

**INITIAL STATEMENT OF REASONS
FOR PROPOSED BUILDING STANDARDS
OF THE DIVISION OF THE STATE ARCHITECT – STRUCTURAL SAFETY (DSA-SS)
REGARDING THE 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE
(CALGreen)
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 11
(DSASS-CC 07/18)**

The Administrative Procedure Act (APA) requires that an Initial Statement of Reasons be available to the public upon request when rulemaking action is being undertaken. The following information required by the APA pertains to this particular rulemaking action:

STATEMENT OF SPECIFIC PURPOSE, PROBLEM, RATIONALE and BENEFITS

Government Code Section 11346.2(b)(1) requires a statement of specific purpose of each adoption, amendment, or repeal and 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. The statement shall enumerate the benefits anticipated from the regulatory action, including the benefits or goals provided in the authorizing statute.

ITEM 1. Section 105.1.1.

CBSC Green CAC action: Approve as submitted.

Specific Purpose: This proposed action is editorial in nature to provide clarity to how the CALGreen Code applies to building and site work construction at new and existing public school and community college sites.

Rationale: Amended language proposed to differentiate between project types at new sites as compared to the variety of construction project types at an existing site.

Benefit: Maintain clarity and consistency for the code user and better align with the scoping requirements of Section 301.4

ITEM 2. Section 202.

CBSC Green CAC action: Approve as submitted. However, post GREEN CAC meeting, DSA proposes to amend the definition of MERV based on CEC recommendations and DSA staff analysis. No formal action was taken by the CAC. This proposed code change is being co-adopted by other agencies.

Specific Purpose: DSA proposes to adopt the new definitions and amendments to definitions made by the CBSC during the 2016 Intervening Code Cycle and co-adopt the amendments to the definitions proposed by the CBSC for the 2018 Triennial Code Cycle.

Rationale: DSA adopts Chapter 2 in its entirety as adopted by CBSC.

Benefit: To provide clarity for the code user.

ITEM 3. Section 301.4.

CBSC Green CAC action: Approve as submitted.

Specific Purpose: Separating the scope for new and existing sites clarify how the new proposed mandatory measures apply.

Rationale: General revision is proposed to provide clarity for the code user. Specific revision for the repealing of the Exception #3 is proposed to address conservation of potable water supply by increasing water use efficiency for existing irrigated landscape areas.

Benefit: The revised scoping provisions address clarity for the code user. Conservation of potable water and increased water use efficiency necessitates the repeal of the exceptions.

ITEM 4. Section 306.

CBSC Green CAC action: Approve as submitted.

Specific Purpose: This section is voluntary and encourages implementation of additional sustainability measures. DSA proposes to amend the requirements of this section for better clarity.

Rationale: Clarifies the applicability of the Chapter 5 Mandatory Measures that are not adopted by DSA and designates them as voluntary, and clarifies that Tier 1 and Tier 2 Voluntary Measures are encouraged for additional sustainability.

Benefit: General revision is proposed to provide clarity for the code user.

ITEM 5. Section 5.106.5.3.

CBSC Green CAC action: Approve as submitted.

Specific Purpose: DSA proposes to adopt Chapter 5, Division 5.1, Section 5.106.5.3 for Electrical Vehicle (EV) charging and co-adopt the amendments proposed by the California Building Standards Commission for the 2018 Triennial Code Cycle regarding the deletion of the Notes to Section 5.106.5.3.5. This amendment will require (EV) charging infrastructure to be installed in new parking areas at new and existing sites.

Rationale: This proposed new mandatory measure would contribute the goals of Executive Order (EO) B-48-18 for the installation of infrastructure for future electric vehicle charging stations. EO B-48-18, January 26, 2018, sets a goal of 5 million zero-emission vehicles (ZEV) by 2030 and directs the expansion of vehicle charging infrastructure in California with the goal to install 250,000 zero-emission vehicle

chargers, including 10,000 direct current fast chargers, by 2025.

Benefit: The installation of EV infrastructure (electrical, piping and transformer, etc.) is more cost effective during initial construction, and encourages the installation of electrical vehicle charging stations for public schools and community colleges in the future.

ITEM 6. Section 5.106.8.

CBSC Green CAC action: Approved as submitted; however, during the GREEN CAC meeting the committee made recommendation to DSA's rulemaking package to Section 5.106.8 "Light Pollution Reduction" to add a Note 3 and reference to the Part 6 California Energy Code which contains regulations for additions and alterations. DSA and CBSC are co-adopting this proposed change.

