopting the other portions of Part 11.

The Energy Commission is responsible for adopting the energy provisions found in the following sections of Part 11:

Chapter 4, Division 4.2, Section 4.201 states that the Energy Commission will adopt mandatory standards for residential green buildings through its adoption of Part 6 of Title 24.

Chapter 5, Division 5.2, Section 5.201 states that the Energy Commission will adopt mandatory standards for nonresidential green buildings through its adoption of Part 6 of Title 24

Appendix A4, Division A4.2 describes the voluntary energy provisions for residential buildings that may only become mandatory when adopted by a local jurisdiction.

Appendix A5, Division A5.2 describes the voluntary energy provisions for nonresidential buildings that may only become mandatory when adopted by a local jurisdiction.

The amendments proposed as a part of this rulemaking are solely to the voluntary provisions in Appendices 4 and 5.

C. Summary of the Changes Proposed in This Rulemaking Proceeding

The following summary of the proposed changes is duplicated from the Notice of Proposed Action:

Overview

The changes proposed in this Rulemaking are updates to the voluntary energy efficiency provisions of the California Green Building Standards. These voluntary guidelines, contained in Title 24, Part 11 of the California Code of Regulations, go beyond the mandatory standards in Part 6. They were developed and adopted in response to policy directives from the Governor. (See CALGreen, The 2010 California Green Building Standards Code Are you ready?, pp. 2-3, available at: <http://www.documents.dgs.ca.gov/bsc/CALGreen/The-CALGreen-Story.pdf>).

In addition to updating the voluntary provisions in Title 24 Part 11 (CALGreen), the Energy Commission is also proposing updates to the mandatory energy efficiency provisions in Title 24, Parts 1 and 6, in a separate, parallel rulemaking.

Residential

The structure of the Residential Section is reverting to the two tier approach used in the rest of CALGreen and continues to require an Energy Design Rating (EDR). The EDR has been further refined in the proposed Express Terms for Part 6 to include a minimum efficiency only portion (Efficiency EDR) as well as the previous comprehensive EDR (Total EDR) which includes additional energy efficiency (Efficiency EDR) coupled with on-site renewable electricity generation to meet a specific threshold of expected electricity use. The same definitions and metrics for Efficiency and Total EDR's are used in the proposed language for Part 11 when setting the Tier 1 performance targets and defining the Tier 2 target as having a Total EDR of less than or equal to 6.

Furthermore, the set of prerequisites has been expanded for the residential "Reach Standards", to include efficiency measures that should be considered in any project striving to meet advanced levels of energy efficiency. Quality Insulation Installation remains mandatory while only one of the new prerequisites (Roof deck insulation, or ducts in conditioned space, High Performance Walls, HERS-Verified Compact Hot Water Distribution System with HERS-Verified Drain Water Heat Recovery) is required. All prerequisites applied to a given project result in credit towards the performance goal EDR targets of Tier 1 and Tier 2.

The performance approach for additions section has been removed.

Nonresidential

The proposed changes to the nonresidential sections of CALGreen are restricted to the addition and expansion of prerequisites. Outdoor lighting now includes a color temperature upper limit and Warehouse Dock Seal Doors, Daylight Redirecting Devices, Exhaust Air Heat Recovery, and Triple Bottom Line Analysis have been added. Only one of these prerequisites is required to qualify for Tier 1 while two are required to qualify for Tier 2. All prerequisites applied to a given project result in credit towards the performance targets of tier 1 and tier 2.

Cleanup and Alignment

The proposed changes to the voluntary Standards (CALGreen Part 11) also include changes throughout the regulations to clarify, simplify, and streamline the existing language and requirements, as well as to align with the proposed changes to the mandatory Standards (Part 6).

Specific Benefits Anticipated from the proposed voluntary Standards

The proposed standards will help residential buildings to reach California's zero net energy goals and assist local jurisdictions considering zero net energy related ordinances by providing a clear and specific definition of a zero net energy design building. In addition, clearer phrasing and presentation of the CALGreen regulatory language will aid its effectiveness and implementation.

