

**FINAL STATEMENT OF REASONS
FOR
PROPOSED BUILDING STANDARDS
OF THE
CALIFORNIA BUILDING STANDARDS COMMISSION (CBSC)**

REGARDING ADOPTION OF AMENDMENTS TO THE 2010 CALIFORNIA BUILDING STANDARDS CODE, TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR), PARTS 2, 3, 4, 5 and 6 in TITLE 24, CCR, PART 11, CALIFORNIA GREEN BUILDING STANDARDS CODE

The Administrative Procedure Act requires that every agency shall maintain a file of each rulemaking that shall be deemed to be the record for that rulemaking proceeding. The rulemaking file shall include a final statement of reasons. The Final Statement of Reasons shall be available to the public upon request when rulemaking action is being undertaken. The following are the reasons for proposing this particular rulemaking action:

UPDATES TO THE INITIAL STATEMENT OF REASONS

CBSC finds that revisions have been made which warrant changes to the initial statement of reasons for the following section as proposed for public comment based on comments received:

- **Section 5.701.1 Scope** for additions and alterations to existing nonresidential buildings has been modified to phase in mandatory compliance in response to comment from the commercial building industry. The thresholds of \$1000 s.f. for additions and \$200,000 for alterations will not require compliance until the effective date of the 2013 California Building Standards Code, currently projected for January 1, 2014. In the interim, CBSC proposes higher thresholds of 2000 s.f. for additions and \$500,000 for alterations. At the request of the Division of the State Architect, this section has also been amended to add an exception for qualified historic buildings regulated by that agency.

MANDATE ON LOCAL AGENCIES OR SCHOOL DISTRICTS

Because this version of the green building standards proposed contains mandatory measures, CBSC has determined that the proposed regulatory action could impose a mandate on local agencies or school districts. However, the mandate does not require reimbursement pursuant to Part 7 (commencing with section 17500) of Division 4, Government Code.

OBJECTIONS OR RECOMMENDATIONS MADE REGARDING THE PROPOSED REGULATION(S).

COMMENTS ON MANDATORY MEASURES

COMMENTERS: Matthew Hargrove, California Business Properties Association (CPBA), Building Owners and Managers Association of California, (BOMA), Commercial Real Estate Development Association (NAIOP) and contact for International Council of Shopping Centers (ICSC); and Robert Raymer, California Building Industry Association (CBIA), on **Section 5.106.1 Storm water pollution prevention** recommends:

- Recognition of local or regional regulatory agency authority and
- Suggests modification of the listed best management practices (BMP) for storm water control to include an "other" category for flexibility of compliance and enforcement.

RESPONSE: CBSC acknowledged the variety of local, regional and state regulatory agencies for storm water management, but it has coordinated the proposed language with the California Stormwater Quality Association, a non-profit organization of municipalities and storm water experts. While local ordinance is cited in the proposed language as a means for compliance, small projects may not be regulated, and the proposed language gives them BMP to utilize and further assist with Clean Water Act implementation for most construction activity.

CBSC proposed to add the additional BMP for both soil loss and housekeeping activity in a 15-day comment period and received no further comments.

COMMENTER: Judi Schweitzer, Schweitzer and Associates and public member of the CBSC Green Building Code Advisory Committee, on **Section 5.106.5.2** and **5.710.6.3 Designated parking**:

Recommends that stall marking for efficient vehicles be labeled for each type of eligible vehicle. The code recognizes the older cars stickered for the HOV lane but not newer, cleaner ones that might miss out on a sticker program.

RESPONSE: Ms. Schweitzer had commented on the proposed stall marking paint stencil during the code advisory committee meeting, and Air Resources Board (ARB) staff reworked the stall marking template. CBSC declines to accept the suggested change, acknowledging that, while there may some confusion on what constitutes a "Clean Car", it should capture most low-emitting vehicles, stickered or not. As this section

is implemented, any problems with it may be brought to the attention of the ARB for modification in the next code cycle.

