

**EXPRESS TERMS  
OF  
PROPOSED BUILDING STANDARDS  
OF THE  
DIVISION OF THE STATE ARCHITECT - STRUCTURAL SAFETY (DSA-SS)**

**REGARDING ADOPTION OF THE 2008 GREEN BUILDING STANDARDS CODE  
FOR USE IN THE CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 11**

**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 California Building Standards Commission (CBSC) proposes to adopt the 2010 edition of the *California Green Building Standards Code (CGBSC)* as shown on the following pages. Adopt new text as follows:

The DSA-SS proposes to adopt the 2010 edition of the *California Green Building Standards Code (CGBSC)* as follows:

- Amend and adopt as amended existing CGBS in Part 11.
- Adopt new CGBS in Part 11.

**Legend for Express Terms:**

1. Amended CGBS regulations appear in ~~strikeout~~ and underlined.
2. New CGBS regulations appear as underlined.

**CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE  
CHAPTER 1 - ADMINISTRATION**

Adopting Agency		DSA SS
Adopt entire California Chapter		
Adopt entire Chapter as amended (amended Sections listed below)		
Adopt only those Sections that are listed below		X
Chapter / Section		
101 GENERAL	AMEND	X
101.1 Title	NO CHANGES	X
101.2 Purpose	AMEND	<del>X</del>
101.3 Scope	AMEND	X
101.3.1 State-regulated buildings, structures and applications	AMEND	X
101.4 Appendices	NO CHANGES	X
101.5 Referenced codes and standards	NO CHANGES	X
101.5.1 Building	AMEND	X
101.5.2 Electrical	NO CHANGES	X
101.5.3 Mechanical	NO CHANGES	X
101.5.4 Plumbing	NO CHANGES	X
101.5.5 Fire prevention	NO CHANGES	X
101.5.6 Energy	NO CHANGES	X
101.6 Order of precedence and use	NO CHANGE	X
101.6.1 Differences	AMEND	X

101.6.2 Specific provision	NO CHANGES	X
101.6.3 Conflicts	NO CHANGES	X
101.6.4 Explanatory notes	AMEND	X
101.7 City, county, or city and county amendments, additions or deletions	AMEND	X
101.7.1 Findings and filings	AMEND	X
101.8 Alternate materials, designs and methods of construction	AMEND	X
101.9 Effective date of this code	AMEND	X
101.10 Mandatory requirements	AMEND	X
101.11 Effective use of this code	AMEND	X
102 CONSTRUCTION DOCUMENTS AND INSTALLATION VERIFICATION	ADOPT	X
102.1 Submittal documents	AMEND	X
101.2 Information on construction documents	NO CHANGES	X
102.3 Verification	NO CHANGES	X
<u>103 BUILDING STANDARDS COMMISSION</u>	ADOPT	X
<u>103.1</u>	ADOPT	X
105 DIVISION OF THE STATE ARCHITECT	AMEND	X
105.1	NO CHANGES	X
105.1.1 Application	AMEND	X
105.1.2 Applicable administrative standards	AMEND	X
105.1.3 Applicable building standards	AMEND	X

## SECTION 101 - GENERAL

**101.1 Title.** These regulations ...

**101.2 Purpose.** The purpose of this code is to improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact, or positive environmental impact and encouraging sustainable construction practices in the following categories:

1. Planning
2. Energy ...
3. Water ...
4. Material ...
5. Environmental air quality.

**101.3 Scope.** The provisions of this code shall apply to the planning, design, operation, construction, ~~replacement,~~ use and occupancy, ~~location, maintenance, removal, and demolition~~ of every newly constructed building or structure, ~~or any appurtenances connected or attached to such building structures~~ unless other wise indicated in this code, throughout the State of California.

It is not the intent ~~of the California Building Standards Commission~~ that this code substitute or be identified as meeting the certification requirements of any green building program ~~that is not established and adopted by the California Building Standards Commission.~~

**101.3.1 State-regulated buildings, structures and applications.** Provisions of this code shall apply to the following buildings, structures, and applications regulated by state agencies as referenced in the Matrix Adoption Tables and as specified in Sections 103 through 106, except where modified by local ordinance pursuant to Section 101.7. When adopted by a state agency, the provisions of this code shall be enforced by the appropriate enforcing agency, but only to the extent of authority granted to such agency by ~~the State Legislature statute.~~

1. State-owned buildings, ...
2. Energy efficiency standards ...
3. Low-rise residential buildings ...
4. Public elementary and secondary schools, and community college buildings regulated by the Division of the State Architect. See Section 105 for additional scope provisions.
5. Qualified historical buildings ...
6. General acute ...
7. Graywater ...

#### 101.4 Appendices. ...

#### 101.5 Referenced codes and standards. ...

**101.5.1 Building.** The provisions of the *California Building Code* and *California Residential Code*, as applicable shall apply to the construction, alteration, movement, enlargement, replacement, repair, use and occupancy, location, maintenance, removal and demolition of every structure or any appurtenances connected or attached to such buildings or structures.

**101.5.2 Electrical.** ...

**101.5.3 Mechanical.** ...

**101.5.4 Plumbing.** ...

**101.5.5 Fire prevention.** ...

**101.5.6 Energy.** ...

#### 101.6 Order of precedence and use.

**101.6.1 Differences.** In the event of any differences between these building standards and the standard reference documents, the text of these building standards shall govern. In the event a local amendment to this code results in differences between these building standards and the amendment, the text of the amendment shall govern.

**101.6.2 Specific provision.** ...

**101.6.3 Conflicts.** ...

**101.6.4. Explanatory notes.** Explanatory material, such as references to web sites or other sources where additional information may be found, is included in this code in the form of notes. Notes are informational only and are not enforceable requirements of this code.

**101.7 City, county, or city and county amendments, additions or deletions.** ~~It is the intent of the California Building Standards Commission, by adopting this code, This code is intended to set mandatory minimum Green Building Standards and include optional tiers that may, at the discretion of any local government entity, city, county or city and county, be applied. It is the further intent of the California Building Standards Commission that all entities subject to this code view these standards as minimal Green Building Standards and that local government entities retain their discretion to exceed the standards established by this code. It is the further intent of the California Building Standards Commission to encourage state and local government entities, private entities and interested members of the public to provide the Commission with input regarding the efficacy of this code, in order to assist the Commission in preparing mandatory Green Building Standards during the next code cycle.~~

This code does not limit the authority of city, county, or city and county governments to make necessary changes to the provisions contained in this code pursuant to Section 101.7.1. The effective date of amendments, additions, or

deletions to this code ~~of~~ for cities, counties, or city and counties filed pursuant to Section 101.8.1 shall be the date on which it is filed. However, in no case shall the amendments, additions or deletions to this code be effective any sooner than the effective date of this code.

Local modifications shall comply with Health and Safety Code Section 18941.5(b) for Building Standards Law, Health and Safety Code Section 17958.5 for State Housing Law or Health and Safety Code Section 13869.7 for Fire Protection Districts.

#### **101.7.1 Findings and filings.**

1. The city, county, or city and county shall make express findings for each amendment, addition or deletion based upon climatic, topographical, or geological conditions. For the purpose of this section, climatic conditions include local environmental conditions as established by the city, county, or city and county.
2. The city, ...
3. Findings ...
4. The city, county, or city and county shall obtain California Energy Commission approval for any energy related ordinances consistent with PRC Public Resources Code 25402.1(h)(2) and Title 24, Part 1, Section 10-106. Local governmental agencies may adopt and enforce energy standards for newly constructed buildings, additions, alterations, and repairs provided the California Energy Commission finds that the standards will require buildings to be designed to consume no more energy than permitted by Part 6. Such local standards include, but are not limited to, adopting the requirements of Part 6 before their effective date, requiring additional energy conservation measures, or setting more stringent energy budgets.

**101.8 Alternate materials, designs and methods of construction.** The provisions of this code are not intended to prevent the use of any alternate material, appliance, installation, device, arrangement, method, design or method of construction not specifically prescribed by this code provided that any such alternative has been approved. An alternate may be approved on a case-by-case basis where the enforcing agency finds that the proposed alternate is satisfactory and complies with the intent of the provisions of this code and is at least the equivalent of that prescribed in this code in planning and design, energy, water, material, resource efficiency and conservation, environmental air quality, performance, safety, and the protection of life and health. Consideration and compliance provisions for occupancies regulated by adopting state agencies are found in the sections listed below.

1. Section ~~404.14, 1.2.2 in the Appendix Chapter 1, 2007 California Building Code~~ (CBC) for the California Building Standards Commission ~~and the Division of the State Architect.~~
2. Section ~~408.7.2, 1.8.7, Chapter 1, Administration, Division 1, of the 2010 California Building Code~~ CBC for the Department of Housing and Community Development.
3. Section 7-104, ...

**101.9 Effective date of this code.** Only those standards approved by the California Building Standards Commission that are effective at the time an application for a building permit is submitted shall apply to the plans and specifications for, and to the construction performed under, that permit. For the effective dates of the provisions contained in this code, see the appropriate application checklist matrix in Chapter 14 of this code and the History Note page of this code.

**101.10 Mandatory requirements.** This code contains both mandatory and voluntary ~~and mandatory~~ green building measures. Mandatory and voluntary measures are identified in the appropriate application matrix contained in ~~Chapter 14~~ of this code.

#### **101.11 Effective use of this code. ...**

1. Establish ...
2. Verify ...
3. Once the appropriate agency has been identified, find the chapter which covers the established occupancy ~~the application matrix for that agency in Chapter 14.~~

4. ~~The application Matrix Adoption Tables at the beginning of Chapters 4 and 5 will list identify the required green building measures necessary to meet the minimum requirements of this code adopted and provide the effective date and other information regarding each green building measure applicable to for the established occupancy.~~
5. Voluntary tier measures are contained in Appendix Chapters A4 and A5. A Checklist containing each Each green building measure, both required and voluntary is provided at the end of each appendix chapter. Each measure listed in the application matrix checklist has a section number which correlates with a section number in Chapters 4 through 8 to a section where more information about the specific measure is available.
6. ~~More information is available for each green building measure listed in the application matrix in the correlated sections contained in Chapters 4 through 8. The Application Checklist identifies which measures are required by this code and allows users to check-off which voluntary items have been selected to meet voluntary tier levels if desired or mandated by a city, county or city and county.~~

## **SECTION 102 - CONSTRUCTION DOCUMENTS AND INSTALLATION VERIFICATION**

**102.1 Submittal documents.** Construction documents and other data shall be submitted in one or more sets with each application for a permit. Where special conditions exist, the enforcing agency is authorized to require additional construction documents to be prepared by a licensed design professional and may be submitted separately.

**Exception:** The enforcing agency is authorized to waive the submission of construction documents and other data not required to be prepared by a licensed design professional.

**102.2 Information on construction documents. ...**

**102.3 Verification. ...**

## **SECTION 103 - BUILDING STANDARDS COMMISSION**

**103.1 Specific scope of application of the agency responsible for enforcement, the enforcement agency, and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.**

**1. All occupancies.**

**Application** – New construction, unless otherwise indicated in this code, of State buildings (all occupancies), including buildings constructed by the Trustees of the California State University and the Regents of the University of California and all occupancies where no state agency has the authority to adopt building standards applicable to such buildings.

**Enforcing Agency** – State or local agency specified by the applicable provisions of law.

**Authority Cited** – 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.

**2. University of California, California State Universities, and California Community Colleges.**

**Application** – Standards for lighting for parking lots and primary campus walkways at the University of California, California State Universities, and California Community Colleges.

**Enforcing Agency** – State or local agency specified by the applicable provisions of law.

**Authority Cited** – Government Code Section 14617.

**Reference** – Government Code Section 14617.

3. **Existing State-Owned Buildings, including those owned by the University of California and by the California State University.**

**Application** – Building seismic retrofit standards including abating falling hazards of structural and nonstructural components and strengthening of building structures. See also Division of the State Architect.

**Enforcing Agency** – State or local agency specified by the applicable provisions of law.

**Authority Cited** – Government Code Section 16600.

**Reference** – Government Code Sections 16600 through 16604.

4. **Unreinforced Masonry Bearing Wall Buildings.**

**Application** – Minimum seismic strengthening standards for buildings specified in Appendix Chapter 1 of the California Code for Building Conservation, except for buildings subject to building standards adopted pursuant to Part 1.5 (commencing with Section 17910).

**Enforcing Agency** – State or local agency specified by the applicable provisions of law.

**Authority Cited** – Health and Safety Code Section 18934.6.

**Reference** – Health and Safety Code Sections 18901 through 18949.

## SECTION 105 - DIVISION OF THE STATE ARCHITECT

**105.1** Specific scope of application of the agency responsible for enforcement, the enforcement agency, and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated

**105.1.1 Application** — ~~New construction, unless otherwise indicated in this code, for public elementary and secondary schools, and community colleges. The Division of the State Architect Structural Safety (DSA-SS) is authorized by law to promulgate building standards and administrative regulations for application to public elementary and secondary schools, and community colleges.~~

**Enforcing agency** — The Division of the State Architect - Structural Safety (DSA-SS) has been delegated the responsibility and authority by the Department of General Services to review and approve the design and observe the construction of public elementary and secondary schools, and community colleges.

**Authority cited** — Education Code Sections 17310 and 81142.

**Reference** — Education Code Sections 17280 through 17317, and 81130 through 81147.

**105.1.2 Applicable administrative standards.**

1. **Title 24, Part 1, California Code of Regulations:**  
Sections 4-301 through 4-355, Group 1, Chapter 4, for public elementary and secondary schools and community colleges.

2. **Title 24, Part 2, California Code of Regulations:**

2.1 Sections 404 1.1 and 409.2 1.9.2 of Chapter 1, Division I.

2.2 Sections 102.1, 102.2, 102.3, 102.4, 102.5, 104.9, 104.10 and 104.11 of Appendix Chapter 1, Division II.

**105.1.3 Applicable building standards.** *California Building Standards Code*, Title 24, Parts 2, 3, 4, 5, 6, 9, 11 and 12, *California Code of Regulations*, for school buildings and community colleges.

~~—Green building standards contained in Part 11, Title 24 are not adopted at this time for mandatory application to public schools and community colleges. DSA-SS will be proposing the adoption of green building standards into Part 11 of the 2010 edition Title 24 California Building Standards Code.~~

**Notation:**

Authority – Education Code Sections 17280--17317 and 81130--81147.

Reference – Education Code Sections 17310 and 81142.

**CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE  
CHAPTER 2—DEFINITIONS**

Adopting Agency		DSA SS
Adopt entire California Chapter		
Adopt entire Chapter as amended (amended Sections listed below)		
Adopt only those Sections that are listed below		<b>X</b>
Chapter / Section		
<u>201 GENERAL</u>	ADOPT	<u>X</u>
<u>201.1 Scope</u>	ADOPT	<u>X</u>
<u>201.2 Interchangeability</u>	ADOPT	<u>X</u>
<u>201.3 Terms defined in other documents</u>	ADOPT	<u>X</u>
<u>201.4 Terms not defined</u>	ADOPT	<u>X</u>
<u>202 DEFINITIONS</u>	ADOPT	<u>X</u>
<u>AUTOMATIC</u>	ADOPT	<u>X</u>
<u>BUILDING ENVELOPE</u>	ADOPT	<u>X</u>
<u>CALIFORNIA BUILDING CODE.</u>	ADOPT	<u>X</u>
<u>CALIFORNIA ELECTRICAL CODE.</u>	ADOPT	<u>X</u>
<u>CALIFORNIA ENERGY CODE</u>	ADOPT	<u>X</u>
<u>CALIFORNIA MECHANICAL CODE</u>	ADOPT	<u>X</u>
<u>CALIFORNIA PLUMBING CODE</u>	ADOPT	<u>X</u>
<u>CONDITIONED SPACE</u>	ADOPT	<u>X</u>
<u>COOLING EQUIPMENT</u>	ADOPT	<u>X</u>
<u>ENERGY COMMISSION</u>	ADOPT	<u>X</u>
<u>ENFORCING AGENCY</u>	ADOPT	<u>X</u>
<u>GREEN BUILDING</u>	ADOPT	<u>X</u>
<u>INFILTRATION</u>	ADOPT	<u>X</u>
<u>KITCHEN</u>	ADOPT	<u>X</u>
<u>LOW-RISE RESIDENTIAL BUILDING</u>	ADOPT	<u>X</u>
<u>OUTDOOR AIR (Outside air)</u>	ADOPT	<u>X</u>
<u>RESIDENTIAL BUILDING</u>	ADOPT	<u>X</u>
<u>RESILIENT FLOORING</u>	ADOPT	<u>X</u>
<u>VAPOR BARRIER</u>	ADOPT	<u>X</u>

**SECTION 201 - GENERAL**

**201.1 Scope.** Unless otherwise stated, the following words and terms shall, for the purposes of this code, have the meanings shown in this chapter.

**201.2 Interchangeability.** Words used in the present tense include the future; words stated in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural, the singular.

**201.3 Terms defined in other documents.** Where terms are not defined in this code and are defined in the *California Building Standards Code* or other referenced documents, such terms shall have the meanings ascribed to them as in those publications.

**201.4 Terms not defined.** Where terms are not defined as specified in this section, such terms shall have ordinarily accepted meanings such as the context implies.

## **SECTION 202 - DEFINITIONS**

**AUTOMATIC.** Automatic means capable of operating without human intervention.

**BUILDING ENVELOPE.** The ensemble of exterior and demising partitions of a building that enclose conditioned space.

**CALIFORNIA BUILDING CODE.** The current version of the *California Building Code*.

**CALIFORNIA ELECTRICAL CODE.** The current version of the *California Electrical Code*.

**CALIFORNIA ENERGY CODE.** The current version of the *California Energy Code* unless otherwise specified.

**CALIFORNIA MECHANICAL CODE.** The current version of the *California Mechanical Code*.

**CALIFORNIA PLUMBING CODE.** The current version of the *California Plumbing Code*.

**CONDITIONED SPACE.** A space in a building that is either directly conditioned or indirectly conditioned.

**COOLING EQUIPMENT.** Equipment used to provide mechanical cooling for a room or rooms in a building.

**ENERGY COMMISSION.** The California State Energy Resources Conservation and Development Commission.

**ENFORCING AGENCY.** The designated department or agency as specified by statute or regulation.

**GREEN BUILDING.** A holistic approach to design, construction, and demolition that minimizes the building's impact on the environment, the occupants and the community.

**INFILTRATION.** An uncontrolled inward air leakage from outside a building or unconditioned space, including leakage through cracks and interstices, around windows and doors and through any other exterior or demising partition or pipe or duct penetration.

**KITCHEN.** That portion in a residential dwelling unit that is a room or area used for cooking, food storage and preparation and washing dishes, including associated counter tops and cabinets, refrigerator, stove, ovens and floor area.

**LOW-RISE RESIDENTIAL BUILDING.** A building, other than a hotel/motel, that is of Occupancy Group R, Division 1, and is three stories or less, or that is of Occupancy Group R, Division 3.

**OUTDOOR AIR (Outside air).** Air taken from outdoors and not previously circulated in the building.

**RESIDENTIAL BUILDING.** (See "low-rise residential building.")

**RESILIENT FLOORING.** Refers to non-textile flooring materials which have a relatively firm surface, yet characteristically have "give" and "bounce back" to their original surface profile from the weight of objects that compress its surface. Resilient flooring materials are made in various shapes and sizes including both tile and roll form. Common types of resilient flooring include but are not limited to:

1. Vinyl composition tile
2. Vinyl tile and sheet flooring

3. Linoleum tile and sheet
4. Cork tile and sheet flooring
5. Rubber tile and sheet flooring
6. Polymeric poured seamless flooring
7. Other types of non-textile synthetic flooring

**VAPOR BARRIER.** Material that has a permeance of one perm or less and that provides resistance to the transmission of water vapor.

**CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE**  
**CHAPTER 3—GREEN BUILDING**

Adopting Agency		DSA SS
Adopt entire California Chapter		
Adopt entire Chapter as amended (amended Sections listed below)		
Adopt only those Sections that are listed below		X
Chapter / Section		
<u>301 GENERAL</u>	ADOPT	X
<u>301.1 Scope</u>	ADOPT	X
<u>302 MIXED OCCUPANCY BUILDINGS</u>	ADOPT	X
<u>302.1 Mixed occupancy buildings</u>	ADOPT	X

**SECTION 301 - GENERAL**

**301.1 Scope.** Buildings shall be designed to include the green building measures specified as mandatory in the application checklists contained in this code. Voluntary green building measures are also included in the application checklists and may be included the design and construction of structures covered by this code but are not required unless adopted by a city, county or city and county as specified in Section 101.7.

**SECTION 302 - MIXED OCCUPANCY BUILDINGS**

**302.1 Mixed occupancy buildings.** In mixed occupancy buildings, each portion of a building shall comply with the specific green building measures applicable to each specific occupancy.

**SECTION 303 - PHASED PROJECTS**

**303.1 Phased projects.** For shell buildings and others constructed for future tenant improvements, only those code measures relevant to the building components and systems considered to be new construction shall apply.

**303.1.1 Tenant improvements.** The provisions of this code shall apply only to the initial tenant improvements to a project.

**SECTION 304 - VOLUNTARY TIERS**

**304.1 Purpose.** Voluntary tiers are intended to further encourage building practices that improve public health, safety and general welfare by promoting the use of building concepts which minimize the building's impact on the

environment, promote a more sustainable design.

**304.1.1 Tiers.** The provisions of Appendix A5 outline means of achieving enhanced construction levels by incorporating additional measures. Buildings complying with tiers specified for each occupancy contain additional required and voluntary green building measures necessary to meet the threshold of each level.

**CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE**  
**CHAPTER 5**  
**NONRESIDENTIAL MANDATORY MEASURES**  
**DIVISION 5.1 PLANNING AND DESIGN**

Adopting Agency		DSA SS
Adopt entire California Chapter		
Adopt entire Chapter as amended (amended Sections listed below)		
Adopt only those Sections that are listed below		X
Chapter / Section		
<u>5.101 GENERAL</u>	ADOPT	X
<u>5.101.1 Purpose</u>	ADOPT	X
<u>5.102 DEFINITIONS</u>	ADOPT	X
<u>5.102.1 Definitions</u>	ADOPT	X
<u>CUTOFF LUMINAIRES</u>	ADOPT	X
<u>LOW-EMITTING AND FUEL EFFICIENT VEHICLES</u>	ADOPT	X
<u>NEIGHBORHOOD ELECTRIC VEHICLE (NEV)</u>	ADOPT	X
<u>PZEV</u>	ADOPT	X
<u>TENANT-OCCUPANTS</u>	ADOPT	X
<u>VANPOOL VEHICLE.</u>	ADOPT	X
<u>ZEV.</u>	ADOPT	X
<u>5.106 SITE DEVELOPMENT</u>	ADOPT	X
<u>5.106.4 Bicycle parking and changing rooms</u>	ADOPT	X
<u>5.106.4.1 Short-term</u>	ADOPT	X
<u>5.106.4.2 Long-term bicycle parking</u>	ADOPT	X
<u>5.106.4.3 Changing rooms</u>	ADOPT	X
<u>Table 5.106.4.3</u>	ADOPT	X
<u>5.106.5.2 Designated parking</u>	ADOPT	X
<u>Table 5.106.5.2</u>	ADOPT	X
<u>5.106.8 Light pollution reduction</u>	ADOPT	X
<u>5.106.10 Grading and paving</u>	ADOPT	X

**SECTION 5.101 - GENERAL**

**5.101.1 Purpose.** The provisions of this chapter outline planning, design and development methods that include environmentally responsible site selection, building design, building siting and development to protect, restore, and enhance the environmental quality of the site and respect the integrity of adjacent properties.

**SECTION 5.102 - DEFINITIONS**

**5.102.1 Definitions.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in

this code, have the meanings shown herein.

**CUTOFF LUMINAIRES.** Luminaires whose light distribution is such that the candela per 100 lamp lumens does not numerically exceed 25 (2.5%) at an angle of 90° above nadir, and 100 (10%) at a vertical angle of 80° above nadir. This applies to all lateral angles around the luminaire.

**LOW-EMITTING AND FUEL EFFICIENT VEHICLES.** Eligible vehicles are limited to the following:

1. Zero emission vehicle (ZEV), including neighborhood electric vehicles (NEV), partial zero emission vehicle (PZEV), advanced technology PZEV (AT ZEV), or CNG fueled (Original equipment manufacturer only) regulated under Health and Safety Code section 43800 and CCR, Title 13, sections 1961 and 1962.
2. High efficiency vehicles, regulated by US EPA, bearing Single-Occupant Vehicle (SOV) car pool lane stickers issued by the Department of Motor Vehicles.

**NEIGHBORHOOD ELECTRIC VEHICLE (NEV).** A motor vehicle that meets the definition of "low-speed vehicle" either in section 385.5 of the Vehicle Code or in 49 CFR571.500 (as it existed on July 1, 2000), and is certified to zero-emission vehicle standards.

**PZEV.** Any vehicle certified by the California Air Resources Board as a Partial Credit Zero Emission Vehicle.

**TENANT-OCCUPANTS.** Building occupants who inhabit a building during its normal hours of operation as permanent occupants such as employees, as distinguished from customers and other transient visitors.

**VANPOOL VEHICLE.** Eligible vehicles are limited any motor vehicle, other than a motortruck or truck tractor, designed for carrying more than 10 but not more than 15 persons including the driver, which is maintained and used primarily for the nonprofit work-related transportation of adults for the purposes of ridesharing.

***Note:** Source: Vehicle Code, Division 1, Section 668.*

**ZEV.** Any vehicle certified to zero-emission standards.

## **SECTION 5.106 - SITE DEVELOPMENT**

**5.106.4 Bicycle parking and changing rooms.** Comply with Sections 5.106.4.1 through 5.106.4.3; or meet local ordinance or the University of California Policy on Sustainable Practices, whichever is stricter.

**5.106.4.1 Short-term bicycle parking.** If the project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 100 feet of the visitors' entrance, readily visible to passers-by, for 5% of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack.

