

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

**REGARDING ADOPTION OF AMENDMENTS TO 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, 2010 CALIFORNIA GREEN BUILDING STANDARDS CODE**

Legend for Express Terms:

1. **45-day California amendment:** Amended California language will appear with new words underlined, and omitted language will appear in ~~strikeout~~.
2. **15-day Amended, adopted, or repealed language:** Amended, adopted, or repealed language will appear in double underline and ~~double-strikeout~~.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 in the 45-day express terms.

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**CHAPTER 5
DIVISION 5.1 PLANNING AND DESIGN**

**SECTION 5.106
SITE DEVELOPMENT**

5.106.1 Storm water pollution prevention. Newly constructed projects which disturb less than one acre of land shall prevent the pollution of stormwater runoff from the construction activities . . .

5.106.1.2. Best management practices (BMP). Prevent the loss of soil through wind or water erosion by implementing an effective combination of erosion and sediment control and good housekeeping BMP.

1. Erosion and sediment control BMPs Soil loss BMP that should be considered for implementation as appropriate for each project include, but are not limited to, the following:
 - a. Scheduling construction activity
 - b. Preservation of natural features, vegetation and soil
 - c. Drainage swales or lined ditches to control stormwater flow
 - d. Mulching or hydroseeding to stabilize disturbed soils
 - e. Erosion control to protect slopes
 - f. Protection of storm drain inlets (gravel bags or catch basin inserts)
 - g. Perimeter sediment control (perimeter silt fence, fiber rolls)
 - h. Sediment trap or sediment basin to retain sediment on site
 - i. Stabilized construction exits
 - j. Wind erosion control
 - k. Other soil loss BMP acceptable to the enforcing agency
2. Housekeeping BMPs Good housekeeping BMP to manage construction equipment, materials, and wastes that should be considered for implementation as appropriate for each project include, but are not limited to, the following:
 - a. Material handling and waste management
 - b. Building materials stockpile management
 - c. Management of washout areas (concrete, paints, stucco, etc.)
 - d. Control of vehicle/equipment fueling to contractor's staging area
 - e. Vehicle and equipment cleaning performed off site
 - f. Spill prevention and control
 - g. Other housekeeping BMP acceptable to the enforcing agency

Recommendation:

Based on criterion 4, CBSC proposes to add an "other" BMP for both soil loss and housekeeping.

Rationale:

Based on comment from the commercial building industry, CBSC proposes the addition of an “other” BMP acceptable to the enforcing agency to provide flexibility for compliance by the developer and for enforcement by the regulatory agency. The addition is consistent with other provisions of this code.

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A5.106.8 Light pollution reduction. Outdoor lighting systems shall be designed and installed to comply with the following:

1. The minimum requirements in the California Energy Code for Lighting Zones 1-4 as defined in Chapter 10 of the California Administrative Code; and
2. Backlight, Uplight and Glare (BUG) ratings as defined in IESNA TM-15-07 ~~11~~; and
3. Allowable BUG ratings not exceeding those shown in Table A5.106.8, or

Comply with a local ordinance lawfully enacted pursuant to Section 101.7, whichever is more stringent.

Exceptions:

1. Luminaires that qualify as exceptions to Section 147 of the California Energy Code
2. Emergency lighting

Note: See also California Building Code, Chapter 12, Section 1205.6 for college campus lighting requirements for parking facilities and walkways.

5.106.8.1 Effective date. Newly constructed nonresidential projects with outdoor lighting for which an application for a building permits is submitted on or after July 1, 2012 shall comply with this section.

TABLE A5.106.8
Maximum Allowable Backlight, Uplight and Glare (BUG) Ratings^{1,2}

Allowable Rating	Lighting Zone 1	Lighting Zone 2	Lighting Zone 3	Lighting Zone 4
Maximum Allowable Backlight Rating³				
Luminaire greater than 2 mounting heights (MH) from property line	B3 No Limit	B4 No Limit	B5 No Limit	B5 No Limit
Luminaire back hemisphere is 1 – 2 mounting heights MH from property line and oriented with B towards the property line	B2	B3	B4	B4
Luminaire back hemisphere is 0.5 – 1 MH mounting height from property line and oriented with B towards the property line	B1	B2	B3	B3
Luminaire back hemisphere is Less than 0.5 MH mounting height from property line and oriented with B towards the property line	B0	B0	B1	B2
Less than 0.5 mounting height from property line adjacent to a street and oriented with B towards the property line²	B0	B4	B2	B3
Maximum Allowable Uplight Rating	U0	U4	U2	U3
For area lighting⁴	U0	U0	U0	U0
For all other outdoor lighting, including decorative luminaires	U1	U2	U3	U4
Maximum Allowable Glare Rating^{2,5}	G4	G2	G3	G4
Allowed Glare Rating, Building Mounted Luminaires³				
Luminaire greater than 2 MH mounting height to any from property line	G1	G2	G3	G4
Luminaire front hemisphere is 1 – 2 MH mounting height to any from property line	G0	G1	G1	G2
Luminaire front hemisphere is 0.5 – 1 mounting height to any from property line	G0	G0	G1	G1
Luminaire back hemisphere is Less than 0.5 mounting height to any from property line	G0	G0	G0	G1

¹ IESNA Lighting Zones 0 and 5 are not applicable; refer to Lighting Zones as defined in the California Energy Code and Chapter 10 of the California Administrative Code.

