



December 21, 2009

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California Building Standards Commission  
2525 Natomas Park Dr., Suite 130  
Sacramento, CA 95833  
ATT: Dave Walls, Executive Director

RE: BSC December 15th 15-Day Comment

Dear Commissioners:

I am writing on behalf of the California Building Officials (CALBO) Green Building Committee.

CALBO is a nonprofit professional association of city and county building departments. It is dedicated to promoting public health and safety in building construction through responsible legislation, education and building code development. Our members are responsible for the technical plan review and inspection of over 95% of all structures built within the State of California.

CALBO's members have a strong commitment to protecting our environment, while building a sustainable California. We also believe that when it comes to building standards, "green" or otherwise, that California is best served when building standards are written in code language that is clear, unambiguous and clearly enforceable.

In our previous comment, we suggested that Chapter 5 be held over for further study, giving time for agencies and stakeholders to address the nine point criteria and resolve issues related to the incorporation of these provisions into the state building code.

Included in this correspondence are additional suggestions on the December 15, 2009 15-day language and revisions to the proposed Chapter 5.

We believe that the suggested amendments will make the code enforceable, not unnecessarily ambiguous or vague and that the cost to the public is reasonable based on the overall benefit to be derived from the proposed building standards.

Thank you for your time and consideration on this matter. The CALBO Green Building Committee and the membership believes this to be a great step forward to a more sustainable California and we look forward to working together to achieve that goal.

Sincerely,

William R. Schock LEED AP, CGBP  
Chair, CALBO Green Building Committee

**15-DAY EXPRESS TERMS  
FOR  
PROPOSED BUILDING STANDARDS  
OF THE  
CALIFORNIA BUILDING STANDARDS COMMISSION (CBSC)**

**REGARDING ADOPTION OF AMENDMENTS TO 2008 CALIFORNIA BUILDING STANDARDS CODE, TITLE 24,  
CALIFORNIA CODE OF REGULATIONS (CCR), PARTS 2, 3, 4, 5 and 6 IN TITLE 24, CCR, PART 11, 2010  
CALIFORNIA GREEN BUILDING STANDARDS CODE**

**Legend for Express Terms:**

1. **New California amendment (CA):** California language will appear underlined.
2. **Amended, adopted, or repealed language:** Amended, adopted, or repealed language will appear in double underline and ~~double strikeout~~.
3. **Rationale:** The justification for the change is shown after each section or series of related changes.
4. **Notation:** Authority and reference citations are provided at the end of each chapter.

**SECTION 749 5.410  
( BUILDING MAINTENANCE AND OPERATION )**

**Comment [1a A]:**The lack of adequate scoping language results in a broad application with unintended consequence. As currently written, these requirements would apply to a wide range of structures that were never intended to be included. For example: parking garages, strip malls, lumber yards, warehouses, electrical distribution facilities, factories and industrial uses, and agricultural buildings to name just a few.

**The language as proposed could be considered ambiguous and the cost to the public, based on the overall benefit derived, has not been demonstrated to be reasonable.**

"LEED for New Construction was designed primarily for new commercial office buildings. Examples of commercial occupancies include: offices, institutional buildings (libraries, museums, churches, etc.), hotels, and residential buildings of 4 or more habitable stories."

LEED requires "The individual serving as the CxA must be independent of the project design and construction management, though the CxA may be an employee of any firm providing those services. For projects smaller than 50,000 gross square feet, the CxA may be a qualified person on the design or construction team who has the required experience." At 50,000 square feet, the commissioning agent is required to be independent of the project design and construction management team.

The building code states that "the owner... shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code." They "shall be independent entities with no financial interest in the materials or the project."

**In order to reduce ambiguity within the project team and lessen the financial impact to the owner, the threshold should be adjusted to reflect the industry standard and the building code requirement for an "independent entity with no financial interest in the materials or the project."**

504.4 5.410.2 Commissioning. For new ~~office, retail and institutional~~ buildings ~~540,000~~ square feet and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the ~~owner's or owner representative's~~ project requirements. Commissioning shall be performed in accordance with this section by ~~trained~~ personnel with experience on projects of comparable size and complexity ~~trained and certified in commissioning by a nationally recognized organization~~. Commissioning requirements shall include as a minimum:

1. ~~Owner's or Owner representative's~~ Project Requirements.
2. Basis of Design.
3. Commissioning measures shown in the construction documents.
4. Commissioning Plan.
5. Functional Performance Testing.
6. Post Construction Documentation & Training.
7. Commissioning Report.

All building systems and components covered by Title 24, Part 6, as well as process equipment and controls, and renewable energy systems shall be included in the scope of the Commissioning Requirements.

504.4.1 5.410.2.1 ~~Owner's or Owner representative's~~ Project Requirements (OPR). The expectations and requirements of the building appropriate to its phase shall be documented before the design phase of the project begins. ~~At a minimum,~~ This documentation shall include the following: . . .

