

**45-DAY EXPRESS TERMS
FOR
PROPOSED BUILDING STANDARDS
OF THE
DIVISION OF THE STATE ARCHITECT (DSA-SS)**

**REGARDING PROPOSED CHANGES TO
CALIFORNIA GREEN BUILDING STANDARDS CODE (*CALGreen* CODE)
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 11**

The California Building Standards Code (California Code of Regulations, Title 24, Part 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12) is published in its entirety every three years and is applicable to all buildings for which an application for a building permit is made during the Code's effective period. Each triennial edition of the California Building Standards Code becomes effective 180 days after its publication.

These proposed regulations will make effective the 2013 edition of the California Green Building Standards Code (*CALGreen* Code) for application by DSA-SS to public elementary and secondary schools, and community colleges.

Further, these proposed regulations will repeal the 2010 edition *CALGreen* Code adopted as the 2010 California Green Building Standards Code (*CALGreen* Code).

LEGEND FOR EXPRESS TERMS

1. California amendment (CA) language being continued without modification is shown in regular text.
2. New California amendment (CA) language is shown underlined.
3. Repealed California amendment (CA) language is shown in ~~strikeout~~.
4. Information for the reader is shown as [bracketed] and shaded.

EXPRESS TERMS

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

Adopting Agency	DSA-SS	COMMENTS
Adopt entire CA chapter		
Adopt entire chapter as amended (amended sections listed below)		
Adopt only those sections that are listed below	X	
Chapter / Section		
101	<u>X</u>	Adopt as amended - 101.3.1 (State-regulated buildings, structures and applications)
102	X	
105	<u>X</u>	Adopt as amended - 105.1.1 (Application-Public elementary and secondary schools and community colleges) & Exceptions

CHAPTER 1
ADMINISTRATION

SECTION 101
GENERAL

101.1 Title. These regulations shall be known as the California Green Building Standards Code and may be cited as such and will be referred to herein as “this code.” The California Green Building Standards Code is Part 11 of twelve parts of the official compilation and publication of the adoption, amendment and repeal of building regulations to the California Code of Regulations, Title 24, also referred to as the California Building Standards Code.

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 positive environmental impact and encouraging sustainable construction practices in the following categories:

1. Planning and design.
2. Energy efficiency.
3. Water efficiency and conservation.
4. Material conservation and resource efficiency.
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 building or structure or any appurtenances connected or attached to such building structures 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.

1. State-owned buildings, including buildings constructed by the Trustees of the California State University, and to the extent permitted by California laws, buildings designed and constructed by the Regents of the University of California and regulated by the Building Standards Commission. See Section 103 for additional scoping provisions.
2. Energy efficiency standards regulated by the California Energy Commission.
3. Low-rise residential buildings constructed throughout the State of California, including but not limited to, hotels, motels, lodging houses, apartment houses, dwellings, dormitories, condominiums, shelters for homeless persons, congregate residences, employee housing, factory-built housing and other types of dwellings containing

sleeping accommodations with common toilets or cooking facilities. See Section 104 for additional scoping provisions.

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 and structures and their associated sites regulated by the State Historical Building Safety Board within the Division of the State Architect.
6. General acute care hospitals, acute psychiatric hospitals, skilled nursing and/or intermediate care facilities, clinics licensed by the Department of Public Health and correctional treatment centers regulated by the Office of Statewide Health Planning and Development. See Section 106 for additional scoping provisions.
7. Graywater systems regulated by the Department of Water Resources.
8. Green building standards for occupancies where no state agency has authority or expertise, adopted by the California Building Standards Commission. See Section 103 for additional scoping provisions.

101.4 Appendices. Provisions contained in the appendices of this code are not mandatory unless specifically adopted by a State agency or adopted by a city, county, or city and county in compliance with Health and Safety Code Section 18938(b) for Building Standards Law, Health and Safety Code Section 17950 for State housing Law and Health and Safety Code Section 13869.7 for Fire Protection Districts. See Section 101.7 of this code.

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. The provisions of the California Electrical Code shall apply to the installation of electrical systems, including but not limited to, alterations, repair, replacement, equipment, appliances, fixtures, fittings and appurtenances thereto.

101.5.3 Mechanical. The provisions of the California Mechanical Code shall apply to the installation, alterations, repair and replacement of mechanical systems, including equipment, appliances, fixtures, fittings and/or appurtenances, including ventilating, heating, cooling, air-conditioning and refrigeration systems, incinerators and other energy-related systems.

101.5.4 Plumbing. The provisions of the California Plumbing Code shall apply to the installation, alteration, repair and replacement of plumbing systems, including equipment, appliances, fixtures, fittings and appurtenances where connected to a water or sewage system.

101.5.5 Fire prevention. The provisions of CCR, Title 19, Division 1 and CCR, Title 24, Part 2 and Part 9 relating to fire and panic safety as adopted by the Office of the State Fire Marshal shall apply to all structures, processes and premises for protection from the hazard of fire, panic and explosion.