**5.106.4.2 Long-term bicycle parking.** For buildings with over 10 tenant-occupants, provide secure bicycle parking for 5% of motorized vehicle parking capacity, with a minimum of one space. Acceptable parking facilities shall be convenient from the street and may include:

1. Covered, lockable enclosures with permanently anchored racks for bicycles;
2. Lockable bicycle rooms with permanently anchored racks; and
3. Lockable, permanently anchored bicycle lockers.

**5.106.4.3 Changing rooms.** For buildings with over 10 tenant-occupants, provide changing/shower facilities for tenant-occupants only in accordance with Table 5.106.4.3, or document arrangements with nearby changing/shower facilities.

**TABLE 5.106.4.3**

<u>Number of tenant-occupants</u>	<u>Shower/changing facilities required<sup>2</sup></u>	<u>2-tier (12" x 15" x 72") personal effects lockers<sup>1,2</sup> required</u>
<u>0-10</u>	<u>0</u>	<u>0</u>
<u>11-50</u>	<u>1 unisex shower</u>	<u>2</u>
<u>51-100</u>	<u>1 unisex shower</u>	<u>3</u>
<u>101-200</u>	<u>1 shower stall per gender</u>	<u>4</u>
<u>Over 200</u>	<u>1 shower stall per gender for each 200 additional tenant-occupants</u>	<u>1 2-tier locker for each 50 additional tenant-occupants</u>

<sup>1</sup> One 2-tier locker serves two people. Lockers shall be lockable with either padlock or combination lock.

<sup>2</sup> Tenant spaces housing more than 10 tenant-occupants within buildings sharing common toilet facilities need not comply; however, such common shower facilities shall accommodate the total number of tenant-occupants served by the toilets and include a minimum of 1 unisex shower and two 2-tier lockers.

**Note:** Additional information on recommended bicycle accommodations may be found at [http://www.sacbike.org/advocacy/state\\_bicycle\\_facilities/](http://www.sacbike.org/advocacy/state_bicycle_facilities/)

**5.106.5.2 Designated parking.** Provide designated parking for any combination of low-emitting, fuel-efficient, and carpool/van pool vehicles as follows:

**TABLE 5.106.5.2**

<u>Total Number of Parking Spaces</u>	<u>Number of Required Spaces</u>
<u>1-20</u>	<u>0</u>
<u>21-50</u>	<u>1</u>
<u>51-75</u>	<u>6</u>
<u>76-100</u>	<u>8</u>
<u>101-150</u>	<u>11</u>
<u>151-200</u>	<u>16</u>
<u>201 and over</u>	<u>At least 8% of total</u>

**5.106.8 Light pollution reduction.** Comply with lighting power requirements in the California Energy Code, CCR, Part 6, and design interior and exterior lighting such that zero direct-beam illumination leaves the building site. Meet or exceed exterior light levels and uniformity ratios for lighting zones 1-4 as defined in Chapter 10 of the California Administrative Code, CCR, Part 1, using the following strategies:

1. Shield all exterior luminaires or provide cutoff luminaires per Section 132 (b) of the California Energy Code.
2. Contain interior lighting within each source.
3. Contain all exterior lighting within property boundaries.
4. Automatically control exterior lighting dusk to dawn to turn off or lower light levels during inactive periods.

**Exceptions:**

1. Part 2, Chapter 12, Section 1205.6 for campus lighting requirements for parking facilities and walkways.
2. Emergency lighting and lighting required for nighttime security.

**5.106.10 Grading and Paving.** The site shall be planned and developed to keep surface water from entering buildings. Construction plans shall indicate how site grading or a drainage system will manage all surface water flows.

**Notation:**

Authority – Education Code Sections 17280--17317 and 81130--81147.

Reference – Education Code Sections 17310 and 81142.

**CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE**

**CHAPTER 5**  
**NONRESIDENTIAL MANDATORY MEASURES**

**DIVISION 5.2 ENERGY EFFICIENCY**

<b>Adopting Agency</b>		<b>DSA SS</b>
<b>Adopt entire California Chapter</b>		
<b>Adopt entire Chapter as amended (amended Sections listed below)</b>		
<b>Adopt only those Sections that are listed below</b>		<b>X</b>
<b>Chapter / Section</b>		
<u>5.201 GENERAL</u>	ADOPT	<u>X</u>
<u>5.201.1 Scope</u>	ADOPT	<u>X</u>

**SECTION 5.201 - GENERAL**

**5.201.1 Scope.** For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory building standards.

***Note:** It is the intent of this code to encourage buildings to achieve exemplary performance in the area of energy efficiency. For the purposes of energy efficiency standards, the California Energy Commission believes specifically, a green building should achieve at least a 15% reduction in energy usage when compared to the State's mandatory energy efficiency standards.*

**Notation:**

Authority – Education Code Sections 17280--17317 and 81130--81147.

Reference – Education Code Sections 17310 and 81142.

**CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE**

**CHAPTER 5**  
**NONRESIDENTIAL MANDATORY MEASURES**

**DIVISION 5.3 WATER EFFICIENCY AND CONSERVATION**

<b>Adopting Agency</b>		<b>DSA SS</b>
<b>Adopt entire California Chapter</b>		
<b>Adopt entire Chapter as amended (amended Sections listed below)</b>		
<b>Adopt only those Sections that are listed below</b>		<b>X</b>
<b>Chapter / Section</b>		
<u>5.301 GENERAL</u>	ADOPT	<u>X</u>
<u>5.301.1 Scope</u>	ADOPT	<u>X</u>
<u>5.302 DEFINITIONS</u>	ADOPT	<u>X</u>
<u>5.302.1 Definitions</u>	ADOPT	<u>X</u>
<u>GRAYWATER</u>	ADOPT	<u>X</u>

<u>MODEL WATER EFFICIENT LANDSCAPE ORDINANCE</u>	ADOPT	<u>X</u>
<u>POTABLE WATER</u>	ADOPT	<u>X</u>
<u>RECYCLED WATER</u>	ADOPT	<u>X</u>
<u>SUBMETER</u>	ADOPT	<u>X</u>
<u>WATER BUDGET</u>	ADOPT	<u>X</u>
<u>5.303 INDOOR WATER USE</u>	ADOPT	<u>X</u>
<u>5.303.2 20% Savings</u>	ADOPT	<u>X</u>
<u>Table 5.303.1 Indoor Water Use Baseline</u>	ADOPT	<u>X</u>
<u>Table 5.303.2 Fixture Flow Rates</u>	ADOPT	<u>X</u>
<u>5.303.4 Wastewater reduction</u>	ADOPT	<u>X</u>
<u>5.303.6 Plumbing fixtures and fittings</u>	ADOPT	<u>X</u>
<u>Table 5.303.6 Standards for Plumbing Fixtures and Fixture Fittings</u>	ADOPT	<u>X</u>

### **SECTION 5.301 - GENERAL**

**5.301.1 Scope.** The provisions of this chapter shall establish the means of conserving water used indoors, outdoors, and in wastewater conveyance.

### **SECTION 5.302 - DEFINITIONS**

**5.302.1 Definitions.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

**GRAYWATER.** Untreated household waste which has not come into contact with toilet waste. Graywater includes used water from bathtubs, showers, bathroom wash basins, and water from clothes washing machines and laundry tubs. It shall not include waste water from kitchen sinks, dishwashers, or laundry water from soiled diapers.

**MODEL WATER EFFICIENT LANDSCAPE ORDINANCE.** The California ordinance regulating landscape design, installation and maintenance practices that will ensure commercial, multifamily and other developer installed landscapes greater than 2500 square feet meet an irrigation water budget developed based on landscaped area, and climatological parameters.

**POTABLE WATER.** Water that is drinkable and meets the U. S. Environmental Protection Agency (EPA) Drinking Water Standards. See definition in the *California Plumbing Code*, Part 5.

**RECYCLED WATER.** Water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur (Water Code Section 13050 (n)). Simply put, recycled water is water treated to remove waste matter attaining a quality that is suitable to use the water again.

**SUBMETER.** A meter installed subordinate to a site meter. Usually used to measure water intended for one purpose, such as landscape irrigation. For the purposes of this section, a Dedicated Meter may be considered a submeter.

**WATER BUDGET.** Estimated total landscape irrigation water use shall not exceed the maximum applied water allowance calculated in accordance with the Department of Water Resources Model Efficient Landscape Ordinance (MLO).

### **SECTION 5.303 - INDOOR WATER USE**

**5.303.2 20% Savings.** A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 20% shall be provided. The reduction shall be based on the maximum allowable water use per plumbing fixture and fitting as required by the California Building Standards Code. The 20% reduction in potable water use shall be demonstrated by one of the following methods.

1. Each plumbing fixture and fitting shall meet the 20% reduced flow rate specified in Table 5.303.2, or
2. A calculation demonstrating a 20% reduction in the building "water use baseline" as established in Table 5.303.1 shall be provided.

**TABLE 5.303.1  
INDOOR WATER USE BASELINE<sup>4</sup>**

<u>Fixture Type</u>	<u>Flow-rate<sup>2</sup></u>	<u>Duration</u>	<u>Daily uses</u>	<u>Occupants<sup>4</sup></u>
Showerheads	2.5 gpm @ 80 psi	8 min.	1	X
Lavatory Faucets Nonresidential	0.5 gpm @ 60 psi	.25 min.	3	X
Kitchen Faucets	2.2 gpm @ 60 psi	4 min.	1	X
Replacement Aerators	2.2 gpm @ 60 psi			X
Wash Fountains	2.2 [rim space (in.) / 20 gpm @ 60 psi]			X
Metering Faucets	0.25 gallons/cycle	.25 min.	3	X
Metering Faucets for Wash Fountains	.25 [rim space (in.) / 20 gpm @ 60 psi]	.25 min.		X
Gravity tank type Water Closets	1.6 gallons/flush	1 flush	1 male <sup>1</sup> 3 female	X
Flushometer Tank Water Closets	1.6 gallons/flush	1 flush	1 male <sup>1</sup> 3 female	X
Flushometer Valve Water Closets	1.6 gallons/flush	1 flush	1 male <sup>1</sup> 3 female	X
Electromechanical Hydraulic Water Closets	1.6 gallons/flush	1 flush	1 male <sup>1</sup> 3 female	X
Urinals	1.0 gallons/flush	1 flush	2 male	X

**Fixture "Water Use" = Flow rate x Duration x Occupants x Daily uses**

<sup>1</sup> The daily use number shall be increased to three if urinals are not installed in the room.

<sup>2</sup> The Flow-rate is from the CEC Appliance Efficiency Standards, Title 20 California Code of Regulations; where a conflict occurs, the CEC standards shall apply.

<sup>3</sup> Refer to Table A, Chapter 4, 2007 California Plumbing Code, for occupant load factors.

<sup>4</sup> Use Worksheet WS-1 to calculate base line water use.

**TABLE 5.303.2  
FIXTURE FLOW RATES**

<u>Fixture Type</u>	<u>Flow-rate</u>	<u>Maximum flow rate at 20% Reduction</u>
<u>Showerheads</u>	<u>2.5 gpm @ 80 psi</u>	<u>2 gpm @ 80 psi</u>
<u>Lavatory Faucets Nonresidential</u>	<u>0.5 gpm @ 60 psi</u>	<u>0.4 gpm @ 60 psi</u>
<u>Kitchen Faucets</u>	<u>2.2 gpm @ 60 psi</u>	<u>1.8 gpm @ 60 psi</u>
<u>Wash Fountains</u>	<u>2.2 [rim space (in.) / 20 gpm @ 60 psi]</u>	<u>1.8 [rim space (in.) / 20 gpm @ 60 psi]</u>
<u>Metering Faucets</u>	<u>0.25 gallons/cycle</u>	<u>0.2 gallons/cycle</u>
<u>Metering Faucets for Wash Fountains</u>	<u>.25 [rim space (in.) / 20 gpm @ 60 psi]</u>	<u>.20 [rim space (in.) / 20 gpm @ 60 psi]</u>
<u>Gravity tank type Water Closets</u>	<u>1.6 gallons/flush</u>	<u>1.28 gallons/flush<sup>1</sup></u>
<u>Flushometer Tank Water Closets</u>	<u>1.6 gallons/flush</u>	<u>1.28 gallons/flush<sup>1</sup></u>
<u>Flushometer Valve Water Closets</u>	<u>1.6 gallons/flush</u>	<u>1.28 gallons/flush<sup>1</sup></u>
<u>Electromechanical Hydraulic Water Closets</u>	<u>1.6 gallons/flush</u>	<u>1.28 gallons/flush<sup>1</sup></u>
<u>Urinals</u>	<u>1.0 gallons/flush</u>	<u>5 gallons/flush</u>

<sup>1</sup>Includes single and dual flush water closets with an effective flush of 1.28 gallons or less.

Single Flush Toilets - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is the average flush volume when tested in accordance with ASME A112.19.233.2.

Dual Flush Toilets - The effective flush volume shall not exceed 1.28 gallons (4.8 liters). The effective flush volume is defined as the composite, average flush volume of two reduced flushes and one full flush. Flush volumes will be tested in accordance with ASME A112.19.2 and ASME A112.19.14.

**5.303.4 Wastewater reduction.** Each building shall reduce by 20% wastewater by one of the following methods:

1. The installation of water-conserving fixtures (water closets, urinals) meeting the criteria established in sections 5.303.2 or A5.303.3

**5.303.6 Plumbing fixtures and fittings.** Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall meet the standards referenced in Table 5.503.6.

**TABLE 5.303.6  
STANDARDS FOR PLUMBING FIXTURES AND FIXTURE FITTINGS**

<b>REQUIRED STANDARDS</b>	
<u>Water closets (toilets) – flushometer valve type single flush, maximum flush volume</u>	<u>ASME A112.19.2/CSA B45.1 – 1.28 gal (4.8 L)</u>
<u>Water closets (toilets) – flushometer valve type dual flush, maximum flush volume</u>	<u>ASME A112.19.14 and USEPA WaterSense Tank-Type High Efficiency Toilet Specification – 1.28 gal (4.8 L).</u>
<u>Water closets (toilets) – tank-type</u>	<u>U.S. EPA WaterSense Tank-Type High-Efficiency Toilet Specification</u>
<u>Urinals, maximum flush volume</u>	<u>ASME A112.19.2/CSA B45.1 – 0.5 gal (1.9 L)</u>
<u>Urinals, non-water urinals</u>	<u>ASME A112.19.19 (vitreous china) IAPMO Z124.9 (plastic)</u>
<u>Public lavatory faucets: Maximum flow rate –0.5 gpm (1.9 L/min)</u>	<u>ASME A112.18.1/CSA B125.1</u>
<u>Public metering self-closing faucets: Maximum water use – 0.25 gal (1.0 L) per metering cycle</u>	<u>ASME A112.18.1/CSA B125.1</u>

**Notation:**

Authority – Education Code Sections 17280--17317 and 81130--81147.

Reference – Education Code Sections 17310 and 81142.

**CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE  
CHAPTER 5  
NONRESIDENTIAL MANDATORY MEASURES**

**DIVISION 5.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY**

<b>Adopting Agency</b>	<b>DSA SS</b>	
<b>Adopt entire California Chapter</b>		
<b>Adopt entire Chapter as amended (amended Sections listed below)</b>		
<b>Adopt only those Sections that are listed below</b>		<b>X</b>
<b>Chapter / Section</b>		
<u>5.401 GENERAL</u>	ADOPT	<u>X</u>
<u>5.401.1 Scope</u>	ADOPT	<u>X</u>
<u>5.402 DEFINITIONS</u>	ADOPT	<u>X</u>
<u>5.402.1 Definitions</u>	ADOPT	<u>X</u>
<u>ADJUST</u>	ADOPT	<u>X</u>
<u>BALANCE</u>	ADOPT	<u>X</u>
<u>TEST</u>	ADOPT	<u>X</u>
<u>5.407 WATER RESISTANCE AND MOISTURE MANAGEMENT</u>	ADOPT	<u>X</u>
<u>5.407.1 Weather protection</u>	ADOPT	<u>X</u>
<u>5.407.2 Moisture control</u>	ADOPT	<u>X</u>
<u>5.407.2.1 Sprinklers</u>	ADOPT	<u>X</u>
<u>5.407.2.2 Entries and openings</u>	ADOPT	<u>X</u>
<u>5.408 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING</u>	ADOPT	<u>X</u>

5.408.1 Construction waste diversion	ADOPT	<u>X</u>
5.408.2 Construction waste management plan	ADOPT	<u>X</u>
5.408.2.1 Documentation	ADOPT	<u>X</u>
5.408.2.2 Isolated jobsites	ADOPT	<u>X</u>
5.408.3 Construction waste reduction of at least 50%	ADOPT	<u>X</u>
5.410 BUILDING MAINTENANCE AND OPERATION	ADOPT	<u>X</u>
5.410.1 Recycling by occupants	ADOPT	<u>X</u>
5.401.1.1 Sample ordinance	ADOPT	<u>X</u>

### **SECTION 5.401 - GENERAL**

**5.401.1 Scope.** The provisions of this chapter shall outline means of achieving material conservation and resource efficiency through protection of buildings from exterior moisture, construction waste diversion, employment of techniques to reduce pollution through recycling of materials, and building commissioning or testing, adjusting and balancing.

### **SECTION 5.402 - DEFINITIONS**

**5.402.1 Definitions.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

**ADJUST.** To regulate fluid flow rate and air patterns at the terminal equipment, such as to reduce fan speed or adjust a damper.

**BALANCE.** To proportion flows within the distribution system, including submains, branches, and terminals, according to design quantities.

**TEST.** A procedure to determine quantitative performance of a system or equipment.

### **SECTION 5.407 - WATER RESISTANCE AND MOISTURE MANAGEMENT**

**5.407.1 Weather protection.** Provide a weather-resistant exterior wall and foundation envelope as required by California Building Code Section 1403.2 and California Energy Code Section 150, manufacturer's installation instructions, or local ordinance, whichever is more stringent.

**5.407.2 Moisture control.** Employ moisture control measures by the following methods.

**5.407.2.1 Sprinklers.** Design and maintain landscape irrigation systems to prevent spray on structures.

**5.407.2.2 Entries and openings.** Design exterior entries and/or openings subject to foot traffic or wind-driven rain to prevent water intrusion into buildings.

**Notes:**

1. Use features such as overhangs and recesses and flashings integrated with a drainage plane.
2. Use non-absorbent floor and wall finishes within at least two feet around and perpendicular to such openings.

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

**5.408.1 Construction waste diversion.** Establish a construction waste management plan for the diverted materials.

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

**5.408.2 Construction waste management plan.** Where a local jurisdiction does not have a construction and demolition waste management ordinance, submit a construction waste management plan for approval by the enforcement agency that:

1. Identifies the materials to be diverted from disposal by efficient usage, recycling, reuse on the project, or salvage for future use or sale.
2. Determines if materials will be sorted on-site or mixed.
3. Identifies diversion facilities where material collected will be taken.
4. Specifies that the amount of materials diverted shall be calculated by weight or volume, but not by both.

**5.408.2.1 Documentation.** Documentation shall be provided to the enforcing agency which demonstrates compliance with Section 5.408.2 items 1 thru 4. The waste management plan shall be updated as necessary and shall be accessible during construction for examination by the enforcing agency.

**Exception.** Jobsites in areas where there is no mixed construction and demolition debris (C&D) processor or recycling facilities within a feasible haul distance shall meet the requirements as follows:

1. The enforcement agency having jurisdiction shall at its discretion, enforce the waste management plan and make exceptions as deemed necessary.

**5.408.2.2 Isolated jobsites.** The enforcing agency may make exceptions to the requirements of this section when jobsites are located in areas beyond the haul boundaries of the diversion facility.

**Notes:**

1. Sample forms found in Chapter 8 may be used to assist in documenting compliance with the waste management plan.
2. Mixed construction and demolition debris (C&D) processors can be located at <http://www.ciwmb.ca.gov/ConDemo/>.

**5.408.3 Construction waste reduction of at least 50%.** Recycle and/or salvage for reuse a minimum of 50% of the non-hazardous construction and demolition debris, or meet a local construction and demolition waste management ordinance, whichever is more stringent. Calculate the amount of materials diverted by weight or volume, but not by both.

**Exceptions:**

1. Excavated soil and land-clearing debris
2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist.

**SECTION 5.410 - BUILDING MAINTENANCE AND OPERATION**

**5.410.1 Recycling by occupants.** 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.

**5.410.1.1 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 California Integrated Waste Management's web site at: <http://www.ciwmb.ca.gov/Publications/LocalAsst/31000012.doc>

Notation:

Authority – Education Code Sections 17280--17317 and 81130--81147.

Reference – Education Code Sections 17310 and 81142.

**CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE**  
**CHAPTER 5**  
**NONRESIDENTIAL MANDATORY MEASURES**  
**DIVISION 5.5 ENVIRONMENTAL QUALITY**

Adopting Agency		DSA SS
Adopt entire California Chapter		
Adopt entire Chapter as amended (amended Sections listed below)		
Adopt only those Sections that are listed below		X
Chapter / Section		
<u>5.501 GENERAL</u>	ADOPT	<u>X</u>
<u>5.501.1 Scope</u>	ADOPT	<u>X</u>
<u>5.502 DEFINITIONS</u>	ADOPT	<u>X</u>
<u>5.502.1 Definitions</u>	ADOPT	<u>X</u>
<u>COMPOSITE WOOD PRODUCTS</u>	ADOPT	<u>X</u>
<u>MERV</u>	ADOPT	<u>X</u>
<u>MAXIMUM INCREMENTAL REACTIVITY (MIR)</u>	ADOPT	<u>X</u>
<u>PRODUCT-WEIGHTED MIR (PWMIR)</u>	ADOPT	<u>X</u>
<u>REACTIVE ORGANIC COMPOUND (ROC)</u>	ADOPT	<u>X</u>
<u>VOC</u>	ADOPT	<u>X</u>
<u>5.503 FIREPLACES</u>	ADOPT	<u>X</u>
<u>5.503.1 General</u>	ADOPT	<u>X</u>
<u>5.503.1.1 Woodstoves</u>	ADOPT	<u>X</u>
<u>5.504 POLLUTANT CONTROL</u>	ADOPT	<u>X</u>
<u>5.504.2 IAQ Post-construction</u>	ADOPT	<u>X</u>
<u>5.504.3 Covering of duct openings and protection of mechanical equipment during construction</u>	ADOPT	<u>X</u>
<u>5.504.4 Finish material pollutant control</u>	ADOPT	<u>X</u>
<u>5.504.4.1 Adhesives, sealants, and caulks</u>	ADOPT	<u>X</u>
<u>Table 5.504.4.1 Adhesive and Sealant VOC Limit</u>	ADOPT	<u>X</u>
<u>Table 5.504.4.2 Sealant VOC Limit</u>	ADOPT	<u>X</u>
<u>5.504.4.3 Paints and coatings</u>	ADOPT	<u>X</u>
<u>5.504.4.3.1 Aerosol paints and coatings</u>	ADOPT	<u>X</u>
<u>Table 5.504.4.3 VOC Content Limits for Architectural Coatings</u>	ADOPT	<u>X</u>
<u>5.504.4.3.2 Verification</u>	ADOPT	<u>X</u>
<u>5.504.4.4 Carpet systems</u>	ADOPT	<u>X</u>
<u>5.504.4.4.1 Carpet cushion</u>	ADOPT	<u>X</u>
<u>5.504.4. Composite wood products</u>	ADOPT	<u>X</u>
<u>5.504.4.5.2 Documentation</u>	ADOPT	<u>X</u>
<u>Table 5.504.4.5 Formaldehyde Limits</u>	ADOPT	<u>X</u>
<u>5.504.4.6 Resilient flooring systems</u>	ADOPT	<u>X</u>
<u>5.504.5.3 Filters</u>	ADOPT	<u>X</u>
<u>5.504.7 Environmental tobacco smoke (ETS) control</u>	ADOPT	<u>X</u>
<u>5.505 INDOOR MOISTURE CONTROL</u>	ADOPT	<u>X</u>

5.505.1 Indoor moisture control	ADOPT	<u>X</u>
<u>5.506 INDOOR AIR QUALITY</u>	ADOPT	<u>X</u>
5.506.1 Outside air delivery	ADOPT	<u>X</u>
<u>5.507 ENVIRONMENTAL COMFORT</u>	ADOPT	<u>X</u>
5.507.4 Acoustical control	ADOPT	<u>X</u>
5.507.4.1 Exterior noise transmission	ADOPT	<u>X</u>
5.507.4.2 Interior sound	ADOPT	<u>X</u>
<u>5.508 OUTDOOR AIR QUALITY</u>	ADOPT	<u>X</u>
5.508.1 Ozone depletion and greenhouse gas reductions	ADOPT	<u>X</u>
5.508.1.1 Chlorofluorocarbons (CFCs)	ADOPT	<u>X</u>

### **SECTION 5.501 - GENERAL**

**5.501.1 Scope.** The provisions of this chapter shall outline means of reducing the quantity of air contaminants that are odorous, irritating, and/or harmful to the comfort and well-being of a building's installers, occupants, and neighbors.

### **SECTION 5.502 - DEFINITIONS**

**5.502.1 Definitions.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

**COMPOSITE WOOD PRODUCTS.** Composite wood products include hardwood plywood, particleboard, and medium density fiberboard. "Composite wood products" does not include hardboard, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber, prefabricated wood I-joists, or finger-jointed lumber.

*Note: See CCR, Title 17, Section 93120.1.*

**MERV.** Filter minimum efficiency reporting value, based on ASHRAE 52.2-1999.

**MAXIMUM INCREMENTAL REACTIVITY (MIR).** The maximum change in weight of ozone formed by adding a compound to the "Base ROG Mixture" per weight of compound added, expressed to hundredths of a gram (g O<sub>3</sub> /g ROC).

*Note: MIR values for individual compounds and hydrocarbon solvents are specified in CCR, Title 17, Sections 94700 and 94701.*

**PRODUCT-WEIGHTED MIR (PWMIR).** The sum of all weighted-MIR for all ingredients in a product subject to this article. The PWMIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging).