**Comment [1a1]:** Suggest adding the following scoping language "offices and institutional buildings".

**Comment [1a2]:** 1. Suggest revising the "10,000 square foot threshold" to "less than 50,000 square feet" to match the suggested change to the scoping provisions for building commissioning.

**Comment [1a3]:** 2. This is ambiguous and vague. The format is not consistent with code language adopted by the commission. References to meeting the owners or the owner's representative requirements and expectations is not code language or appropriate for a mandatory provision in a building code. These should be changed to the projects requirements.

**Comment [1a4]:** 3. This is ambiguous and vague. The format is not consistent with code language adopted by the commission. References to meeting the owners or the owner's representative requirements and expectations is not code language or appropriate for a mandatory provision in a building code. These should be changed to the projects requirements.

**Comment [1a5]:** 3. This is ambiguous and vague. The format is not consistent with code language adopted by the commission. References to meeting the owners or the owner's representative requirements and expectations is not code language or appropriate for a mandatory provision in a building code. These should be changed to the projects requirements.

**Comment [1a6]:** 3. This is ambiguous and vague. The format is not consistent with code language adopted by the commission. References to meeting the owners or the owner's representative requirements and expectations is not code language or appropriate for a mandatory provision in a building code. These should be changed to the projects requirements.

~~504.4.2 5.410.2.2 Basis of Design (BOD). A written explanation of how the design of the building systems meets the Owner's Project Requirements shall be completed at the design phase of the building project, and updated as necessary during the design and construction phases. At a minimum, the Basis of Design document shall cover the following systems: . . .~~

- ~~4. Project program, including facility functions and hours of operation, and need for after hours operation.~~
- ~~5. Equipment and Systems Expectations.~~
- ~~6. Building Occupant and O&M Personnel Expectations.~~

~~504.4.3 5.410.2.3 Commissioning plan. Prior to permit issuance a Commissioning plan shall be completed to document the approach to how the project will be commissioned and shall be started during the design phase of the building project. The Commissioning Plan shall include the following at a minimum:~~

- ~~1. General Project Information.~~
- ~~2. Commissioning Goals.~~
- ~~3. Systems to be commissioned. Plans to test systems and components shall include at a minimum:
  - ~~a. An detailed explanation of the original design intent.~~
  - ~~b. Equipment and systems to be tested, including the extent of tests.~~
  - ~~c. Functions to be tested.~~
  - ~~d. Conditions under which the test shall be performed.~~
  - ~~e. Measurable criteria for acceptable performance.~~~~
- ~~4. Commissioning Team Information.~~
- ~~5. Commissioning Process Activities, Schedules & Responsibilities – plans for the completion of Commissioning Requirements listed in A5.410.4.4 through A5.410.4.6 shall be included.~~

...

~~504.4.5 5.410.2.5 Post-construction Documentation and training. A Systems Manual and Systems Operations Training are is required.~~

~~504.4.5.1 5.410.2.5.1 Systems manual. Documentation of the operational aspects of the building shall be completed within the Systems Manual and delivered to the building owner or representative. At a minimum, the Systems Manual shall include the following:~~

- ~~1. Site Information, including facility description, history and current requirements, including Occupational Safety and Health Act (OSHA) requirements in California Code of Regulations (CCR), Title 8, Section 5142, and other related regulations.~~
- ~~2. Site Contact Information.~~
- ~~3. Basic Operations & Maintenance, including general site operating procedures, basic troubleshooting, recommended maintenance requirements, site events log.~~
- ~~4. Major Systems.~~
- ~~5. Site Equipment Inventory and Maintenance Notes.~~
- ~~6. A copy of all special inspection verifications required by the enforcing agency or this code.~~
- ~~7. Other Resources & Documentation.~~

~~504.4.5.2 5.410.2.5.2 Systems operations training. The training of the appropriate maintenance staff for each equipment type and/or system shall be documented in the commissioning report and shall include, as a minimum, the following:~~

- ~~1. System/Equipment overview (what it is, what it does and what other systems and/or equipment it interfaces with);~~
- ~~2. Review and demonstration of servicing/preventive maintenance;~~
- ~~3. Review of the information in the Systems Manual;~~
- ~~4. Review of the record drawings on the system/equipment.~~

**Comment [1a7]:** 3.This is ambiguous and vague. The format is not consistent with code language adopted by the commission. References to meeting the owners or the owner's representative requirements and expectations is not code language or appropriate for a mandatory provision in a building code. These should be changed to the projects requirements.

**Comment [1a8]:** 3.This is ambiguous and vague. The format is not consistent with code language adopted by the commission. References to meeting the owners or the owner's representative requirements and expectations is not code language or appropriate for a mandatory provision in a building code. These should be changed to the projects requirements.

**Comment [1a9]:** 4.This is ambiguous and vague. Suggest deleting these provisions. The CAC recommended that this section be further studied. Item 4 is new material not previously published. These provisions are not within the scope of the basis of design (BOD).

