

**INITIAL STATEMENT OF REASONS-DRAFT
FOR PROPOSED BUILDING STANDARDS
OF THE DIVISION OF THE STATE ARCHITECT
REGARDING THE 2025 CALIFORNIA GREEN BUILDING STANDARDS
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 11
(BSC XX/24)**

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 XX

5.506.4 Carbon dioxide (CO₂) monitoring in classrooms. Mandatory Measures for BSC-CG

Rationale: In response to directives within AB-2232 (2022), BSC has developed this proposal for requiring Carbon Dioxide monitoring in classrooms for both UC, CSU systems and certain private school classrooms.

BSC-CG is proposing to add a new code Section 5.506.4 related to Carbon dioxide (CO₂) monitoring in regulated classrooms for both UC and CSU university systems along with certain private school classrooms, as listed in Table 120.1-A (Classrooms and Lecture/Post secondary classrooms) of the California Energy Code. Classrooms include both Occupancy Categories ages (5-8) and ages (9-18). BSC is proposing to adopt DSA's similar code language in Section 5.506.3 that was first adopted during the 2021 Code Adoption Cycle as part of the 2022 CALGreen Code for new construction and later in the 2022 Intervening Code Adoption Cycle to include additions and alterations.

CO₂ monitors are needed in UC, CSU and private school classrooms so that teachers can identify and address indoor air quality (IAQ) concerns related to carbon dioxide levels that may compromise student and teacher health. A report issued by UC Davis in 2019 found that many classrooms have very high carbon dioxide levels, and school reopening concerns related to the COVID-19 pandemic have placed an increased focus and urgency to improve classroom indoor air quality. Improving indoor air quality in classrooms has shown to reduce absenteeism, reduce COVID-19 exposure, and maintain an improved environment for academic success. This proposal aims to provide a mechanism to identify and address indoor air quality concerns with the requirement for carbon dioxide monitors in new classrooms. This proposed code amendment for CO₂ monitoring applies to both new construction and qualifying additions and alterations to existing classrooms. The CO₂ monitors required are not costly and would add little to the overall construction cost of even small alterations.

CAC Recommendation:

Agency Response:

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).

There are three technical, theoretical, and empirical studies, reports or similar documents used as the basis for the proposed Item XX to the 2024 California Green Building Standards (CALGreen) Code. These are:

- Wanyu R. Chan, et al., Ventilation Rates in California classrooms: Why many recent HVAC retrofits are not delivering sufficient ventilation, Volume 167 (2020), Western Cooling Efficiency Center-UC Davis, Lawrence Berkeley National Laboratory-Berkeley, CA
(<https://www.sciencedirect.com/science/article/abs/pii/S0360132319306365>)
- S. Petersen, et al., The effect of increased classroom ventilation rate indicated by reduced CO2 concentration on the performance of schoolwork by children (April 2015), INDOOR AIR 2016, by Department of Engineering, Aarhus University, Denmark (<https://cae.au.dk/en/research/key-areas-in-research-and-development/design-and-construction/indoor-climate-and-energy/research>)
- Mark J. Mendell, et al., Association of classroom ventilation with reduced illness absence: a prospective study in California elementary schools, (May 2013), by Indoor Environment Group, Lawrence Berkeley National Laboratory, Berkeley, CA
(<https://onlinelibrary.wiley.com/doi/full/10.1111/ina.12042>)

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.

The proposed amendments to the California Green Building Standards (CALGreen) Code regulations do not mandate any specific technologies or equipment and do not require any prescriptive standards.

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.

No reasonable alternatives were identified.

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.

BSC has determined that no reasonable alternative has 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.

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.

BSC did not identify any facts, evidence, documents, testimony, or other substantiation to make an initial determination of significant adverse economic impact on businesses. BSC has determined that this regulatory action would not have a significant adverse economic impact on California business enterprises and individuals, including the ability of California businesses to compete with businesses in other states.

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)

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

These regulations may cause some jobs to be created for the installation, maintaining and manufacturing Carbon Dioxide Monitoring Equipment, construction trades, Installers, supply chain. No jobs are expected to be eliminated within the State of California.

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

These regulations may cause the creation of businesses that expand into facilities management, the CO2 Monitoring market and supply chain companies. These regulations will not affect the elimination of jobs within the State of California.

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

These regulations may promote the expansion of businesses currently involved with CO2 manufacturing, Monitoring services, installation, maintenance, and technology development within the State of California.

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

These regulations will promote clean indoor air quality and reduce criteria pollutants. Additionally, updating and clarifying the minimum requirements in the California Green Building Standards (CALGreen) Code will provide increased protection of public health and safety, worker safety, 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 estimated costs to comply with the proposed requirement for the installation of carbon dioxide monitors in existing classrooms is approximately \$500 per monitor, based on the projected costs made available to the UC Davis study from several undisclosed private companies using the parameters currently required in the CALGreen codes. The actual costs for newly constructed classrooms and alterations or additions made to an existing building is dependent on the number of classrooms in the building. The potential benefit is an optimal environment for learning, reduction in absenteeism, and increased academic success for students and faculty.

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.

There are no proposed California Green Building Standards (CALGreen) Code regulations that duplicate or conflict with federal regulations.