² ~~For purposes of compliance with this section, the property line may be considered to be the centerline of a public roadway or transit line. For properties adjacent to public walkways, bikeways, plazas and parking lots, the property line may be considered to be five feet beyond the site boundary. For property lines that abut public walkways, bikeways, plazas, and parking lots, the property line may be considered to be 5 feet beyond the actual property line for purpose of determining compliance with this~~

section. For property lines that abut public roadways and public transit corridors, the property line may be considered to be the centerline of the public roadway or public transit corridor for the purpose of determining compliance with this section.

3 ~~Building-mounted luminaires that cannot be mounted with their backlight to the property line shall meet the Allowed Glare rating for all luminaires. Light from a building-mounted luminaire shall not exceed the Backlight rating in the direction of the property line. If the nearest property line is less than or equal to two mounting heights from the back hemisphere of the luminaire distribution, the applicable reduced Backlight rating shall be met.~~

4 General lighting luminaires in areas such as outdoor parking, sales or storage lots shall meet these reduced ratings. Decorative luminaires located in these areas shall meet U value limits for "all other outdoor lighting".

5 If the nearest property line is less than or equal to two mounting heights from the front hemisphere of the luminaire distribution, the applicable reduced Glare rating shall be met.

Recommendation:

Based on criterion 7, CBSC proposes to reference the latest 2011 edition of the Illuminating Engineers Society of North America (IESNA) allowable backlight, uplight and glare (BUG) ratings for outdoor lighting and add a paragraph concerning the effective date of mandatory compliance.

Rationale:

The modifications are based on CBSC emergency approval of these provisions based on the 2007 IESNA ratings. The 2010 code provisions were the subject of a petition, which cited public safety concerns and requested alignment with IESNA standards and the provisions moved from mandatory to the voluntary appendix on an emergency basis. The modifications represent agreement with the petitioner to update the standards when adopted by IESNA and to delay mandatory compliance until the effective date of the July 1, 2012 code supplement.

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**CHAPTER 5
DIVISION 5.3 WATER EFFICIENCY AND CONSERVATION**

**SECTION 5.303
INDOOR WATER USE**

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5.303.1 Meters. Separate submeters or metering devices shall be installed for the uses described in Sections 5.303.1.1 and 5.303.1.2.

5.303.1.1 Buildings in excess of 50,000 square feet (4645 m²). Separate submeters shall be installed as follows:

1. For each individual leased, rented, or other tenant space within the building projected to consume more than 100 gal/day (380 L/day), including, but not limited to, spaces used for laundry or cleaners, restaurant or food service, medical or dental office, laboratory, or beauty salon or barber shop.
2. ~~For spaces used for laundry or cleaners, restaurant or food service, medical or dental office, laboratory, or beauty salon or barber shop projected to consume more than 100 gal/day~~ Where separate submeters for individual building tenants are unfeasible, for water supplied to the following subsystems:
 - a. Makeup water for cooling towers where flow through is greater than 500 gpm (30 L/s)
 - b. Makeup water for evaporative coolers greater than 6 gpm (0.04 L/s)
 - c. Steam and hot-water boilers with energy input more than 500,000 Btu/h (147 kW)

Recommendation:

Based on criterion 6, CBSC proposes to add the phrase "water supplied to" in Item 2.

Rationale:

Based on comment from the commercial building industry, this clarification is needed to distinguish these submeters from hot water meters, which currently are not regulated with consistency throughout the state and which are the subject of pending legislation.

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**CHAPTER 5
DIVISION 5.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY**

**SECTION 5.408
CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING**

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5.408.2 1 Construction waste management plan. Recycle and/or salvage for reuse a minimum of 50% of the non-hazardous construction waste in accordance with Section 5.408.1.1, 5.408.1.2 or 5.408.1.3; or meet a local

construction and demolition waste management ordinance, whichever is more stringent.

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5.408.1.2 Waste management company. Utilize a waste management company, ~~approved by the enforcing agency,~~ that can provide verifiable documentation that the percentage of construction waste material diverted from the landfill complies with this section.

Recommendation:

Based on criterion 4, CBSC proposes to delete the requirement that a waste management company selected by the contractor to haul and recycle construction waste be approved by the enforcing agency.

Rationale:

Based on comment from the commercial building industry, this change is made to reflect the variety of local communities and their relationships with waste haulers. Deleting the requirement for upfront approval by the enforcing agency increases flexibility of choice by the contractor, maintains the requirement for documentation of compliance with the 50% minimum diversion rate, and mitigates the burden on enforcing agencies for enforcement of CALGreen.

**SECTION 5.410
BUILDING MAINTENANCE AND OPERATION**

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5.410.2 Commissioning. For new buildings 10,000 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 project requirements. Commissioning shall be performed in accordance with this section by trained personnel with experience on projects of comparable size and complexity. Commissioning requirements shall include:

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. Documentation and training
7. Commissioning report

Exceptions:

1. Dry storage warehouses of any size
2. Areas under 10,000 square feet used for offices or other conditioned accessory spaces within dry storage warehouses
3. Tenant improvements under 10,000 square feet as described in Section 303.1.1.

All building ~~operating~~ 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.

Recommendation:

Based on criterion 6, CBSC proposes to add the word "operating" and delete "and components" from the last sentence.