*Note: PWMIR is calculated according to equations found in CCR, Title 17, Section 94521(a).*

**REACTIVE ORGANIC COMPOUND (ROC).** Any compound that has the potential, once emitted, to contribute to ozone formation in the troposphere.

**VOC.** A volatile organic compound broadly defined as a chemical compound based on carbon chains or rings with vapor pressures greater than 0.1 millimeters of mercury at room temperature. These compounds typically contain hydrogen and may contain oxygen, nitrogen and other elements. See CCR Title 17, Section 94508(a).

*Note: Where specific regulations are cited from different agencies such as SCAQMD, ARB, etc, the VOC definition included in that specific regulation is the one that prevails for the specific measure in question.*

## **SECTION 5.503 - FIREPLACES**

**5.503.1 General.** Install only a direct-vent sealed-combustion gas or sealed wood-burning fireplace, or a sealed woodstove, and refer to residential requirements in the California Energy Code, Title 24, Part 6, Subchapter 7, Section 150. Woodstoves and fireplaces shall comply with applicable local ordinances.

**5.503.1.1 Woodstoves.** Woodstoves shall comply with US EPA Phase II emission limits.

## **SECTION 5.504 - POLLUTANT CONTROL**

**5.504 IAQ Post-construction.** After all interior finishes have been installed, flush out the building by supplying continuous ventilation with all air handling units at their maximum outdoor air rate and all supply fans at their maximum position and rate for at least 14 days.

1. During this time, maintain an internal temperature of at least 60°F, and relative humidity no higher than 60%. If extenuating circumstances make these temperature and humidity limits unachievable, the flush out may be conducted under conditions as close as possible to these limits, provided that documentation of the extenuating circumstances is provided in writing.
2. Occupancy may start after 4 days, provided flush-out continues for the full 14 days. During occupied times, the thermal comfort conditions of Title 24 must be met.
3. For buildings that rely on natural ventilation, exhaust fans and floor fans must be used to improve air mixing and removal during the 14-day flush out, and windows should remain open.
4. Do not "bake out" the building by increasing the temperature of the space.
5. If continuous ventilation is not possible, flush-out must total the equivalent of 14 days of maximum outdoor air.

**5.504.3 Covering of duct openings and protection of mechanical equipment during construction.** At the time of rough installation, or during storage on the construction site and until final startup of the heating and cooling equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable to the enforcing agency to reduce the amount of dust or debris which may collect in the system.

**5.504.4 Finish material pollutant control.** Finish materials shall comply with Sections 5.504.4.1 through 5.504.4.4.

**5.504.4.1 Adhesives, sealants, and caulks.** Adhesives, sealants, and caulks used on the project shall meet the requirements of the following standards.

1. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 1168 VOC limits, as shown in Tables 5.504.4.1 and 5.504.4.2. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene, and trichloroethylene), except for aerosol products as specified in subsection 2, below.
2. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than one pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of California Code of Regulations, Title 17, commencing with Section 94507.

**Note:** *Title 17 may be found at <http://ccr.oal.ca.gov/>.*

**TABLE 5.504.4.1**  
**ADHESIVE AND SEALANT VOC LIMIT<sup>1</sup>**

**Less Water and Less Exempt Compounds in Grams per Liter**

<u>Architectural Applications</u>	<u>Current VOC Limit</u>
<u>Indoor Carpet Adhesives</u>	<u>50</u>
<u>Carpet Pad Adhesives</u>	<u>50</u>
<u>Outdoor Carpet Adhesives</u>	<u>150</u>
<u>Wood Flooring Adhesive</u>	<u>100</u>
<u>Rubber Floor Adhesives</u>	<u>60</u>
<u>Subfloor Adhesives</u>	<u>50</u>
<u>Ceramic Tile Adhesives</u>	<u>65</u>
<u>VCT and Asphalt Tile Adhesives</u>	<u>50</u>
<u>Dry Wall and Panel Adhesives</u>	<u>50</u>
<u>Cove Base Adhesives</u>	<u>50</u>
<u>Multipurpose Construction Adhesives</u>	<u>70</u>
<u>Structural Glazing Adhesives</u>	<u>100</u>
<u>Single Ply Roof Membrane Adhesives</u>	<u>250</u>
<u>Other Adhesive not specifically listed</u>	<u>50</u>
<u>Specialty Applications</u>	<u>Current VOC Limit</u>
<u>PVC Welding</u>	<u>285</u>
<u>CPVC Welding</u>	<u>270</u>
<u>ABS Welding</u>	<u>325</u>
<u>Plastic Cement Welding</u>	<u>250</u>
<u>Adhesive Primer for Plastic</u>	<u>250</u>
<u>Contact Adhesive</u>	<u>80</u>
<u>Special Purpose Contact Adhesive</u>	<u>250</u>
<u>Structural Wood Member Adhesive</u>	<u>140</u>
<u>Top and Trim Adhesive</u>	<u>250</u>
<u>Substrate Specific Applications</u>	<u>Current VOC Limit</u>
<u>Metal to Metal</u>	<u>30</u>
<u>Plastic Foams</u>	<u>50</u>
<u>Porous Material (except wood)</u>	<u>50</u>
<u>Wood</u>	<u>30</u>
<u>Fiberglass</u>	<u>80</u>

If an adhesive is used to bond dissimilar substrates together the adhesive with the highest VOC content shall be allowed.

**TABLE 5.504.4.2  
SEALANT VOC LIMIT**

**Less Water and Less Exempt Compounds in Grams per Liter**

<u>Sealants</u>	<u>Current VOC Limit</u>
Architectural	250
Marine Deck	760
Nonmembrane Roof	300
Roadway	250
Single-Ply Roof Membrane	450
Other	420
<u>Sealant Primers</u>	<u>Current VOC Limit</u>
Architectural	
Non Porous	250
Porous	775
Modified Bituminous	500
Marine Deck	760
Other	750

<sup>1</sup> *Note: For additional information regarding methods to measure the VOC content specified in these tables, see South Coast Air Quality Management District Rule 1168: <http://www.arb.ca.gov/DRDB/SC/CURHTML/R1168.PDF>.*

**5.504.4.3 Paints and coatings.** Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Coatings Suggested Control Measure, as shown in Table 5.504.4.3, unless local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 5.504.4.3, shall be determined by classifying the coating as a Flat, Nonflat, or Nonflat-High Gloss coating, based on its gloss, as defined in subsections 4.21, 4.36, and 4.37 of the 2007 California Air Resources Board, Suggested Control Measure, and the corresponding Flat, Nonflat, or Nonflat-High Gloss VOC limit in Table 5.504.4.3 shall apply.

**5.504.4.3.1 Aerosol paints and coatings.** Aerosol paints and coatings shall meet the Product-Weighted MIR Limits for ROC in section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in sections 94522(c)(2) and (d)(2) of California Code of Regulations, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8 Rule 49.

**Notes:**

1. Title 17 may be found at <http://ccr.oal.ca.gov/>.
2. See Bay Area Air Quality Management District Regulation 8 Rule 49 at <http://www.arb.ca.gov/DRDB/BA/CURHTML/R8-49.HTM>.

**TABLE 5.504.4.3**  
**VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS<sup>2, 3</sup>**

**Grams of VOC Per Liter of Coating, Less Water and Less Exempt Compounds**

<u>Coating Category</u>	<u>Effective 1/1/2010</u>	<u>Effective 1/1/2012</u>
<u>Flat Coatings</u>	<u>50</u>	
<u>Nonflat Coatings</u>	<u>100</u>	
<u>Nonflat - High Gloss Coatings</u>	<u>150</u>	
<u>Specialty Coatings</u>		
<u>Aluminum Roof Coatings</u>	<u>400</u>	
<u>Basement Specialty Coatings</u>	<u>400</u>	
<u>Bituminous Roof Coatings</u>	<u>50</u>	
<u>Bituminous Roof Primers</u>	<u>350</u>	
<u>Bond Breakers</u>	<u>350</u>	
<u>Concrete Curing Compounds</u>	<u>350</u>	
<u>Concrete/Masonry Sealers</u>	<u>100</u>	
<u>Driveway Sealers</u>	<u>50</u>	
<u>Dry Fog Coatings</u>	<u>150</u>	
<u>Faux Finishing Coatings</u>	<u>350</u>	
<u>Fire Resistive Coatings</u>	<u>350</u>	
<u>Floor Coatings</u>	<u>100</u>	
<u>Form-Release Compounds</u>	<u>250</u>	
<u>Graphic Arts Coatings (Sign Paints)</u>	<u>500</u>	
<u>High Temperature Coatings</u>	<u>420</u>	
<u>Industrial Maintenance Coatings</u>	<u>250</u>	
<u>Low Solids Coatings<sup>1</sup></u>	<u>120</u>	
<u>Magnesite Cement Coatings</u>	<u>450</u>	
<u>Mastic Texture Coatings</u>	<u>100</u>	
<u>Metallic Pigmented Coatings</u>	<u>500</u>	
<u>Multi-Color Coatings</u>	<u>250</u>	
<u>Pre-Treatment Wash Primers</u>	<u>420</u>	
<u>Primers, Sealers, and Undercoaters</u>	<u>100</u>	
<u>Reactive Penetrating Sealers</u>	<u>350</u>	
<u>Recycled Coatings</u>	<u>250</u>	
<u>Roof Coatings</u>	<u>50</u>	
<u>Rust Preventative Coatings</u>	<u>400</u>	<u>250</u>
<u>Shellacs:</u>		
• <u>Clear</u>	<u>730</u>	
• <u>Opaque</u>	<u>550</u>	
<u>Specialty Primers, Sealers, and Undercoaters</u>	<u>350</u>	<u>100</u>
<u>Stains</u>	<u>250</u>	
<u>Stone Consolidants</u>	<u>450</u>	
<u>Swimming Pool Coatings</u>	<u>340</u>	
<u>Traffic Marking Coatings</u>	<u>100</u>	
<u>Tub and Tile Refinish Coatings</u>	<u>420</u>	
<u>Waterproofing Membranes</u>	<u>250</u>	
<u>Wood Coatings</u>	<u>275</u>	
<u>Wood Preservatives</u>	<u>350</u>	
<u>Zinc-Rich Primers</u>	<u>340</u>	

<sup>1</sup> Grams of VOC Per Liter of Coating, Including Water and Including Exempt Compounds

<sup>2</sup> The specified limits remain in effect unless revised limits are listed in subsequent columns in the Table.

<sup>3</sup> **Note:** For additional information regarding methods to measure the VOC content specified in this table, see ARB, 2008. Suggested Control Measure for Architectural Coatings. February 1, 2008. [http://www.arb.ca.gov/coatings/arch/Approved\\_2007\\_SCM.pdf](http://www.arb.ca.gov/coatings/arch/Approved_2007_SCM.pdf).

**5.504.4.3.2 Verification.** Verification of compliance with this section shall be provided at the request of the enforcing agency. Documentation may include, but is not limited to, the following:

1. Manufacturers product specification.
2. Field verification of on-site product containers.

**5.504.4.4 Carpet systems.** All carpet installed in the building interior shall meet the testing and product requirements of the following:

1. Carpet and Rug Institute's Green Label Plus Program.
2. California Department of Public Health Standard Practice for the testing of VOCs (Specification 01350).
3. Department of General Services, California Gold Sustainable Carpet Standard; <http://www.green.ca.gov/EPP/standards.htm>.
4. Scientific Certifications Systems Sustainable Choice; <http://www.scscertified.com/iaq/indooradvantage.htm>

**Notes:**

1. *For Green Label Plus, see <http://www.carpet-rug.com/>.*
2. *For Department of General Services standards, see <http://www.green.ca.gov/EPP/standards.htm>.*
3. *For Sustainable Choice, see <http://www.scscertified.com/gbc/sustainablecarpet.php>.*

**5.504.4.4.1 Carpet cushion.** All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program.

**5.504.4.4.2 Carpet adhesive.** All carpet adhesive shall meet the requirements of Table 5.504.4.1.

**5.504.4.5 Composite wood products.** Hardwood plywood, particleboard, and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq.), by or before the dates specified in those sections, as shown in Table 5.504.4.5.

**5.504.4.5.2 Documentation.** Verification of compliance with this section shall be provided as requested by the enforcing agency. Documentation shall include at least one of the following.

1. Product certifications and specifications.

**TABLE 5.504.4.5  
FORMALDEHYDE LIMITS<sup>1</sup>  
Maximum formaldehyde emissions in parts per million.**

Product	Current Limit	Jan 1, 2012	Jul 1, 2012
Hardwood Plywood Veneer Core	0.05		
Hardwood Plywood Composite Core	0.08		0.05
Particle Board	0.09		
Medium Density Fiberboard	0.11		
Thin Medium Density Fiberboard <sup>1</sup>	0.21	0.13	

<sup>1</sup>Values in this table are derived from those specified by the California Air

Resources Board, Air Toxics Control Measure for Composite Wood as tested in accordance with ASTM E1333-96 (2002). For additional information, see California Code of Regulations, Title 17, Sections 93120 through 93120.12.  
<sup>2</sup>Thin medium density fiberboard has a maximum thickness of eight millimeters.

**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 certified under the Resilient Floor Covering Institute (RFCI) FloorScore program.

**Note:** See [www.chps.net/manual/lem\\_table.htm](http://www.chps.net/manual/lem_table.htm).

**5.504.5.3 Filters.** In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air prior to occupancy that provides at least a Minimum Efficiency Reporting Value (MERV) of 8.

**5.504.7 Environmental tobacco smoke (ETS) control.** Prohibit smoking within 25 feet of building entries, outdoor air intakes and operable windows where outdoor areas are provided for smoking, and in buildings; or as enforced by ordinances, regulations, or policies of any city, county, city and county, California Community College, campus of the California State University, or campus of the University of California, whichever are more stringent. When ordinances, regulations, or policies are not in place, post signage to inform building occupants of the prohibitions.

## **SECTION 5.505 - INDOOR MOISTURE CONTROL**

**5.505. 1 Indoor moisture control.** Buildings shall meet or exceed the provisions of *California Building Code, CCR, Title 24, Part 2, Sections 1203 and Chapter 14.* For additional measures not applicable to low-rise residential occupancies, see Section 5.407.2 of this code.

## **SECTION 5.506 - INDOOR AIR QUALITY**

**5.506.1 Outside air delivery.** For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 121 of the California Energy Code, CCR, Title 24, Part 6, or the applicable local code, whichever is more stringent, and Chapter 4 of CCR, Title 8.

## **SECTION 5.507 - ENVIRONMENTAL COMFORT**

**5.507.3.1 Interior office space.** Entire areas of interior office spaces may be included in the calculation if at least 75 percent of each area has direct line of sight to perimeter vision glazing.

**5.507.4 Acoustical control.** Employ building assemblies and components with Sound Transmission Coefficient (STC) values determined in accordance with ASTM E90 and ASTM E413.

**5.507.4.1 Exterior noise transmission.** Wall and roof-ceiling assemblies making up the building envelope shall have an STC of at least 50, and exterior windows shall have a minimum STC of 30 for any of the following building locations:

- 1.** Within 1000 ft. (300 m.) of right of ways of freeways.
- 2.** Within 5 mi. (8 km.) of airports serving more than 10,000 commercial jets per year.
- 3.** Where sound levels at the property line regularly exceed 65 decibels, other than occasional sound due to church bells, train horns, emergency vehicles and public warning systems.

**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.

**5.507.4.2 Interior sound.** Wall and floor-ceiling assemblies separating tenant spaces and tenant spaces and public places shall have an STC of at least 40. [For DSA-SS] In public schools and community college

buildings, wall and floor-ceiling assemblies separating classrooms, and classrooms, multi-use spaces and public places shall have an STC of at least 40.

**Note:** Examples of assemblies and their various STC ratings may be found at: [http://www.toolbase.org/PDF/CaseStudies/stc\\_icc\\_ratings.pdf](http://www.toolbase.org/PDF/CaseStudies/stc_icc_ratings.pdf).

**SECTION 5.508 - OUTDOOR AIR QUALITY**

**5.508.1 Ozone depletion and greenhouse gas reductions.** Installations of HVAC, refrigeration, and fire suppression equipment shall comply with Sections 5.508.1.1 and 5.508.1.2.

**5.508.1.1 Chlorofluorocarbons (CFCs.)** Install HVAC, refrigeration and fire suppression equipment that do not contain CGCs.

Notation:

Authority – Education Code Sections 17280--17317 and 81130--81147.

Reference – Education Code Sections 17310 and 81142.

**CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE  
CHAPTER 6— REFERENCED ORGANIZATIONS AND STANDARDS**

Adopting Agency		DSA SS
Adopt entire California Chapter		
Adopt entire Chapter as amended (amended Sections listed below)		
Adopt only those Sections that are listed below		X
Chapter / Section		
<u>601 GENERAL</u>	ADOPT	<u>X</u>
<u>601.1</u>	ADOPT	<u>X</u>
<u>ACCA</u>	ADOPT	<u>X</u>
<u>ANSI</u>	ADOPT	<u>X</u>
<u>ASHRAE</u>	ADOPT	<u>X</u>
<u>ASME</u>	ADOPT	<u>X</u>
<u>ASTM</u>	ADOPT	<u>X</u>
<u>CSA</u>	ADOPT	<u>X</u>
<u>IAPMO</u>	ADOPT	<u>X</u>

## SECTION 601 - GENERAL

**601.1** This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard.

<u>Organization</u>	<u>Standard</u>	<u>Referenced Section</u>
<b>ACCA Air Conditioning Contractors of America</b>		
2800 Shirlington Road, Suite 300 Arlington, VA 22206 <a href="http://www.acca.org">www.acca.org</a>	<a href="#">ACCA 29-D Manual D</a> <a href="#">ACCA 36-S Manual S</a> <a href="#">ACCA Manual J</a>	
<b>ANSI American National Standards Institute</b>		
Operations Office 25 West 43rd Street Fourth Floor New York, NY 10036 <a href="http://www.ansi.org">www.ansi.org</a>	<a href="#">ANSI A190.1-2002</a>	
<b>ASHRAE American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.</b>		
1791 Tullie Circle, NE Atlanta, GA 30329 <a href="http://www.ashrae.org">www.ashrae.org</a>	<a href="#">52.1-92</a> <a href="#">52.2-99</a> <a href="#">62.2</a> <a href="#">90.1</a>	<a href="#">A5.504.1</a> <a href="#">A5.504.1</a>  <a href="#">5.108.8</a>
<b>ASME American Society of Mechanical Engineers</b>		
Three Park Avenue New York, NY 10016-5990 <a href="http://www.asme.org">www.asme.org</a>	<a href="#">A112.18.1</a> <a href="#">A112.19</a> <a href="#">A112.19.2</a> <a href="#">A112.19.14</a>	<a href="#">5.303.6</a> <a href="#">5.303.6</a> <a href="#">5.303.2</a> <a href="#">5.303.6</a>
<b>ASTM ASTM International</b>		
100 Barr Harbor Drive West Conshohocken, PA 19428-2859 <a href="http://www.astm.org">www.astm.org</a>	<a href="#">C33</a> <a href="#">C-1371-98</a> <a href="#">E90</a> <a href="#">E408-71(2002)</a> <a href="#">E413</a> <a href="#">E1333-96 (2002)</a> <a href="#">E1903-97</a>	<a href="#">5.507.5</a>  <a href="#">5.507.5</a>  <a href="#">A5.103.4</a>
<b>CSA Canadian Standards Association</b>		
5060 Spectrum Way, Suite 100 Mississauga, Ontario, Canada L4W 5N6 <a href="http://www.csa.ca">www.csa.ca</a>	<a href="#">CSA B125.1</a>	<a href="#">5.303.6</a>
<b>IAPMO International Association of Plumbing and Mechanical Officials</b>		
5001 E. Philadelphia St. Ontario, CA 91761 <a href="mailto:iapmo@iapmo.org">iapmo@iapmo.org</a>	<a href="#">IAPMO Z124.9</a>	<a href="#">5.303.6</a>

**Notation:**

Authority – Education Code Sections 17280--17317 and 81130--81147.

Reference – Education Code Sections 17310 and 81142.

**CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE  
CHAPTER 7— INSTALLER AND SPECIAL INSPECTOR QUALIFICATIONS**

Adopting Agency		DSA SS
Adopt entire California Chapter		
Adopt entire Chapter as amended (amended Sections listed below)		
Adopt only those Sections that are listed below		X
Chapter / Section		
701 GENERAL (Reserved)	ADOPT	X
702 QUALIFICATIONS	ADOPT	X
702.1 Special inspection	ADOPT	X
703 VERIFICATIONS	ADOPT	X
703.1 Documentation	ADOPT	X

**INSTALLER AND SPECIAL INSPECTOR QUALIFICATIONS**

**SECTION 701 - GENERAL  
(Reserved)**

**SECTION 702 - QUALIFICATIONS**

**702.1 Special inspection.** The enforcing agency may require special inspection to verify compliance with this code or other laws that are enforced by the agency. The special inspector shall be a qualified person who shall demonstrate competence, to the satisfaction of the enforcing agency, for inspection of the particular type of construction or operation requiring special inspection.

**SECTION 703 - VERIFICATIONS**

**703.1 Documentation.** Verification of compliance with this code shall include construction documents, plans, specifications builder or installer certification, inspection reports, or other methods acceptable to the enforcing agency which show substantial conformance. Where specific documentation is necessary to verify compliance, that method of compliance will be specified in the appropriate section.

**Notation:**

Authority – Education Code Sections 17280--17317 and 81130--81147.

Reference – Education Code Sections 17310 and 81142.

**CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE  
CHAPTER 8— COMPLIANCE FORMS AND WORKSHEETS**

<b>Adopting Agency</b>		<b>DSA SS</b>
<b>Adopt entire California Chapter</b>		
<b>Adopt entire Chapter as amended (amended Sections listed below)</b>		
<b>Adopt only those Sections that are listed below</b>		<b>X</b>
<b>Chapter / Section</b>		
<u>WORKSHEET (WS-1) BASELINE WATER USE</u>	ADOPT	<u>X</u>
<u>WORKSHEET (WS-2) 20% REDUCTION WATER USE CALCULATION TABLE</u>	ADOPT	<u>X</u>
<u>WORKSHEET (WS-3) 30%, 35%, 40% REDUCTION WATER USE CALCULATION TABLE</u>	ADOPT	<u>X</u>
<u>CONSTRUCTION WASTE MANAGEMENT (CWM) PLAN</u>	ADOPT	<u>X</u>
<u>CONSTRUCTION WASTE MANAGEMENT (CWM) WORKSHEET</u>	ADOPT	<u>X</u>
<u>CONSTRUCTION WASTE MANAGEMENT (CWM) ACKNOWLEDGMENT</u>	ADOPT	<u>X</u>

**WORKSHEET (WS-1)  
BASELINE WATER USE**

<b>BASELINE WATER USE CALCULATION TABLE</b>										
<b>Fixture Type</b>	<b>Quantity</b>		<b>Flow-rate (gpm)</b>		<b>Duration</b>		<b>Daily uses</b>		<b>Occupants<sup>3,4</sup></b>	<b>Gallons per day</b>
<u>Showerheads</u>		<u>X</u>	<u>2.5</u>	<u>X</u>	<u>5 min.</u>	<u>X</u>	<u>1</u>	<u>X</u>		=
<u>Showerheads Residential</u>		<u>X</u>	<u>2.5</u>	<u>X</u>	<u>8 min.</u>	<u>X</u>	<u>1</u>	<u>X</u>		=
<u>Lavatory Faucets Residential</u>		<u>X</u>	<u>2.2</u>	<u>X</u>	<u>.25 min.</u>	<u>X</u>	<u>3</u>	<u>X</u>		=
<u>Kitchen Faucets</u>		<u>X</u>	<u>2.2</u>	<u>X</u>	<u>4 min.</u>	<u>X</u>	<u>1</u>	<u>X</u>		=
<u>Replacement Aerators</u>		<u>X</u>	<u>2.2</u>	<u>X</u>		<u>X</u>		<u>X</u>		=
<u>Wash Fountains</u>		<u>X</u>	<u>2.2</u>	<u>X</u>		<u>X</u>		<u>X</u>		=
<u>Metering Faucets</u>		<u>X</u>	<u>0.25</u>	<u>X</u>	<u>.25 min.</u>	<u>X</u>	<u>3</u>	<u>X</u>		=
<u>Metering Faucets for Wash Fountains</u>		<u>X</u>	<u>2.2</u>	<u>X</u>	<u>.25 min.</u>	<u>X</u>		<u>X</u>		=
<u>Gravity tank type Water Closets</u>		<u>X</u>	<u>1.6</u>	<u>X</u>	<u>1 flush</u>	<u>X</u>	<u>1 male<sup>1</sup> 3 female</u>	<u>X</u>		=
<u>Flushometer Tank Water Closets</u>		<u>X</u>	<u>1.6</u>	<u>X</u>	<u>1 flush</u>	<u>X</u>	<u>1 male<sup>1</sup> 3 female</u>	<u>X</u>		=
<u>Flushometer Valve Water Closets</u>		<u>X</u>	<u>1.6</u>	<u>X</u>	<u>1 flush</u>	<u>X</u>	<u>1 male<sup>1</sup> 3 female</u>	<u>X</u>		=
<u>Electromechanical Hydraulic Water Closets</u>		<u>X</u>	<u>1.6</u>	<u>X</u>	<u>1 flush</u>	<u>X</u>	<u>1 male<sup>1</sup> 3 female</u>	<u>X</u>		=
<u>Urinals</u>		<u>X</u>	<u>1.0</u>	<u>X</u>	<u>1 flush</u>	<u>X</u>	<u>2 male</u>	<u>X</u>		=
<b>Total daily baseline water use (BWU)</b>										=
<b>(BWU) X .80 =</b>										<b>Allowable water use</b>

<sup>1</sup> Except for low-rise residential occupancies, the daily use number shall be increased to three if urinals are not installed in the room.

<sup>2</sup> The Flow-rate is from the CEC Appliance Efficiency Standards, Title 20 California Code of Regulations; where a conflict occurs, the CEC standards shall apply.

<sup>3</sup> For low-rise residential occupancies, the number of occupants shall be based on two persons for the first bedroom, plus one additional person for each additional bedroom.