101.5.6 Energy. The provisions of the California Energy Code shall apply to the minimum design and construction of buildings for energy efficiency.

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. Where a specific provision varies from a general provision, the specific provision shall apply.

101.6.3 Conflicts. When the requirements of this code conflict with the requirements of any other part of the California Building Standards Code, Title 24, the most restrictive requirement shall prevail.

101.6.4 Explanatory notes. Explanatory material, such as references to websites 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. This code is intended to set mandatory minimum Green Building Standards and include optional voluntary measures that may, at the discretion of any city, county or city and county, be applied.

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 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, county, or city and county shall file the amendments, additions, or deletions expressly marked and identified as to the applicable findings. Cities, counties, cities and counties, and fire departments shall file the amendments, additions or deletions and the findings with the California Building Standards Commission at 2525 Natomas Park Drive, Suite 130, Sacramento, CA 95833.
3. Findings prepared by fire protection districts shall be ratified by the local city, county, or city and county and filed with the California Department of Housing and Community Development at 1800 3rd Street, Room 260, Sacramento, CA 95811.
4. The city, county, or city and county shall obtain California Energy Commission approval for any energy related ordinances consistent with 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.

101.7 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 1.2.2 in the California Building Code (CBC) for the California Building Standards Commission.
2. Section 104.11 of Chapter 1, Division II for the Division of the State Architect.
3. Section 1.8.7, Chapter 1, Administration, Division 1, of the 2010 California Building Code and Section 1.2.6, Chapter 1, Administration, Division I of the 2010 California Residential Code for the Department of Housing and Community Development.
4. Section 7-104, 2010 California Administrative Code for the Office of the Statewide Health Planning and Development.

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 and the History Note page of this code.

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

1. Establish the type of occupancy.
2. Verify which state agency and authority for the established occupancy by reviewing the authorities list Sections 103 through 106.
3. Once the appropriate agency has been identified, find the chapter which covers the established occupancy.
4. The Matrix Adoption Tables at the beginning of Chapters 4 and 5 identify the required green building measures necessary to meet the minimum requirements of this code for the established occupancy.
5. Voluntary measures are contained in Appendix Chapters A4 and A5. A Checklist containing each green building measure, both required and voluntary is provided at the end of each appendix chapter. Each measure listed in the application checklist has a section number which correlates to a section where more information about the specific measure is available.

6. 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. Construction documents shall be of sufficient clarity to indicate the location, nature and scope of the proposed green building feature and show that it will conform to the provisions of this code, the California Building Standards Code and other relevant laws, ordinances, rules and regulations as determined by the enforcing agency.

102.3 Verification. Documentation of conformance for applicable green building measures shall be provided to the enforcing agency. Alternate methods of documentation shall be acceptable when the enforcing agency finds that the proposed alternate documentation is satisfactory to demonstrate substantial conformance with the intent of the proposed green building measure.

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 — Public elementary and secondary schools and community colleges. ~~New construction on a new campus site or new construction on an existing site cleared of all existing structures.~~ New building construction and site work on a new or existing site.

Notes for existing sites:

1. Requirements for site work related to Grading and Paving (Section 5.106.10) only applies to area adjacent to the new building construction.
2. Requirements for Bicycle Parking (Section 5.106.4.2) can be met using a location anywhere on the existing campus and may include the existing bicycle parking. Provide documentation of existing amenities.

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 1.1 and 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 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.

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

Adopting Agency	DSA-SS	COMMENTS
Adopt entire CA chapter		
Adopt entire chapter as amended (amended sections listed below)	<u>X</u>	DSA is proposing to relocate from individual chapters definitions for terms used in more than one chapter to provide clarity for the code user. Some are being coordinated with the HCD as they expand the residential provisions to certain additions and high-rise buildings. Others, such as GRAYWATER and RAINWATER, are statutory definitions. The definition of Residential Building is adopted as amended.
Adopt only those sections that are listed below	X	
Chapter / Section		
201 GENERAL	X	
202 DEFINITIONS	X	
202 ARB (CARB)	X	
202 AUTOMATIC	X	
202 BUILDING ENVELOPE	X	
202 CALIFORNIA BUILDING CODE.	X	
202 CALIFORNIA ELECTRICAL CODE.	X	
202 CALIFORNIA ENERGY CODE	X	
202 CALIFORNIA MECHANICAL CODE	X	
202 CALIFORNIA PLUMBING CODE	X	
202 CONDITIONED SPACE	X	
202 COOLING EQUIPMENT	X	

202 ENERGY COMMISSION	X	
202 ENFORCING AGENCY	X	
202 GREEN BUILDING	X	
202 INFILTRATION	X	
202 KITCHEN	X	
202 LOW-RISE RESIDENTIAL BUILDING	X	
202 OUTDOOR AIR (Outside air)	X	
202 RESIDENTIAL BUILDING	X	
202 RESILIENT FLOORING	X	
202 TIME DEPENDENT VALUATION (TDV) ENERGY	X	
202 VAPOR BARRIER	X	

CHAPTER 2
DEFINITIONS

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.