Rationale:

Based on public comment, the changes in this scoping language provide clarity to the code user by focusing on operating building systems, distinguished from components making up the building envelope and fenestration, in the requirements for commissioning. Those components are subject to the provisions of the California Energy Code, but, unless they have moving parts, controls, integration with or other features of a working system, they do not need to be included for the purposes of commissioning.

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5.410.4 Testing and adjusting. Testing and adjusting of systems shall be required for buildings less than 10,000 square feet. ...

5.410.4.3 Procedures. Perform testing and adjusting procedures in accordance with manufacturer's specifications and industry best practices and applicable national standards on each system ~~as determined by the building official enforcing agency.~~

Recommendation:

Based on criteria 4 and 7, CBSC is adding references to manufacturer's specifications and applicable national standards, and deleting the determination of them by the enforcing agency.

Rationale:

The modifications provide clarity to the code user by referring to reasonable testing standards for the testing and adjusting procedures by the builder, and eliminate the duty of enforcement personnel to determine what those should be, which is beyond the scope of their responsibilities.

**CHAPTER 5
DIVISION 5.5 ENVIRONMENTAL QUALITY**

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**SECTION 5.502
DEFINITIONS**

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ARTERIAL HIGHWAY. A general term denoting a highway primarily for through traffic usually on a continuous route.

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EXPRESSWAY. An arterial highway for through traffic which may have partial control of access, but which may or may not be divided or have grade separations at intersections.

FREEWAY. A divided arterial highway with full control of access and with grade separations at intersections.

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Recommendation:

Based on criterion 6, CBSC proposes to add a definition for “arterial highway”.

Rationale:

The term is used in the definitions of “expressway” and “freeway” and should be clarified for the code user.

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**SECTION 504
POLLUTANT CONTROL**

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5.504.4.6 Resilient flooring systems. For 50% of floor area receiving resilient flooring, install resilient flooring complying with the VOC-emission limits defined in the 2009 Collaborative for High Performance Schools (CHPS) criteria and listed on its ~~Low emitting Materials List (or Product Registry)~~ High Performance Products Database; products compliant with CHPS criteria certified under the Greenguard Children & Schools program; or certified under the Resilient Floor Covering Institute (RFCI) FloorScore program; or meet California Department of Public Health 2010 Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.1, February 2010 (also known as Specification 01350.) ~~==~~

~~**Note:** Products compliant with CHPS criteria certified under the Greenguard Children & Schools program may also be used.~~

Recommendation:

Based on criterion 1, CBSC proposes to delete note regarding Greenguard products.

Rationale:

The note is redundant, since Greenguard is added specifically as an approved product in the regulation.

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**SECTION 5.507
ENVIRONMENTAL COMFORT**

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5.507.4 Acoustical control. Employ building assemblies and components with Sound Transmission ~~Coefficient~~ Class (STC) values determined in accordance with ASTM E90 and ASTM E413 or Outdoor-Indoor Sound Transmission Class (OITC) determined in accordance with ASTM E1332, using either the prescriptive or performance method in Section 5.507.4.1 or 5.507.4.2.

Recommendation:

Based on criterion 6, CBSC proposes to add a phrase concerning use of this section.

Rationale:

Based on comment from the commercial building industry, it is helpful to clarify that either, but not both, prescriptive or performance methods would apply to any given project.

Exception: Buildings with few or no occupants or where occupants are not likely to be affected by exterior noise, as determined by the enforcement authority, such as factories, stadiums, storage, enclosed parking structures, and utility buildings.

Recommendation:

Based on criterion 1, CBSC proposes to substitute the word “or” for the word “and”, and to move the exception in response to public comment.

Rationale:

“Or” is a more accurate word to clarify the permitted exceptions to exterior noise mitigation requirements, and moving it helps connect it to the relevant section.

5.507.4.1 Exterior noise transmission, prescriptive method. Wall and roof-ceiling assemblies exposed to the noise source making up the building envelope shall ~~have exterior wall and roof-ceiling assemblies meeting a composite an~~ STC rating of at least 50 or a composite OITC rating of no less than 40, ~~and exterior windows shall have a minimum STC of 30 with exterior windows of a minimum STC of 40 or OITC of 30 in the following locations:~~

1. Within the 65 CNEL noise contour of an airport . . .
2. Within the 65 CNEL or L_{dn} noise contour of a ~~road~~ freeway or expressway, railroad, transportation industrial source or fixed-guideway noise source as determined by the Noise Element of the General Plan

Recommendation:

Based on criteria 5 and 6, CBSC proposes

- To add a phrase in Section 5.507.4.1 for applicable sound exposure
- Editorially to delete duplicative language in Section 5.507.4.1
- To delete the words “road” and “transportation” and the terms “freeway” and “expressway”, “railroad”, “industrial source” or “fixed-guideway noise source” in Item 2 of Section 5.507.4.1.

Rationale:

Based on comment from the commercial building industry and steel framing industry, clarifications to the scope of the affected portions of a building are need to control costs of construction. Consistent use of defined terms and limiting sources of noise to those likely to be identified in a General Plan will simplify compliance and enforcement.

5.507.4.1.1 Noise exposure in other areas where noise contours are not readily available. Buildings exposed to a noise level of 65 dB Leq-1-hr during any hour of operation shall have exterior wall and roof-ceiling assemblies exposed to the noise source meeting a composite STC rating of at least 45 (or OITC 35), with exterior windows of a minimum STC of 40 (or OITC 30).