<sup>4</sup> For non-residential occupancies, refer to Table A, Chapter 4, 2007 California Plumbing Code, for occupant load factors.

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

20% REDUCTION WATER USE CALCULATION TABLE										
<u>Fixture Type</u>	<u>Quantity</u>		<u>Flow-rate (gpm)</u>		<u>Duration</u>		<u>Daily uses</u>		<u>Occupants<sup>3,4</sup></u>	<u>Gallons per day</u>
<u>Showerheads</u>		X		X	<u>5 min.</u>	X	<u>1</u>	X		=
<u>Showerheads Residential</u>		X		X	<u>8 min.</u>	X	<u>1</u>	X		=
<u>Lavatory Faucets Residential</u>		X		X	<u>25 min.</u>	X	<u>3</u>	X		=
<u>Kitchen Faucets</u>		X		X	<u>4 min.</u>	X	<u>1</u>	X		=
<u>Replacement Aerators</u>		X		X		X		X		=
<u>Wash Fountains</u>		X		X		X		X		=
<u>Metering Faucets</u>		X		X	<u>.25 min.</u>	X	<u>3</u>	X		=
<u>Metering Faucets for Wash Fountains</u>		X		X	<u>.25 min.</u>	X		X		=
<u>Gravity tank type Water Closets</u>		X		X	<u>1 flush</u>	X	<u>1 male<sup>1</sup> 3 female</u>	X		=
<u>HET<sup>5</sup> High Efficiency Toilet</u>		X	<u>1.28</u>	X	<u>1 flush</u>	X	<u>1 male<sup>1</sup> 3 female</u>	X		=
<u>Flushometer Tank Water Closets</u>		X		X	<u>1 flush</u>	X	<u>1 male<sup>1</sup> 3 female</u>	X		=
<u>Flushometer Valve Water Closets</u>		X		X	<u>1 flush</u>	X	<u>1 male<sup>1</sup> 3 female</u>	X		=
<u>Electromechanical Hydraulic Water Closets</u>		X		X	<u>1 flush</u>	X	<u>1 male<sup>1</sup> 3 female</u>	X		=
<u>Urinals</u>		X		X	<u>1 flush</u>	X	<u>2 male</u>	X		=
<u>Urinals Non-Water Supplied</u>		X	<u>0.0</u>	X	<u>1 flush</u>	X	<u>2 male</u>	X		=
<u>Proposed water use</u>										=
<u>(BWU from GW-1) X .80 = Allowable water use</u>										

<sup>1</sup> Except for low-rise residential occupancies, the daily use number shall be increased to three if urinals are not installed in the room.

<sup>2</sup> The Flow-rate is from the CEC Appliance Efficiency Standards, Title 20 California Code of Regulations; where a conflict occurs, the CEC standards shall apply.

<sup>3</sup> For low-rise residential occupancies, the number of occupants shall be based on two persons for the first bedroom, plus one additional person for each additional bedroom.

<sup>4</sup> For non-residential occupancies, refer to Table A, Chapter 4, 2007 California Plumbing Code, for occupant load factors.

<sup>5</sup> Includes water closets with an effective flush rate of 1.28 gallons or less when tested per ASME A112.19.2 and ASME A112.19.14.

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

30% REDUCTION WATER USE CALCULATION TABLE										
Fixture Type	Quantity		Flow-rate (gpm)		Duration		Daily uses		Occupants <sup>3,4</sup>	Gallons per day
Showerheads		X		X	5 min.	X	1	X		=
Showerheads Residential		X		X	8 min.	X	1	X		=
Lavatory Faucets Residential		X		X	25 min.	X	3	X		=
Kitchen Faucets		X		X	4 min.	X	1	X		=
Replacement Aerators		X		X		X		X		=
Wash Fountains		X		X		X		X		=
Metering Faucets		X		X	.25 min.	X	3	X		=
Metering Faucets for Wash Fountains		X		X	.25 min.	X		X		=
Gravity tank type Water Closets		X		X	1 flush	X	1 male <sup>1</sup> 3 female	X		=
HET <sup>5</sup> High Efficiency Toilet		X	1.12	X	1 flush	X	1 male <sup>1</sup> 3 female	X		=
Flushometer Tank Water Closets		X		X	1 flush	X	1 male <sup>1</sup> 3 female	X		=
Flushometer Valve Water Closets		X		X	1 flush	X	1 male <sup>1</sup> 3 female	X		=
Electromechanical Hydraulic Water Closets		X		X	1 flush	X	1 male <sup>1</sup> 3 female	X		=
Urinals		X		X	1 flush	X	2 male	X		=
Urinals Non-Water Supplied		X	0.0	X	1 flush	X	2 male	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
(BWU from GW-1) X .70 =										Allowable water use

<sup>1</sup> Except for low-rise residential occupancies, the daily use number shall be increased to three if urinals are not installed in the room.

<sup>2</sup> The Flow-rate is from the CEC Appliance Efficiency Standards, Title 20 California Code of Regulations; where a conflict occurs, the CEC standards shall apply.

<sup>3</sup> For low-rise residential occupancies, the number of occupants shall be based on two persons for the first bedroom, plus one additional person for each additional bedroom.

<sup>4</sup> For non-residential occupancies, refer to Table A, Chapter 4, 2007 California Plumbing Code, for occupant load factors.

<sup>5</sup> Includes water closets with an effective flush rate of 1.12 gallons or less when tested per ASME A112.19.2 and ASME A112.19.14.

### **Construction Waste Management (CWM) Plan**

*Note: This sample form may be used to assist in documenting compliance with the waste management plan.*

Project Name: \_\_\_\_\_

Job #: \_\_\_\_\_

Project Manager: \_\_\_\_\_

Waste Hauling Company: \_\_\_\_\_

Contact Name: \_\_\_\_\_

All Subcontractors shall comply with the project's Construction Waste Management Plan.

All Subcontractor foremen shall sign the CWM Plan Acknowledgement Sheet.

Subcontractors who fail to comply with the Waste Management Plan will be subject to backcharges or withholding of payment, as deemed appropriate. For instance, Subcontractors who contaminate debris boxes that have been designated for a single material type will be subject to backcharge or withheld payment, as deemed appropriate.

1. The project's overall rate of waste diversion will be \_\_\_\_\_ %.
2. This project shall generate the least amount of waste possible by planning and ordering carefully, following all proper storage and handling procedures to reduce broken and damaged materials and reusing materials whenever possible. The majority of the waste that is generated on this jobsite will be diverted from the landfill and recycled for other use.
3. Spreadsheet 1, enclosed, identifies the waste materials that will be generated on this project, the diversion strategy for each waste type and the anticipated diversion rate.
4. Waste prevention and recycling activities will be discussed at the beginning of weekly subcontractor meetings. As each new subcontractor comes on-site, the WMP Coordinator will present him/her with a copy of the CWM Plan and provide a tour of the jobsite to identify materials to be salvaged and the procedures for handling jobsite debris. Each Subcontractor foremen will acknowledge in writing that they have read and will abide by the CWM Plan. Subcontractor Acknowledgement Sheet enclosed. The CWM Plan will be posted at the jobsite trailer.
5. Salvage: Excess materials that cannot be used in the project, nor returned to the vendor, will be offered to site workers, the owner, or donated to charity if feasible.
6. [HAULING COMPANY] will provide a commingled drop box at the jobsite for most of the construction waste. These commingled drop boxes will be taken to [Sorting Facility Name and Location]. The average diversion rate for commingled waste will be \_\_\_\_\_ %.

As site conditions permit, additional drop boxes will be used for particular phases of construction (e.g. concrete and wood waste) to ensure the highest waste diversion rate possible.

7. In the event that the waste diversion rate achievable via the strategy described in (6) above, is projected to be lower than what is required, then a strategy of source-separated waste diversion will be implemented. Source separated waste refers to jobsite waste that is not commingled but is instead allocated to a debris box designated for a single material type, such as clean wood or metal
8. [HAULING COMPANY] will track and calculate the quantity (in tons) of all waste leaving the project and calculate the waste diversion rate for the project. [HAULING COMPANY] will provide Project Manager with an updated monthly report on the waste diversion rate being achieved on the project.

[HAULING COMPANY's] monthly report will track separately the diversion rates for commingled debris and for each source-separated waste stream leaving the project. In the event that [HAULING COMPANY] does not service any or all of the debris boxes on the project, the [HAULING COMPANY] will work with the responsible parties to track the material type and weight (in tons) in such debris boxes in order to determine waste diversion rates for these materials.

9. In the event that Subcontractors furnish their own debris boxes as part of their scope of work, such Subcontractors shall not be excluded from complying with the CWM Plan and will provide [HAULING COMPANY] waste diversion data for their debris boxes.
10. In the event that site use constraints (such as limited space) restrict the number of debris boxes that can be used for collection of designated waste the project Superintendent will, as deemed appropriate, allocate specific areas onsite where individual material types are to be consolidated. These collection points are not to be contaminated with non-designated waste types.
11. Debris from jobsite office and meeting rooms will be collected by [DISPOSAL SERVICE COMPANY]. [DISPOSAL SERVICE COMPANY] will, at a minimum, recycle office paper, plastic, metal and cardboard.

**CONSTRUCTION WASTE MANAGEMENT (CWM) WORKSHEET**

*Note: This sample form may be used to assist in documenting compliance with the waste management plan.*

<b>Project Name:</b> _____			
<b>Job Number:</b> _____			
<b>Project Manager:</b> _____			
<b>Waste Hauling Company:</b> _____			
<b>Construction Waste Management (CWM) Plan</b>			
<u>Waste Material Type</u>	<u>Diversion Method:</u>		<u>Projected Diversion Rate</u>
	<u>Commingled and Sorted Off-site</u>	<u>Source Separated Onsite</u>	
<u>Asphalt</u>			
<u>Concrete</u>			
<u>Shotcrete</u>			
<u>Metals</u>			
<u>Wood</u>			
<u>Rigid Insulation</u>			
<u>Fiberglass Insulation</u>			
<u>Acoustic Ceiling Tile</u>			
<u>Gypsum Drywall</u>			
<u>Carpet/Parpet Pad</u>			
<u>Plastic Pipe</u>			
<u>Plastic Buckets</u>			
<u>Plastic</u>			
<u>Hardiplank Siding and Boards</u>			
<u>Glass</u>			
<u>Cardboard</u>			
<u>Pallets</u>			
<u>Job office trash, paper, glass &amp; plastic bottles, cans, plastic</u>			
<u>Alkaline and rechargeable, batteries, toner cartridges, and electronic devices</u>			
<u>Other:</u>			



**CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE**

**APPENDIX A5  
NONRESIDENTIAL VOLUNTARY MEASURES**

Some of the measures contained in this appendix are not mandatory unless adopted by local government as specified in Section 101.7 and provide additional measures that designers, builders, and property owners may wish to consider during the planning, design and construction process.

**DIVISION A5.1 SITE PLANNING AND DESIGN**

Adopting Agency		DSA SS
Adopt entire California Chapter		
Adopt entire Chapter as amended (amended Sections listed below)		
Adopt only those Sections that are listed below		<b>X</b>
Chapter / Section		
<u>A5.101 GENERAL</u>	ADOPT	<b>X</b>
<u>A.101.1 General</u>	ADOPT	<b>X</b>
<u>A5.102 DEFINITIONS</u>	ADOPT	<b>X</b>
<u>A.102.1 Definitions</u>	ADOPT	<b>X</b>
<u>ALBEDO</u>	ADOPT	<b>X</b>
<u>BIORETENTION</u>	ADOPT	<b>X</b>
<u>BROWNFIELD SITE</u>	ADOPT	<b>X</b>
<u>DEVELOPMENT FOOTPRINT</u>	ADOPT	<b>X</b>
<u>GREENFIELDS</u>	ADOPT	<b>X</b>
<u>GREYFIELD SITE</u>	ADOPT	<b>X</b>
<u>FLOOR AREA RATIO</u>	ADOPT	<b>X</b>
<u>INFILL SITE</u>	ADOPT	<b>X</b>
<u>LOW IMPACT DEVELOPMENT (LID)</u>	ADOPT	<b>X</b>
<u>LOW-EMITTING AND FUEL EFFICIENT VEHICLES</u>	ADOPT	<b>X</b>
<u>NEIGHBORHOOD ELECTRIC VEHICLE (NEV)</u>	ADOPT	<b>X</b>
<u>PZEV</u>	ADOPT	<b>X</b>
<u>VANPOOL VEHICLE</u>	ADOPT	<b>X</b>
<u>ZEV</u>	ADOPT	<b>X</b>
<u>A5.106 SITE DEVELOPMENT</u>	ADOPT	<b>X</b>
<u>A5.106.5.1 Designated parking for fuel efficient vehicles</u>	ADOPT	<b>X</b>
<u>Table A5.106.5.1.1 CALGREEN Merit -10% Total Spaces</u>	ADOPT	<b>X</b>
<u>Table At.106.5.1.2 CALGREEN Excellence or CALGREEN Grid Neutral - 12% of Total Spaces</u>	ADOPT	<b>X</b>
<u>A5.106.5.1.3 Parking stall marking</u>	ADOPT	<b>X</b>
<u>A5.106.5.1.4 Vehicle designations</u>	ADOPT	<b>X</b>
<u>A5.106.5.2 Electric vehicle charging</u>	ADOPT	<b>X</b>
<u>A5.106.5.2.1 Electric vehicle supply wiring</u>	ADOPT	<b>X</b>
<u>Table A5.106.5.2.1</u>	ADOPT	<b>X</b>
<u>A5.106.6 Parking capacity</u>	ADOPT	<b>X</b>
<u>A5.106.6.1 Reduce parking capacity</u>	ADOPT	<b>X</b>
<u>A5.106.7 Exterior wall shading</u>	ADOPT	<b>X</b>

<u>A5.106.9 Building orientation</u>	ADOPT	<u>X</u>
<u>A5.106.9.1 Building orientation and shading</u>	ADOPT	<u>X</u>
<u>A5.106.11 Heat island effect.</u>	ADOPT	<u>X</u>
<u>A5.106.11.1 Hardscape alternatives.</u>	ADOPT	<u>X</u>
<u>A5.106.11.2 Cool roof.</u>	ADOPT	<u>X</u>
<u>Table A5.106.11.2.1 CALGREEN Merit</u>	ADOPT	<u>X</u>
<u>Table A5.106.11.2.2 CALGREEN Excellence or CALGREEN Grid Neutral</u>	ADOPT	<u>X</u>

## **SECTION A5.101 - GENERAL**

**A5.101.1 General.** The provisions of this chapter outline planning, design and development methods that include environmentally responsible site selection, building design, building siting and development to protect, restore, and enhance the environmental quality of the site and respect the integrity of adjacent properties.

## **SECTION A5.102 - DEFINITIONS**

**A5.102.1 Definitions.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

**ALBEDO.** Synonymous with solar reflectance, which is a ratio of the energy reflected back into the atmosphere to the energy absorbed by the surface, with 100% being total reflectance.

**BIORETENTION.** A shallow depression that utilizes conditioned soil and vegetation for the storage, treatment or infiltration of storm water runoff.

**BROWNFIELD SITE.** Real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant, with certain legal exclusions and additions.

*Note: See the full text at EPA's web site at: <http://www.epa.gov/brownfields/glossary.htm>.*

**DEVELOPMENT FOOTPRINT.** The total area of the building footprint, hardscape, access roads, and parking.

**GREENFIELDS.** Sites that are not previously developed or graded and remain in a natural state able to support agriculture, open space, or habitat. Previously developed sites are those that previously contained buildings, roadways, parking lots, or were graded or altered by direct human activities.

**GREYFIELD SITE.** Any site previously developed with at least 50% of the surface area covered with impervious material.

**FLOOR AREA RATIO.** Gross square footage of all structures on a site divided by gross square footage of the site.

**INFILL SITE.** A site in an urbanized area that meets criteria defined in Public Resources Code Section 21061.3.

**LOW IMPACT DEVELOPMENT (LID).** Control of stormwater at its source to mimic drainage services provided by an undisturbed site

**LOW-EMITTING AND FUEL EFFICIENT VEHICLES.** Eligible vehicles are limited to the following:

1. Zero emission vehicle (ZEV), including neighborhood electric vehicles (NEV), partial zero emission vehicle (PZEV), advanced technology PZEV (AT ZEV), or CNG fueled (Original equipment manufacturer only) regulated under Health and Safety Code section 43800 and CCR, Title 13, sections 1961 and 1962.
2. High efficiency vehicles, regulated by US EPA, bearing Single-Occupant Vehicle (SOV) car pool lane stickers issued by the Department of Motor Vehicles.

**NEIGHBORHOOD ELECTRIC VEHICLE (NEV).** A motor vehicle that meets the definition of “low-speed vehicle” either in section 385.5 of the Vehicle Code or in 49 CFR571.500 (as it existed on July 1, 2000), and is certified to zero-emission vehicle standards.

**PZEV.** Any vehicle certified by the California Air Resources Board as a Partial Credit Zero Emission Vehicle.

**VANPOOL VEHICLE.** Eligible vehicles are limited any motor vehicle, other than a motortruck or truck tractor, designed for carrying more than 10 but not more than 15 persons including the driver, which is maintained and used primarily for the nonprofit work-related transportation of adults for the purposes of ridesharing.

**Note:** Source: Vehicle Code, Division 1, Section 668.

**ZEV.** Any vehicle certified to zero-emission standards.

**SECTION A5.106 – SITE DEVELOPMENT**

**A5.106.5.1 Designated parking for fuel efficient vehicles.** Provide designated parking for any combination of low-emitting, fuel-efficient, and carpool/van pool vehicles as follows:

**TABLE A5.106.5.1.1  
CALGREEN Merit - 10% of Total Spaces**

<u>Total Number of Parking Spaces</u>	<u>Number of Required Spaces</u>
<u>0-9</u>	<u>0</u>
<u>10-25</u>	<u>2</u>
<u>26-50</u>	<u>4</u>

**Table A5.106.5.1.2  
CALGREEN Excellence or CALGREEN Grid Neutral – 12% of Total Spaces**

<u>Total Number of Parking Spaces</u>	<u>Number of Required Spaces</u>
<u>0-9</u>	<u>1</u>
<u>10-25</u>	<u>2</u>
<u>26-50</u>	<u>5</u>
<u>51-75</u>	<u>7</u>
<u>76-100</u>	<u>9</u>
<u>101-150</u>	<u>13</u>
<u>151-200</u>	<u>19</u>
<u>201 and over</u>	<u>At least 12% of total</u>

**A5.106.5.1.3 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:

**“CLEAN AIR  
VEHICLE”**

**A5.106.5.1.4 Vehicle designations.** Building managers may consult with local community Transit Management Associations (TMAs) for methods of designating qualifying vehicles, such as issuing parking stickers.

**Notes:**

1. Information on qualifying vehicles, car labeling regulations, and DMV SOV stickers may be obtained from the following source:
  - a. California DriveClean, [www.driveclean.ca.gov](http://www.driveclean.ca.gov)

- b. California Air Resources Board, [www.arb.ca.gov/msprog/ccvl/ccvl.htm](http://www.arb.ca.gov/msprog/ccvl/ccvl.htm)
- c. US EPA fuel efficiency standards, [www.fueleconomy.gov](http://www.fueleconomy.gov)
- d. Janet Okino, DMV Registration Operations, (916) 657 6678, and John Swanton, ARB Public Information, (626) 575-6858.

- 2. Purchasing policy and refueling sites for low emitting vehicles for state employees use can be found at: <http://www.ofa.dgs.ca.gov/NR/exeres/BEAD98C9-035D-4229-8C90-3D47BD5D81FF.htm>, Management Memo MM 06-03, and [http://www.documents.dgs.ca.gov/osp/sam/mmemos/MM08\\_04.pdf](http://www.documents.dgs.ca.gov/osp/sam/mmemos/MM08_04.pdf), Management Memo MM 08-04.

**A5.106.5.2 Electric vehicle charging.** Provide facilities meeting Section 406.7 of the *California Building Code* and as follows:

**A5.106.5.2.1 Electric vehicle supply wiring.** For each space required in Table A406.1.5.2, provide one 120 VAC 20 amp and one 208/240 V 40 amp, grounded AC outlets or panel capacity and conduit installed for future outlets.

**TABLE A5.106.5.2.1**

<u>TOTAL NUMBER OF PARKING SPACES</u>	<u>NUMBER OF REQUIRED SPACES</u>
<u>1–50</u>	<u>1</u>
<u>51–200</u>	<u>2</u>
<u>201–and over</u>	<u>4</u>

<sup>1</sup> In a parking garage, the total number of parking spaces is for each individual floor or level.

**A5.106.6 Parking capacity.** Design parking capacity to meet but not exceed minimum local zoning requirements.

**A5.106.6.1 Reduce parking capacity.** With the approval of the enforcement authority, employ strategies to reduce on-site parking area by

- 1. Use of on street parking or compact spaces, illustrated on the site plan, or
- 2. Implementation and documentation of programs that encourage occupants to carpool, ride share or use alternate transportation. Strategies for programs may be obtained from local TMAs.

**A5.106.7 Exterior wall shading.** Meet requirements in the current edition of the California Energy Code and select one of the following for wall surfaces:

- 1. Provide vegetative or man-made shading devices for east-, south-, and west-facing walls, with 30% coverage to a height of 20 feet or top of exterior wall, whichever is less, for east and west walls. Calculate shade coverage on the summer solstice at 10 AM for east-facing walls and at 3 PM for west-facing walls. Vegetative shade shall reach desired coverage within 5 years of building occupancy.
- 2. Use wall surfacing with SRI 25 (aged), for 75% of opaque wall areas.

**Exception:** Use of vegetated shade in Wildland-Urban Interface Areas as defined in Chapter 7A of the California Building Code shall meet the requirements of that chapter.

**Note:** If not available from the manufacturer, aged SRI value calculations may be found at the California Energy Commission's web site at [www.energy.ca.gov](http://www.energy.ca.gov).

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

- 1. When site and location permit, orient the building with the long sides facing north and south.
- 2. Protect the building from thermal loss, drafts, and degradation of the building envelope caused by wind and wind-driven materials such as dust, sand, snow, and leaves with building orientation and landscape features.

**Note:** For information on sun angles and shading, visit: <http://www2.aud.ucla.edu/energy-design-tools/>. Calculations may be made using the Solar-2 tool.

**A5.106.9.1 Building orientation and shading.** Locate, orient and shade the building as follows:

1. Provide exterior shade for south-facing windows during the peak cooling season. [DSA-SS] In Public School and Community College buildings, shade may be provided by trees, solar shade structures, or other alternate methods.

**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). [DSA-SS] In Public School and Community College buildings, solar shade structures may be used in lieu of trees to provide required shade.
2. Use light colored/ high-albedo materials.
3. Use open-grid pavement system.

**A5.106.11.2 Cool roof.** Use roofing materials having a minimum 3-year aged solar reflectance and thermal emittance or a minimum aged Solar Reflectance Index (SRI)<sup>3</sup> as shown in Table A5.106.11.2.1 or A5.106.11.2.2.

**Table A5.106.11.2.1  
CALGREEN Merit**

Roof Slope	Roof Weight	Climate Zone	Minimum 3-year Aged Solar Reflectance	Thermal Emittance	Minimum Aged SRI
< 2 : 12	N/A	2-15	0.55	0.75	64
> 2 : 12	< 5 lbs./ft <sup>2</sup>	2-15	0.20	0.75	16
	≥ 5 lbs./ft <sup>2</sup>	1-16	0.15	0.75	10

**Table A5.106.11.2.2  
CALGREEN Excellence or CALGREEN Grid Neutral**

Roof Slope	Roof Weight	Climate Zone	Minimum 3-year Aged Solar Reflectance	Thermal Emittance	Minimum Aged SRI
< 2 : 12	N/A	1-16	TBD	TBD	78
> 2 : 12	N/A	1-16	TBD	TBD	29

**Notation:**

Authority – Education Code Sections 17280--17317 and 81130--81147.

Reference – Education Code Sections 17310 and 81142.

**CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE  
APPENDIX A5  
NONRESIDENTIAL VOLUNTARY MEASURES**

**DIVISION A5.2 ENERGY EFFICIENCY**

Adopting Agency		DSA SS
Adopt entire California Chapter		
Adopt entire Chapter as amended (amended Sections listed below)		
Adopt only those Sections that are listed below		X
Chapter / Section		
<u>A5.201 GENERAL</u>	ADOPT	<u>X</u>
<u>A5.201.1 Scope</u>	ADOPT	<u>X</u>
<u>A5.202 DEFINITIONS</u>	ADOPT	<u>X</u>
<u>A5.202.1 Definitions</u>	ADOPT	<u>X</u>
<u>ENERGY STAR</u>	ADOPT	<u>X</u>
<u>DEMAND RESPONSE AUTOMATION INTERNET SOFTWARE CLIENT</u>	ADOPT	<u>X</u>
<u>GEOHERMAL</u>	ADOPT	<u>X</u>
<u>GRID NEUTRAL</u>	ADOPT	<u>X</u>
<u>GRID NEUTRAL</u>	ADOPT	<u>X</u>
<u>OVERCURRENT PROTECTION DEVICE RATING</u>	ADOPT	<u>X</u>
<u>PROCESS</u>	ADOPT	<u>X</u>
<u>TIME DEPENDENT VALUATION (TDV) ENERGY</u>	ADOPT	<u>X</u>
<u>A5.203 PERFORMANCE APPROACH</u>	ADOPT	<u>X</u>
<u>A5.203.1 Energy performance</u>	ADOPT	<u>X</u>
<u>A5.203.1.1 CALGREEN Merit</u>	ADOPT	<u>X</u>
<u>A5.203.1.2 CALGREEN excellence</u>	ADOPT	<u>X</u>
<u>A5.203.1.3 CALGREEN grid neutral</u>	ADOPT	<u>X</u>
<u>A5.204 PRESCRIPTIVE APPROACH</u>	ADOPT	<u>X</u>
<u>A5.204.1 ENERGY STAR equipment and appliances</u>	ADOPT	<u>X</u>
<u>A5.204.2 Energy monitoring</u>	ADOPT	<u>X</u>
<u>A5.204.2.1 Data storage</u>	ADOPT	<u>X</u>
<u>A5.204.2.2 Data access</u>	ADOPT	<u>X</u>
<u>A5.204.5.2 Roof area alternatives</u>	ADOPT	<u>X</u>
<u>A5.204.6 Building orientation and shading</u>	ADOPT	<u>X</u>
<u>A5.211 RENEWABLE ENERGY</u>	ADOPT	<u>X</u>
<u>A5.211.1 On-site renewable energy</u>	ADOPT	<u>X</u>
<u>A5.211.1.1 Documentation</u>	ADOPT	<u>X</u>
<u>A5.211.1.2 Grid Neutral</u>	ADOPT	<u>X</u>
<u>A5.211.2.1 35% Grid Neutral</u>	ADOPT	<u>X</u>
<u>A5.211.2.2 75% Grid Neutral</u>	ADOPT	<u>X</u>
<u>A5.211.2.3 Grid neutral</u>	ADOPT	<u>X</u>
<u>A5.211.3 Green power</u>	ADOPT	<u>X</u>
<u>A5.211.4 Pre-wiring for future solar</u>	ADOPT	<u>X</u>

<u>A5.211.4.1 Off grid pre-wiring for future solar</u>	ADOPT	<u>X</u>
<u>A5.212 ELEVATORS, ESCALATORS<sup>17</sup> AND OTHER EQUIPMENT</u>	ADOPT	<u>X</u>
<u>A5.212.1 Elevators and escalators</u>	ADOPT	<u>X</u>
<u>A5.212.1.1 Controls</u>	ADOPT	<u>X</u>
<u>A5.213 ENERGY EFFICIENT STEEL FRAMING</u>	ADOPT	<u>X</u>
<u>A5.213.1 Steel framing</u>	ADOPT	<u>X</u>

### **SECTION A5.201 - GENERAL**

**A5.201.1 Scope.** For the purposes of energy efficiency standards in this appendix, the California Energy Commission will continue to adopt mandatory standards. It is the intent of this code to encourage buildings to achieve exemplary performance in the area of energy efficiency. Specifically, a green building should achieve at least a 15% reduction in energy usage when compared to the State's mandatory energy efficiency standards.

### **SECTION A5.202 - DEFINITIONS**

**A5.202.1 Definitions.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

**ENERGY STAR.** A joint program of A joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy. ENERGY STAR is a voluntary program designed to identify and promote energy-efficient products and practices.

**DEMAND RESPONSE AUTOMATION INTERNET SOFTWARE CLIENT.** Software that resides in a building Energy Management Control System that can receive a demand response signal and automatically reduce HVAC and lighting system loads. Demand Response programs developed by Utilities and ISOs depend upon timely and reliable communications of events and information to the buildings that are participating in the programs.

**GEOTHERMAL.** Renewable energy generated by deep-earth water or steam.

**GRID NEUTRAL.** A site that produces at least as much renewable electricity as it uses in a year shall be deemed grid neutral.

**OVERCURRENT PROTECTION DEVICE RATING.** Software that resides in a building Energy Management Control System that can receive a demand response signal and automatically reduce HVAC and lighting system loads. Demand Response programs developed by Utilities and ISOs depend upon timely and reliable communications of events and information to the buildings that are participating in the programs.

**PROCESS.** An activity or treatment that is not related to the space conditioning, lighting, service water heating or ventilating of a building as it relates to human occupancy.

**TIME DEPENDENT VALUATION (TDV) ENERGY.** The time varying energy caused to be used by the building to provide space conditioning and water heating and for specified buildings lighting. TDV energy accounts for the energy cost used at the building site and consumed in producing and in delivering energy to a site, including, but not limited to, power generation, transmission and distribution losses.

### **SECTION renewable - PERFORMANCE APPROACH**

**A5.203.1 Energy performance.** For the purposes of energy efficiency standards in this code the California Energy Commission will continue to adopt mandatory building standards. It is the intent of this code to encourage green buildings to achieve exemplary performance in the area of energy efficiency. Specifically, a green building should achieve more than a 15 percent reduction in energy usage when compared to the State's mandatory energy efficiency standards.

Using an Alternative Calculation Method approved by the California Energy Commission, calculate each nonresidential building's TDV energy and CO2 emissions, and compare it to the standard or "budget" building.

**A5.203.1.1 CALGREEN Merit.** Exceed California Energy Code requirements, based on the 2008 Energy Efficiency Standards, by 15% and meet the requirements of Division A45.6.

**A5.203.1.2 CALGREEN excellence.** Exceed California Energy Code requirements, based on the 2008 Energy Efficiency Standards, by 30% and meet the requirements of Division A45.6.

**A5.203.1.3 CALGREEN grid neutral.** Exceed California Energy Code requirements, based on the 2008 Energy Efficiency Standards, by 35% and meet the requirements of Division A45.6.

## **SECTION A5.204 - PRESCRIPTIVE APPROACH**

**A5.204.1 ENERGY STAR equipment and appliances.** All equipment and appliances provided by the builder shall be ENERGY STAR labeled if ENERGY STAR is applicable to that equipment or appliance.

**A5.204.2 Energy monitoring.** Provide submetering or equivalent combinations of sensor measurements and thermodynamic calculations, if appropriate, to record energy use data for each major energy system in the building, including chillers, heat pumps, packaged AC systems, fans, pumps, cooling towers, boilers and other heating systems, lighting systems and process loads. This energy use data, once collected, shall be stored within a data management system.

**A5.204.2.1 Data storage.** The data management system must be capable of electronically storing energy data and creating user reports showing hourly, daily, monthly and annual energy consumption for each major energy system. Hourly data shall be retained a minimum of 30 days, daily data shall be retained a minimum of 6 months and monthly data shall be retained a minimum of 2 years.

**A5.204.2.2 Data access.** Hourly energy use data shall be accessible through a central data management system and must be available daily.

**A5.204.6 Building orientation and shading.** Locate, orient and shade the building as required in Section A5.106.9.

## **SECTION A5.211 - RENEWABLE ENERGY**

**A5.211.1 On-site renewable energy.** Use on-site renewable energy sources such as solar, wind, geothermal, low-impact hydro, biomass and bio-gas for at least 1 percent of the electric power calculated as the product of the building service voltage and the amperage specified by the electrical service overcurrent protection device rating or 1kW (whichever is greater), in addition to the electrical demand required to meet 1 percent of the natural gas and propane use. The building project's electrical service overcurrent protection device rating shall be calculated in accordance with the 2007 California Electrical Code. Natural gas or propane use is calculated in accordance with the 2007 California Plumbing Code.

**A5.211.1.1 Documentation.** Calculate renewable on-site energy cost savings as a percentage of estimated local utility rates for conventional fuel types. Factor in net-metering, if offered by local utility, on an annual basis.

**A5.211.1.2 Grid neutral.** [DSA-SS] Using the proposed annual electrical energy budget (kwh) as set forth by the Title 24, Part 6 of the California energy Code, and adding the additional annual energy consumption estimated for the appliances and equipment not covered by Title 24, Part 6 (e.g. kitchen and laundry equipment and appliances, swimming pool heaters and circulation pumps, industrial and art equipment, computers, etc.) calculate the site's annual electrical production and consumption ratio by dividing the proposed annual renewable electrical energy production (kwh) by the proposed annual electrical energy budget (kwh). The estimated plug loads shall be included in the annual electrical energy budget (kwh).

### **Exceptions:**

- 1. Existing buildings with one year of occupancy or greater shall use actual data of the annual electrical energy consumption of the facilities. Using the data logged for the facilities, calculate the site's annual electrical production and consumption ration by dividing the proposed annual renewable electrical energy production (kwh) by the actual annual electrical energy consumption (kwh).**

2. The annual renewable electrical energy can be renewable energy produce3d off-site on a remote property owned by the applicant.

**A5.211.2.1 35% Grid neutral.** A sites annual electrical production and consumption ratio is equal or greater than 0.35.

**A5.211.2.2 75% Grid neutral.** A site's annual electricat production and consumption ratio is equal or greater than 0.75.

**A5.211.2.3 Grid neutral.** A site's annual electrical production and consumption ratio is equal or greater than 1.

**A5.211.3 Green power.** Using a calculation method approved by the California Energy Commission, calculate the renewable on-site energy system to meet the requirements of Section 511.1, expressed in kW. Factor in net-metering, if offered by local utility, on an annual basis.

**A5.211.4 Pre-wiring for future solar.** Install conduit from the building roof or eave to a location within the building identified as suitable for future installation of a charge controller (regulator) and inverter.

**A5.211.4.1 Off grid pre-wiring for future solar.** If battery storage is anticipated, conduit should run to a location within the building that is stable, weather-proof, insulated against very hot and very cold weather, and isolated from occupied spaces.

## **SECTION A5.212 - ELEVATORS, ESCALATORS AND OTHER EQUIPMENT**

**A5.212.1 Elevators and escalators.** In buildings with more than one elevator or two escalators, provide controls to reduce the energy demand of elevators for part of the day and escalators to reduce speed when no traffic is detected. Document the controls in the project specifications and commissioning plan. [DSA-SS] In Public School and Community College buildings, locate stairs conveniently to encourage their use in lieu of elevators or escalators.

**A5.212.1.1 Controls.** Controls that reduce energy demand shall meet requirements of CCR, Title 8, Chapter 4, Subchapter 6 and shall not interrupt emergency operations for elevators required in CCR, Title 24, Part 2, *California Building Code*.

## **SECTION A5.213 - ENERGY EFFICIENT STEEL FRAMING**

**A5.213.1 Steel framing.** Design steel framing for maximum energy efficiency. Techniques for avoiding thermal bridging in the envelope include:

1. Punching large holes in the stud web without affecting its structural integrity.
2. Spacing the studs as far as possible while maintaining the structural integrity of the structure.
3. Exterior rigid insulation, and
4. Detailed design of intersections of wall openings and building intersections of floors, walls, and roofs.

**Notation:**

Authority – Education Code Sections 17280--17317 and 81130--81147.

Reference – Education Code Sections 17310 and 81142.

## **CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE APPENDIX A5 NONRESIDENTIAL VOLUNTARY MEASURES**

### **DIVISION A5.3 WATER EFFICIENCY AND CONSERVATION**

Adopting Agency		DSA SS
Adopt entire California Chapter		
Adopt entire Chapter as amended (amended Sections listed below)		
Adopt only those Sections that are listed below		X
Chapter / Section		
<u>A5.301 GENERAL</u>	ADOPT	X
<u>A5.301.1 Scope</u>	ADOPT	X
<u>A5.302 DEFINITIONS</u>	ADOPT	X
<u>A5.302.1 Definitions</u>	ADOPT	X
<u>HYDROZONE</u>	ADOPT	X
<u>MODEL WATER EFFICIENT LANDSCAPE ORDINANCE</u>	ADOPT	X
<u>PLANTS:</u> <u>Adaptive plants</u> <u>Invasive plants</u>	ADOPT	X
<u>POTABLE WAER</u>	ADOPT	X
<u>RECYCLED WATER</u>	ADOPT	X
<u>SUBMETER</u>	ADOPT	X
<u>A5.303 INDOOR WATER USE</u>	ADOPT	X
<u>A5.303.2.1 30% Savings</u>	ADOPT	X
<u>Table A5.303.2.1 – Water Use Baseline</u>	ADOPT	X
<u>Table A5.303.2.2 – Fixture Flow Rate</u>	ADOPT	X
<u>A5.303.3 Appliances</u>	ADOPT	X
<u>Table A5.303.3 – Commercial Dishwasher Water Use</u>	ADOPT	X
<u>A5.304 OUTDOOR WATER USE</u>	ADOPT	X
<u>A5.304.1 Water budget</u>	ADOPT	X
<u>A5.304.3 Potable water reduction</u>	ADOPT	X
<u>A5.304.3.1 CALGREEN Merit</u>	ADOPT	X
<u>A5.304.3.1.1 CALGREEN Excellence or CALGREEN Grid Neutral</u>	ADOPT	X

### **SECTION A5.301 - GENERAL**

**A5.301.1 Scope.** The provisions of this chapter shall establish the means of conserving water used indoors, outdoors, and in wastewater conveyance.

### **SECTION A5.302 - DEFINITIONS**

**A5.302.1 Definitions.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

**HYDROZONE.** A portion of the landscaped area having plants with similar water needs.

**MODEL WATER EFFICIENT LANDSCAPE ORDINANCE.** The California ordinance regulating landscape design, installation and maintenance practices that will ensure commercial, multifamily and other developer installed landscapes greater than 2500 square feet meet an irrigation water budget developed based on landscaped area, and climatological parameters.

### **PLANTS.**

**Adaptive plants.** Adaptive plants are plants that grow well in a given habitat with minimal attention in the form of winter protection, pest protection, irrigation and fertilization once established.

**Note:** *Adaptive plants are considered low in maintenance and are not Invasive plants.*

**Invasive plants.** Invasive plants are both indigenous and non-indigenous species with growth habits that are characteristically aggressive.

**Note:** *Invasive plants typically have a high reproductive capacity and tendency to overrun the ecosystems they inhabit.*

**POTABLE WATER.** Water that is drinkable and meets the U. S. Environmental Protection Agency (EPA) Drinking Water Standards. See definition in the *California Plumbing Code, Part 5.*

**RECYCLED WATER.** Water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur (Water Code Section 13050(n)). Simply put, recycled water is water treated to remove waste matter attaining a quality that is suitable to use the water again.

**SUBMETER.** A meter installed subordinate to a site meter. Usually used to measure water intended for one purpose, such as landscape irrigation, also known as a dedicated meter.

### SECTION A5.303 - INDOOR WATER USE

**A5.303.2.1 30% Savings.** A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 30% shall be provided. The reduction shall be based on the maximum allowable water use per plumbing fixture and fitting as required by the California Building Standards Code. The 30% reduction in potable water use shall be demonstrated by one of the following methods.

1. Each plumbing fixture and fitting shall meet the 30% reduced flow rate specified in Table A5.303.2.2, or
2. A calculation demonstrating a 30% reduction in the building “water use baseline” as established in Table A5.303.2.1 shall be provided.

**TABLE A5.303.2.1  
WATER USE BASELINE<sup>5</sup>**

FIXTURE TYPE	FLOW RATE <sup>2</sup>	DURATION	DAILY USES	OCCUPANTS <sup>3,4</sup>
Showerheads	2.5 gpm @ 80 psi	8 min.	1	X
Showerheads residential	2.5 gpm @ 80 psi	8 min.	1	X
Lavatory faucets residential	2.2 gpm @ 60 psi	.25 min.	3	X
Kitchen faucets	2.6 gpm @ 60 psi	4 min.	1	X
Replacement aerators	2.6 gpm @ 60 psi			X
Wash fountains	2.2 [rim space (in.) / 20 gpm @ 60 psi]			X
Metering faucets	0.25 gallons/cycle	.25 min.	3	X
Metering faucets for wash fountains	.25 [rim space (in.) / 20 gpm @ 60 psi]	.25 min.	1 male <sup>1</sup> 3 female	X
Gravity tank type water closets	1.6 gallons/flush	1 flush	1 male <sup>1</sup> 3 female	X
Flushometer tank water closets	1.6 gallons/flush	1 flush	1 male <sup>1</sup> 3 female	X
Flushometer valve water closets	1.6 gallons/flush	1 flush	1 male <sup>1</sup> 3 female	X
Electromechanical hydraulic water closets	1.6 gallons/flush	1 flush	1 male <sup>1</sup> 3 female	X
Urinals	1.6 gallons/flush	1 flush	2 male	X

Fixture “water use” = flow rate × duration × occupants × daily uses

1. Except for low-rise residential occupancies, the daily use number shall be increased to three if urinals are not installed in the room.
2. The flowrate is from the CEC Appliance Efficiency Standards, Title 20, *California Code of Regulations*; where a conflict occurs, the CEC standards shall apply.

3. For low rise residential occupancies, the number of occupants shall be based on two persons for the first bedroom, plus one additional person for each additional bedroom.
4. For nonresidential occupancies, refer to Table A, Chapter 4, 2007 *California Plumbing Code*, for occupant load factors.
5. Use worksheet WS-1 to calculate base line water use.

**TABLE A5.303.2  
FIXTURE FLOW RATE**

<b>FIXTURE TYPE</b>	<b>FLOW-RATE<sup>2</sup></b>	<b>MAXIMUM FLOW RATE AT 30% REDUCTION</b>
Showerheads	2.5 gpm @ 80 psi	1.8 gpm @ 80 psi
Lavatory Faucets Non-residential	0.5 gpm @ 60 psi	0.35 gpm @ 60 psi
Kitchen Faucets	2.2 gpm @ 60 psi	1.6 gpm @ 60 psi
Wash Fountains	2.2 [rim space(in.) / 20 gpm @ 60 psi]	1.6 [rim space(in.) / 20 gpm @ 60 psi]
Metering Faucets	0.25 gallons/cycle	0.18 gallons/cycle
Metering Faucets for Wash Fountains	.25 [rim space(in.) / 20 gpm @ 60 psi]	.18 [rim space(in.) / 20 gpm @ 60 psi]
Gravity tank type Water Closets	1.6 gallons/flush	1.12 gallons/flush <sup>1</sup>
Flushometer Tank	1.6 gallons/flush	1.12 gallons/flush <sup>1</sup>
Water Closets		
Flushometer Valve Water Closets	1.6 gallons/flush	1.12 gallons/flush <sup>1</sup>
Electromechanical Hydraulic Water Closets	1.6 gallons/flush	1.12 gallons/flush <sup>1</sup>
Urinals	1.0 gallons/flush	.5 gallons/flush

<sup>1</sup> Includes water closets with an effective flush rate of 1.12 gallons or less when tested per ASME A112.19.2 and ASME A112.19.14.

<sup>2</sup> See Table 5.503.1 for additional notes and references.

**A5.303.3 Appliances.**

1. Clothes washer shall have a maximum water factor (WF) that will reduce the use of water by 10 percent below the California Energy Commission's WF standards for commercial clothes washers located in Title 20 of the California Code of Regulations.
2. Dishwashers shall meet the following water use standards:
  - a. Residential—5.8 gallons per cycle.
  - b. Commercial—refer to Table A5.303.3.

**TABLE A5.303.3  
COMMERCIAL DISHWASHER WATER USE**

<b>TYPE</b>	<b>HIGH-TEMPERATURE— MAXIMUM GALLONS</b>	<b>CHEMICAL—MAXIMUM GALLONS</b>
	<b>PER RACK</b>	<b>PER RACK</b>
Conveyer	0.70	0.62
Door	0.95	2.26
Undercounter	0.90	0.98

3. Ice makers shall be air cooled.
4. Food steamers shall be connection-less or boiler-less.

**SECTION A5.304 - OUTDOOR WATER USE**

**A5.304.1 Water budget.** A water budget shall be developed for landscape irrigation use that conforms to the local water efficient landscape ordinance or to the California Department of Water Resources Model Water Efficient Landscape Ordinance where no local ordinance is applicable.

**Note:** *Prescriptive measures to assist in compliance with the water budget are listed in Sections 492.5 through 492.8, 492.10 and 492.11 of the ordinance, which may be found at: <http://www.owue.water.ca.gov/landscape/ord/ord.cfm>.*

**A5.304.3 Potable water reduction.** Provide water efficient landscape irrigation design that reduces the use of potable water beyond the initial requirements for plant installation and establishment in accordance with Section A5.304.3.1 or A5.304.3.2. Calculations for the reduction shall be based on the water budget developed pursuant to section A5.304.1.

Methods used to accomplish the requirements of this section must be designed to the requirements of the California Building Standards Code and shall include, but not be limited to, the following:

1. Plant coefficient.
2. Irrigation efficiency and distribution uniformity.
3. Use of captured rainwater.
4. Use of recycled water.
5. Water treated for irrigation purposes and conveyed by a water district or public entity.

**A5.304.3.1 CALGREEN Merit.** Reduce the use of potable water by 50%.

**A5.304.3.1.1 CALGREEN Excellence or CALGREEN Grid Neutral.** Reduce the use of potable water by 60%.

Notation:

Authority – Education Code Sections 17280--17317 and 81130--81147.

Reference – Education Code Sections 17310 and 81142.

**CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE  
APPENDIX A5  
NONRESIDENTIAL VOLUNTARY MEASURES**

**DIVISION A5.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY**

Adopting Agency		DSA SS
Adopt entire California Chapter		
Adopt entire Chapter as amended (amended Sections listed below)		
Adopt only those Sections that are listed below		X
Chapter / Section		
<u>A5.401 GENERAL</u>	ADOPT	<u>X</u>
<u>A5.401.1 Scope</u>	ADOPT	<u>X</u>
<u>A5.402 DEFINITIONS</u>	ADOPT	<u>X</u>
<u>A5.402.1 Definitions</u>	ADOPT	<u>X</u>

<u>BUILDING COMMISSIONING</u>	ADOPT	<u>X</u>
<u>EMBODIED ENERGY</u>	ADOPT	<u>X</u>
<u>LIFE CYCLE ASSESSMENT (LCA)</u>	ADOPT	<u>X</u>
<u>OVE</u>	ADOPT	<u>X</u>
<u>POSTCONSUMER CONTENT</u>	ADOPT	<u>X</u>
<u>PRECONSUMER (or POST-INDUSTRIAL) CONTENT</u>	ADOPT	<u>X</u>
<u>RECYCLED CONTENT</u>	ADOPT	<u>X</u>
<u>RECYCLED CONTENT VALUE (RCV)</u>	ADOPT	<u>X</u>
<u>A5.404 EFFICIENT FRAMING TECHNIQUES</u>	ADOPT	<u>X</u>
<u>A5.404.1 Wood framing</u>	ADOPT	<u>X</u>
<u>A5.404.1.1 Structural or fire-resistance integrity</u>	ADOPT	<u>X</u>
<u>A5.404.1.2 Framing specifications</u>	ADOPT	<u>X</u>
<u>A5.405 MATERIAL SOURCES</u>	ADOPT	<u>X</u>
<u>A5.405.4 Recycled content, CALGREEN Merit</u>	ADOPT	<u>X</u>
<u>A5.405.4.1 Recycled content, CALGREEN Excellence or CALGREEN Grid Neutral</u>	ADOPT	<u>X</u>
<u>A5.405.4.2 Determination of recycled content value (RVC)</u>	ADOPT	<u>X</u>
<u>A5.406 ENHANCED DURABILITY AND REDUCED MAINTENANCE</u>	ADOPT	<u>X</u>
<u>A5.406.1 Choice of materials</u>	ADOPT	<u>X</u>
<u>A5.406.1.1 Service life</u>	ADOPT	<u>X</u>
<u>A5.406.1.3 Recyclability</u>	ADOPT	<u>X</u>
<u>A5.408 CONSTRUCTION WASTE REDUCTION, DISPOSAL, AND RECYCLING</u>	ADOPT	<u>X</u>
<u>A5.408.3.1 Enhanced construction waste reduction</u>	ADOPT	<u>X</u>
<u>A5.409 LIFE CYCLE ASSESSMENT</u>	ADOPT	<u>X</u>
<u>A5.409.1 Materials and system assemblies</u>	ADOPT	<u>X</u>
<u>A5.410 BUILDING MAINTENANCE AND OPERATION</u>	ADOPT	<u>X</u>
<b><u>A5.410.2 Commissioning</u></b>	ADOPT	<u>X</u>
<u>A5.410.2.1 Owner's project requirements (OPR)</u>	ADOPT	<u>X</u>
<u>A5.410.2.2 Basis of design (DOB)</u>	ADOPT	<u>X</u>
<u>A5.410.2.3 Commissioning plan</u>	ADOPT	<u>X</u>
<u>A5.410.2.4 Functional performance testing</u>	ADOPT	<u>X</u>
<u>A5.410.2.5 Post construction documentation and training</u>	ADOPT	<u>X</u>
<u>A5.410.2.5.1 Systems manual</u>	ADOPT	<u>X</u>
<u>A5.410.2.5.2 Systems operations training</u>	ADOPT	<u>X</u>
<u>A5.410.2.6 Commissioning report</u>	ADOPT	<u>X</u>
<u>A5.410.3 Testing, adjusting and balancing</u>	ADOPT	<u>X</u>
<u>A5.410.3.2 Systems</u>	ADOPT	<u>X</u>
<u>A5.410.3.3 Procedures</u>	ADOPT	<u>X</u>
<u>A5.410.3.3.1 HVAC balancing</u>	ADOPT	<u>X</u>
<u>A5.410.3.4 Reporting</u>	ADOPT	<u>X</u>
<u>A5.410.3.5 Operation and maintenance manual</u>	ADOPT	<u>X</u>
<u>5.410.3.5.1 Compliance with tiers</u>	ADOPT	<u>X</u>

## **SECTION A5.401 - GENERAL**

**A5.401.1 Scope.** The provisions of this chapter shall outline means of achieving material conservation and resource efficiency through reuse of existing building stock and materials; use of recycled, regional, rapidly renewable, and certified wood materials; and employment of techniques to reduce pollution through recycling of materials.

## **SECTION A5.402 - DEFINITIONS**

**A 5.402.1 Definitions.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

**BUILDING COMMISSIONING.** A systematic quality assurance process that spans the entire design and construction process, including verifying and documenting that building systems and components are planned, designed, installed, tested, operated, and maintained to meet the owner's project requirements.

**EMBODIED ENERGY.** The energy used for raw material extraction, transportation, manufacturing, assembly, installation, and disposal during the life of a product, including the potential energy stored within the product.

**LIFE CYCLE ASSESSMENT (LCA).** A technique to evaluate the relevant energy and material consumed and environmental emissions associated with the entire life of a product, process, activity or service.

**OVE.** Optimal value engineering, another term for advanced wood framing techniques.

**POSTCONSUMER CONTENT.** Waste material generated by consumers after it is used and which would otherwise be discarded.

**PRECONSUMER (or POST-INDUSTRIAL) CONTENT.**

Material diverted from the waste stream during one manufacturing process, including scraps, damaged goods and excess production, that is used in another manufacturing process.