As these updates to CALGreen concern the voluntary provisions, there is no direct monetary benefit that can be attributed to the regulations. Instead, CALGreen results in indirect benefits and cost savings by acting as a model for local energy efficiency ordinances.

II. THE SPECIFIC PURPOSE OF EACH REGULATION, THE PROBLEM IT ADDRESSES, AND WHY IT IS REASONABLY NECESSARY

Pursuant to the requirements of Government Code section 11346.2(b)(1), this section of the ISOR contains a statement of the specific purpose of each adoption, amendment, or repeal, the problem the agency intends to address, and the rationale for the determination by the agency that each adoption, amendment, or repeal is reasonably necessary to carry out the purpose and address the problem for which it is proposed.

A. The General Purpose, Rationale, and Necessity of the Proposed Amendments and the General Benefits the Energy Commission Anticipates From the Regulatory Action, Including the Benefits or Goals Provided In the Authorizing Statute

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 further 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, if not, the cheapest and most environmentally-friendly methods to address the problem of balancing the state's electricity demand and supply.

Thus, existing law (e.g., Public Resources Code Sections 25213, 25402, 25402.1, 25402.4, 25402.5, 25402.8, and 25910) requires the Energy Commission to adopt these standards that prescribe minimum efficiency levels for buildings (as well as outdoor lighting and irrigation systems that are regarded as being “outside” of buildings). The benefits of these regulations may be enumerated as follows (see Gov. Code, § 11346.2, subd.(b)(1)):

- A reliable electrical system;
- Mitigation of wasteful, uneconomic, inefficient, and unnecessary uses of electricity;
- Reduction 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.

In addition to the enumerated benefits of adopting new cost effective efficiency provisions, the benefits of revising language to be clearer and more consistent are manifold. They include better public understanding of the regulations and participation in regulatory proceedings, more transparency in the application of the regulations by regulatory authorities, improved compliance with the regulations, and enhancing the effectiveness of education and outreach.

Generally, the regulatory changes described below are intended to carry out the benefits and achieve the goals described in this section, which apply to all of the proposed changes described in this document. Additionally, for specific benefits regarding energy cost savings of specific measures, please see Section III and the documents relied upon for this ISOR listed in Section IV Table 1.

B. The Specific Purpose, Rationale, and Necessity of Each Section of the Proposed Amendments

TITLE 24, PART 11 – CALIFORNIA GREEN BUILDING STANDARDS

APPENDIX A4

A4.202.1: The purpose is to add the Energy Design Rating, Energy Efficiency; Energy Design Rating, Solar Electric Generation And Demand Flexibility; And Energy Design Rating, Total definitions as defined in Chapter 2 of the Standards. This is necessary to maintain consistency between Title 24 Part 11 and Title 24 Part 6.

A4.203.1: The purpose of this change is to correctly reference the sections below that were renumbered due to changes described below. It is necessary to improve the code's compliance with the clarity and consistency criteria of California Government Code Section 11340 et seq. and Chapter 1, Article 2 of the California Code of Regulations.

A4.203.1.1: The purpose of this change is to remove the third zero net energy “Tier” since the ZNE designation will no longer be used; Tier 2 will be “near ZNE” with a Total EDR designation of 6 or below. With the additional energy efficiency improvements proposed in the mandatory Standards the difference between the proposed mandatory standards and Tier 2 (EDR of 6 or lower) will be adequately addressed by one intermediate step (Tier 1) rather than requiring two. This also permits a return to the two Tier approach used consistently throughout other voluntary portions of CALGreen. With the addition of prerequisite options, the previously existing prerequisites are called out as clearly remaining mandatory prerequisites that must be met to be eligible for Tier 1 or 2 based on prescribed EDR targets

A4.203.1.1.1: The purpose of this change is to establish the Total and Efficiency EDR's as the metrics for meeting Part 11 Tier 1 and Tier 2 in a manner similar to their usage for compliance in

Part 6. Since the EDR rating has been further refined to include the subset Energy Efficiency Design Rating as part of the Total EDR that must be met before addition of renewable generation this change is necessary to maintain consistency between Title 24 Part 11 and Title 24 Part 6.