[Information: All of the following definitions have been relocated with no proposed amendments; only Residential Building is proposed to be adopted as amended.]

SECTION 202
DEFINITIONS

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

ALTERATION OR ALTER. Any construction or renovation to an existing structure other than repair for the purpose of maintenance or addition.

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.

ARB (CARB). The California Air Resources Board.

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.

COOL PAVEMENT(S). Includes, but is not limited to, high albedo pavements and coatings, vegetative surfaces, porous or pervious pavements that allow water infiltration, and pavements shaded by trees and other sources of shade.

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

DIRECT-VENT APPLIANCE. A fuel-burning appliance with a sealed combustion system that draws all air for combustion from the outside atmosphere and discharges all flue gases to the outside atmosphere.

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

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

ELECTRIC VEHICLE (EV). An automotive-type vehicle for on-road use, such as passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, and the like, primarily powered by an electric motor that draws current from a rechargeable storage battery, fuel cell, photovoltaic array, or other source of electric current. Plug-in hybrid electric vehicles (PHEV) are considered electric vehicles. For purposes of the California Electrical Code, off-road, self-propelled electric vehicles, such as industrial trucks, hoists, lifts, transports, golf carts, airline ground support equipment, tractors, boats, and the like, are not included.

ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). The conductors, including the ungrounded, grounded, and equipment grounding conductors and the electric vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the electric vehicle.

GRAYWATER. Pursuant to Health and Safety Code Section 17922.12, "graywater" means untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious,

contaminated, or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. "Graywater" includes but is not limited to wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers.

Note: For the purpose of applying the standards contained in this code, "Graywater," as defined above, has the same meaning as "gray water", "grey water", and "graywater".

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

HEAT ISLAND EFFECT. "Heat island effect" and "urban heat islands" refer to measurable elevated temperatures in developed areas as compared to more rural surroundings. Temperatures in developed areas are affected by absorption of heat by hardscapes and radiation of heat into surrounding areas resulting in local climate changes. Heat islands are influenced by geographic location and by local weather patterns with effects changing on a daily or seasonal basis.

HIGH-RISE RESIDENTIAL BUILDING. For the purposes of *CALGreen*, any building that is of Occupancy Group R and is four stories or greater in height,

HYDROCHLOROFLUOROCARBON (HCFC). A class of compounds primarily used as refrigerants, consisting of only hydrogen, chlorine, fluorine, and carbon.

HYDROFLUOROCARBON (HFC). A class of compounds primarily used as refrigerants, consisting of only hydrogen, fluorine, and carbon.

IES. Illuminating Engineering Society.

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.

LANDSCAPE (PLANT) COEFFICIENT (*K_L*). The product of the species factor multiplied by the density factor and the microclimate factor. ($K_L = K_s \times K_d \times K_{mc}$) The landscape coefficient is used in the landscape water budget calculation. (UCCE, 2000).

LOW-RISE RESIDENTIAL BUILDING. For the purposes of *CALGreen*, any A–building that is of Occupancy Group R and is three stories or less, ~~or that is a one- or two- family dwelling or townhouse.~~

MODEL WATER EFFICIENT LANDSCAPE ORDINANCE (MWELO). 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.

MOUNTING HEIGHT (MH). The height of the photometric center of a luminaire above grade level.

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

POTABLE WATER. Water that is satisfactory for drinking, culinary, and domestic purposes, and meets the U.S. Environmental Protection Agency (EPA) Drinking Water Standards and the requirements of the

Health Authority Having Jurisdiction.

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.

RAINWATER. Precipitation on any public or private parcel that has not entered an offsite storm drain system or channel, a flood control channel, or any other stream channel, and has not previously been put to beneficial use.

RECYCLED WATER. Nonpotable 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)). Recycled water shall meet the California Department of Public Health statewide uniform criteria for disinfected tertiary recycled water.

RESIDENTIAL BUILDING. (See “LOW-RISE RESIDENTIAL BUILDING” or “HIGH-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

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.

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 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.

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

WATER BUDGET. The maximum applied water allowance calculated in accordance with the Department of Water Resources Model Efficient Landscape Ordinance (MWELo).