**RECYCLED CONTENT.** Refer to International Organization of Standards ISO 14021—Environmental labels and declarations—Self-declared environmental claims (Type II environmental labeling).

**RECYCLED CONTENT VALUE (RCV).** Material cost multiplied by postconsumer content plus 1/2 the preconsumer content, or  $RCV = \$ \times (\text{postconsumer content} + \frac{1}{2} \text{preconsumer content})$ .

## **SECTION A5.404 - EFFICIENT FRAMING TECHNIQUES**

**A5.404.1 Wood framing.** Employ advanced wood framing techniques, or OVE, as recommended by the U.S. Department of Energy's Office of Building Technology, State and Community Programs and as permitted by the enforcing agency.

**A5.404.1.1 Structural or fire-resistance integrity.** The OVE selected shall not conflict with structural framing methods or fire-rated assemblies required by the *California Building Code*.

**A5.404.1.2 Framing specifications.** Advanced framing techniques include the following:

1. Building design using 2-foot modules.
2. Spacing wall studs up to 24 inches on center.
3. Spacing floor and roof framing members up to 24 inches on center.
4. Using 2-stud corner framing and drywall clips or scrap lumber for drywall backing.
5. Eliminating solid headers in nonload-bearing walls.
6. Using in-line framing, aligning floor, wall and roof framing members vertically for direct transfer of loads, and

7. Using single lumber headers and top plates where appropriate.

**Note:** Additional information can be obtained at the following web site:  
<http://www.eere.energy.gov/buildings/info/publications.html#technology%20fact%20sheets>.

### **SECTION A5.405 - MATERIAL SOURCES**

**A5.405.4 Recycled content, CALGREEN Merit.** 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, CALGREEN Excellence or CALGREEN Grid Neutral.** 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).** The recycled content of a material assembly shall be determined by weight, and 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  
<http://www.ciwm.ca.gov/RCP/Product.asp?VW=CAT&CATID=257>.

### **SECTION A5.406 - ENHANCED DURABILITY AND REDUCED MAINTENANCE**

**A5.406.1 Choice of materials.** Compared to other products in a given product category, choose materials proven to be characterized by one or more of the following.

**A5.406.1.1 Service life.** Use materials, equivalent in performance to virgin materials, with postconsumer or preconsumer recycled content value (RCV) for a minimum of 10 percent of the total value, based on estimated cost of materials on the project. Provide documentation as to the respective values.

**A5.406.1.3 Recyclability.** Select materials that can be reused or recycled at the end of their service life in the project.

### **SECTION A5.408 - CONSTRUCTION WASTE REDUCTION, DISPOSAL, AND RECYCLING**

**A5.408.3.1 Enhanced construction waste reduction.** Divert to recycle or salvage non-hazardous construction and demolition debris generated at the site in compliance with one of the following:

**CALGREEN Merit.** At least a 65% reduction.

**CALGREEN Excellence or CALGREEN Grid Neutral.** At least an 80% reduction.

**Exceptions:**

1. Excavated soil and land-clearing debris
2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist.

### **SECTION A5.409 - LIFE CYCLE ASSESSMENT**

**A5.409.1 Materials and system assemblies.**

Select materials assemblies based on life cycle assessment of their embodied energy and/or green house gas emission potentials.

**Notes:**

1. Software for calculating life cycle costs for materials and assemblies may be found at:
  - a. the Athena Institute web site at: <http://www.athenasmi.ca/tools/impactEstimator/>
  - b. the NIST BEES web site at: <http://www.bfrl.nist.gov/dae/software/bees/>
  - c. Life Cycle assessment may also be done in accordance with ISO Standard 14044, [www.iso.ch](http://www.iso.ch).
2. More information on life cycle assessment may be found at the Sustainable Products Purchasers Coalition: [www.sppcoalition.org](http://www.sppcoalition.org); at the American Center for Life Cycle Assessment: [www.lcacenter.org](http://www.lcacenter.org); at U.S. EPA Life cycle Assessment Research: [www.epa.gov/nrmrl/lcaccess/index.html](http://www.epa.gov/nrmrl/lcaccess/index.html); and at U.S. EPA environmentally Preferable products, [www.epa.gov/epp](http://www.epa.gov/epp).

**SECTION A5.410 - BUILDING MAINTENANCE AND OPERATION**

**A5.410.2 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 personnel trained and certified in commissioning by a nationally recognized organization. Commissioning requirements shall include as a minimum:

1. Owner'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.

**A5.410.2.1 Owner's Project Requirements (OPR).** The expectations and requirements of the building shall be documented before the design phase of the project begins. At a minimum, this documentation shall include the following:

1. Environmental and Sustainability Goals.
2. Energy Efficiency Goals.
3. Indoor Environmental Quality Requirements.
4. Equipment and Systems Expectations.
5. Building Occupant and O&M Personnel Expectations.

**A5.410.2.2 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:

1. Heating, Ventilation, Air Conditioning (HVAC) Systems and Controls.

2. Indoor Lighting System and Controls.
3. Water Heating System.
4. Renewable Energy Systems.

**A5.410.2.3 Commissioning plan.** 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. A 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 A5.410.2.4 through A5.410.2.6 shall be included.

**A5.410.2.4 Functional performance testing.** Functional performance tests shall demonstrate the correct installation and operation of each component, system, and system-to-system interface in accordance with the approved plans and specifications. Functional performance testing reports shall contain information addressing each of the building components tested, the testing methods utilized, and include any readings and adjustments made.

**A5.410.2.5 Post construction documentation and training.** A Systems Manual and Systems Operations Training are required.

**A5.410.2.5.1 Systems manual.** Documentation of the operational aspects of the building shall be completed within the Systems Manual and delivered to the building owner and facilities operator. At a minimum, the Systems Manual shall include the following:

1. Site Information, including facility description, history and current requirements.
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.

Documentation of compliance with measurer required by tiers, if applicable.

**A5.410.2.5.2 Systems operations training.** The training of the appropriate maintenance staff for each equipment type and/or system 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 of the information in the Systems Manual.
3. Review of the record drawings on the system/equipment.

**A5.410.2.6 Commissioning report.** A complete report of commissioning process activities undertaken through the design, construction and post-construction phases of the building project shall be completed and provided to the owner.

**A5.410.3 Testing, adjusting and balancing.** Testing, adjusting and balancing of systems shall be required for buildings less than 10,000 square feet.

**A5.410.3.2 Systems.** Develop a written plan of procedures for testing, adjusting and balancing systems. Systems to be included for testing, adjusting and balancing shall include at a minimum, as applicable to the project:

1. HVAC systems and controls
2. Indoor and outdoor lighting and controls
3. Water heating systems
4. Renewable energy systems

**A5.410.3.3 Procedures.** Perform testing, adjusting and balancing procedures in accordance with industry best practices and applicable national standards on each system.

**A5.410.3.3.1 HVAC balancing.** Before a new space-conditioning system serving a building or space is operated for normal use, the system should be balanced in accordance with the procedures defined by the Testing Adjusting and Balancing Bureau National Standards (2003); the National Environmental Balancing Bureau Procedural Standards (1983); or Associated Air Balance Council National Standards (1989).

**A5.410.3.4 Reporting.** After completion of testing, adjusting and balancing, provide a final report of testing signed by the individual responsible for performing these services.

**A5.410.3.5 Operation and maintenance manual.** Provide the building owner with detailed operating and maintenance instructions and copies of guaranties/warranties for each system prior to final inspection.

**Notes:**

1. *Software for calculating life cycle costs for materials and assemblies may be found at:*
  - a.** *The Athena Institute web site at: <http://www.athenasmi.ca/tools/impactEstimator/>*
  - b.** *The NIST BEES web site at: <http://www.bfrl.nist.gov/oe/software/bees/>.*
  - c.** *Life Cycle assessment may also be done in accordance with ISO Standard 14044, [www.iso.ch](http://www.iso.ch).*
2. *More information on life cycle assessment may be found at the Sustainable Products Purchasers Coalition: [www.sppcoalition.org](http://www.sppcoalition.org) ; at the American Center for Life Cycle Assessment: [www.lcacenter.org](http://www.lcacenter.org) ; at U.S. EPA Life Cycle Assessment Research: [www.epa.gov/nrmrl/lcaccess/index.html](http://www.epa.gov/nrmrl/lcaccess/index.html) ; and at U.S. EPA Environmentally Preferable Products, [www.epa.gov/epp](http://www.epa.gov/epp).*

**5.410.3.5.1 Compliance with tiers.** Include documentation of compliance with measures required by tiers, if applicable.

Authority – Education Code Sections 17280--17317 and 81130--81147.

Reference – Education Code Sections 17310 and 81142.

**CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE  
APPENDIX A5  
NONRESIDENTIAL VOLUNTARY MEASURES**

**DIVISION A5.5 ENVIRONMENTAL QUALITY**

Adopting Agency		DSA SS
Adopt entire California Chapter		
Adopt entire Chapter as amended (amended Sections listed below)		
Adopt only those Sections that are listed below		X
Chapter / Section		
<u>A5.501 GENERAL</u>	ADOPT	X
<u>A5.501.1 Scope</u>	ADOPT	X
<u>A5.502 DEFINITIONS</u>	ADOPT	X
<u>A5.502.1 Definitions</u>	ADOPT	X
<u>INTERIOR, BUILDING</u>	ADOPT	X
<u>MERV</u>	ADOPT	X
<u>MULTI-OCCUPANT SPACES</u>	ADOPT	X
<u>NO ADDED FORMALDEHYDE (NAF) RESIN</u>	ADOPT	X
<u>SINGLE OCCUPANT SPACES</u>	ADOPT	X
<u>ULTRA-LOW EMITTING FORMALDEHYDE (ULEF) RESINS</u>	ADOPT	X
<u>A5.504 POLLUTANT CONTROL</u>	ADOPT	X
<u>A5.504.1 Indoor air quality (IAQ) during construction</u>	ADOPT	X
<u>A5.504.1.1 Temporary ventilation</u>	ADOPT	X
<u>A5.504.1.2 Additional IAQ measures</u>	ADOPT	X
<u>A5.504.4.5.1 Early compliance with formaldehyde limits</u>	ADOPT	X
<u>A5.504.4.7 Resilient flooring systems CALGREEN Merit</u>	ADOPT	X
<u>A5.504.4.7.1 Resilient floor systems, CALGREEN Excellence or CALGREEN Grid Neutral</u>	ADOPT	X
<u>A5.504.4.8 Thermal insulation, CALGREEN Merit</u>	ADOPT	X
<u>A5.504.4.8.1 Thermal insulation, CALGREEN Excellence or CALGREEN Grid Neutral</u>	ADOPT	X
<u>A5.504.4.9 Acoustical ceilings and wall panels</u>	ADOPT	X
<u>A5.504.5 Hazardous particulates and chemical pollutants</u>	ADOPT	X
<u>A5.504.5.1 Entryway systems</u>	ADOPT	X
<u>A5.504.5.2 Isolation of pollutant sources</u>	ADOPT	X
<u>A5.504.5.3.1 Filters</u>	ADOPT	X
<u>A5.507 ENVIRONMENTAL COMFORT</u>	ADOPT	X
<u>A5.507.1 Lighting and thermal comfort controls</u>	ADOPT	X
<u>A5.507.1.1 Single-occupant spaces</u>	ADOPT	X
<u>A5.507.1.1.1 Lighting</u>	ADOPT	X
<u>A5.507.1.1.2 Thermal comfort</u>	ADOPT	X
<u>A5.507.1.2 Multi-occupant spaces</u>	ADOPT	X
<u>A5.507.2 Daylight</u>	ADOPT	X
<u>A5.507.3 Views</u>	ADOPT	X
<u>A5.507.3.1 Interior office spaces</u>	ADOPT	X
<u>A5.507.3.2 Multi-occupant spaces</u>	ADOPT	X
<u>A5.507.5 Enhanced acoustical control</u>	ADOPT	X

**SECTION A5.501 - GENERAL**

**A5.501.1 Scope.** The provisions of this chapter shall outline means of reducing the quantity of air contaminants that are odorous, irritating, and/or harmful to the comfort and well-being of a building's installers, occupants, and neighbors.

## **SECTION A5.502 - DEFINITIONS**

**A5.502.1 Definitions.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

**INTERIOR, BUILDING.** The inside of the weatherproofing system.

**MERV.** Filter minimum efficiency reporting value, based on ASHRAE 52.2-1999.

**MULTI-OCCUPANT SPACES.** Indoor spaces used for presentations and training, including classrooms and conference rooms.

**NO ADDED FORMALDEHYDE (NAF) RESIN.** Resin formulated with no added formaldehyde as part of the cross linking structure for making hardwood plywood, particle board or medium density fiberboard. 'No added formaldehyde' resins include, but are not limited to, resins made from soy, polyvinyl acetate, or methylene diisocyanate.

**SINGLE OCCUPANT SPACES.** Private offices, workstations in open offices, reception workstations and ticket booths.

**ULTRA-LOW EMITTING FORMALDEHYDE (ULEF) RESINS.** Resins formulated such that average formaldehyde emissions are consistently below the Phase 2 emission standards in section 93120.2, as provided in section 93120.3(d) of Title 17, California Code of Regulations.

## **SECTION A5.504 - POLLUTANT CONTROL**

**A5.504.1 Indoor air quality (IAQ) during construction.** Maintain IAQ as provided in Sections A5.504.1.1 and A5.504.1.2.

**A5.504.1.1 Temporary ventilation.** Provide temporary ventilation during construction in accordance with Section 121 of the California Energy Code, CCR, Title 24, Part 6, and Chapter 4 of CCR, Title 8, and as follows:

- 1.** Ventilation during construction shall be achieved through openings in the building shell using fans to produce a minimum of three air changes per hour.
- 2.** During dust-producing operations, protect supply and return HVAC system openings from dust.
- 3.** The permanent HVAC system shall only be used during construction if necessary to condition the building within the required temperature range for material and equipment installation. If the HVAC system is used during construction, use return air filters with a Minimum Efficiency Reporting Value (MERV) of 8, based on ASHRAE 52.2-1999, or an average efficiency of 30% based on ASHRAE 52.1-1992. Replace all filters immediately prior to occupancy.
- 4.** If the building is occupied during demolition or construction, meet or exceed the recommended Control Measures of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings under Construction, 1995, Chapter 3.

**A5.504.1.2 Additional IAQ measures.** Employ additional measures as follows:

- 1.** When using generators to generate temporary power, use generators meeting the requirements of CCR, Title 13, Chapter 9, or local ordinance, whichever is more stringent.
- 2.** Protect on-site absorbent materials from moisture. Remove and replace any materials with
- 3.** Store odorous and high VOC-emitting materials off-site, without packaging, for a sufficient period to allow odors and VOCs to disperse.
- 4.** When possible, once materials are on the jobsite, install odorous and high VOC-emitting materials prior to those that are porous or fibrous.

5. Clean oil and dust from ducts prior to use.

**A5.504.4.5.1 Early compliance with formaldehyde limits.** Where complying composite wood product is readily available for non-residential occupancies, meet Phase 2 requirements before the compliance dates indicated in Table 5.504.4.5 (*CALGREEN Merit*), or use composite wood products made with either CARB-approved no-added formaldehyde (NAF) resins or CARB-approved ultra-low emitting formaldehyde (ULEF) resins (*CALGREEN Excellence* or *CALGREEN Grid Neutral*).

**A5.504.4.7 Resilient flooring systems, CALGREEN Merit.** For 80% of floor area to scheduled to receive 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 certified under the Resilient Floor Covering Institute (RFCI) FloorScore program.

**A5.504.4.7.1 Resilient flooring systems, CALGREEN Excellence or CALGREEN Grid Neutral.** For 100% of floor area to scheduled to receive 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 certified under the Resilient Floor Covering Institute (RFCI) FloorScore program.

**A5.504.4.8 Thermal insulation, CALGREEN Merit.** Comply with Chapter 12-13 in Title 24, Part 12, the *California Referenced Standards Code*, and 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 certified under the Resilient Floor Covering institute (AFCI) FloorScore program.

**A5.504.4.8.1 Thermal insulation, CALGREEN Excellence or CALGREEN Grid Neutral.** Install No-Added Formaldehyde thermal insulation in addition to meeting the 2009 Collaborative for High Performance Schools (CHPS) criteria and listed on its Low-emitting Materials List or certified under the Resilient Floor Covering institute (RFCI) FloorScore program.

**A5.504.4.9 Acoustical ceilings and wall panels.** Comply with Chapter 8 in Title 24, Part 2, the *California Building Code*, and with the VOC-emission limits defined in the 2009 Collaborative for High Performances Schools (CHPS) criteria and listed on its Low-emitting Materials List or certified under the Resilient Floor Covering institute (AFCO) FloorScore program.

**Note:** *The 2009 Collaborative for High Performances Schools (CHPS) criteria and listed on its Low-emitting Materials List may be found at [www.chps.net/manual/lem\\_table.htm](http://www.chps.net/manual/lem_table.htm).*

**A5.504.5 Hazardous particulates and chemical pollutants.** Minimize and control pollutant entry into buildings and cross-contamination of regularly occupied areas.

**A5.504.5.1 Entryway systems.** Install permanent entryway systems measuring at least six feet in the primary direction of travel to capture dirt and particulates at entryways directly connected to the outdoors.

1. Qualifying entryways are those that serve as regular entry points for building users.
2. Acceptable entryway systems include, but are not limited to, permanently installed grates, grilles or slotted systems that allow cleaning underneath.
3. Roll-out mats are acceptable only when maintained regularly by janitorial contractors as documented in service contract, or by in-house staff as documented by written policies and procedures.

**A5.504.5.2 Isolation of pollutant sources.** In rooms where activities produce hazardous fumes or chemicals, such as garages, janitorial or laundry rooms, and copy or printing rooms, exhaust them and isolate them from their adjacent rooms.

1. Exhaust each space with no air recirculation in accordance with ASHRAE 62.1, Table 6-4 to create negative pressure with respect to adjacent spaces with the doors to the room closed.
2. For each space, provide self-closing doors and deck to deck partitions or a hard ceiling.

3. Install low-noise, vented range hoods for all cooking appliances and in laboratory or other chemical mixing areas.

**A5.504.5.3.1 Filters.** In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air prior to occupancy that provides at least a Minimum Efficiency Reporting Value (MERV) of 13.

## **SECTION A5.507 - ENVIRONMENTAL COMFORT**

**A5.507.1 Lighting and thermal comfort controls.** Provide controls in the workplace as described in Sections A5.507.1.1 and A5.507.1.2.

**A5.507.1.1 Single-occupant spaces.** Provide individual controls that meet energy use requirements in the 2007 California Energy Code in accordance with Sections A5.507.1.1.1 and A5.507.1.1.2.

**A5.507.1.1.1 Lighting.** Provide individual task lighting and/or daylighting controls for at least 90 percent of the building occupants.

**A5.507.1.1.2 Thermal comfort.** Provide individual thermal comfort controls for at least 50 percent of the building occupants.

1. Occupants shall have control over at least one of the factors of air temperature, radiant temperature, air speed and humidity as described in ASHRAE 55-2004.
2. Occupants inside 20 feet of the plane of and within 10 feet either side of operable windows can substitute windows to control thermal comfort. The areas of operable window must meet the requirements of Section 121 of the *California Energy Code*.

**A5.507.1.2 Multi-occupant spaces.** Provide lighting and thermal comfort system controls for all shared multi-occupant spaces, such as classrooms and conference rooms.

**A5.507.2 Daylight.** Provide daylit spaces as required for toplighting and sidelighting in the 2007 *California Energy Code*. In constructing a design, consider the following:

1. Use of light shelves and reflective room surfaces to maximize daylight penetrating the rooms.
2. Means to eliminate glare and direct sun light, including through skylights.
3. Use of photosensors to turn off electric lighting when daylight is sufficient.
4. Not using diffuse daylighting glazing where views are desired.

**A5.507.3 Views.** Achieve direct line of sight to the outdoor environment via vision glazing between 2' 6" and 7' 6" above finish floor for building occupants in 90 percent of all regularly occupied areas as demonstrated by plan view and section cut diagrams

**A5.507.3.1 Interior office spaces.** Entire areas of interior office spaces may be included in the calculation if at least 75 percent of each area has direct line of sight to perimeter vision glazing.

**A5.507.3.2 Multi-occupant spaces.** Include in the calculation the square footage with direct line of sight to perimeter vision glazing.

**Exceptions to Sections 807.3 and 807.4:** Copy/printing rooms, storage areas, mechanical spaces, restrooms, auditoria and other intermittently or infrequently occupied spaces or spaces where daylight would interfere with use of the space.

**A5.507.5 Enhanced acoustical control. [DSA-SS]** Public School and Community College classrooms shall have a maximum unoccupied background noise level of 45 dBA, and a 0.6-second maximum (unoccupied) reverberation times. More information can be found in the Acoustical Society of America (ASA) guideline.

Authority – Education Code Sections 17280--17317 and 81130--81147.  
Reference – Education Code Sections 17310 and 81142.

**CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE**  
**APPENDIX A5**  
**NONRESIDENTIAL VOLUNTARY MEASURES**  
**DIVISION A5.6 VOLUNTARY REACH STANDARD**

Adopting Agency		DSA SS
Adopt entire California Chapter		
Adopt entire Chapter as amended (amended Sections listed below)		
Adopt only those Sections that are listed below		X
Chapter / Section		
<u>A5.601 CALGREEN TIERS</u>	ADOPT	X
<u>A5.601.1 Scope</u>	ADOPT	X
<u>A5.601.2. CALGREEN Merit</u>	ADOPT	X
<u>A5.601.2.1 Prerequisites</u>	ADOPT	X
<u>A5.601.2.2 Energy performance</u>	ADOPT	X
<u>A5.601.2.3.1 Additional voluntary measures for CALGREEN Merit</u>	ADOPT	X
<u>A5.601.2.3.2 35% Grid neutral</u>	ADOPT	X
<u>A5.601.3 CALGREEN excellence</u>	ADOPT	X
<u>A5.601.3.1 Prerequisites</u>	ADOPT	X
<u>A5.601.3.2 Energy performance</u>	ADOPT	X
<u>A5.601.3.3 Additional voluntary measures for CALGREEN excellence</u>	ADOPT	X
<u>A5.601.3.4 75% grid neutral</u>	ADOPT	X
<u>A5.601.4 CALGREEN grid neutral</u>	ADOPT	X
<u>A5.601.4.1 Prerequisites</u>	ADOPT	X
<u>A5.601.4.2 Energy performance</u>	ADOPT	X
<u>A5.601.4.3 Additional voluntary measures for CALGREEN grid neutral</u>	ADOPT	X
<u>A5.601.4.4 Grid neutral</u>	ADOPT	X

**SECTION A5.601 - CALGREEN TIERS**

**A5.601.1 Scope.** The measures contained in this appendix are not mandatory unless adopted by local government as specified in Section 101.7. The provisions of this section outline means of achieving enhanced construction or reach levels by incorporating additional green building measures. In order to meet one of the tier levels designers, builders, or property owners are required to incorporate additional green building measures necessary to meet the threshold of each level.

**A5.601.2 CALGREEN merit**

**A5.601.2.1 Prerequisites.** To achieve CALGREEN merit, excellence, or grid neutral status, a project must meet all of the mandatory measures in Chapter 5, and, in addition, meet the provisions in this section.

**A5.601.2.2 Energy performance.** For the purposes of energy efficiency standards in this code the California Energy Commission will continue to adopt mandatory building standards.

Using an Alternative Calculation Method approved by the California Energy Commission, calculate each nonresidential building's TDV energy and CO<sub>2</sub> emissions, and compare it to the standard or "budget" building.

Exceed California Energy Code requirements by 15%. Field verify and document the measures and calculations used to reach the desired level of efficiency following the requirements specified in the Title 24 Nonresidential Alternative Calculation Method Manual.

**A5.601.2.3.1 Additional voluntary measures for CALGREEN merit.** Employ at least the following voluntary measures from Appendix 5:

1. A5.106.6.1 Reduce parking capacity.
2. A5.204.1 ENERGY STAR equipment and appliances. In Public School and Community College buildings, equipment including computers and monitors, and appliances in kitchen and supporting food storage and preparation spaces shall be ENERGY STAR compliant.
3. A.5.303.3 Appliances, Items 2, 3 and 4.
4. A5.405.4 Recycled Content., CALGREEN merit
5. A5.507.1.1 Single-occupant spaces. Lighting

**A5.601.2.3.2 35% Grid neutral.** In addition to the requirements for *CALGREEN Merit*, a site's annual electrical production and consumption ratio shall be equal to or greater than 0.35 as described Section A5.211.2.3; and employ Energy Monitoring as described in Section A5.106.11.

### **A5.601.3 CALGREEN excellence**

**A5.601.3.1 Prerequisites.** To achieve *CALGREEN excellence* status, a project must meet all of the mandatory measures in Chapter 5, and, in addition, meet the provisions of sections A5.601.3.2 through A5.601.3.4.

**A5.601.3.2 Energy performance-** For the purposes of energy efficiency standards in this code the California Energy Commission will continue to adopt mandatory building standards.  
Using an Alternative Calculation Method approved by the California Energy Commission, calculate each nonresidential building's TDV energy and CO<sub>2</sub> emissions, and compare it to the standard or "budget" building.

Exceed California Energy Code requirements by 30%. Field verify and document the measures and calculations used to reach the desired level of efficiency following the requirements specified in the Title 24 Nonresidential Alternative Calculation Method Manual.

**A5.601.3.3 Additional voluntary measures for CALGREEN excellence.** Employ at least the following voluntary measures from Appendix 5:

1. A5.106.6.1 Reduce parking capacity.
2. A5.106.9 Building orientation.
3. A5.204.1 ENERGY STAR equipment and appliances. In Public School and Community College buildings, equipment including computers and monitors, and appliances in kitchen and supporting food storage and preparation spaces shall be ENERGY STAR compliant.
4. A5.106.11.2 Roof area alternatives, item 1.

5. A.5.303.3 Appliances, items 2, 3, and 4.
6. A5.404.1 Wood Framing.
7. **A5.405.4.1 Recycled content, CALGREEN Excellence or CALGREEN Grid Neutral**
8. A5.507.1.1.1 Single-occupant spaces. Lighting.
9. A5.507.1.2 Multi-occupant spaces.