Recommendation:

Based on criterion 4, CBSC proposes to add a phrase in Sections 5.507.4.1.1 for applicable sound exposure, and to amend the leading phrase.

Rationale:

Based on comment from the commercial building industry, clarifications to the scope of the affected portions of a building are needed to control costs of construction. A representative of steel framing industry commented also concerning cost effectiveness, but he suggested removing this section altogether.

CBSC declines to accommodate the removal, because staff is advised by an acoustic consultant that this is intended as a less restrictive requirement within the prescriptive provisions. It is intended to provide an alternative for a rural setting, for example, where a project is proposed for siting near an railroad freight line or interstate highway, but the General Plan does not contain a Noise Element.

5.507.4.2 Performance alternative method. For buildings located as defined in Sections A5.507.4.1 or A5.507.4.1.1, wall and roof-ceiling assemblies exposed to the noise source making up the building envelope shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly equivalent noise level (L_{eq-1Hr}) of 50 dBA in occupied areas during any hour of operation.

5.507.4.2.1 Site features. Exterior features such as sound walls, vegetation and trees compliant with wildland-urban interface provisions of the California Fire Code may be utilized as appropriate to the project to mitigate sound migration to the interior.

5.507.4.2.4 2 Documentation of compliance. An acoustical analysis documenting complying interior sound levels shall be prepared by personnel approved by the architect or engineer of record.

Recommendation:

Based on criteria 5 and 6, CBSC proposes

- To substitute the word “method” for “alternative”;
- Add a phrase in Section 5.507.4.2 for applicable sound exposure, consistent with the prescriptive option; and
- To add a new subsection to recognize alternate exterior means of compliance.

Rationale:

Based on comment from the commercial building industry and steel framing industry, clarifications to the scope of the affected portions of a building and providing additional options for builders to use in mitigation of exterior noise transmission are necessary to define applicability and control costs of construction. Substitution of "method" for "alternative" provides consistency among the sections and emphasizes the "either-or" relationship of prescriptive and performance approaches.

~~**Exception:** Buildings with few or no occupants and whose occupants are not likely to be affected by exterior noise, as determined by the enforcement authority, such as factories, stadiums, storage, enclosed parking structures, and utility buildings.~~

Recommendation:

Based on criterion 1, CBSC proposes to move the exception in response to public comment.

Rationale:

Moving it makes it relate to the proper section.

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DIVISION 5.7 ADDITIONS AND ALTERATIONS TO EXISTING NONRESIDENTIAL BUILDINGS

SECTION 5.701
ADMINISTRATION

~~**5.701.1 Scope.** For those occupancies subject to section 103 of this code, the provisions of this division shall apply to the planning, design, operation, construction, use and occupancy of additions to and alterations of buildings or structures over 1,000 square feet and alterations with a permit valuation or estimated construction cost that exceeds \$200,000, unless otherwise indicated in this code. The provisions of this Division shall only apply to the portions of the building being added or altered within the scope of the permitted work. Compliance for additions and alterations is required on or before the dates shown in Table 5.701.~~

TABLE 5.701

<u>Effective date of compliance</u>	<u>Square footage of addition</u>	<u>Permit valuation or estimated construction cost of alteration</u>
<u>July 1, 2012</u>	<u>2000</u>	<u>\$500,000</u>
<u>Effective date of the 2013 California Building Standards Code</u>	<u>1000</u>	<u>\$200,000</u>

~~**Note:** The effective date of the 2013 California Building Standards Code currently is projected to be January 1, 2014.~~

Recommendation:

Based on criterion 5, CBSC proposes to phase in compliance dates for the size of additions and value of alterations that trigger the requirements of this division.

Rationale:

According to comment from the commercial building industry, the cost of compliance with the original proposal would be too high in the current depressed economy. Postponing that level of compliance until the triennial edition of the code in 2014 will also coordinate with the anticipated introduction of existing residential building regulations by the Department of Housing and Community Development.

~~**5.701.1 Scope.** For those occupancies subject to section 103 of this code, the provisions of this division shall apply to the planning, design, operation, construction, use and occupancy of additions to . . .~~

~~**Note:** This division does not apply to additions and alterations of qualified historical buildings.~~

Recommendation:

Based on criterion 2, CBSC proposes to add a note regarding the application of the proposed standards.

Rationale:

Clarify for code users the authority of CBSC for green building standards only where another state agency does not have authority or expertise pursuant to Health and Safety Code 18930.5.

~~**5.702.1 Definitions.** Unless otherwise stated, the following words and terms shall, for the purposes of this code, have the meanings shown in this division. Refer also to definitions in Chapter 2 of this code.~~

~~**ADDITION.** An extension or increase in floor area or height of an existing building or structure.~~

Recommendation:

Based on criterion 3, CBSC proposes to delete building height from the definition of "addition" for the purpose of green building standards.

Rationale:

Based on comment from the commercial building industry, an increase in height without an increase in floor area should not trigger this requirement, since it has the potential to discourage sale of buildings that could be modified, in compliance with other parts of Title 24, to accept specialized equipment.

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**SECTION 5.710
PLANNING AND DESIGN**

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5.710.6.3 Designated parking. For projects that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient, and carpool/van pool vehicles as shown in Table 5.106.2 5.2 of Division 5.1 based on the number of additional spaces.