A4.203.1.2: The purpose of the proposed regulation is to add new energy efficiency prerequisite requirements, as detailed in the subsections below, for eligibility before meeting Tier 1 and 2 EDR targets which can be reached with a mixture of efficiency and renewable generation. This change is consistent with the loading order and necessary to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy consistent with Public Resources Code §25402.

A4.203.1.2.1: Roof deck insulation, or ducts in conditioned space have become a prescriptive measure in Part 6, meaning that it is required for prescriptive compliance and assumed in the Standard Design building, but can be traded away in buildings complying based on their EDR. Adding this measure as a potential prerequisite is necessary to encourage adoption of this energy saving measure and the associated changes in common practice, even when buildings use a performance approach to compliance.

A4.203.1.2.2: High Performance Walls have become a prescriptive measure in Part 6, meaning that it is required for prescriptive compliance and assumed in the Standard Design building, but can be traded away in buildings complying based on their EDR. Adding this measure as a potential prerequisite is necessary to encourage adoption of this energy saving measure and the associated changes in common practice, even when buildings use a performance approach to compliance.

A4.203.1.2.3: HERS-Verified Compact Hot Water Distribution Systems and HERS-Verified Drain Water Heat Recovery are given performance credit in Part 6, but can be traded away in buildings complying based on their EDR. Adding this measure as a potential prerequisite is necessary to encourage adoption of this energy saving measure and the associated changes in common practice, even when buildings use a performance approach to compliance.

A4.203.1.3.1 and A4.203.1.3.2: The purpose of the proposed regulation is change the metric used to meet Tier 1 and 2 from a percent better than the mandatory standards target to a specific EDR target. Since these EDR targets can be reached with a mixture of efficiency and renewable generation the loading order is upheld by meeting the same minimum Efficiency EDR here in Part 11 as required in the mandatory Standards of Part 6, then meeting a more aggressive Total EDR than is required by Part 6. This change is necessary for consistency with changes to Part 6 to integrate on-site renewable energy generation, and to provide a framework for local jurisdictions wanting to include on-site renewables into their local green building codes.

A4.204: The purpose of this change is to strike the residential performance approach for additions section. This change is necessary because accurately modeling all possible existing buildings would be difficult, as would be fairly assigning a target EDR value given the vast variations in the existing building stock. Local jurisdictions may continue to adopt local ordinances that apply to their particular existing building stock; removal of this sections suggested framework does not preclude local approaches to increased energy efficiency in existing buildings.

APPENDIX A5

A5.203.1: The purpose of this change is to correctly reference the sections below that were renumbered due to changes described below. It is necessary to improve the code's compliance with the clarity and consistency criteria of California Government Code Section 11340 et seq. and Chapter 1, Article 2 of the California Code of Regulations.

A5.203.1.1: The purpose of the proposed regulation is to add new energy efficiency prerequisite

requirements, as detailed in the sections below, for eligibility before meeting Tier 1 and 2 percent better than targets which can be reached with a mixture of efficiency and renewable generation. To maintain the difference in stringency between Tier 1 and Tier 2, one prerequisite is specified for Tier 1 compliance and two are specified for Tier 2: note that meeting these prerequisites also improves EDR, which assists in meeting each Tier's EDR target. This change is consistent with the loading order and necessary to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy consistent with Public Resources Code §25402.

A5.203.1.1.1: The purpose of the proposed regulation is to restrict light frequencies in outdoor lighting applications that have been found to disturb biological systems diurnal patterns. This change is necessary to avoid an unintended consequence of adding the lighting power allowance restriction in some cases, such as when it is less expensive to manufacture higher color temperature lamps which have a higher potential to interrupt biological systems.

A5.203.1.1.3: The purpose of this change is to require exterior loading dock doors that are adjacent to conditioned or indirectly conditioned spaces to have dock seals or dock shelters installed, and to require verification of maximum air leakage rates pursuant to ASTM E783. This change is necessary to reduce a significant source of air leakage leading to wasteful, uneconomic, inefficient, and unnecessary consumption of energy..