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

Adopting Agency	DSA-SS	COMMENTS
Adopt entire CA chapter		
Adopt entire chapter as amended (amended sections listed below)		
Adopt only those sections that are listed below	X	
Chapter / Section		
301	X	
302	X	
303	X	
306 <u>and subsections</u>	<u>X</u>	Adopt as amended - 306 (<i>CALGreen Tier 1 and CALGreen Tier 2</i>); 306.1 (Purpose); 306.1.1 & New adoption - 306.1.2 & 306.1.3

CHAPTER 3
GREEN BUILDING

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 306 [DSA-SS]
~~VOLUNTARY MEASURES~~ CALGREEN TIER 1 AND CALGREEN TIER 2

306.1 Purpose. For Public Schools and Community Colleges, Appendix A5 ~~Voluntary measures are intended~~ is provided as a guideline 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 and high-performance educational facilities.

306.1.1 The optional provisions of appendix A5 outline means of achieving enhanced construction levels over and above the mandatory code measures adopted by the Division of the State Architect. ~~by incorporating additional measures.~~

306.1.2 The CALGreen Tier 1 or Tier 2 may be voluntarily adopted by resolution by Public School Boards or Community College Board of Trustees.

306.1.3 In the event of a conflict with other codes specific to Public Schools or Community Colleges, the enforcing agency will apply the prevalent code requirements.

CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE
CHAPTER 4 – RESIDENTIAL MANDATORY MEASURES

Adopting Agency	DSA-SS	COMMENTS
Adopt entire CA chapter		DSA-SS is not proposing adoption of Chapter 4 (Residential Mandatory Measures)
Adopt entire chapter as amended (amended sections listed below)		
Adopt only those sections that are listed below		
Chapter / Section		

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

Adopting Agency	DSA-SS	COMMENTS
Adopt entire CA chapter		
Adopt entire chapter as amended (amended sections listed below)		
Adopt only those sections that are listed below	X	
Chapter / Section		
5.101	<u>X</u>	Adopt as amended - 5.101.1 (Scope) Title amended
5.102 Definitions	X	
<u>5.106.4.2</u>	<u>X</u>	New adoptions - 5.106.4.2 (Bicycle parking), 5.106.4.2.1 (Short-term bicycle parking) & 5.106.4.2.2 (Longer-term bicycle parking) as a mandatory measure
5.106.8	<u>X</u>	Adopt as amended - 5.106.8 Title amended (Light pollution reduction [N])
<u>Table 5.106.8</u>	<u>X</u>	Added to Matrix Table for clarity & format consistency
5.106.8.1	X	Repeal - 5.106.8.1 (Effective Date)
5.106.10	X	

CHAPTER 5
NONRESIDENTIAL MANDATORY MEASURES

Division 5.1 – PLANNING AND DESIGN

SECTION 5.101
GENERAL

5.101.1 Scope 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 1000 lamp lumens does not numerically exceed 25 (2.5 percent) at an angle of 90° above nadir, and 100 (10 percent) at a vertical angle of 80° above nadir. This applies to all lateral angles around the luminaires.

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 U.S. EPA, bearing High-Occupancy Vehicle (HOV) 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.

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 to any motor vehicle, other than a motor truck 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: Véhicule Code, Division 1, Section 668.

ZEV. Any vehicle certified to zero-emission standards.

SECTION 5.103
SITE SELECTION
(Reserved)

SECTION 5.104
SITE PRESERVATION
(Reserved)

SECTION 5.105
DECONSTRUCTION AND REUSE OF EXISTING STRUCTURES
(Reserved)

SECTION 5.106
SITE DEVELOPMENT

5.106.4.2 Bicycle parking [DSA-SS]. For Public Schools and Community Colleges comply with Sections 5.106.4.2.1 and 5.106.4.2.2.

5.106.4.2.1 Short-Term bicycle parking. Provide permanently anchored bicycle racks within 200 feet of the student entrance readily visible to passers-by, for 5 percent of the student population based on the total occupant load of the campus with a minimum of one two-bike capacity rack.

5.106.4.2.2 Long-Term bicycle parking. Provide secure bicycle parking for 5 percent employees, based on the total number of motorized vehicle parking capacity in staff parking lot, with a minimum of one space. Acceptable bicycle parking facilities shall be convenient from the street or staff parking area and may include:

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

5.106.8 Light pollution reduction [N]. Outdoor lighting systems shall be designed and installed to comply with the following:

1. The minimum requirements in the California Energy Code for Lighting Zones 1-4 as defined in Chapter 10 of the California Administrative Code; and
2. Backlight, Uplight and Glare (BUG) ratings as defined in IESNA tm-1511; and
3. Allowable BUG ratings not exceeding those shown in Table 5.106.8, or

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

Exceptions [N]:

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

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

TABLE 5.106.8[N]
MAXIMUM ALLOWABLE BACKLIGHT, UPLIGHT AND GLARE (BUG) RATINGS^{1,2}

ALLOWABLE RATING	LIGHTING ZONE 1	LIGHTING ZONE 2	LIGHTING ZONE 3	LIGHTING ZONE 4
Maximum Allowable Backlight Rating ³				
Luminaire greater than 2 mounting heights (MH) from property line	No Limit	No Limit	No Limit	No Limit
Luminaire back hemisphere is 1 – 2 MH from property line	B2	B3	B4	B4
Luminaire back hemisphere is 0.5 – 1 MH from property line	B1	B2	B3	B3
Luminaire back hemisphere is less than 0.5 MH from property line	B0	B0	B1	B2
Maximum Allowable Uplight Rating				
For area lighting ⁴	U0	U0	U0	U0
For all other outdoor lighting, including decorative luminaires	U1	U2	U3	U4
Maximum Allowable Uplight Rating ⁵				
Luminaire greater than 2 MH from property line	G1	G2	G3	G4
Luminaire front hemisphere is 1 – 2 MH from property line	G0	G1	G1	G2
Luminaire front hemisphere is 0.5 – 1 MH from property line	G0	G0	G1	G1
Luminaire back hemisphere is less than 0.5 MH from property line	G0	G0	G0	G1

1. IESNA Lighting Zones 0 and 5 are not applicable; refer to Lighting Zones as defined in the California Energy Code and Chapter 10 of the California Administrative Code.
2. For property lines that abut public walkways, bikeways, plazas and parking lots, the property line may be considered to be 5 feet beyond the actual property line for purpose of determining compliance with this section. For property lines that abut public roadways and public transit corridors, the property line may be considered to be the centerline of the public roadway or public transit corridor for the purpose of determining compliance with this section.
3. If the nearest property line is less than or equal to two mounting heights from the back hemisphere of the luminaire distribution, the applicable reduced Backlight rating shall be met.
4. General lighting luminaires in areas such as outdoor parking, sales or storage lots shall meet these reduced ratings. Decorative luminaires located in these areas shall meet U-value limits for "all other outdoor lighting".
5. If the nearest property line is less than or equal to two mounting heights from the front hemisphere of the luminaire distribution the applicable reduced Glare rating shall be met.

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

5.106.10 Grading and Paving. Construction plans shall indicate how site grading or a drainage system will manage all surface water flows to keep water from entering buildings. Examples of methods to manage surface water include, but are not limited to, the following:

1. Swales
2. Water collection and disposal systems
3. French drains
4. Water retention gardens

5. Other water measures which keep surface water away from buildings and aid in groundwater recharge

CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE
CHAPTER 5 -- NONRESIDENTIAL MANDATORY MEASURES
DIVISION 5.2 ENERGY EFFICIENCY

Adopting Agency	DSA-SS	COMMENTS
Adopt entire CA chapter	X	DSA-SS is not proposing any adoption, amendment or repeal to Division 5.2.
Adopt entire chapter as amended (amended sections listed below)		
Adopt only those sections that are listed below		
Chapter / Section		

CHAPTER 5
NONRESIDENTIAL MANDATORY MEASURES

SECTION 5.201
GENERAL

5.201.1 Scope [BSC]. California Energy Code [DSA-SS]. 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 percent reduction in energy usage when compared to the State's mandatory energy efficiency standards.

CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE
CHAPTER 5 -- NONRESIDENTIAL MANDATORY MEASURES
DIVISION 5.3 -- WATER EFFICIENCY AND CONSERVATION

Adopting Agency	DSA-SS	COMMENTS
Adopt entire CA chapter		
Adopt entire chapter as amended (amended sections listed below)		
Adopt only those sections that are listed below	X	
Chapter / Section		
5.301.1	X	
5.302.1 Definitions	X	Repeal - 5.302.1 (Definitions) and relocate to Chapter 2
5.303.2	X	
5.303.2.1 5.303.2.2	X X	Adopt as renumbered and amended - 5.303.2.2 (Multiple showerheads serving one shower)

Table 5.303.2.2	X	
Table 5.303.2.3	X	Adopt as amended - Table 5.303.2.3 (Fixture Flow Rates)
5.303.4 , Item 1 only	X	Adopt as amended - 5.303.4 (Wastewater reduction [N])
5.303.6	X	Adopt as amended - 5.303.6 (Standards for plumbing fixtures and fittings)
Table 5.303.6	X	Repeal - Table 5.303.6 (Standards for Plumbing Fixtures and Fixture Fittings)

CHAPTER 5
NONRESIDENTIAL MANDATORY MEASURES

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 Twenty percent savings. A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 20 percent 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 percent reduction in potable water use shall be demonstrated by one of the following methods.

1. Prescriptive method. Each plumbing fixture and fitting shall exceed the maximum flow rate at ≥ 20 percent reduction as specified in Table 5.303.2.3, or
2. Performance method. A calculation demonstrating a 20% reduction in the building "water use baseline" as established in Table 5.303.2.2 shall be provided.

5.303.2.1

5.303.2.2 Multiple showerheads serving one shower. When a shower is served by more than one newly installed showerhead, the combined flow rate of all the showerheads controlled by a single valve shall not exceed the maximum flow rate at ≥ 20 percent reduction contained in Table 5.303.2.2 or the shower shall be designed to only allow one showerhead to be in operation at a time.