**A5.601.3.4 75% Grid neutral.** In addition to the requirements for *CALGREEN Excellence*, a site's annual electrical production and consumption ratio shall be equal to or greater than 0.75 as described Section A5.211.2.3; and employ Energy Monitoring as described in Section A5.106.11.

**A5.601.4 CALGREEN grid neutral.**

**A5.601.4.1 Prerequisites.** To achieve *CALGREEN grid neutral status*, a project must meet all of the mandatory measures in Chapter 5, and, in addition, meet the provisions of sections A5.601.4.2 through A5.601.4.4.

**A5.601.4.2 Energy performance.** For the purposes of energy efficiency standards in this code the California Energy Commission will continue to adopt mandatory building standards.

Using an Alternative Calculation Method approved by the California Energy Commission, calculate each nonresidential building's TDV energy and CO<sub>2</sub> emissions, and compare it to the standard or "budget" building.

Exceed California Energy Code requirements by 35%. Field verify and document the measures and calculations used to reach the desired level of efficiency following the requirements specified in the Title 24 Nonresidential Alternative Calculation Method Manual.

**A5.601.4.3 Additional voluntary measures for CALGREEN grid neutral.** Employ at least the following voluntary measures from Appendix 5:

1. A5.106. 6.1 Reduce parking capacity.
2. A5.106.9 Building orientation.
3. A5.204.1 ENERGY STAR equipment and appliances. In Public School and Community College buildings, equipment including computers and monitors, and appliances in kitchen and supporting food storage and preparation spaces shall be ENERGY STAR compliant.
4. A5.204.4 Commissioning.
5. A5.106.11.2 Roof area alternatives, item 1.
6. A.5.303.3 Appliances, items 2, 3, and 4..
7. A5.404.1 Wood Framing.
8. **A5.405.4.1 Recycled content, CALGREEN Excellence or CALGREEN Grid Neutral**
9. A5.507.1.1.1 Single-occupant spaces. Lighting.
10. A5.507.1.2 Multi-occupant spaces.
11. A5.507.3 Daylight.

**A5.601.4.4. Grid neutral.** In addition to the above requirements, a site's annual electrical production and consumption ratio shall be equal to or greater than 1 as described Section A5.211.2.3; and employ Energy Monitoring as described in Section A5.106.11.

Notation:

Authority – Education Code Sections 17280--17317 and 81130--81147.

Reference – Education Code Sections 17310 and 81142.

Notes: <input type="checkbox"/> Required measure to meet DSA voluntary reach standards, Division A5.601	Mandatory	Voluntary		
		<i>CALGREEN Merit</i>	<i>CALGREEN Excellence</i>	<i>CALGREEN Grid Neutral</i>
<b>PREREQUISITE</b>				
Project meets all of the requirements of Divisions 5.1 through 5.5, as indicated in this table in Mandatory column.	☒	☒	☒	☒
<b>DIVISION 5.1 - PLANNING AND DESIGN</b>				
<b>5.106 - SITE DEVELOPMENT</b>				
<b>5.106.4 Bicycle parking and changing rooms.</b> Comply with Sections 5.106.4.1 through 5.106.4.3; or meet local ordinance or the University of California Policy on Sustainable Practices, whichever is stricter.	☒			
<b>5.106.4.1 Short-term bicycle parking.</b> If the project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 100 feet of the visitors' entrance, readily visible to passers-by, for 5% of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack.	☒			
<b>5.106.4.2 Long-term bicycle parking.</b> For buildings with over 10 tenant-occupants, provide secure bicycle parking for 5% of motorized vehicle parking capacity, with a minimum of one space. Acceptable parking facilities shall be convenient from the street and may include: 1. Covered, lockable enclosures with permanently anchored racks for bicycles; 2. Lockable bicycle rooms with permanently anchored racks; and 3. Lockable, permanently anchored bicycle lockers.	☒			
<b>5.106.4.3 Changing rooms.</b> For buildings with over 10 tenant-occupants, provide changing/shower facilities for tenant-occupants only in accordance with Table 5.106.4.3, or document arrangements with nearby changing/shower facilities. Table 5.106.4.3	☒			
<b>A5.106.5.1 Designated parking for fuel efficient vehicle.</b> Provide designated parking for any combination of low-emitting, fuel-efficient, and carpool/van pool vehicles as follows: Table A5.106.5.1.1 Tier 1 – 10% of Total Spaces Table A5.106.5.1.2 Tier 2 – 12% of Total Spaces		☒	☒	☒
<b>A5.106.5.1.3 Parking stall marking.</b> 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: <b><u>"CLEAN AIR VEHICLE"</u></b>		☒	☒	☒
<b>A5.106.5.1.4 Vehicle designations.</b> Building managers may consult with local community Transit Management Associations (TMAs) for methods of designating qualifying vehicles, such as issuing parking stickers.		☒	☒	☒
<b>A5.106.5.2 Electric vehicle charging.</b> Provide facilities meeting Section 406.7 of the <i>California Building Code</i> and as follows:		☒	☒	☒

Notes: <input type="checkbox"/> Required measure to meet DSA voluntary reach standards, Division A5.601	Mandatory	Voluntary		
		<i>CALGREEN Merit</i>	<i>CALGREEN Excellence</i>	<i>CALGREEN Grid Neutral</i>
<b>5.106.5.2 Designated parking.</b> Provide designated parking for any combination of low-emitting, fuel-efficient, and carpool/van pool vehicles as follows: <u>TABLE 5.106.5.2</u>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>A5.106.5.2.1 Electric vehicle supply wiring.</b> For each space required in TableA406.1.5.2.1, provide one 120 VAC 20 amp and one 208/240 V 40 amp, grounded AC outlets or panel capacity and conduit installed for future outlets. <u>Table A5.106.5.2.1</u>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>A5.106.6 Parking capacity.</b> Design parking capacity to meet but not exceed minimum local zoning requirements.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.106.6.1 Reduce parking capacity.</b> With the approval of the enforcement authority, employ strategies to reduce on site parking area by <ol style="list-style-type: none"> <li>1. <u>Use of on street parking or compact spaces, illustrated on the site plan, or</u></li> <li>2. <u>Implementation and documentation of programs that encourage occupants to carpool, ride share, or use alternate transportation.</u></li> </ol>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>5.106.8 Light pollution reduction.</b> Comply with lighting power requirements in the California Energy Code, CCR, Part 6, and design interior and exterior lighting such that zero direct-beam illumination leaves the building site. Meet or exceed exterior light levels and uniformity ratios for lighting zones 1-4 as defined in Chapter 10 of the California Administrative Code, CCR, Part 1, using the following strategies: <ol style="list-style-type: none"> <li>1. <u>Shield all exterior luminaires or provide cutoff luminaires per Section 132 (b) of the California Energy Code.</u></li> <li>2. <u>Contain interior lighting within each source.</u></li> <li>3. <u>Contain all exterior lighting within property boundaries.</u></li> <li>4. <u>Automatically control exterior lighting dusk to dawn to turn off or lower light levels during inactive periods.</u></li> </ol> <u>Exceptions:</u> <ol style="list-style-type: none"> <li>1. <u>Part 2, Chapter 12, Section 1205.6 for campus lighting requirements for parking facilities and walkways.</u></li> <li>2. <u>Emergency lighting and lighting required for nighttime security.</u></li> </ol>	<input checked="" type="checkbox"/>  <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>			
<b>A5.106.9 Building orientation.</b> Locate and orient the building as follows: <ol style="list-style-type: none"> <li>1. <u>Long sides facing north and south.</u></li> <li>2. <u>Protect the building from thermal loss, drafts, and degradation of the building envelope caused by wind and wind-driven materials.</u></li> </ol>		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>
<b>A5.106.9.1 Building orientation and shading.</b> Locate, orient and shade the building as follows: <ol style="list-style-type: none"> <li>1. <u>Provide exterior shade for south-facing windows during the peak cooling season. [DSA-SS] In Public School and Community College buildings, Shade may be provided by trees, solar shade structures, or other alternate methods.</u></li> </ol>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Notes: <input type="checkbox"/> Required measure to meet DSA voluntary reach standards, Division A5.601	Mandatory	Voluntary		
		<i>CALGREEN Merit</i>	<i>CALGREEN Excellence</i>	<i>CALGREEN Grid Neutral</i>
<b>5.106.10 Grading and Paving.</b> The site shall be planned and developed to keep surface water away from buildings. Construction plans shall indicate how site grading or a drainage system will manage all surface water flows.	☒			
<b>A5.106.11 Heat island effect.</b> Reduce non-roof heat islands by Section A5.106.11.1 and roof heat islands by A5.106.11.2.		☒	☒	☒
<b>A5.106.11.1 Hardscape alternatives.</b> Use one or a combination of strategies 1 through 3 for 50% of site hardscape or put 50% of parking underground. Provide shade (mature within 5 years of occupancy). [DSA-SS] In Public School and Community College buildings, solar shade structures may be used in lieu of trees to provide required shade. 1. Use light colored/ high-albedo materials. 2. Use open-grid pavement system.		☒	☒	☒
<b>A5.106.11.2 Cool roof.</b> Use roofing materials having a minimum 3-year aged solar reflectance and thermal emittance or a minimum aged Solar Reflectance Index (SRI) <sup>3</sup> as shown in Table A5.106.11.2.1 or A5.106.11.2.2. Table A5.106.11.2.1 - CALGREEN Merit Table A5.106.11.2.2 - CALGREEN Excellence or CALGREEN Grid Neutral		☒	☒	☒
<b><u>DIVISION 5.2 -- ENERGY EFFICIENCY</u></b>				
<b><u>5.201 - GENERAL</u></b>				
<b>5.201.1 Scope</b> For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory building standards.	☒			
<b>A5.203.1 Energy performance.</b> For the purposes of energy efficiency standards in this code the California Energy Commission will continue to adopt mandatory building standards. It is the intent of this code to encourage green buildings to achieve exemplary performance in the area of energy efficiency. Specifically, a green building should achieve more than a 15 percent reduction in energy usage when compared to the State's mandatory energy efficiency standards. Using an Alternative Calculation Method approved by the California Energy Commission, calculate each nonresidential building's TDV energy and CO2 emissions, and compare it to the standard or "budget" building.		☒		
<b>A5.203.1.1 CALGREEN merit.</b> Exceed California Energy Code requirements, based on the 2008 Energy Efficiency Standards, by 15% and meet the requirements of Division A45.6.		☒		
<b>A5.203.1.2 CALGREEN excellence.</b> Exceed California Energy Code requirements, based on the 2008 Energy Efficiency Standards, by 30% and meet the requirements of Division A45.6.			☒	
<b>A5.203.1.3 CALGREEN grid neutral</b> Exceed California Energy Code requirements, based on the 2008 Energy Efficiency Standards, by 35% and meet the requirements of Division A45.6.				☒

Notes: <input type="checkbox"/> Required measure to meet DSA voluntary reach standards, Division A5.601	Mandatory	Voluntary		
		<i>CALGREEN Merit</i>	<i>CALGREEN Excellence</i>	<i>CALGREEN Grid Neutral</i>
<b>A5.204 - PRESCRIPTIVE MEASURES</b>				
<b>A5.204.1 ENERGY STAR equipment and appliances.</b> All equipment and appliances provided by the builder shall be ENERGY STAR labeled if ENERGY STAR is applicable to that equipment or appliance.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.204.2 Energy monitoring.</b> Provide submetering or equivalent combinations of sensor measurements and thermodynamic calculations, if appropriate, to record energy use data for each major energy system in the building, including chillers, heat pumps, packaged AC systems, fans, pumps, cooling towers, boilers and other heating systems, lighting systems and process loads. This energy use data, once collected, shall be stored within a data management system.				<input type="checkbox"/>
<b>A5.211 -- RENEWABLE ENERGY</b>				
<b>A5.211.1 On-site renewable energy.</b> Use on-site renewable energy sources such as solar, wind, geothermal, low-impact hydro, biomass and bio-gas for at least 1 percent of the electric power calculated as the product of the building service voltage and the amperage specified by the electrical service overcurrent protection device rating or 1kW (whichever is greater), in addition to the electrical demand required to meet 1 percent of the natural gas and propane use. The building project's electrical service overcurrent protection device rating shall be calculated in accordance with the 2007 <i>California Electrical Code</i> . Natural gas or propane use is calculated in accordance with the 2007 <i>California Plumbing Code</i> .		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>A5.211.1.1 Documentation.</b> Calculate renewable on-site energy cost savings as a percentage of estimated local utility rates for conventional fuel types. Factor in net-metering, if offered by local utility, on an annual basis.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.211.2 Grid neutral.</b> [DSA-SS] Using the proposed annual electrical energy budget (kwh) as set forth by the Title 24, Part 6 of the California Energy Code, and adding the additional annual energy consumption estimated for the appliances and equipment not covered by Title 24, Part 6 (e.g. kitchen and laundry equipment and appliances, swimming pool heaters and circulation pumps, industrial and art equipment, computers, etc.) calculate the site's annual electrical production and consumption ratio by dividing the proposed annual renewable electrical energy production (kwh) by the proposed annual electrical energy budget (kwh). The estimated plug loads shall be included in the annual electrical energy budget (kwh). Exceptions: 1. Existing buildings with one year of occupancy or greater shall use actual data of the annual electrical energy consumption of the facilities. Using the data logged for the facilities, calculate the site's annual electrical production and consumption ratio by dividing the proposed annual renewable electrical energy production (kwh) by the actual annual electrical energy consumption (kwh). 2. The annual renewable electrical energy can be renewable energy produced off-site on a remote property owned by the applicant.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>A5.211.2.1 35% Grid neutral.</b> A site's annual electrical production and consumption ratio is equal or greater than 0.35.		<input checked="" type="checkbox"/>		

Notes: <input type="checkbox"/> Required measure to meet DSA voluntary reach standards, Division A5.601	Mandatory	Voluntary		
		<i>CALGREEN Merit</i>	<i>CALGREEN Excellence</i>	<i>CALGREEN Grid Neutral</i>
<b>A5.211.2.2 75% Grid neutral.</b> A site's annual electrical production and consumption ratio is equal or greater than 0.75.			☒	
<b>A5.211.2.3 Grid neutral.</b> A site's annual electrical production and consumption ratio is equal or greater than 1.				☒
<b>A5.211.3 Green power.</b> Using a calculation method approved by the California Energy Commission, calculate the renewable on-site energy system to meet the requirements of Section 511.1, expressed in kW. Factor in net-metering, if offered by local utility, on an annual basis.		☒	☒	☒
<b>A5.211.4 Pre-wiring for future solar.</b> Install conduit from the building roof or eave to a location within the building identified as suitable for future installation of a charge controller (regulator) and inverter.		☒	☒	☒
<b>A5.211.4.1 Off grid pre-wiring for future solar.</b> If battery storage is anticipated, conduit should run to a location within the building that is stable, weather-proof, insulated against very hot and very cold weather, and isolated from occupied spaces.		☒	☒	☒
<b>A5.212 - ELEVATORS, ESCALATORS, AND OTHER EQUIPMENT</b>				
<b>A5.212.1 Elevators and escalators.</b> In buildings with more than one elevator or two escalators, provide controls to reduce the energy demand of elevators for part of the day and escalators to reduce speed when no traffic is detected. Document the controls in the project specifications and commissioning plan. [DSA-SS] In Public School and Community College buildings, locate stairs conveniently to encourage their use in lieu of elevators or escalators.		☒	☒	☒
<b>A5.212.1.1 Controls.</b> Controls that reduce energy demand shall meet requirements of CCR, Title 8, Chapter 4, Subchapter 6 and shall not interrupt emergency operations for elevators required in CCR, Title 24, Part 2, <i>California Building Code</i> .		☒	☒	☒
<b>A5.213 - ENERGY EFFICIENT STEEL FRAMING</b>				
<b>A5.213.1 Steel framing.</b> Design steel framing for maximum energy efficiency. Techniques for avoiding thermal bridging in the envelope include: <ol style="list-style-type: none"> <li>1. Punching large holes in the stud web without affecting its structural integrity.</li> <li>2. Spacing the studs as far as possible while maintaining the structural integrity of the structure.</li> <li>3. Exterior rigid insulation, and</li> <li>4. Detailed design of intersections of wall openings and building intersections of floors, walls, and roofs.</li> </ol>		☒	☒	☒
<b>DIVISION 5.3 - WATER EFFICIENCY AND CONSERVATION</b>				
<b>5.303 - INDOOR WATER USE</b>				
<b>5.303.2 20% Savings.</b> A schedule of plumbing fixtures and fixture fittings that will reduce the overall use	☒			

Notes:	Mandatory	Voluntary		
		CALGREEN Merit	CALGREEN Excellence	CALGREEN Grid Neutral
<input type="checkbox"/> Required measure to meet DSA voluntary reach standards, Division A5.601				
<p>of potable water within the building by 20% shall be provided. The reduction shall be based on the maximum allowable water use per plumbing fixture and fitting as required by the California Building Standards Code. The 20% reduction in potable water use shall be demonstrated by one of the following methods.</p> <ol style="list-style-type: none"> <li>Each plumbing fixture and fitting shall meet the 20% reduced flow rate specified in Table 5.303.2, or</li> <li>A calculation demonstrating a 20% reduction in the building "water use baseline" as established in Table 5.303.1 shall be provided.            Table 5.303.1 – Indoor Water Use Baseline            Table 5.303.2 – Fixture Flow Rates            (Calculate savings by Water Use Worksheets.)</li> </ol>				
<p><b>A5.303.2.1 30% Savings.</b>  A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 30% shall be provided. The reduction shall be based on the maximum allowable water use per plumbing fixture and fitting as required by the California Building Standards Code. The 30% reduction in potable water use shall be demonstrated by one of the following methods.</p> <ol style="list-style-type: none"> <li>Each plumbing fixture and fitting shall meet the 30% reduced flow rate specified in Table A5.303.2.1, or</li> <li>A calculation demonstrating a 30% reduction in the building "water use baseline" as established in Table 5.303.1 shall be provided.            Table A5.303.2.1 – Water use Baseline            Table A5.303.2.2 - Fixture Flow Rate            (Calculate savings by Water Use Worksheets.)</li> </ol>		☒	☒	☒
<p><b>5.303.4 Wastewater reduction.</b> Each building shall reduce by 20% wastewater by the following method:</p> <ol style="list-style-type: none"> <li>The installation of water-conserving fixtures (water closets, urinals) meeting the criteria established in sections 5.303.2 or A5.303.3.</li> </ol>	☒			
<p><b>A5.303.3 Appliances.</b></p> <ol style="list-style-type: none"> <li>Clothes washer shall have a maximum water factor (WF) that will reduce the use of water by 10 percent below the California Energy Commission's WF standards for commercial clothes washers located in Title 20 of the California Code of Regulations.</li> <li>Dishwashers shall meet the following water use standards:           <ol style="list-style-type: none"> <li>Residential—5.8 gallons per cycle.</li> <li>Commercial—refer to Table A5.303.3.                Table A5.303.3 - Commercial Dishwasher Water Use</li> </ol> </li> <li>Ice makers shall be air cooled.</li> <li>Food steamers shall be connection-less or boiler-less.</li> </ol>		☒	☒	☒
<p><b>5.303.6 Plumbing fixtures and fittings.</b>  Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall meet the standards referenced in Table 5.503.6.            Table 5.503.6  <u>Water closets (toilets) – flushometer type</u>  <u>Water closets (toilets) – tank type</u>  <u>Urinals:</u>  <u>Public lavatory faucets:</u>  <u>Public metering self-closing faucets:</u></p>	☒ ☒ ☒ ☒ ☒			

Notes: <input type="checkbox"/> Required measure to meet DSA voluntary reach standards, Division A5.601	Mandatory	Voluntary		
		<i>CALGREEN Merit</i>	<i>CALGREEN Excellence</i>	<i>CALGREEN Grid Neutral</i>
<b><u>A5.304 - OUTDOOR WATER USE</u></b>				
<b><u>A5.304.1 Water budget.</u></b> A water budget shall be developed for landscape irrigation use that conforms to the local water efficient landscape ordinance or to the California Department of Water Resources Model Water Efficient Landscape Ordinance where no local ordinance is applicable.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b><u>A5.304.3 Potable water reduction.</u></b> Provide a water efficient landscape irrigation design that reduces the use of potable water beyond the initial requirements for plant installation and establishment in accordance with Section A5.304.4.1 or A5.304.4.2. Calculations for the reduction shall be based on the water budget developed pursuant to section A5.304.1. Methods used to accomplish the requirements of this section must be designed to the requirements of the <i>California Building Standards Code</i> and shall include, but not be limited to, the following: 1. <u>Plant coefficient</u> 2. <u>Irrigation efficiency and distribution uniformity</u> 3. <u>Use of captured rainwater</u> 4. <u>Use of recycled water</u> 5. <u>Water treated for irrigation purposes and conveyed by a water district or public entity</u>		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<b><u>A5.304.4.1 CALGREEN merit.</u></b> Reduce the use of potable water by 50%.		<input checked="" type="checkbox"/>		
<b><u>A5.304.4.1.1 CALGREEN excellence or CALGREEN grid neutral.</u></b> Reduce the use of potable water by 60%.			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b><u>DIVISION A5.4 - MATERIAL CONSERVATION AND RESOURCE EFFICIENCY</u></b>				
<b><u>A5.304 - EFFICIENT FRAMING SYSTEMS</u></b>				
<b><u>A5.404.1 Wood framing.</u></b> Employ advanced wood framing techniques, or OVE, as recommended by the U.S. Department of Energy's Office of Building Technology, State and Community Programs and as permitted by the enforcing agency.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b><u>A5.405 - MATERIAL SOURCES</u></b>				
<b><u>A5.405.4 Recycled content, CALGREEN merit</u></b> 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.		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b><u>A5.405.4.1 Recycled content, CALGREEN excellence or CALGREEN grid neutral</u></b> 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.		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>A5.405.4.2 Determination of recycled content value (RCV).</u></b> The recycled content of a material assembly shall be determined by weight, and		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Notes: <input type="checkbox"/> Required measure to meet DSA voluntary reach standards, Division A5.601	Mandatory	Voluntary		
		CALGREEN Merit	CALGREEN Excellence	CALGREEN Grid Neutral
the fractional value of the weight is then multiplied by the total estimated cost of the material assembly.				
<b><u>A5.406 - ENHANCED DURABILITY AND REDUCED MAINTENANCE</u></b>				
<b><u>A5.406.1.1 Service life.</u></b> Use materials, equivalent in performance to virgin materials, with post consumer or preconsumer recycled content value (RCV) for a minimum of 10 percent of the total value, based on estimated cost of materials on the project. Provide documentation as to the respective values.		☒	☒	☒
<b><u>A5.406.1.3 Recyclability.</u></b> Select materials that can be reused or recycled at the end of their service life in the project.		☒	☒	☒
<b><u>5.407 - WATER RESISTANCE AND MOISTURE MANAGEMENT</u></b>				
<b><u>5.407.1 Weather protection.</u></b> Provide a weather-resistant exterior wall and foundation envelope as required by California Building Code Section 1403.2 and California Energy Code Section 150, manufacturer's installation instructions, or local ordinance, whichever is more stringent.	☒			
<b><u>5.407.2 Moisture control.</u></b> Employ moisture control measures by the following methods:	☒			
<b><u>5.407.2.1 Sprinklers.</u></b> Design and maintain landscape irrigation systems to prevent spray on structures.	☒			
<b><u>5.407.2.2 Entries and openings.</u></b> Design exterior entries and/or openings subject to foot traffic or wind-driven rain to prevent water intrusion into buildings.	☒			
<b><u>5.408 - CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING</u></b>				
<b><u>5.408.1 Construction waste diversion.</u></b> Establish a construction waste management plan for the diverted materials, or meet local construction and demolition waste management ordinance, whichever is more stringent.	☒			
<b><u>5.408.2 Construction waste management plan.</u></b> Where a local jurisdiction does not have a construction and demolition waste management ordinance, submit a construction waste management plan for approval by the enforcement agency that: <ol style="list-style-type: none"> <li>1. Identifies the materials to be diverted from disposal by efficient usage, recycling, reuse on the project, or salvage for future use or sale.</li> <li>2. Determines if materials will be sorted on-site or mixed.</li> <li>3. Identifies diversion facilities where material collected will be taken.</li> <li>4. Specifies that the amount of materials diverted shall be calculated by weight or volume, but not by both.</li> </ol>	☒			
<b><u>5.408.2.1 Documentation.</u></b> Documentation shall be provided to the enforcing agency which demonstrates compliance with Section 5.408.2 items 1 thru 4. The waste management plan shall be updated as necessary and shall be accessible during construction for examination by the enforcing agency.	☒			