**Comment [1a10]:** 3.This is ambiguous and vague. The format is not consistent with code language adopted by the commission. References to meeting the owners or the owner's representative requirements and expectations is not code language or appropriate for a mandatory provision in a building code. These should be changed to the projects requirements.

**Comment [1a11]:** 3.This is ambiguous and vague. The format is not consistent with code language adopted by the commission. References to meeting the owners or the owner's representative requirements and expectations is not code language or appropriate for a mandatory provision in a building code. These should be changed to the projects requirements.

**Comment [1a12]:** 3.This is ambiguous and vague. The format is not consistent with code language adopted by the commission. References to meeting the owners or the owner's representative requirements and expectations is not code language or appropriate for a mandatory provision in a building code. These should be changed to the projects requirements.

**Comment [1a13]:** 3.This is ambiguous and vague. The format is not consistent with code language adopted by the commission. References to meeting the owners or the owner's representative requirements and expectations is not code language or appropriate for a mandatory provision in a building code. These should be changed to the projects requirements.

**Comment [1a14]:** 5.This is ambiguous and vague. The format is not consistent with code language adopted by the commission. Provisions for a training manual or a "class outline" book may be appropriate as a construction document. Requiring training of maintenance personnel is not appropriate for inclusion in the mandatory requirements of a building code. This should be moved to the appendix as an elective or tier option.

~~504.4.6 5.410.2.6 Commissioning report. A complete report of commissioning process activities undertaken through the design, and construction and reporting recommendations for post-construction phases of the building project shall be completed and provided to the owner or representative.~~

**Comment [1a15]:** 3.This is ambiguous and vague. The format is not consistent with code language adopted by the commission. References to meeting the owners or the owner's representative requirements and expectations is not code language or appropriate for a mandatory provision in a building code. These should be changed to the projects requirements.

**5.410.3 Testing, and adjusting and balancing.** Testing, and adjusting and balancing of systems shall be required for buildings less than 5 ~~40,000~~ square feet.

**5.410.3.2 Systems.** Develop a written plan of procedures for testing, and adjusting and balancing systems. Systems to be included for testing, and adjusting and balancing shall include ~~at a minimum~~, as applicable to the project . . .

**5.410.3.3 Procedures.** Perform testing, and adjusting and balancing procedures in accordance with ~~industry best practices and~~ applicable national standards on each system as determined by the building official.

**Comment [1a16]:** 6.Suggest deleting "industry best practices". This is an ambiguous and vague term that has multiple interpretations as to what constitutes the best industry practices. It is not appropriate language for a building code.

**5.410.3.3.1 HVAC balancing.** ~~In addition to testing and adjusting, before a new space-conditioning system serving a building or space is operated for normal use, the system should~~ shall be balanced in accordance with the procedures defined by the Testing Adjusting and Balancing Bureau National Standards ~~(2009)~~, the National Environmental Balancing Bureau Procedural Standards ~~(1983)~~, or Associated Air Balance Council National Standards ~~(1989)~~ or as approved by the building official.

**5.410.3.4 Operation and maintenance (O & M) manual.** Provide the building owner or representative with detailed operating and maintenance instructions and copies of guaranties/warranties for each system ~~prior to final inspection. O & M instructions shall be consistent with OSHA requirements in CCR, Title 8, Section 5142, and other related regulations.~~

**Comment [1a17]:** 7.Suggest deleting "and other related regulations". This is another ambiguous and vague term that has multiple interpretations as to what constitutes the best industry practices. It is not appropriate language for a building code.

**5.410.3.5.1 Special I Inspections and reports.** Include a copy of all ~~special~~ inspection verifications and reports required by the enforcing agency or this code.

**Recommendation:**

Based on criteria 4 & 6, CBSC proposes to delete "nationally recognized organization" for personnel certification and standards. CBSC proposes to remove all references to "at a minimum". CBSC proposes an Owner representative as one with authority for expectations and requirements for the project as well as representation for the Owner during the commissioning process. CBSC proposes to reduce requirements for detail and specificity in plans and reports, but makes a reference to CCR, Title 8 as required for building systems generally. CBSC also proposes an editorial change to relocate the dates in Section 5.410.3.3.1 to Chapter 6.

**Rationale:**

In response to a public comment, clarify for the code user that training and certification of commissioning personnel and standards may be recognized by other than a national organization, such as state or local. Removal of the phrase "at a minimum", including an Owner representative as one with authority, and giving the enforcement authority flexibility in the level of detail and specificity required are intended to facilitate local enforcement of these standards, while recognizing a need for consistency across related regulations.

**Notation:**

**Authority** – Health and Safety Code Sections 18930.5, 18934.5 and 18938 (b).

**Reference** – Health and Safety Code, Division 13, Part 2.5, commencing with Section 18901.