Exception: The maximum flow rate for shower heads when using the performance method specified in Section 5.303.2, Item 2 is 2.5 gpm @ 80 psi.

TABLE 5.303.2.2
WATER USE BASELINE³

FIXTURE TYPE	BASELINE FLOW RATE	DURATION	DAILY USES	OCCUPANTS ²
Showerheads	2.5 gpm @ 80 psi	5 min.	1	X ^{2a}
Lavatory faucets residential	2.2 gpm @ 60 psi	.25 min.	3	X
Lavatory faucets nonresidential	0.5 gpm @ 60 psi	.25 min.	3	X ^{2b}
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 ¹ 3 female	X
Flushometer tank water closets	1.6 gallons/flush	1 flush	1 male ¹ 3 female	X
Flushometer valve water closets	1.6 gallons/flush	1 flush	1 male ¹ 3 female	X
Electromechanical hydraulic water closets	1.6 gallons/flush	1 flush	1 male ¹ 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

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

2 Refer to Table A, Chapter 4, California Plumbing Code, for occupant load factors.

a. Shower use by occupants depends on the type of use of a building or portion of a building, e.g., total occupant load for a health club, but only a

fraction of the occupants in an office building as determined by the anticipated number of users.

b. Nonresidential kitchen faucet use is determined by the occupant load of the area served by the fixture.

3. Use Worksheet WS-1 to calculate base line water use.

TABLE 5.303.2.3
FIXTURE FLOW RATES

FIXTURE TYPE	BASELINE FLOW RATE	MAXIMUM FLOW RATE AT ≥ 20 PERCENT REDUCTION
Showerheads	2.5 gpm @ 80 psi	2 gpm @ 80 psi ⁴
Lavatory faucets -- residential	2.2 gpm @ 60 psi	1.5 gpm @ 60 psi ¹
Lavatory faucets -- nonresidential	0.5 gpm @ 60 psi	0.4 gpm @ 60 psi ³
Kitchen faucets	2.2 gpm @ 60 psi	1.8 gpm @ 60 psi ²
Wash fountains	2.2 [rim space (in.) / 20 gpm @ 60 psi]	1.8 [rim space (in.) / 20 gpm @ 60 psi]
Metering faucets	0.25 gallons/cycle	0.2 gallons/cycle
Metering faucets for wash fountains	.25 [rim space (in.) / 20 gpm @ 60 psi]	.20 [rim space (in.) / 20 gpm @ 60 psi]
Gravity tank type water closets	1.6 gallons/flush	1.28 gallons/flush ^{4,3}
Flushometer tank Water closets	1.6 gallons/flush	1.28 gallons/flush ^{4,3}
Flushometer valve water closets	1.6 gallons/flush	1.28 gallons/flush ^{4,3}
Electromechanical hydraulic water closets	1.6 gallons/flush	1.28 gallons/flush ^{4,3}
Urinals	1.0 gallons/flush	5 gallons/flush

- Lavatory Faucets Residential shall not have a flow rate less than 0.8 gpm at 20 psi.
- Kitchen faucets may temporarily increase flow above the maximum rate, but not above 2.2 gpm @ 60 psi and must default to a maximum flow rate of 1.8 gpm @ 60 psi.
- 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.
- Showerheads shall be certified to the performance criteria of the U.S. EPA Water Sense Specification for showerheads.

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

- [DSA-SS] The installation of water-conserving fixtures (water closets, urinals) meeting the criteria established in sections 5.303.2 or

5.303.6 Standards for 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. be installed in accordance with the California Plumbing Code, and shall meet the applicable standards referenced in Table 1401.1 of the California Plumbing Code and in Chapter 6 of this code.~~

TABLE 5.303.6
STANDARDS FOR PLUMBING FIXTURES AND FIXTURE FITTINGS
REQUIRED STANDARDS

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

CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE
CHAPTER 5 -- NONRESIDENTIAL MANDATORY MEASURES
DIVISION 5.4 -- MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

Adopting Agency	DSA-SS	COMMENTS
Adopt entire CA chapter		
Adopt entire chapter as amended (amended sections listed below)		
Adopt only those sections that are listed below	X	
Chapter / Section		
5.401.1	X	
5.402.1 Definitions	X	
5.402.1 ADJUST	X	
5.402.1 BALANCE	X	
5.402.1 TEST	X	
5.407	<u>X</u>	Adopt as amended - 5.407.2.2 (Entries and openings); New adoption - 407.2.2.1 (Exterior door protection) & 5.407.2.2.2 (Flashing)
5.408.1 — <u>5.408.1.4</u> <u>5.408.2</u>	<u>X</u>	Adopt as amended - 5.408.1 (Construction waste management); 5.408.1.1 (Construction waste management plan); 5.408.1.2 (Waste management company); Repeal - 5.408.2 (Isolated jobsites)
5.410.1	<u>X</u>	Adopt as amended - 5.410.1 (Recycling by occupants)
<u>5.410.1.1</u> <u>5.410.1.2</u>	<u>X</u>	Adopt as renumbered - 5.410.1.2 (Sample ordinance)