Specific Purpose: DSA proposes to adopt the amendments made by the CBSC during the 2016 Intervening Code Cycle for Chapter 5, Division 5.1, Section 5.106.8, Light pollution reduction, and co-adopt the amendments proposed by the CBSC for the 2018 Triennial Code Cycle to the Notes section regarding the addition of Note 3.

Rationale: For consistency in Title 24 codes by co-adopting CBSC's Light Pollution Reduction measure which aligns with the current version of Title 24, Part 6, California Energy Code's language and tables.

Benefit: Maintain clarity and consistency in the code and align with the California Energy Code, Title 24, Part 6.

ITEM 7. Section 5.107.

CBSC Green CAC action: Approve as submitted.

Specific Purpose: Proposed new regulations will require the planting of shade trees at public school and community college sites.

Rationale: Many city and county ordinances require shade trees at open areas of nonresidential sites; however, public schools and community college sites are not required to comply with these ordinances.

Benefit: Studies document the benefit of shade trees, as follows:

- A. Trees are linked to public health, water quality, energy savings, and air quality.
- B. Experiencing trees outside or viewing them from indoors at schools have proven to:
 - Provide opportunities for physical activity known to improve cognitive function, learning and memory.
 - Provide shade to prevent skin cancer.
 - Encourage imagination and creativity, cognitive and intellectual development, and social relationships.
 - Positively impact cognitive functioning and ability to concentrate.

- Lower stress levels which influences self-discipline.
 - Improve student test scores and overall academic performance.
- C. Shading parking lots and other asphalt areas:
- Lowers urban heat island impacts by reducing surface and ambient air temperatures lowering levels of air pollution.
 - Reduces evaporated gasoline and oils that contribute to air pollution ozone
 - Slows storm water runoff.
 - Extends the life span of asphalt pavement by nearly 30 percent.
 - Reduces the heat island effect on asphalt which has a direct correlation to the length of air pollution going after sunset and to health impacts on student lungs.
- D. An increase of trees in city areas (urban forests) increases outdoor air quality and reduces carbon emissions.

ITEM 8. DSA-SS Section 5.303.3.3.

CBSC Green CAC action: Approve as submitted.

Specific Purpose: DSA proposes to amend the existing requirements for showerheads and adopt the more restrictive requirements for showerheads adopted by the CBSC during the 2016 Intervening Code Cycle.

Rationale: DSA proposes to adopt the amendments for Section 5.303 Water conserving fixtures and fittings made by the CBSC during the 2016 Intervening Code Cycle.

Benefit: Maintain clarity and consistency in the code and align with the California Energy Commission's 2015 Appliance Efficiency Standards.

ITEM 9. Section 5.407.1.

CBSC Green CAC action: Approve as submitted.

Specific Purpose: DSA proposes to co-adopt the amendments to Chapter 5, Section 5.407.1 proposed by the CBSC for the 2018 Triennial Code Cycle.

Rationale: This section is proposed for amendment to provide the updated code section reference in the California Building Code for weather protection requirements. The repeal of the reference to the California Energy Code Section 150 (Mandatory Features and Devices) is needed since that specific code section in the California Energy Code does not apply to nonresidential occupancies.

Benefit: Adding these amendments to referencing the correct code section and to repeal the reference to inaccurate information will aid the code user in properly applying the correct codes which will help avoid confusion.

ITEM 10. Section 5.504.4.4.

CBSC Green CAC action: Approve as submitted.

Specific Purpose: DSA is proposing to co-adopt CBSC amendment to Chapter 5, Section 5.504.4.4 Carpet systems to correct the referenced year for the new CHPS criteria for VOC limits.

Rationale: These two code sections are proposed for amendments to correct the referenced year from 2012 to 2014-CA for the CHPS criteria for VOC limits. The CHPS standard has been recently updated so these sections need to reference the accurate standards to avoid a conflict.

Benefit:

Adding these amendments to update the appropriate year for the new CHPS criteria for VOC limits standards will aid the code user in properly applying the correct reference standards.

ITEM 11. Section 5.504.4.6.

CBSC Green CAC action: Approve as submitted.