COMMENTERS: Matthew Hargrove (CPBA, BOMA, NAOIP and ICSC) and Robert Raymer, (CBIA), on **Section 5.303.1.1 and 5.712.3.1.1 [Meters for] Buildings in excess of 50,000 square feet (4645 m²):**

Proposed regulations require installation of water submeters for cooling towers, evaporative coolers and boilers where individual tenant submetering is unfeasible, such as in multi-tenant high-rise structures.

- Commenters stated that this option might prove expensive, and
- That it could be read to require hot water meters, whose regulation statewide has been uneven at best.

RESPONSE: CBSC did not do an exhaustive cost/benefit analysis for this provision. It acknowledges that larger size submeters that may be required for these systems could cost more than those reviewed for individual tenants at around \$1000 installed. The systems listed are expensive systems for complex buildings, and the cost of a meter should have little effect on the overall cost of construction.

CBSC proposed language to clarify that the provisions do not apply to hot water submeters in 15-day language and received no further comment.

COMMENTERS: Matthew Hargrove (CPBA, BOMA, NAOIP and ICSC) and Robert Raymer, (CBIA), on **Section 5.303.2.1 Multiple showerheads serving one shower:**

Commenters expressed support for the clarifying language proposed.

RESPONSE: CBSC appreciates the support expressed.

COMMENTERS: Matthew Hargrove (CPBA, BOMA, NAOIP and ICSC) and Robert Raymer, (CBIA), on **Section 5.408.1.2 Waste management company:**

Commenters objected to this new section, which provides for utilizing a waste management company to haul construction waste and verify that it recycled at least 50%, as an alternative to developing a Waste Management Plan. They found onerous the requirement that the waste management company be approved by the local jurisdiction and the need for the company to verify the recycled content at 50% or more.

RESPONSE: CBSC disagrees that waste management company verification of the diversion rate of waste is onerous, but is indeed common as a result of local recycling ordinances or voluntary compliance by contractors to recycle construction waste. CBSC did agree to remove the requirement for approval by the enforcing agency in a 15-day comment period. No further comment was received.

COMMENTERS: Matthew Hargrove (CPBA, BOMA, NAOIP and ICSC) and Robert Raymer, (CBIA), on **Section 5.408.3 Excavated soil and land clearing debris, Exception:**

Commenters expressed support for the clarifying exception proposed.

RESPONSE: CBSC appreciates the support expressed.

COMMENTERS: Matthew Hargrove (CPBA, BOMA, NAOIP and ICSC) and Robert Raymer, (CBIA), on **Section 5.502 Definitions:**

Commenters objected to the definition of "Expressway", derived from CalTrans Specifications, that CBSC proposes in connection with exterior noise transmission control provisions.

RESPONSE: CBSC declines to change the definition but notes the commenters' intent to limit the regulations to major arterial highways and not just to any road. CBSC proposed to add a definition for "Arterial highway", also from CalTrans, in a 15-day comment period, and received no further comment. (See also discussion on comments to Sections 5.507.4 and 5.714.7.1 Acoustical control, below.)

COMMENTER: Jane Koechlin, on **Section 5.503.1, Fireplaces:**

Ms. Koechlin recommended that references to EPA Phase II emissions include the measurement metrics EPA uses for each type of appliance.

RESPONSE: CBSC did not propose any changes to this provision this code cycle, but will work with the state agencies and the Air Resources Board to consider changes for the next cycle.

COMMENTERS: Matthew Hargrove (CPBA, BOMA, NAOIP and ICSC) and Robert Raymer, (CBIA); and Timothy Young of Fujitsu General America, on **Section 5.504.5.3 Filters:**

- Mr. Young expressed support for the clarifying exception proposed to exempt certain ductless appliances from this provision
- Mr. Hargrove and Mr. Raymer noted that filters are not always labeled for their Minimum Efficiency Reporting Value (MERV), so it is hard to verify compliance.

RESPONSE: CBSC appreciates the support expressed by Fujitsu and notes that it has not heard that contractors are having trouble locating MERV 8 filters or maintaining documentation for inspection.