CHAPTER 5
NONRESIDENTIAL MANDATORY MEASURES

Division 5.4 – MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

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 (Weather Protection) and California Energy Code Section 150 (Mandatory Features and Devices), 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 as follows: -

5.407.2.2.1 Exterior door protection. Primary exterior entries shall be covered to prevent water intrusion by using non-absorbent floor and wall finishes within at least two feet around and perpendicular to such openings plus at least one of the following:

1. An awning at least 4 feet in depth is installed
2. The door is protected by a roof overhang at least 4 feet in depth
3. The door is recessed at least 4 feet
4. Other methods which provide equivalent protection.

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.~~

5.407.2.2.2 Flashing. Install flashings integrated with a drainage plane.

SECTION 5.408
CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING

5.408.1 Construction waste management. Recycle and/or salvage for reuse a minimum of 50 percent of the non-hazardous construction and demolition waste in accordance with Section 5.408.1.1, 5.408.1.2 or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent.

5.408.1.1 Construction waste management plan. Where a local jurisdiction does not have a construction and demolition waste management ordinance that is more stringent, submit a construction waste management plan that:

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

5.408.1.2 Waste management company. Utilize a waste management company that can provide verifiable documentation that the percentage of construction and demolition waste material diverted from the landfill complies with this section.

Note: The owner or contractor shall make the determination if the construction and demolition waste material will be diverted by a waste management company.

Exceptions to 5.408.1.1 and 5.408.1.2:

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.
3. Demolition waste meeting local ordinance or calculated in consideration of local recycling facilities and markets, where demolition of an existing structure(s) is necessary for the construction of a new structure.

5.408.1.3 Waste steam reduction alternative. The combined weight of new construction disposal that does not exceed 2 lbs/sq. ft. of building area may be deemed to meet the 50 percent minimum requirement as approved by the enforcing agency.

5.408.1.4 Documentation. Documentation shall be provided to the enforcing agency which demonstrates compliance with Sections 5.408.1.1 through 5.408.1.3. The waste management plan shall be updated as necessary and shall be accessible during construction for examination by the enforcing agency.

Notes:

1. Sample forms found in "A Guide to the California Green Building Standards Code (Nonresidential)" located at <http://www.bsc.ca.gov/CALGreen/default.htm> may be used to assist in documenting compliance with the water management plan.
2. 2. Mixed construction and demolition debris (C&ED) processors can be located at the California Department of Resources Recycling and Recovery (CalRecycle).

~~5.408.2 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.~~

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, or meet a lawfully enacted local recycling ordinance, if more restrictive.

5.410.1.1

5.410.1.2 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>

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

Adopting Agency	DSA-SS	COMMENTS
Adopt entire CA chapter		
Adopt entire chapter as amended (amended sections listed below)		
Adopt only those sections that are listed below	X	
Chapter / Section		

5.501.1	X	
5.502.1 Definitions	<u>X</u>	New adoption - Definitions: BTU/HOUR; Chlorofluorocarbon (CFC); Global Warming Potential (GWP); Global Warming Potential Value (GWP VALUE); Halon; High GWP Refrigerant; Long Radius Elbow; Low DWP Refrigerant; PSIG; Schrader Access Valves; Short Radius Elbow; Supermarket
5.504.3 and subsections	X	Correct Matrix Adoption Table for consistency in format in Matrix Adoption Tables
5.504.4 and subsections	<u>X</u>	Correct Matrix Adoption Table by adding 'and sections'. 5.504.1 thru 5.504.3.2 are now included by adding 'and sections'.
5.504.4.1	X	Remove from Matrix Adoption Table
Table 5.504.4.1	X	Remove from Matrix Adoption Table
Table 5.504.4.2	X	Remove from Matrix Adoption Table
5.504.4.3	X	Remove from Matrix Adoption Table
5.504.4.3.1	X	Remove from Matrix Adoption Table
Table 5.504.4.3	X	Remove from Matrix Adoption Table
5.504.4.3.2	X	Remove from Matrix Adoption Table
5.504.4.4 and subsections	X	
5.504.4.5	<u>X</u>	Adopt as amended -5.504.4.5 (Composite wood products)
Table 5.504.4.5	<u>X</u>	Adopt as amended - Table 5.504.4.5 (Formaldehyde Limits)
5.504.4.6	<u>X</u>	Adopt as amended - 5.504.4.6 (Resilient flooring systems)
5.504.5.3	<u>X</u>	Adopt as amended - 5.504.5.3 (Filters)
<u>5.504.5.3.1</u>	<u>X</u>	New adoption - 5.504.5.3.1 (Labeling)
5.505	X	
5.506.1	X	
<u>5.507 and subsections</u>	<u>X</u>	New adoption - 5.507 (Environmental Comfort) and subsections DSA-SS is adding Acoustical control (Section 5.507.4 and subsections) as a mandatory measure with the intent that the language match CBSC's text including any promulgated changes for the 2012 Triennial Code Cycle
5.508.1 and subsections	X	

CHAPTER 5
NONRESIDENTIAL MANDATORY MEASURES

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.