A5.203.1.1.4: The purpose of this change is to require daylight redirecting devices to accompany indoor lighting systems with automatic daylighting controls. This change is necessary to reduce a significant source of energy consumption by more effectively using natural lighting pursuant to ASTM E2387, reducing the wasteful, uneconomic, inefficient, and unnecessary consumption of energy.

A5.203.1.1.5: The purpose of this change is to require exhaust air heat recovery according to ASHRAE 90.1 Section 6.5.6.1. to increase the energy recovery ratio and for sensible heat energy-only type devices pursuant to ASHRAE Standard 170, ASHRAE Standard 62.1, and AHRI 1060-2014 or 1061-2014, This change is necessary to reduce a significant source of energy consumption by recovering energy from exhaust air rather than expelling it into the environment, thereby reducing the wasteful, uneconomic, inefficient, and unnecessary consumption of energy.

A5.203.1.1.6: The purpose of the proposed regulation is to add new option for energy efficiency prerequisite requirements for eligibility before meeting Tier 1 and 2 percent better than targets which can be reached with a mixture of efficiency and renewable generation. A Triple Bottom Line Analysis recognizes the value of social, environmental, and financial benefits of well designed and constructed new buildings. Part 11, consisting of voluntary measures that a local jurisdiction may adopt, is an avenue to identify and document these benefits within the building code. This change is necessary to encourage use of comprehensive and holistic approaches to energy use, and aid in identifying causes of, and solutions to, the wasteful, uneconomic, inefficient, and unnecessary consumption of energy.

A5.211.1: The purpose of this change is to reference the applicable details found in another section of the Standards. It is necessary to improve the code's compliance with the clarity and consistency criteria of California Government Code Section 11340 et seq. and Chapter 1, Article 2 of the California Code of Regulations.

III. INCLUSION OF THE ECONOMIC IMPACT ASSESSMENT

Section 11346.2(b)(2)(A) states that, “[f]or a regulation that is not a major regulation, the [ISOR must include the] economic impact assessment required by subdivision (b) of Section 11346.3.”

Due to the complexity of the analysis, and to avoid duplication with section 11346.5, the Economic Impact Statement, or Form 399, is incorporated here by reference. This document is also included in Table 1 in Section IV, below, as a document relied upon.

IV. TECHNICAL, THEORETICAL, AND EMPIRICAL STUDIES, REPORTS, AND OTHER DOCUMENTS RELIED UPON

Pursuant to the requirements of Government Code section 11346.2(b)(3), this section of the ISOR contains “[a]n identification of each technical, theoretical, and empirical study, report, or similar document, if any, upon which the agency relies in proposing the adoption, amendment, or repeal of a regulation.” All of these documents have been filed in this proceeding and are available to the public unless subject to copyright or other restrictions on free dissemination. They are docketed under docket number 17-BSTD-01 and are available at <http://www.energy.ca.gov/title24/2019standards/prerulemaking/documents/>.

Table 1: Documents Relied Upon

Document Number or Reference	Report Title
399	Economic and Fiscal Impact Statement
2019-RES-ENV1-F	High Performance Walls
2019-RES-ENV2-F	High Performance Attic (HPA)
2019-RES-DHW1-F	Compact Hot Water Distribution
2019-RES-DHW2-F	Drain Water Heat Recovery
2019-NR-LIGHT1-F	Outdoor Lighting Power Allowances
2019-NR-MECH5-F	Dock Seals – Final Report
2019-NR-LIGHT5-F	Nonresidential Advanced Daylighting Design
2019-NR-ASHRAE90.1-F	Proposals Based on ASHRAE 90.1
California Energy Commission 1516 9 th Street Sacramento, CA 95814 www.energy.ca.gov	RA3.6.5, RA4.4.16, RA3.6.9, RA4.4.21 2019 Title 24, Part 6 Reference Appendices
American Society for Testing and Materials 100 Bar Harbor Drive West Conshohocken, Pennsylvania 19428-2959 (800) 262-1373 or	ASTM E783 2010 Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors ASTM E2387 2011 Standard Practice for Goniometric Optical Scatter Measurements