COMMENTERS: Matthew Hargrove (CPBA, BOMA, NAOIP and ICSC) and Robert Raymer, (CBIA); and Mike Moore, Newport Ventures (representing the Steel Framing Alliance), on **Sections 5.507.4** and **5.714.7.1 Acoustical control:**

- Commenters noted that CBSC's revised proposal to include both prescriptive and performance options for exterior noise transmission control did not make clear it was one or the other, or both and
- They requested that the exception to these provisions exempting certain occupancies should be moved from the end of the sections to the first for clarity, so that code users would know right away whether it applied to their projects.

RESPONSE: CBSC concurs with the comments, and proposed clarifications in a 15-day comment period. No further comments were received.

COMMENTERS: Matthew Hargrove (CPBA, BOMA, NAOIP and ICSC) and Robert Raymer, (CBIA), on **Section 5.507.4.1** and **5.714.7.1.1 Exterior noise transmission, prescriptive method;** and **5.507.4.1.1** and **5.714.7.1.1.1 Noise exposure in other areas:**

- Commenters felt that these sections should be more narrowly scoped to the part of the building envelope exposed to excessive noise.
- They also suggested replacing the word "road" with "freeway or expressway" as defined terms, noted above.
- They further opined that the acoustical control provisions for existing building projects in Division 5.7 might preclude a building owner from matching the construction methods and materials of the building being altered.

RESPONSE: CBSC:

- Concurs with the first and second comments, and proposed changes in a 15-day comment period. No further comments were received.
- Declines to accept the last comment, since construction methods for building alteration projects generally must meet current code standards, which already could preclude matching structural, fire protection, HVAC and other existing building conditions.

COMMENTER: Mike Moore, Newport Ventures, on **Sections 5.507.4.1** and **5.714.7.4.1 Exterior noise transmission, prescriptive method, Item 2,** and **Sections 5.507.4.1.1** and **5.714.7.4.1.1 Noise exposure in other areas::**

Mr. Moore suggested deletion of "fixed noise source" from Item 2 and "noise exposure in other areas" because of inconsistencies with the apparent CBSC approach of identifying noise sources from the Noise Element of the General Plan for airports, railroads and highways.

RESPONSE: CBSC concurs with the commenter that further clarification is warranted in both sections, and proposed modifications, but no section deletions, in a 15-day comment period. No further comments were received.

COMMENTERS: Matthew Hargrove (CPBA, BOMA, NAOIP and ICSC) and Robert Raymer, (CBIA), on **Sections 5.507.4.2** and **5.714.7.1.2 Performance alternative:**

- Commenters felt that this section should be more narrowly scoped to the part of the building envelope exposed to excessive noise.
- They also suggested including other means of abating noise transmission, like exterior features such as sound walls, vegetation and trees.

RESPONSE: CBSC concurs with the comments, and proposed changes in a 15-day comment period. No further comments were received.

COMMENTERS: Matthew Hargrove (CPBA, BOMA, NAOIP and ICSC) and Robert Raymer, (CBIA), on **Section 5.701.1[Additions and alterations to existing buildings] Scope:**

Commenters felt that the thresholds triggering compliance for existing buildings were too low at 1000 square foot additions and \$200,000 alterations. They suggested higher levels of 2000 square feet and \$500,000 for alterations, or making them voluntary until the 2013 codes become effective.

RESPONSE: See the discussion above for the Updates to the Initial Statement of Reasons. CBSC proposed graduated thresholds for additions and alterations and implementation dates in a 15-day comment period, and also included, based on a May discussion with the Division of the State Architect, an exception for qualified historic buildings. No further comments were received.

COMMENTERS: Matthew Hargrove (CPBA, BOMA, NAOIP and ICSC) and Robert Raymer, (CBIA), on **Section 5.702.1 [Additions and alterations to existing buildings] Definitions:**

Commenters claim that increases to height of a building without an increase in floor area should not be included in the definition of "addition". An increase in height might result from structural modifications to accept special equipment, and could be discouraged by a requirement to comply with CALGreen.

RESPONSE: CBSC concurred with the comments, and proposed changes in a 15-day comment period. No further comments were received.