Specific Purpose: DSA is proposing to co-adopt CBSC amendment to Chapter 5, Section 5.504.4.6 Resilient flooring systems to correct the referenced year for the new CHPS criteria for VOC limits.

Rationale: These two code sections are proposed for amendments to correct the referenced year from 2012 to 2014-CA for the CHPS criteria for VOC limits. The CHPS standard has been recently updated so these sections need to reference the accurate standards to avoid a conflict.

Benefit: Adding these amendments to update the appropriate year for the new CHPS criteria for VOC limits standards will aid the code user in properly applying the correct reference standards.

ITEM 12. Section 5.504.5.3.

CBSC Green CAC action: Approve as submitted; however, post GREEN CAC; DSA proposes to amend Section 5.504.5.3, "Exceptions" item 1 by repealing the exception based on comments received by the Energy Commission. DSA and CBSC are co-adopting this proposed change.

Specific Purpose: DSA is proposing to co-adopt CBSC amendment to Chapter 5, Section 5.504.5.3 Filters to update the Minimum Efficiency Reporting Value (MERV) rating for filters in HVAC equipment in mechanically ventilated buildings and to repeal Exception 1.

Rationale: This Section 5.504.5.3 is proposed for amendment to change the MERV rating from a MERV 8 to a MERV 13 to align with the recently approved 2019 Energy Efficiency Standards found in Part 6 *California Energy Code* promulgated by the California Energy Commission.

In repealing exception 1, the California Energy Commission states: “There is no specific ASHRAE standard associated with the 10-percent to 15-percent efficiency values. Note, a dust spot efficiency of 10% to 15% from the now withdrawn ASHRAE standard 52.1-1992 is roughly equivalent to MERV 3 - MERV 5). Reducing the air filter efficiency requirement from MERV 13 to MERV 5 would conflict with the Energy Code, and it does not make sense to lower this IAQ requirement for systems that exceed Energy Code requirements for fan efficacy ...”

Benefit: Adding these amendments to Section 5.504.5.3 maintains consistency and avoids conflict between Part 11 and Part 6 code language for MERV ratings. The amendment to Exception 1 will help avoid confusion for the code user by eliminating a potential conflict with Title 24, Part 6, California Energy Code.

ITEM 13. 5.505.1.

CBSC Green CAC action: Approve as submitted.

Specific Purpose: DSA proposes to co-adopt the amendments to Chapter 5, Section 5.505.1 proposed by the CBSC for the 2018 Triennial Code Cycle.

Rationale: This section is proposed for amendment to provide the accurate code section in the California Building Code for ventilation requirements. The repeal of the verbiage that states “...not applicable to low-rise residential occupancies...” is needed since that specific verbiage does not apply to nonresidential occupancies.

Benefit: Adding these amendments to referencing the correct code section and to repeal the reference to inaccurate information will aid the code user in properly applying the regulations and avoid confusion.

ITEM 14. Section 5.106.8.

CBSC Green CAC action: Approve as submitted.

Specific Purpose: Chapter 8 is reference material and not a regulatory requirement. Revisions to Chapter 8 proposed by CBSC in the 2018 Triennial Code Cycle are to make this reference material regulatory. DSA proposes to clarify that the information in Chapter 8 remains reference information for public schools and community colleges, with the exception of the Tables referenced in Section 5.106.8 which are regulatory.

Rationale: CBSC is proposing to add regulatory forms for commissioning and testing and adjustment in Chapter 8. DSA does not adopt these sections in CALGreen with the exception of the Tables referenced in Section 5.106.8 which are regulatory.

Benefit: Maintain clarity and consistency for the code user.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS

Government Code Section 11346.2(b)(3) requires an identification of each technical, theoretical, and empirical study, report, or similar document, if any, upon which the agency relies in proposing the regulation(s).

For Section 5.107 Shade Trees, the following reports were consulted to support the effect of shade trees on students:

- https://www.huffingtonpost.com/jared-green/new-study-students-learn-b_9143290.html
- <https://naaee.org/eepr/research/library/impact-views-school-landscapes-recovery>
- Student Performance and High School Landscapes: Examining the Links
<https://www.sciencedirect.com/science/article/pii/S0169204610001465>
- Views to Nature: Effects on Attention
<https://www.sciencedirect.com/science/article/pii/S0272494495900160>
- Green Urban Landscapes & School-Level Academic Performance
<https://www.sciencedirect.com/science/article/pii/S0169204616302651>
- Linking Student Performance in Massachusetts Elementary Schools with the 'Greenness' of School Surroundings Using Remote Sensing
<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0108548>