(610) 832-9585 https://www.astm.org/	
ASHRAE 1791 Tullie Circle N.E. Atlanta, Georgia 30329-2305 www.ashrae.org	ASHRAE 90.1 Section 6.5.6.1 2016 Energy Standard for Buildings Except Low-Rise Residential Buildings
	ASHRAE Standard 170 2017 Ventilation of Health Care Facilities
	ASHRAE Standard 62.1 2016 Ventilation for Acceptable Indoor Air Quality
Air-Conditioning and Refrigeration Institute 4301 North Fairfax Drive, Suite 425 Arlington, Virginia 22203 (703) 524-8800 http://www.ahrinet.org/	AHRI 1060-2014 or 1061-2014 2014 Air-to-Air Energy Recovery Ventilation Equipment
<i>Translational Psychiatry</i> (2017) 7, e1017; doi:10.1038/tp.2016.262; published online 31 January 2017 File: tp2016262a.pdf	Timing of light exposure affects mood and brain circuits

V. CONSIDERATION OF REASONABLE ALTERNATIVES, INCLUDING THOSE THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS

Pursuant to the requirements of Government Code section 11346.2(b)(4)(A), this section of the ISOR contains “[a] description of reasonable alternatives to the regulation and the agency’s reasons for rejecting those alternatives.” Government Code section 11346.2(b)(4)(B) also requires that the Energy Commission include a “description of reasonable alternatives to the regulation that would lessen any impact on small business and the [Energy Commission’s] reasons for rejecting them” in this section of the ISOR. Additionally, the Commission is “not required to artificially construct alternatives or describe unreasonable alternatives.” (Gov. Code, § 11346.2(b)(4)(C).)

During the initial, informal stage of the rulemaking process, the Commission conducted an extensive public process, considered many suggestions from stakeholders about (1) alternatives that could improve the feasibility of the Commission’s preliminary versions of the proposed regulations or could reduce their adverse impacts; (2) the technical and cost-effectiveness analyses of those preliminary proposals; and (3) the language in those proposals.

Many of the measures in the proposed Standards were developed by the Codes and Standards Enhancement (CASE) Program of California’s Investor-Owned Utilities, a statewide program that is funded with a surcharge on energy bills and that is dedicated to the advancement of California’s building and appliance energy efficiency standards. In 2013 and 2014 CASE representatives held numerous meetings with building industry stakeholders to vet potential code updates, identify industry concerns, and resolve issues. In the summer of 2017, the Energy Commission began a series of 9 pre-rulemaking public workshops for all interested parties to build upon and continue this process.

During the Commission’s pre-rulemaking workshops, which focused on the feasibility and cost effectiveness of potential revisions to the Standards, the Commission received a large number of

comments. Based on the comments the Commission developed Preliminary Draft Standards and held a comprehensive pre-rulemaking public workshop on October 4th and 5th to obtain public comment on those; in turn, many more comments were received and, in response to them, the Commission produced the proposed regulations that accompany this ISOR.

Thus in the pre-rulemaking process there has already been an extraordinarily detailed consideration of suggested alternatives, most of which have been incorporated into the proposed regulations in order to increase flexibility and reduce costs for the building industries. The following material summarizes the major suggestions and the Commission's responses, including changing the Preliminary Draft Standards to arrive at the language of the proposed regulations.

The Energy Commission considered the alternative of making all of the added prerequisites in the residential section mandatory prerequisites for the voluntary Tiers 1 and 2 since they offer additional improvements in energy efficiency rather than additional onsite generation. Doing so would have made the adoption of these voluntary Standards more difficult as it removes design flexibility from builders. The Energy Commission also considered the possibility of removing all prerequisites to the Tiers but decided that would not be supported by the current loading order which puts efficiency measures before the addition of renewables. The decision was therefore made to allow the flexibility of choosing only one of the additional efficiency prerequisites before meeting a prescribed Energy Efficiency Design Rating (EDR) target. Since a combination of efficiency and renewables are necessary to achieve California's zero net energy goals it does not make sense to completely separate renewables from efficiency, nor does it make sense to invert the loading order by ignoring efficiency in favor of renewables. This was achieved here by proposing the same metrics, the Total EDR and the included Efficiency EDR for the voluntary Standards here (Title 24 Part 11) as is proposed in the parallel Rulemaking for the mandatory Standards (Title 24 Part 6). The remaining efficiency prerequisite options still remain as helpful suggestions to a builder as to what measures may lead them to the required Total EDR targets for Tier 1 or Tier 2.