COMMENTERS: Matthew Hargrove (CPBA, BOMA, NAOIP and ICSC) and Robert Raymer, (CBIA), on **Section 5.710.6.2.1 Short-term bicycle parking:**

Commenters say that the term “anticipated to generate visitor traffic” is vague, but did not recommend an alternative.

RESPONSE: CBSC acknowledges the comment but declines to make changes. This section is similar to the provision in Division 5.1 for new construction, and CBSC is of the opinion that a building’s occupancy type should be a good predictor of whether or not the building will have visitors.

COMMENTERS: Matthew Hargrove (CPBA, BOMA, NAOIP and ICSC) and Robert Raymer, (CBIA), on **Section 5.712.4.3 Irrigation design:**

Commenters point out that, if existing irrigation controllers have the capacity to serve additional landscape generated from addition or alteration, new controllers should not be required.

RESPONSE: CBSC concurs with the comments, and proposed changes in a 15-day comment period. No further comments were received.

COMMENTERS: Matthew Hargrove (CPBA, BOMA, NAOIP and ICSC) and Robert Raymer, (CBIA), on **Section 5.713.10.1 Recycling by occupants:**

Commenters expressed concerns about what would trigger a need to add or expand a recycling area in the case of addition or alteration of an existing building.

RESPONSE: CBSC researched the law and the model ordinance and proposed modification to the provisions for a 15-day comment period. No further comments were received.

COMMENTERS: Matthew Hargrove (CPBA, BOMA, NAOIP and ICSC) and Robert Raymer, (CBIA), on **Section 5.713.10.4 Testing and adjusting:**

Commenters suggested that language be clarified to scope more accurately the extent of testing and adjusting of systems in an existing building project.

RESPONSE: CBSC concurred with the comments, and proposed changes in a 15-day comment period. No further comments were received.

COMMENTER: Josh Jacobs, Greenguard Environmental Institute, on **Sections 5.714.4.4.1 Adhesives, sealants and caulks and 5.714.4.4.3 Paints and coatings:**

Commenter suggested that references to Title 17 of the California Code of Regulations for adhesives and to Architectural Coatings Suggested Control Measures for paints of the Air Resources Board be broadened. He recommended an alternate means of compliance by meeting California Department of Public Health Specification 01350, testing for volatile organic compounds.

RESPONSE: CBSC consulted briefly with the Air Resources Board and declines to accept the comments, though they may have merit, for two reasons.

- The Air Resources Board and the California Department of Public Health are the authoritative agencies in California for indoor air quality, and any changes would need their participation.
- These provisions also reside in Division 5.5 for new construction and were not proposed for change. To change them in the existing building division alone would cause confusion. CBSC will look at these comments for the next code cycle and work with the agencies for acceptable changes to both divisions.

COMMENTER: Timothy Serle, American Coatings Association on **Sections 5.714.4.4. Finish material pollutant control and 5.714.4.4.3 Paints and coatings:**

- Commenter suggested language that would scope these sections to interior finishes only and to modify the reference to the Air Resources Board Architectural Coatings Suggested Control Measures.

RESPONSE: CBSC consulted briefly with the Air Resources Board and declines to accept the comment, though it may have merit, for several reasons.

- The Air Resources Board is the authoritative state agency in California for air quality, and any changes would need their participation. The section in which this subsection is located in Division 5.7 is “Environmental Quality” and is not meant to be limited to indoor air.
- These provisions also reside in Divisions 4.5 and 5.5 for new construction and were not proposed for change. To change them in the existing building division alone would cause confusion. CBSC will look at these comments for the next code cycle and work with the board for acceptable changes to both divisions.

COMMENTS ON VOLUNTARY MEASURES

COMMENTERS: Matthew Hargrove (CPBA, BOMA, NAOIP and ICSC) and Robert Raymer, (CBIA), on **Section A5.106.9 Building orientation:**

Commenters observed that the language proposed by CBSC to align with provisions of the Department of Housing and Community Development (HCD) had the opposite effect of that intended and directed one to orient the building incorrectly for passive solar design.

RESPONSE: CBSC concurs with the comment, and proposed changes in a 15-day comment period. No further comments were received.