Notes: <input type="checkbox"/> Required measure to meet DSA voluntary reach standards, Division A5.601	Mandatory	Voluntary		
		CALGREEN Merit	CALGREEN Excellence	CALGREEN Grid Neutral
<b>5.408.2.2 Isolated jobsites.</b> The enforcing agency may make exceptions to the requirements of this section when jobsites are located in areas beyond the haul boundaries of the diversion facility.	<input checked="" type="checkbox"/>			
<b>5.408.3 Construction waste reduction of at least 50%.</b> Recycle and/or salvage for reuse a minimum of 50% of the non-hazardous construction and demolition debris, or meet a local construction and demolition waste management ordinance, whichever is more stringent. Calculate the amount of materials diverted by weight or volume, but not by both. <u>Exceptions:</u> 1. <u>Excavated soil and land-clearing debris.</u> 2. <u>Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist.</u>	<input checked="" type="checkbox"/>			
<b>A5.408.3.1 Enhanced construction waste reduction.</b> Divert to recycle or salvage non-hazardous construction and demolition debris generated at the site in compliance with one of the following: <u>CALGREEN merit. At least a 65% reduction.</u> <u>CALGREEN excellence or CALGREEN grid neutral. At least an 80% reduction.</u> <u>Exceptions:</u> 1. <u>Excavated soil and land-clearing debris.</u> 2. <u>Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist.</u>		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<b>A5.409 - LIFE CYCLE ASSESSMENT</b>				
<b>A5.409.1 Materials and system assemblies.</b> Select materials assemblies based on life cycle assessment of their embodied energy and/or green house gas emission potentials.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>5.410 - BUILDING MAINTENANCE AND OPERATION</b>				
<b>5.410.1 Recycling by occupants</b> 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.	<input checked="" type="checkbox"/>			
<b>A5.410 - BUILDING MAINTENANCE AND OPERATION</b>				
<b>A5.410.2 Commissioning.</b> 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 personnel trained and certified in commissioning by a nationally recognized organization. Commissioning requirements shall include as a minimum: 1. <u>Owner's Project Requirements.</u> 2. <u>Basis of Design.</u> 3. <u>Commissioning measures shown in the construction documents.</u> 4. <u>Commissioning Plan.</u> 5. <u>Functional Performance Testing.</u> 6. <u>Post Construction Documentation &amp; Training.</u> 7. <u>Commissioning Report.</u> All building systems and components covered by Title 24, Part 6, as well as		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Notes:	Mandatory	Voluntary		
		CALGREEN Merit	CALGREEN Excellence	CALGREEN Grid Neutral
<input type="checkbox"/> Required measure to meet DSA voluntary reach standards, Division A5.601				
process equipment and controls, and renewable energy systems shall be included in the scope of the Commissioning Requirements.				
<b>5.410.2.1 Owner's Project Requirements (OPR).</b> <u>The expectations and requirements of the building shall be documented before the design phase of the project begins. At a minimum, this documentation shall include the following:</u> <ol style="list-style-type: none"> <li>1. <u>Environmental and Sustainability Goals.</u></li> <li>2. <u>Energy Efficiency Goals.</u></li> <li>3. <u>Indoor Environmental Quality Requirements.</u></li> <li>4. <u>Equipment and Systems Expectations.</u></li> <li>5. <u>Building Occupant and O&amp;M Personnel Expectations.</u></li> </ol>		☒	☒	☐
<b>A5.410.2.2 Basis of Design (BOD).</b> <u>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:</u> <ol style="list-style-type: none"> <li>1. <u>Heating, Ventilation, Air Conditioning (HVAC) Systems and Controls.</u></li> <li>2. <u>Indoor Lighting System and Controls.</u></li> <li>3. <u>Water Heating System.</u></li> <li>4. <u>Renewable Energy Systems.</u></li> </ol>		☒	☒	☐
<b>A5.410.2.3 Commissioning plan.</b> <u>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:</u> <ol style="list-style-type: none"> <li>1. <u>General Project Information.</u></li> <li>2. <u>Commissioning Goals.</u></li> <li>3. <u>Systems to be commissioned. Plans to test systems and components shall include at a minimum:</u> <ol style="list-style-type: none"> <li>a. <u>A detailed explanation of the original design intent.</u></li> <li>b. <u>Equipment and systems to be tested, including the extent of tests.</u></li> <li>c. <u>Functions to be tested.</u></li> <li>d. <u>Conditions under which the test shall be performed.</u></li> <li>e. <u>Measurable criteria for acceptable performance.</u></li> </ol> </li> <li>4. <u>Commissioning Team Information.</u></li> <li>5. <u>Commissioning Process Activities, Schedules &amp; Responsibilities – plans for the completion of Commissioning Requirements listed in A5.410.4.4 through A5.410.4.6 shall be included.</u></li> </ol>		☒	☒	☐
<b>A5.410.2.4 Functional performance testing.</b> <u>Functional performance tests shall demonstrate the correct installation and operation of each component, system, and system-to-system interface in accordance with the approved plans and specifications. Functional performance testing reports shall contain information addressing each of the building components tested, the testing methods utilized, and include any readings and adjustments made.</u>		☒	☒	☐
<b>A5.410.2.5 Post construction documentation and training.</b> <u>A Systems Manual and Systems Operations Training are required.</u>		☒	☒	☐

Notes: <input type="checkbox"/> Required measure to meet DSA voluntary reach standards, Division A5.601	Mandatory	Voluntary		
		<i>CALGREEN Merit</i>	<i>CALGREEN Excellence</i>	<i>CALGREEN Grid Neutral</i>
<b>A5.410.2.5.1 Systems manual.</b> Documentation of the operational aspects of the building shall be completed within the Systems Manual and delivered to the building owner and facilities operator. At a minimum, the Systems Manual shall include the following: <ol style="list-style-type: none"> <li>1. <u>Site Information, including facility description, history and current requirements.</u></li> <li>2. <u>Site Contact Information.</u></li> <li>3. <u>Basic Operations &amp; Maintenance, including general site operating procedures, basic troubleshooting, recommended maintenance requirements, site events log</u></li> <li>4. <u>Major Systems.</u></li> <li>5. <u>Site Equipment Inventory and Maintenance Notes.</u></li> </ol> <u>Documentation of compliance with measurer required by tiers, if applicable.</u>		☒	☒	☐
<b>A5.410.2.5.2 Systems operations training.</b> The training of the appropriate maintenance staff for each equipment type and/or system shall include, as a minimum, the following: <ol style="list-style-type: none"> <li>1. <u>System/Equipment overview (what it is, what it does and what other systems and/or equipment it interfaces with).</u></li> <li>2. <u>Review of the information in the Systems Manual.</u></li> <li>3. <u>Review of the record drawings on the system/equipment.</u></li> </ol>		☒	☒	☐
<b>A5.410.2.6 Commissioning report.</b> A complete report of commissioning process activities undertaken through the design, construction and post-construction phases of the building project shall be completed and provided to the owner.		☒	☒	☐
<b>A5.410.3 Testing, adjusting and balancing.</b> Testing, adjusting and balancing of systems shall be required for buildings less than 10,000 square feet.		☒	☒	☐
<b>A5.410.3.2 Systems.</b> Develop a written plan of procedures for testing, adjusting and balancing systems. Systems to be included for testing, adjusting and balancing shall include at a minimum, as applicable to the project: <ol style="list-style-type: none"> <li>1. <u>HVAC systems and controls</u></li> <li>2. <u>Indoor and outdoor lighting and controls</u></li> <li>3. <u>Water heating systems</u></li> <li>4. <u>Renewable energy systems</u></li> </ol>		☒	☒	☐
<b>A5.410.3.3 Procedures.</b> Perform testing, adjusting and balancing procedures in accordance with industry best practices and applicable national standards on each system.		☒	☒	☐
<b>A5.410.3.3.1 HVAC balancing.</b> Before a new space-conditioning system serving a building or space is operated for normal use, the system should be balanced in accordance with the procedures defined by the Testing Adjusting and Balancing Bureau National Standards (2003); the National Environmental Balancing Bureau Procedural Standards (1983); or Associated Air Balance Council National Standards (1989).		☒	☒	☐
<b>A5.410.3.4 Reporting.</b> After completion of testing, adjusting and balancing, provide a final report of testing signed by the individual responsible for performing these services.		☒	☒	☐
		☒	☒	☐

Notes: <input type="checkbox"/> Required measure to meet DSA voluntary reach standards, Division A5.601	Mandatory	Voluntary		
		CALGREEN Merit	CALGREEN Excellence	CALGREEN Grid Neutral
<b>A5.410.3.5 Operation and maintenance manual.</b> Provide the building owner with detailed operating and maintenance instructions and copies of guaranties/warranties for each system prior to final inspection.				
<b>DIVISION 5.5 - ENVIRONMENTAL QUALITY</b>				
<b>5.503 - FIREPLACES</b>				
<b>5.503.1 General.</b> Install only a direct-vent sealed-combustion gas or sealed wood-burning fireplace, or a sealed woodstove, and refer to residential requirements in the California Energy Code, Title 24, Part 6, Subchapter 7, Section 150. Woodstoves and fireplaces shall comply with applicable local ordinances.	☒			
<b>5.503.1.1 Woodstoves.</b> Woodstoves shall comply with US EPA Phase II emission limits.	☒			
<b>DIVISION A5.5 ENVIRONMENTAL QUALITY</b>				
<b>A5.504 - POLLUTANT CONTROL</b>				
<b>A5.504.1 Indoor air quality (IAQ) during construction.</b> Maintain IAQ as provided in Sections A5.504.1.1 and A5.504.1.2.		☒	☒	☒
<b>A5.504.1.1 Temporary ventilation.</b> Provide temporary ventilation during construction in accordance with Section 121 of the California Energy Code, CCR, Title 24, Part 6, and Chapter 4 of CCR, Title 8, and as follows: <ol style="list-style-type: none"> <li>1. <u>Ventilation during construction shall be achieved through openings in the building shell using fans to produce a minimum of three air changes per hour.</u></li> <li>2. <u>During dust-producing operations, protect supply and return HVAC system openings from dust.</u></li> <li>3. <u>The permanent HVAC system shall only be used during construction if necessary to condition the building within the required temperature range for material and equipment installation. If the HVAC system is used during construction, use return air filters with a Minimum Efficiency Reporting Value (MERV) of 8, based on ASHRAE 52.2-1999, or an average efficiency of 30% based on ASHRAE 52.1-1992. Replace all filters immediately prior to occupancy.</u></li> <li>4. <u>If the building is occupied during demolition or construction, meet or exceed the recommended Control Measures of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings under Construction, 1995, Chapter 3.</u></li> </ol>		☒	☒	☒
<b>A5.504.1.2 Additional IAQ measures.</b> Employ additional measures as follows: <ol style="list-style-type: none"> <li>1. <u>When using generators to generate temporary power, use generators meeting the requirements of CCR, Title 13, Chapter 9, or local ordinance, whichever is more stringent.</u></li> <li>2. <u>Protect on-site absorbent materials from moisture. Remove and replace any materials with</u></li> <li>3. <u>Store odorous and high VOC-emitting materials off-site, without packaging, for a sufficient period to allow odors and VOCs to disperse.</u></li> <li>4. <u>When possible, once materials are on the jobsite, install odorous</u></li> </ol>		☒	☒	☒

Notes: <input type="checkbox"/> Required measure to meet DSA voluntary reach standards, Division A5.601	Mandatory	<u>Voluntary</u> <i>CALGREEN</i> <i>CALGREEN</i> <i>CALGREEN</i> <i>Merit</i> <i>Excellence</i> <i>Grid Neutral</i>		
<p>and high VOC-emitting materials prior to those that are porous or fibrous.</p> <p>5. <u>Clean oil and dust from ducts prior to use.</u></p>				
<b><u>DIVISION 5.5 - ENVIRONMENTAL QUALITY</u></b>				
<b><u>5.504 - POLLUTANT CONTROL</u></b>				
<p><b><u>5.504.2 IAQ Post-construction.</u></b>  <u>After all interior finishes have been installed, flush out the building by supplying continuous ventilation with all air handling units at their maximum outdoor air rate and all supply fans at their maximum position and rate for at least 14 days.</u></p> <ol style="list-style-type: none"> <li>1. <u>During this time, maintain an internal temperature of at least 60°F, and relative humidity no higher than 60%. If extenuating circumstances make these temperature and humidity limits unachievable, the flush out may be conducted under conditions as close as possible to these limits, provided that documentation of the extenuating circumstances is provided in writing.</u></li> <li>2. <u>Occupancy may start after 4 days, provided flush-out continues for the full 14 days. During occupied times, the thermal comfort conditions of Title 24 must be met.</u></li> <li>3. <u>For buildings that rely on natural ventilation, exhaust fans and floor fans must be used to improve air mixing and removal during the 14-day flush out, and windows should remain open.</u></li> <li>4. <u>Do not "bake out" the building by increasing the temperature of the space.</u></li> </ol> <p><u>If continuous ventilation is not possible, flush-out must total the equivalent of 14 days of maximum outdoor air.</u></p>	☒			
<p><b><u>5.504.3 Covering of duct openings and protection of mechanical equipment during construction.</u></b>  <u>At the time of rough installation, or during storage on the construction site and until final startup of the heating and cooling equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable to the enforcing agency to reduce the amount of dust or debris which may collect in the system.</u></p>	☒			
<p><b><u>5.504.4 Finish material pollutant control.</u></b>  <u>Finish materials shall comply with Sections 5.504.4.1 through 5.504.4.4.</u></p>	☒			
<p><b><u>5.504.4.1 Adhesives, sealants, and caulks.</u></b>  <u>Adhesives, sealants, and caulks used on the project shall meet the requirements of the following standards.</u></p> <ol style="list-style-type: none"> <li>1. <u>Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 1168 VOC limits, as shown in Tables 5.504.4.1 and 5.504.4.2. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene, and trichloroethylene), except for aerosol products as specified in subsection 2, below.</u></li> <li>2. <u>Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than one pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and</u></li> </ol>	☒			

Notes:	Mandatory	Voluntary		
		CALGREEN Merit	CALGREEN Excellence	CALGREEN Grid Neutral
<input type="checkbox"/> Required measure to meet DSA voluntary reach standards, Division A5.601				
<p><u>other requirements, including prohibitions on use of certain toxic compounds, of California Code of Regulations, Title 17, commencing with Section 94507.</u></p> <p><u>Table 5.504.4.1 - Adhesive And Sealant Voc Limit<sup>1</sup></u></p> <p><u>Table 5.504.4.2 - Sealant Voc Limit</u></p>				
<p><b>5.504.4.3 Paints and coatings.</b></p> <p><u>Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Coatings Suggested Control Measure, as shown in Table 5.504.4.3, unless local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 5.504.4.3, shall be determined by classifying the coating as a Flat, Nonflat, or Nonflat-High Gloss coating, based on its gloss, as defined in subsections 4.21, 4.36, and 4.37 of the 2007 California Air Resources Board, Suggested Control Measure, and the corresponding Flat, Nonflat, or Nonflat-High Gloss VOC limit in Table 5.504.4.3 shall apply.</u></p>	<input checked="" type="checkbox"/>			
<p><b>5.504.4.3.1 Aerosol Paints and Coatings.</b></p> <p><u>Aerosol paints and coatings shall meet the Product-Weighted MIR Limits for ROC in section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in sections 94522(c)(2) and (d)(2) of California Code of Regulations, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8 Rule 49.</u></p> <p><u>Table 5.504.4.3 - Voc Content Limits For Architectural Coatings<sup>2,3</sup></u></p>	<input checked="" type="checkbox"/>			
<p><b>5.504.4.4 Carpet systems.</b></p> <p>All carpet installed in the building interior shall meet the testing and product requirements of the following:</p> <ol style="list-style-type: none"> <li>1. Carpet and Rug Institute's Green Label Plus Program.</li> <li>2. California Department of Public Health Standard Practice for the testing of VOCs (Specification 01350).</li> <li>3. Department of General Services, California Gold Sustainable Carpet Standard; <a href="http://www.green.ca.gov/EPP/standards.htm">http://www.green.ca.gov/EPP/standards.htm</a>.</li> <li>4. Scientific Certifications Systems Sustainable Choice; <a href="http://www.scs-certified.com/iaq/indooradvantage.htm">http://www.scs-certified.com/iaq/indooradvantage.htm</a></li> </ol>	<input checked="" type="checkbox"/>			
<p><b>5.504.4.4.1 Carpet cushion.</b></p> <p><u>All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label Program.</u></p>	<input checked="" type="checkbox"/>			
<p><b>5.504.4.4.2 Carpet adhesive.</b></p> <p><u>All carpet adhesive shall meet the requirements of Table 5.504.4.1.</u></p>	<input checked="" type="checkbox"/>			
<p><b>5.504.4.5 Composite wood products.</b></p> <p><u>Hardwood plywood, particleboard, and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq.), by or before the dates specified in those sections, as shown in Table 5.504.4.5.</u></p>	<input checked="" type="checkbox"/>			
<p><b>A5.504.4.5.1 Early compliance with formaldehyde limits.</b></p> <p><u>Where complying composite wood product is readily available for non-residential occupancies, meet Phase 2 requirements before the compliance dates indicated in Table 5.504.4.5 (CALGREEN merit), or use composite wood products made with either CARB-approved no-added formaldehyde (NAF) resins or CARB-</u></p>	<input checked="" type="checkbox"/>			

Notes:	Mandatory	Voluntary		
		CALGREEN Merit	CALGREEN Excellence	CALGREEN Grid Neutral
<input type="checkbox"/> Required measure to meet DSA voluntary reach standards, Division A5.601				
approved ultra-low emitting formaldehyde (ULEF) resins ( <i>CALGREEN</i> excellence or <i>CALGREEN</i> grid neutral).				
<b>5.504.4.5.2 Documentation.</b> Verification of compliance with this section shall be provided as requested by the enforcing agency. Documentation shall include at least one of the following. 1. <u>Product certifications and specifications.</u> Table 5.504.4.5 - Formaldehyde Limits <sup>1</sup>	☒	☒	☒	☒
<b>5.504.4.6 Resilient flooring systems.</b> 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 certified under the Resilient Floor Covering institute (AFCI) FloorScore program.	☒			
<b>A5.504.4.7 Resilient flooring systems, CALGREEN merit.</b> For 80% of floor area to scheduled to receive 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 certified under the Resilient Floor Covering institute (AFCI) FloorScore program.		☒		
<b>A5.504.4.7.1 Resilient flooring systems, CALGREEN excellence or CALGREEN grid neutral.</b> For 100% of floor area to scheduled to receive 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 certified under the Resilient Floor Covering institute (AFCI) FloorScore program.			☒	☒
<b>A5.504.4.8 Thermal insulation, CALGREEN merit.</b> Comply with Chapter 12-13 in Title 24, Part 12, the <i>California Referenced Standards Code</i> , and with the VOC-emission limits defined in 2009 Collaborative for High Performance Schools (CHPS) criteria and listed on its Low-emitting Materials List or certified under the Resilient Floor Covering institute (AFCI) FloorScore program.		☒		
<b>A5.504.4.8.1 Thermal insulation, CALGREEN excellence or CALGREEN grid neutral</b> Install No-Added Formaldehyde thermal insulation in addition to meeting the 2009 Collaborative for High Performance Schools (CHPS) criteria and listed on its Low-emitting Materials List or certified under the Resilient Floor Covering institute (AFCI) FloorScore program.			☒	☒
<b>A5.504.4.9 Acoustical ceilings and wall panels.</b> Comply with Chapter 8 in Title 24, Part 2, the <i>California Building Code</i> , and 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 certified under the Resilient Floor Covering institute (AFCI) FloorScore program.			☒	☒
<b>A5.504.5 Hazardous particulates and chemical pollutants.</b> Minimize and control pollutant entry into buildings and cross-contamination of regularly occupied areas.		☒	☒	☒

Notes: <input type="checkbox"/> Required measure to meet DSA voluntary reach standards, Division A5.601	Mandatory	Voluntary		
		<i>CALGREEN Merit</i>	<i>CALGREEN Excellence</i>	<i>CALGREEN Grid Neutral</i>
<b>A5.504.5.1 Entryway systems.</b> Install permanent entryway systems measuring at least six feet in the primary direction of travel to capture dirt and particulates at entryways directly connected to the outdoors. 1. Qualifying entryways are those that serve as regular entry points for building users. 2. Acceptable entryway systems include, but are not limited to, permanently installed grates, grilles or slotted systems that allow cleaning underneath. 3. Roll-out mats are acceptable only when maintained regularly by janitorial contractors as documented in service contract, or by in-house staff as documented by written policies and procedures.		☒	☒	☒
<b>A5.504.5.2 Isolation of pollutant sources.</b> In rooms where activities produce hazardous fumes or chemicals, such as garages, janitorial or laundry rooms, and copy or printing rooms, exhaust them and isolate them from their adjacent rooms. 1. Exhaust each space with no air recirculation in accordance with ASHRAE 62.1, Table 6-4 to create negative pressure with respect to adjacent spaces with the doors to the room closed. 2. For each space, provide self-closing doors and deck to deck partitions or a hard ceiling. 3. Install low-noise, vented range hoods for all cooking appliances and in laboratory or other chemical mixing areas.		☒	☒	☒
<b>5.504.5.3 Filters.</b> In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air prior to occupancy that provides at least a Minimum Efficiency Reporting Value (MERV) of 13.	☒			
<b>A5.504.5.3.1 Filters.</b> In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air prior to occupancy that provides at least a Minimum Efficiency Reporting Value (MERV) of 13.		☒	☒	☒
<b>5.504.7 Environmental tobacco smoke (ETS) control.</b> Prohibit smoking within 25 feet of building entries, outdoor air intakes and operable windows where outdoor areas are provided for smoking, and in buildings; or as enforced by ordinances, regulations, or policies of any city, county, city and county, California Community College, campus of the California State University, or campus of the University of California, whichever are more stringent. When ordinances, regulations, or policies are not in place, post signage to inform building occupants of the prohibitions.	☒			
<b>5.505 - INDOOR MOISTURE CONTROL</b>				
<b>5.505. 1 Indoor moisture control.</b> Buildings shall meet or exceed the provisions of <i>California Building Code</i> , CCR, Title 24, Part 2, Sections 1203 and Chapter 14. For additional measures not applicable to low-rise residential occupancies, see Section 5.407.2 of this code.	☒			
<b>SECTION 5.506 - INDOOR AIR QUALITY</b>				
<b>5.506.1 Outside air delivery.</b> For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 121 of the California Energy Code, CCR, Title 24, Part 6.	☒			

Notes: <input type="checkbox"/> Required measure to meet DSA voluntary reach standards, Division A5.601	Mandatory	Voluntary		
		CALGREEN Merit	CALGREEN Excellence	CALGREEN Grid Neutral
or the applicable local code, whichever is more stringent, and Chapter 4 of CCR, Title 8.				
<b><u>A5.507 - ENVIRONMENTAL COMFORT</u></b>				
<b><u>A5.507.1 Lighting and thermal comfort controls.</u></b> Provide controls in the workplace as described in Sections A5.507.1.1 and A5.507.1.2.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b><u>A5.507.1.1 Single-occupant spaces.</u></b> Provide individual controls that meet energy use requirements in the 2007 California Energy Code in accordance with Sections A5.507.1.1.1 and A5.507.1.1.2.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b><u>A5.507.1.1.1 Lighting.</u></b> Provide individual task lighting and/or daylighting controls for at least 90 percent of the building occupants.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b><u>A5.507.1.1.2 Thermal comfort.</u></b> Provide individual thermal comfort controls for at least 50 percent of the building occupants. <ol style="list-style-type: none"> <li>1. <u>Occupants shall have control over at least one of the factors of air temperature, radiant temperature, air speed and humidity as described in ASHRAE 55-2004.</u></li> <li>2. <u>Occupants inside 20 feet of the plane of and within 10 feet either side of operable windows can substitute windows to control thermal comfort. The areas of operable window must meet the requirements of Section 121 of the California Energy Code.</u></li> </ol>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b><u>A5.507.1.2 Multi-occupant spaces.</u></b> Provide lighting and thermal comfort system controls for all shared multi-occupant spaces.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b><u>A5.507.2 Daylight.</u></b> Provide daylight spaces as required for toplighting and sidelighting in the 2007 California Energy Code. In constructing a design, consider the following: <ol style="list-style-type: none"> <li>1. <u>Use of light shelves and reflective room surfaces to maximize daylight penetrating the rooms.</u></li> <li>2. <u>Means to eliminate glare and direct sun light, including through skylights.</u></li> <li>3. <u>Use of photosensors to turn off electric lighting when daylight is sufficient.</u></li> <li>4. <u>Not using diffuse daylighting glazing where views are desired.</u></li> </ol>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b><u>A5.507.3 Views.</u></b> Achieve direct line of sight to the outdoor environment via vision glazing between 2' 6" and 7' 6" above finish floor for building occupants in 90 percent of all regularly occupied areas as demonstrated by plan view and section cut diagrams		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b><u>5.507.3.1 Interior office spaces.</u></b> Entire areas of interior office spaces may be included in the calculation if at least 75 percent of each area has direct line of sight to perimeter vision glazing.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b><u>A5.507.3.2 Multi-occupant spaces.</u></b> Include in the calculation the square footage with direct line of sight to perimeter vision glazing.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Notes:	Mandatory	Voluntary		
		CALGREEN Merit	CALGREEN Excellence	CALGREEN Grid Neutral
<input type="checkbox"/> Required measure to meet DSA voluntary reach standards, Division A5.601				
<u>Exceptions to Sections 807.3 and 807.4: Copy/printing rooms, storage areas, mechanical spaces, restrooms, auditoria and other intermittently or infrequently occupied spaces or spaces where daylight would interfere with use of the space.</u>				
<b>5.507.4 Acoustical control</b> <u>Employ building assemblies and components with STC values determined in accordance with ASTM E90 and ASTM E413.</u>	<input checked="" type="checkbox"/>			
<b>5.507.4.1 Exterior noise transmission.</b> <u>Wall and roof-ceiling assemblies making up the building envelope shall have an STC of at least 50, and exterior windows shall have a minimum STC of 30 for any of the following building locations:</u> <ol style="list-style-type: none"> <li>1. <u>Within 1000 ft. (300 m.) of right of ways of freeways.</u></li> <li>2. <u>Within 5 mi. (8 km.) of airports serving more than 10,000 commercial jets per year.</u></li> <li>3. <u>Where sound levels at the property line regularly exceed 65 decibels, other than occasional sound due to church bells, train horns, emergency vehicles and public warning systems.</u></li> </ol> <u>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.</u>	<input checked="" type="checkbox"/>			
<b>5.507.4.2 Interior sound.</b> <u>Wall and floor-ceiling assemblies separating tenant spaces and tenant spaces and public places shall have an STC of at least 40. [For DSA-SS] In public schools and community college buildings, wall and floor-ceiling assemblies separating classrooms, and classrooms, multi-use spaces and public places shall have an STC of at least 40.</u>	<input checked="" type="checkbox"/>			
<b>A5.507.5 Enhanced Acoustical control.</b> <u>[DSA-SS] Public School and Community College classrooms shall have a maximum unoccupied background noise level of 45 dBA, and a 0.6-second maximum (unoccupied) reverberation times. More information can be found in the Acoustical Society of America (ASA) guideline.</u>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**Notation:**

Authority – Education Code Sections 17280--17317 and 81130--81147.

Reference – Education Code Sections 17310 and 81142.