5.710.6.3.1 Parking stall marking. Paint, in the paint used for stall striping, the following characters such that the lower edge of the last word aligns with the end of the stall striping and is visible beneath a parked vehicle:

~~“VANPOOL/ELECTRIC/
HOV LANE STICKER”~~

CLEAN AIR/
VANPOOL/EV

Recommendation:

Based on criterion 1, CBSC proposes to correct an incorrect table number reference and modify the parking stall marking language for additions and/or alterations that increase the number of designated parking stalls.

Rationale:

Make marking consistent with the same change made in the mandatory and voluntary sections for designated parking for new nonresidential construction.

5.710.6.4 ~~5.710.8~~ Reserved.

5.710.6.5 ~~5.710.9~~ Reserved.

5.710.6.6 ~~5.710.10~~ Grading and Paving. Construction plans shall indicate how site grading or a drainage system will manage all surface water flows to keep water from entering buildings.

Recommendation:

CBSC proposes to make editorial changes to the numbering of these sections.

Rationale:

Make numbering consecutive within the Planning and Design section.

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**SECTION 5.711
WATER EFFICIENCY AND CONSERVATION**

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5.712.3 Indoor water use.

5.712.3.1 Meters. Separate submeters or metering device shall be installed for the uses described in Sections 5.712.3.1.1 and 5.712.3.1.2.

Recommendation:

Based on criterion 8, CBSC proposes correct an erroneous number reference.

Rationale:

To provide clarity of references for the code user.

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5.712.3.1.1 Additions to existing buildings in excess of 50,000 square feet (4645 m²). Separate submeters shall be installed as follows:

1. For each individual leased, rented, or other tenant space within the building projected to consume more than 100 gal/day (380 L/day), including, but not limited to, spaces used for laundry or cleaners, restaurant or food service, medical or dental office, laboratory, or beauty salon or barber shop.
2. Where meters for individual building tenants are unfeasible, for water supplied to the following subsystems:
 - a. Makeup water for cooling towers where flow through is greater than 500 gpm (30 L/s)
 - b. Makeup water for evaporative coolers greater than 6 gpm (0.04 L/s)
 - c. Steam and hot-water boilers with energy input more than 500,000 Btu/h (147 kW)

Recommendation:

Based on criterion 1, CBSC proposes to add the words “water supplied to” in Item 2.

Rationale:

Make this section for additions and/or alterations consistent with the change proposed for the new construction section, in response to comments from the commercial building industry. See Section 5.3031.1.

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5.712.4.2 Outdoor potable water use. For building addition or alteration requiring upgraded water service for landscaped areas of at least 1000 square feet but not more than 5000 square feet (the level at which Water Code §535 applies), separate submeters or metering devices shall be installed for ~~indoor and~~ outdoor potable water use.

Recommendation:

Based on criterion 1, CBSC proposes to delete the words “indoor and”.

Rationale:

Make this section for additions and/or alterations consistent with the change proposed for the new construction section.

5.712.4.3 Irrigation design. In building addition or alteration with at least 1000 square feet but not more than 2500 square feet of cumulative landscaped area (the level at which the MLO applies), install irrigation controllers and sensors which include the following criteria, and meet manufacturer’s recommendations.

Exception: New irrigation controllers are not required when existing irrigation controllers have sufficient capacity to serve the new landscaped area.

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SECTION 5.713
MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

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5.713.10.1 Recycling by occupants. If not provided on the existing site and where site conditions permit, provide readily accessible areas that serve the entire building and are identified for the depositing, storage, and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics and metals in accordance with one of the following:

1. For additions or alterations by an owner or a tenant conducted within a 12-month period under single or multiple permits resulting in an increase of 30% or more in floor area
2. For additions or alterations by an owner or a tenant for which multiple permits are applied within a 12-month period resulting in an increase of 30% or more in floor area
3. As required by a lawfully enacted local recycling ordinance, if more restrictive.

5.713.10.1.1 Sample ordinance. Space allocation for recycling areas shall comply with Chapter 18, Part 3, Division 30 of the Public Resources Code. Chapter 18 is known as the California Solid Waste Reuse and Recycling Access Act of 1991 (Act).

Note: A sample ordinance for use by local agencies may be found in Appendix A of the document at the CalRecycle’s web site.

Recommendation:

Based on criterion 4, CBSC proposes the addition of language describing triggers for compliance.

Rationale:

Based on comment from the commercial building industry, clarify for the code user which projects are subject to the requirement for providing recycling areas for building occupants, which is required by the California Solid Waste Reuse and Recycling Access Act of 1991.

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5.713.10.4 Testing and adjusting. Testing and adjusting of new systems installed ~~in conjunction with~~ to serve an addition or alteration subject to Section 5.701.1 shall be required.

Recommendation:

Based on criterion 4, CBSC modify the scoping language of this section.

Rationale:

Based on comment from the commercial building industry, clarify for the code user which projects are subject to the requirement for testing and adjusting of systems.

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SECTION 5.714
ENVIRONMENTAL QUALITY

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5.714.7 Environmental comfort

5.714.7.1 Acoustical control. Employ building assemblies and components with Sound Transmission Class (STC) values determined in accordance with ASTM E90 and ASTM E413 or Outdoor-Indoor Sound Transmission Class (OITC) determined in accordance with ASTM E1332 using either the prescriptive or performance method in Section 5.507.4.1 or 5.507.4.2.

Exception: Buildings with few or no occupants and/or where occupants are not likely to be affected by exterior noise, as determined by the enforcement authority, such as factories, stadiums, storage, enclosed parking structures, and utility buildings.