For the Nonresidential section the Energy Commission made a similar assessment of whether or not to make the additional efficiency prerequisites mandatory vs. giving builders the choice of a subset of them to allow for maximum design flexibility while still encouraging local jurisdictions to adopt these voluntary Standards.

Given the advancement of energy efficiency targets set in the proposed amendments to the mandatory residential 2019 Standards (Title 24 Part 6) the Energy Commission decided to revert back to the two tier system used in other portions of CALGreen for voluntary measures rather than the alternative of remaining with the 2019 three tier system; the difference between mandatory standards and full ZNE being adequately addressed by one intermediate step rather than requiring two. For this reason, the Energy Commission is pursuing the proposed language rather than these alternatives.

The Energy Commission considered updating the Performance Approach Section of Residential Additions to also include the EDR description but received feedback that this would be a difficult metric to model for all possible existing buildings and therefore opted to remove the section in its entirety. Local jurisdictions may continue to adopt local ordinances that apply to their particular existing building stock; removal of this sections suggested framework does not preclude local approaches to increased energy efficiency in existing buildings.

In addition to the above, the Energy Commission has received comments and other materials from stakeholders that were submitted after the close of the pre-rulemaking comment period and were not timely for review, consideration, and inclusion in either the Draft Express Terms or this Initial Statement of Reasons. The Energy Commission is committed to considering all proposed alternatives, and where consideration was not able to be given prior to the publication of this Initial Statement of Reasons due to late submittal by stakeholders the Energy Commission will

consider any alternatives presented in these late comments as a part of its consideration of public comments received during the 45-day public comment period.

This specification is part of the voluntary provisions in CALGreen and thus does not impose any impact or burden on any person or business, including any small businesses. 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 policy goals of these directives, or that would be equally effective and have a lower adverse impact on small businesses (or any other economic interests), and which were considered but rejected. (See Gov. Code, § 11346.2, subd. (b)(4)(B)).

The remaining changes to the CALGreen language have the purpose of clarifying phrasing and retaining consistency with the language proposed for the 2019 Building Energy Efficiency Standards; the alternatives of retaining less clear language or becoming inconsistent with the energy provisions of the California Building Code are not found to be reasonable.

It is quite likely that during the course of the rulemaking, the Commission will receive comments that are helpful in improving the proposed standards. These comments may include additional reasonable alternatives that the Energy Commission will consider during the course of the rulemaking. The public comments received and reviewed by the Energy Commission in the pre-rulemaking period are docketed under Docket Number 17-BSTD-03, and are available on our website at <http://www.energy.ca.gov/title24/2019standards/prerulemaking/documents/>.

VI. FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS

This section must include “[f]acts, evidence, documents, testimony, or other evidence on which the [Commission] relies to support an initial determination that the action will not have a significant adverse economic impact on business.” Gov. Code, § 11346.2, subd. (b)(5)(A). The discussion in the immediately preceding Section V., 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 the impacts on small businesses. (See Gov. Code, § 11346.2, subd. (b)(4)(B).) Lastly, this section must include “the estimated cost of compliance, the estimated potential benefits, and the related assumptions used to determine the estimates.” Gov. Code, § 11346.2, subd. (b)(5)(B).

The proposed amendments to the voluntary provisions do not create economic impacts of any kind, due to their voluntary nature. To the extent that actions taken by local agencies may include, modify, or not include all or part of the voluntary provisions, those actions would be subject to existing laws relating to the evaluation and disclosure of impacts of actions by those local agencies. Consideration of potential actions taken by local agencies in the future is speculative and therefore not included as an impact of the amendments.

VII. 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)(6)). There are no federal regulations that prescribe building standards for non-federal buildings.