For Section 5.107 Shade Trees, the following studies show that an increase of trees in city areas (urban forests) increases outdoor air quality and reduces carbon emissions:

- http://calfire.ca.gov/resource_mgt/resource_mgt_urbanforestry
- <http://www.sactree.com/pages/471>
- <http://www.isa-arbor.com/>
- https://staff.washington.edu/kwolf/KW_CV/; <http://depts.washington.edu/hhwb/>

STATEMENT OF JUSTIFICATION FOR PRESCRIPTIVE STANDARDS

Government Code Section 11346.2(b)(1) requires a statement of the reasons why an agency believes any mandates for specific technologies or equipment or prescriptive standards are required.

Health and Safety Code (HSC) Section 18941 requires consistency with state and nationally recognized standards for building construction of the use and occupancy of each structure to preserve and protect the public health and safety.

CONSIDERATION OF REASONABLE ALTERNATIVES

Government Code Section 11346.2(b)(4)(A) requires a description of reasonable alternatives to the regulation and the agency's reasons for rejecting those alternatives. In the case of a regulation that would mandate the use of specific technologies or equipment or prescribe specific action or procedures, the imposition of performance standards shall be considered as an alternate. It is not the intent of this paragraph to require the agency to artificially construct alternatives or describe unreasonable alternatives.

The Division of the State Architect has not identified any reasonable alternatives to the proposed action.

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS

Government Code Section 11346.2(b)(4)(B) requires a description of any reasonable alternatives that have been identified or that have otherwise been identified and brought to the attention of the agency that would lessen any adverse impact on small business.

No adverse impact to small business due to these proposed changes is expected.

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

Government Code Section 11346.2(b)(5)(A) requires the facts, evidence, documents, testimony, or other evidence on which the agency relies to support an initial determination that the action will not have a significant adverse economic impact on business.

The Division of the State Architect has no evidence indicating any potential significant adverse impact on business with regard to the proposed action.

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

Government Code Sections 11346.3(b)(1) and 11346.5(a)(10)

The Division of the State Architect has assessed whether or not and to what extent this proposal will affect the following:

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

There will be no positive or adverse impact.

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

There will be no positive or adverse impact.

- C. The expansion of businesses currently doing business within the State of California.

There will be no positive or adverse impact.

- D. The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment.

There will be positive impact to the health and welfare of California residents and faculty and the environment.

ESTIMATED COST OF COMPLIANCE, ESTIMATED POTENTIAL BENEFITS, AND RELATED ASSUMPTIONS USED FOR BUILDING STANDARDS

Government Code Section 11346.2(b)(5)(B)(i) states if a proposed regulation is a building standard, the initial statement of reasons shall include the estimated cost of compliance, the estimated potential benefits, and the related assumptions used to determine the estimates.

The costs of electrical vehicle charging infrastructure is not significant when installed during new construction. The cost of trees is minimal and the benefits outweigh the cost. (Refer to Form 399 General and Attachments 1 and 2.)

The CA Energy Commission (CEC) made a change in air filtration requirements to improve indoor air quality for the better health of building occupants. The effect on local government (K-12 school and community college districts will be an increase in air filter/grill costs of \$138,070 for new construction and \$12,234 for modernization. The effect on state government will be \$138,070 for new construction, \$18,352 for modernization and \$688 for essential services buildings. There will be no effect on federal government. There will be no effect on jobs and employment. The cost per square foot increase was provided to DSA by the Energy Commission, and was applied to average area of new and alteration work approved for construction by DSA over the previous 5 years. (Refer to Form 399 Filters and Attachments A, B, and C.)

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

Government Code Section 11346.2(b)(6) requires a department, board, or commission within the Environmental Protection Agency, the Resources Agency, or the Office of the State Fire Marshal to describe its efforts, in connection with a proposed rulemaking action, to avoid unnecessary duplication or conflicts with federal regulations contained in the Code of Federal Regulations addressing the same issues. These agencies may adopt regulations different from these federal regulations upon a finding of one or more of the following justifications: (A) The differing state regulations are authorized by law and/or (B) The cost of differing state regulations is justified by the benefit to human health, public safety, public welfare, or the environment.

The proposed regulations do not duplicate or conflict with federal regulations.