5.714.7.1.1 Exterior noise transmission, performance prescriptive method. Wall and roof-ceiling assemblies exposed to the noise source making up the building addition or altered envelope shall ~~be constructed to provide an interior noise environment that does not exceed an hourly equivalent noise level (L_{eq-1Hr}) of 50 dBA in occupied areas for any of have exterior wall and roof ceiling assemblies meeting a composite STC rating of at least 50 or a composite OITC rating of no less than 40, with exterior windows of a minimum STC of 40 or OITC of 30 in the following building locations:~~

1. Within the 65 CNEL noise contour of an airport

Exceptions:

1. L_{dn} or CNEL for military airports shall be determined by the facility Air Installation Compatible Land Use Zone (AICUZ) plan.
2. L_{dn} or CNEL for other airports and heliports for which a land use plan has not been developed shall be determined by the local general plan noise element.

2. Within the 65 CNEL or L_{dn} noise contour of a freeway or expressway, railroad, industrial source or fixed-guideway noise source as determined by the Noise Element of the General Plan

1. Within 1000 ft. (300 m.) of right of ways of expressways or freeways.
2. Within 5 mi. (8 km.) of airports serving more than 10,000 commercial jets per year.
3. Within 2,000 ft. (600 m) of active railroad tracks
4. Other than occasional sound due to church bells, train horns, emergency vehicles and public warning systems, where exterior sound levels exceed one of the following during occupied hours:
 - a. An L_{eq-1Hr} of 65 dBA
 - b. A 65 day night noise level (DNL/ L_{dn})
 - c. A 65 community noise exposure level (CNEL)

5.714.7.1.2 Exterior noise transmission, prescriptive method. Exterior wall and roof ceiling assemblies shall comply with either 5.407.4.1.1 or 5.407.4.1.2 as applicable.

5.714.7.1.2.1 Exposure to airport, road, or railroad noise. Buildings exposed to airport, road, or railroad noise shall have exterior wall and roof ceiling assemblies meeting a composite STC rating of at least 50 or a composite OITC rating of no less than 40, with exterior windows of a minimum STC of 40 or OITC of 30 in the following locations:

1. Within the 65 CNEL noise contour of an airport
2. Within the 65 CNEL or L_{dn} noise contour of a road as determined by the Noise Element of the General Plan
3. Within 1000 ft. of the horn sounding zone of active railroad tracks

5.714.7.1.1.1 5.714.7.1.2.2 Noise exposure in other areas where noise contours are not readily available. Buildings exposed to a noise exceeding sound levels in Section 5.407.4.1, Item 4 level of 65 dB $L_{eq-1-hr}$ during any hour of operation shall have exterior wall and roof-ceiling assemblies exposed to the noise source meeting a composite STC rating of at least 45 (or OITC 35), with exterior windows of a minimum STC of 40 (or OITC 30).

5.714.7.1.2 Performance method. For buildings located as defined in Sections A5.714.7.1.1 or A5.714.7.1.1.1, wall and roof-ceiling assemblies exposed to the noise source making up the building addition or altered envelope shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly equivalent noise level (L_{eq-1Hr}) of 50 dBA in occupied areas during any hour of operation.

5.714.4.1.2.1 Site features. Exterior features such as sound walls, vegetation and trees may be utilized as appropriate to the addition or alteration project to mitigate sound migration to the interior.

5.714.7.1.2.2 Documentation of compliance. An acoustical analysis documenting complying interior sound levels shall be prepared by personnel approved by the architect or engineer of record.

Exception: Buildings with few or no occupants and where occupants are not likely to be affected by exterior noise, as determined by the enforcement authority, such as factories, stadiums, storage, enclosed parking

~~structures, and utility buildings.~~

5.714.7.1.3 Interior sound transmission. Wall and floor-ceiling assemblies separating tenant spaces and tenant spaces and public places in additions and in alterations modifying existing partitions or installing new partitions shall have an STC of at least 40.

Note: Examples of assemblies and their various STC ratings may be found at the California Office of Noise Control: http://www.toolbase.org/PDF/CaseStudies/stc_icc_ratings.pdf.

Recommendation:

Based on criterion 1, CBSC proposes to change the language for acoustical control for additions and/or alterations modifying building envelopes exposed to significant noise.

Rationale:

Make the provisions consistent with the 45-day and 15-day language proposed for newly constructed buildings, but scoped for additions and alterations as appropriate.

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**CHAPTER 8
COMPLIANCE FORMS AND WORKSHEETS**

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**WORKSHEET (WS-2)
20 PERCENT REDUCTION WATER USE CALCULATION TABLE**

FIXTURE TYPE	FLOW-RATE (gpm) ^{2,1}		DURATION		DAILY USES		OCCUPANTS ^{3, 4, 2, 3}		GALLONS PER DAY
Showerheads		X	5 min.	X	1	X	<u>3</u>	=	
...									
Kitchen faucets	2.2	X	4 min.		1		<u>3</u>		
...									
Gravity tank type Water Closets		X	1 flush	X	1 male ^{4,5} 3 female	X		=	
HET ^{5,4} High Efficiency Toilet	1.28	X	1 flush	X	1 male ^{4,5} 3 female	X		=	
Flushometer Tank Water Closets		X	1 flush	X	1 male ^{4,5} 3 female	X		=	
Flushometer Valve Water Closets		X	1 flush	X	1 male ^{4,5} 3 female	X		=	
Electromechanical Hydraulic Water Closets		X	1 flush	X	1 male ^{4,5} 3 female	X		=	
...									
Proposed water use								=	
_____ (BWU from WS-1) X .80 = _____ Allowable water use									

...