COMMENTERS: Matthew Hargrove (CPBA, BOMA, NAOIP and ICSC) and Robert Raymer, (CBIA), on **Section A5.106.11.1 Hardscape alternatives:**

Commenters advised against CBSC's proposal to substitute the word "reflective", which is not defined, and delete the phrase "high albedo", which is defined in the division.

RESPONSE: CBSC concurs with the comments, and proposed changes in a 15-day comment period. No further comments were received.

COMMENTERS: Matthew Hargrove (CPBA, BOMA, NAOIP and ICSC) and Robert Raymer, (CBIA), on **Section A5.211.4 Pre-wiring for future rooftop solar:**

Commenters requested that more guidance be offered in the sizing of the conduit to be installed for future rooftop solar for nonresidential buildings.

RESPONSE: CBSC, which developed modifications to this section in coordination with the California Energy Commission, declines to accept the comment. Unlike residential provisions of HCD, which calls out conduit size, these provisions could apply to a great variety of project sizes and types. A developer considering rooftop solar on a large building would no doubt seek assistance on what is needed from a consultant or utility provider.

COMMENTER: Mark Pawlicki, Sierra Pacific Industries and Kenneth Bland, American Wood Council, on **Sections A5.405.2 Bio-based materials, A5.405.2.2 Rapidly renewable materials and A5.405.4 Recycled content:**

Mr. Pawlicki and Mr. Bland commented on changes proposed by HCD on provisions similar to those that CBSC adopts:

- They supported changes to the Recycled Content section, including the proposed exemption of structural framing materials, but Mr. Bland had questions about its application.
- He objected to provisions for Rapidly Renewable Materials, citing potential switching from growing forest wood products or valuable food products in favor of short-rotation building material crop, as well as importing products grown overseas. Both have adverse effects on carbon in our atmosphere, from removal of forests as carbon sinks to the emissions implicit in overseas transport of building materials.

RESPONSE: CBSC:

- Appreciates the support expressed for the Recycled Content provisions, which are included in the tier structure, and will address any questions outside of the rulemaking; and
- Declines to accept the second comment. CBSC did not propose the Rapidly Renewable Materials provisions for change this code cycle, but will consider the comments for the next code adoption cycle, coordinating with other state agencies and representatives of the wood industry.

COMMENTERS: Wes Sullens, StopWaste.Org of Alameda County; Tom Lent, Healthy Building Network and Michael Wolfe, Scientific Certification Systems, on **A5.405.4 Recycled content:**

Commenters requested revision of a non-regulatory informational note on the calculation of recycled content in the instance where a manufacturer does not supply a breakdown of post-consumer and pre-consumer recycled content. They suggested revisions that default to 100% pre-consumer content in order to promote accurate reporting of relative content and more utilization of post-consumer recycled products.

RESPONSE: CBSC appreciates that the comment may have merit but declines to accept it at this time. Recycled content is a prerequisite for the tiers and as such can be mandatory for those jurisdictions that have adopted a tier. CBSC recommends a less restrictive approach as more appropriate as these provisions are introduced and implemented. CBSC staff will take a look at this comment for the next code adoption cycle in coordination with the state agencies and interested parties.

COMMENTER: John Ochsendorf, PhD, Massachusetts Institute of Technology, on **Section A5.409.3 [Life cycle assessment for] Materials and system assemblies:**

Commenter expressed concern that this section does not include the significant impact of operating energy of a building in life cycle analysis (LCA).

RESPONSE: During the development of these provisions, CBSC consulted with a small task force, two members of which are experts in LCA, which CBSC staff is not. The task force agreed that whole building LCA is the preferred and more accurate measure of a building's impact on the environment, and included it

as a preferred option. However, they offered the secondary option of an analysis of individual building components as an introduction to the process, its being less sophisticated.

CBSC declines, therefore, to accept the comment, noting that it appears that then Mr. Ochsendorf may have missed the inclusion of operating energy in Section A5.409.2, Whole building life cycle assessment.

COMMENTER: Martha VanGeem, CTL Group, on **Section A5.409 Life Cycle Assessment:**

- Ms. VanGeem proposed that the Athena Impact Estimator published by the Athena Institute be dropped from a notation referencing software tools to assist code users in calculating whole building LCA and
- Suggested the removal of Section A5.409.3 Materials and system assemblies as an option (see discussion above).