**WORKSHEET (WS-3)
30-35 OR 40 PERCENT REDUCTION WATER USE CALCULATION TABLE**

FIXTURE TYPE	FLOW-RATE (gpm) ^{2,1}		DURATION		DAILY USES		OCCUPANTS ^{3, 4, 2, 3}		GALLONS PER DAY
Showerheads		X	5 min.	X	1	X	<u>3</u>	=	
...									

Kitchen faucets	2.2	X	4 min.		1		<u>3</u>		
...									
Gravity tank type Water Closets		X	1 flush	X	1 male ⁴⁵ 3 female	X			
HET ⁵⁴ High Efficiency Toilet	1.28	X	1 flush	X	1 male ⁴⁵ 3 female	X			
Flushometer Tank Water Closets		X	1 flush	X	1 male ⁴⁵ 3 female	X			
Flushometer Valve Water Closets		X	1 flush	X	1 male ⁴⁵ 3 female	X			
Electromechanical Hydraulic Water Closets		X	1 flush	X	1 male ⁴⁵ 3 female	X			
...									
Proposed water use								=	
30% Reduction _____ (BWU from WS-1) X .70 = _____ Allowable water use									
35% Reduction _____ (BWU from WS-1) X .65 = _____ Allowable water use									
40% Reduction _____ (BWU from WS-1) X .60 = _____ Allowable water use									

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Recommendation:

Based on criterion 8, CBSC proposes to remove the flow rate for kitchen faucets from water use worksheets WS-2 and WS-3.

Rationale:

Flow rate column is to be filled in by user from product specifications from plumbing fixtures.

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**APPENDIX A5
NONRESIDENTIAL VOLUNTARY MEASURES**

DIVISION A5.1 PLANNING AND DESIGN

**SECTION A5.106
SITE DEVELOPMENT**

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A5.106.9 Building orientation. Locate and orient the building as follows:

1. When site and location permit, orient the long axis of the building with the long sides facing within 30° of north and south east and west, with a maximum allowable deviation of 30°.

Recommendation:

Based on criterion 6, CBSC proposes to clarify language concerning direction and allowable deviation for optimum building orientation.

Rationale:

According to comment from the commercial building industry, the original change to “within 30° of north and south”, intended to coordinate with HCD language, was misleading. It could have meant that the building could be oriented on an angle from east/west as much as 60°.

A5.106.11 Heat island effect. Reduce non-roof heat islands by Section A5.106.11.1 and roof heat islands by A5.106.11.2.

A5.106.11.1 Hardscape alternatives. Use one or a combination of strategies 1 through 3 for 50% of site hardscape or put 50% of parking underground.

1. Provide shade (mature within 5 years of occupancy).
2. Use light colored/~~high albedo reflective~~ materials with an initial solar reflectance value of at least .30 as determined in accordance with American Society for Testing and Materials (ASTM) Standards E1918 or C1549.
3. Use open-grid pavement system or pervious or permeable pavement system.

Recommendation:

Based on criterion 6, CBSC proposes to delete the alternate descriptor "reflective" of the materials in Item 2.

Rationale:

Based on comment from the commercial building industry, this descriptor should be removed because it is not defined and because compliant materials must meet the ASTM standards listed in the item.

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DIVISION A5.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

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**SECTION A5.405
MATERIAL SOURCES**

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~~A5.405.4 Recycled content, [BSC, DSA-SS] Comply with the requirements for recycled content in Section A5.405.4.1. Tier 1 [BSC] Recycled content [DSA-SS] Use materials, equivalent in performance to virgin materials, with post-consumer or pre-consumer recycled content value (RCV) for a minimum of 10% of the total value, based on estimated cost of materials on the project. Provide documentation as to the respective values.~~

~~A5.405.4.1 Recycled content, Tier 2 [BSC] Use materials, equivalent in performance to virgin materials, with post-consumer or pre-consumer recycled content value (RCV) for a minimum of 15% of the total value, based on estimated cost of materials on the project. Provide documentation as to the respective values.~~

~~A5.405.4.2 Determination of recycled content value (RCV_M). [BSC, DSA-SS] The recycled content of a material assembly shall be determined by weight the fractional value of the weight is then multiplied by the total estimated cost of the material assembly~~

~~Note: Sources and recycled content of some recycled materials can be found at CalRecycle.~~

~~A5.405.4.1 Recycled content. Use materials, equivalent in performance to virgin materials with a total (combined) recycled content value (RCV) of:~~

~~Tier 1. The RCV shall not be less than 10 percent of the total material cost of the project.
Required Total RCV (dollars) = Total Material Cost (dollars) x 10 percent (Equation A5.4-1)~~

~~Tier 2. The RCV shall not be less than 15 percent of the total material cost of the project.
Required Total RCV (dollars) = Total Material Cost (dollars) x 15 percent (Equation A5.4-2)~~

~~For the purposes of this section materials used as components of the structural frame shall not be used to calculate recycled content. The structural frame includes the load bearing structural elements such as wall studs, plates, sills, columns, beams, girders, joists, rafters, and trusses.~~

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~~A5.405.4.1.4 Total material cost. Total material cost is the total estimated or actual cost of materials and assembly products used in the project. The required total recycled content value for the project (in dollars) shall be determined by Equation A5.4-1 or Equation A5.4-2.~~

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~~2. Detailed method. To obtain the total cost of the project Add the estimated and/or actual costs of materials used for the project including the structure (steel, concrete, wood or masonry); the enclosure (roof, windows, doors and exterior walls); the interior walls, ceilings and finishes (gypsum board, ceiling tiles, etc.). The total estimated and/or actual costs shall not include fees, labor and installation costs, overhead, appliances, equipment, furniture or furnishings.~~

~~A4.405.4.4.2 Determination of total recycled content value (RCV). Total RCV may be determined either by dollars or percentage as noted below.~~

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~~A5.405.4.4.3 Determination of recycled content value of materials (RCV_M). The recycled content value of each material (RCV_M) is calculated by multiplying the cost of material, as defined by the recycled content. See Equations A5.4-6 and A5.4-7.~~

~~RCV_M (dollars) = Material cost (dollars) x RC_M (percent) (Equation A5. 4-6)~~

~~RC_M (percent) = Post-consumer content percentage + (1/2) Pre-consumer content percentage (Equation A5. 4-7)~~

Notes:

~~1. If the post-consumer and pre-consumer recycled content is provided in pounds, Equation A5.4-7 may be~~

used, but the final result (in pounds) must be multiplied by 100 to show RC_M as a percentage.

~~2. If the manufacturer reports total recycled content of a material, in lieu of separately reporting pre-consumer and post-consumer values, the reported value shall be inserted directly into Equation A5.4.6.~~

~~2. If the manufacturer does not separately identify the pre-consumer and post-consumer recycled content of a material but reports it as a total single percentage, one half of the total shall be considered pre-consumer and one half shall be considered post-consumer recycled material.~~

A5.405.4.4.4. Determination of recycled content value of assemblies – (RC_A).

Recycled content value of assemblies is calculated by multiplying the total cost of assembly by the total recycled content of the assembly (RC_A), and shall be determined by Equation A5.4-8.

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~~**NOTE:** If the manufacturer reports total recycled content of a material, in lieu of separately reporting pre-consumer and post-consumer values, the reported value shall be inserted directly into Equation A5.4.10 and Equation A5.4.12, respectively. If the manufacturer does not separately identify the pre-consumer and post-consumer recycled content of a material but reports it as a total single percentage, one half of the total shall be considered pre-consumer and one half shall be considered post-consumer recycled material.~~

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A5.405.4.4.5. Alternate method for concrete. When Supplementary Cementitious Materials (SCMs), such as fly ash or ground blast furnace slag cement, are used in concrete, an alternate method of calculating and reporting recycled content in concrete products shall be permitted. When determining the recycled content value, the percent recycled content shall be multiplied by the cost of the cementitious materials only, not the total cost of the concrete.

~~**A5.405.4.3 Concrete.** When Supplementary Cementitious Materials (SCM) are used in concrete, the RCV shall be based on the weight or percentage of cement replaced rather than the entire concrete mix. Material cost shall be based on the cost of the cement plus the SCM.~~

~~¹Total Material Costs is the estimated or actual material costs of the project excluding appliances, equipment, furniture and furnishings.~~

~~²Material Cost is the estimated or actual cost of the material including taxes but shall not include fees, labor and installation costs, or overhead.~~

Recommendation:

Based comments from the wood industry and on criterion 6, in coordination with the Department of Housing and Community Development, CBSC proposes

- To add language concerning limiting recycled materials to non-load-bearing building products and
- To revise language concerning recycled materials with a reported single percentage of recycled content and no breakdown of post- or pre-consumer content.
- Editorially to renumber and remove duplicative or extraneous language.

Rationale:

Based on commentary from representatives of the wood industry, including structural load-bearing building materials could create a preference for structural materials other than wood that may have recycled content. Wood is a renewable material but typically does not have recycled content.

The other changes proposed in this section are to provide clarity for code user that, if a manufacturer reports recycled content in a single percentage, say 20%, the default is to divide that percentage equally into post-consumer and pre-consumer recycled content, and calculate the total recycled content based on their weighted values. These changes are non-regulatory notes that provide guidance.

DIVISION A5.5 ENVIRONMENTAL QUALITY

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SECTION A5.504 ENVIRONMENTAL QUALITY

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A5.504.4.7.1 Resilient flooring systems, Tier 2. For 90% of floor area receiving resilient flooring, install resilient flooring complying with the VOC-emission limits defined in the 2009 Collaborative for High Performance Schools (CHPS) criteria and listed on its Low-emitting Materials List (or Product Registry) High Performance Products Database; products compliant with CHPS criteria certified under the Greenguard Children & Schools program; or certified under the Resilient Floor Covering Institute (RFCI) FloorScore program; or meet California Department of Public Health 2010 Standard Method for the Testing and Evaluation of Volatile Organic Chemical

Emissions from Indoor Sources Using Environmental Chambers, Version 1.1, February 2010 (also known as Specification 01350.)

~~**Note:** Products compliant with CHPS criteria certified under the Greenguard Children & Schools program may also be used.~~

Recommendation:

Based on criterion 1, CBSC proposes to delete note regarding Greenguard products.

Rationale:

The note is redundant, since Greenguard is added specifically as an approved product in the regulation.

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