RESPONSE: CBSC declines to accept the comments, because Ms. Van Geem's arguments are not wholly supported in fact:

- She states that the Athena Impact Estimator is not ISO 14044 compliant, though the regulations call for LCA to be ISO 14044 compliant. ISO 14044 does not address tools for calculating LCA but rather what must be considered in an LCA analysis. The impact data within the calculator are ISO 14044 compliant.
- She states that the estimator assumes that all cement has the same content and prejudices LCA against concrete, while in fact the estimator does provide options for variations in cement, including cementitious replacements such as fly ash.
- Her citations of shortcomings in the Athena Impact Estimator are, in several instances, confused with those of the Athena Institute's EcoCalculator, which is a simplified tool for assessing individual building assemblies and is not intended for whole building LCA.
- As noted above in the previous comment, CBSC has included LCA for individual materials and assemblies as a secondary option and prefers to maintain it in the code for the present as an introduction to LCA.

Matthew Hargrove (CPBA, BOMA, NAOIP and ICSC) and Robert Raymer, (CBIA), on **Section A5.504.4.5.2 [Composite wood products] No added formaldehyde, Tier 2:**

Commenters respectfully requested that reference to Air Resources Board standards be broadened to include other national standards.

RESPONSE: CBSC declined to accept the comment, noting that the Air Resources Board is the authoritative agency in California for formaldehyde content of composite wood products.

COMMENTER: Josh Jacobs, Greenguard Environmental Institute, on **Sections A5.504.4.8 Thermal insulation, Tier 1 and A5.504.4.9 Acoustical ceilings and wall panels:**

Commenter suggested that references to low-emission compliance standards for these building materials be broadened. Both contain references to 2009 Collaborative for High Performance Schools (CHPS) criteria listed on its High Performance Products Database. He recommended certification under the GREENGUARD Children and Schools program, compliant with CHPS criteria, as an additional referenced standard.

RESPONSE: CBSC consulted briefly with the Air Resources Board and declines to accept the comments, though they may have merit and similar language is used for resilient flooring, for two reasons:

- The Air Resources Board and the California Department of Public Health are the authoritative agencies in California for indoor air quality, and any changes would need their participation.
- In fairness to Mr. Jacobs, he made this request last cycle at the end of the comment period, and CBSC staff intended to consider it for this cycle but did not give it priority. Mr. Jacobs is encouraged to contact the agencies sooner in the process, such as having a Greenguard representative attend or comment during the Code Advisory Committee phase. Now, the agencies lack sufficient time to research the equivalency of the products.
- In the meantime, there is in the code a non-regulatory note that permits the use of Greenguard products, compliant with CHPS criteria, that Mr. Jacobs was hoping to replace with regulatory language. Also, every part of Title 24 allows the approval by enforcing agencies for alternates that they deem code compliant.

DETERMINATION OF ALTERNATIVES CONSIDERED AND EFFECT ON PRIVATE PERSONS

As a code partially mandatory and partially voluntary for green building standards, it could have an effect. However, the mandatory measures proposed are generally of modest cost, and the benefits derived in terms of pollution reduction and the well-being of building users should outweigh the costs. The only alternative considered was changing the mandatory measures for existing buildings to voluntary in response to public comment, and CBSC chose instead a two-tiered approach to compliance that satisfied the commenter.

REJECTED PROPOSED ALTERNATIVE THAT WOULD LESSEN THE ADVERSE ECONOMIC IMPACT ON SMALL BUSINESSES

CBSC has determined that the proposed regulations could have adverse economic impact on small businesses, but the benefits derived in terms of pollution reduction, long-term cost savings, and the well-being of building users should outweigh the costs. No alternatives were considered, however, because the partially mandatory green building code was developed in response to former Governor Schwarzenegger's direction for a 2010 green building code. Current proposed changes in the intervening code cycle are to clean up and clarify the 2010 code provisions and to add the missing piece of existing nonresidential buildings undergoing some additions and alterations.