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

A-WEIGHT SOUND LEVEL (Dba). The sound pressure level in decibels as measured on a sound level meter using the internationally standardized A-weighting filter or as computed from sound spectral data to which A-weighting adjustments have been made.

BTU/HOUR. British thermal units per hour, also referred to as Btu. The amount of heat required to raise one pound of water one degree Fahrenheit per hour, a common measure of heat transfer rate. A ton of refrigeration is 12,000 Btu, the amount of heat required to melt a ton (2,000 pounds) of ice at 32 degrees Fahrenheit.

CHLOROFLUOROCARBON (CFC). A class of compounds primarily used as refrigerants, consisting of only chlorine, fluorine, and carbon.

COMMUNITY NOISE EQUIVALENT LEVEL (CNEL). A metric similar to Ldn, except that a 5 dB adjustment is added to the equivalent continuous sound exposure level for evening hours (7 p.m. to 10 p.m.) in addition to the 10 dB nighttime adjustment used in the Ldn.

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, all as specified in CCR, Title 17, Section 93120.1(a)..

Note: See CCR, Title 17, Section 93120.1.

DAY-NIGHT AVERAGE SOUND LEVEL (Ldn). The A-weighted equivalent continuous sound exposure level for a 24-hour period with a 10 dB adjustment added to sound levels occurring during nighttime hours (10 p.m. to 7 a.m.).

DECIBEL (dB). A measure on a logarithmic scale of the magnitude of a particular quantity (such as sound pressure, sound power, sound intensity) with respect to a reference quantity.

ENERGY EQUIVALENT (NOISE) LEVEL, (L_{eq}). The level of a steady noise which would have the same energy as the fluctuating noise level integrated over the time period of interest.

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

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

GLOBAL WARMING POTENTIAL (GWP). The radiative forcing impact of one mass-based unit of a given greenhouse gas relative to an equivalent unit of carbon dioxide over a given period of time.

GLOBAL WARMING POTENTIALVALUE (GWP VALUE). The 100-yr GWP value first published by the Intergovernmental Panel on Climate Change (IPCC) in its Second Assessment Report (SAR) (IPCC,

1995); or if a 100-yr GWP value was not specified in the IPCC SAR, the GWP value published by the IPCC in its Fourth Assessment A-3 Report (AR4) (IPCC, 2007); or if a 100-yr GWP value was not specified in the IPCC AR4, then GWP value will be determined by the Executive Officer based on data, studies and/or good engineering or scientific judgment. Both the 1995 IPCC SAR values and the 2007 IPCC AR4 values are published in table 2.14 of the 2007 IPCC AR4, which table is incorporated by

reference herein. The SAR GWP values are found in column "SAR (100-yr)" of Table 2.14.; the AR4 GWP values are found in column "100 yr." of Table 2.14.

HALON. Any of a class of chemical compounds derived from hydrocarbons by replacing one or more hydrogen atoms by bromine atoms, and other hydrogen atoms by other halogen atoms (chlorine, fluorine, or iodine).

HIGH-GWP REFRIGERANT. A compound used as a heat transfer fluid or gas that is: (A) a chlorofluorocarbon, a hydro chlorofluorocarbon, a hydro fluorocarbon, a per fluorocarbon, or any compound or blend of compounds, with a GWP value equal to or greater than 150, or (B) any ozone depleting substance as defined in Title 40 of the Code of Federal Regulations, Part 82, §82.3 (as amended March 10, 2009).

LONG RADIUS ELBOW. Pipe fitting installed between two lengths of pipe or tubing to allow a change of direction, with a radius 1.5 times the pipe diameter.

LOW-GWP REFRIGERANT. A compound used as a heat transfer fluid or gas that: (A) has a GWP value less than 150, and (B) is not an ozone depleting substance as defined in Title 40 of the Code of Federal Regulations, Part 82, §82.3 (as amended March 10, 2009).

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 O₃/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).

PSIG. Pounds per square inch, gauge.

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

SCHRADER ACCESS VALVES. Access fittings with a valve core installed.

SHORT RADIUS ELBOW. Pipe fitting installed between two lengths of pipe or tubing to allow a change of direction, with a radius 1.0 times the pipe diameter.

SUPERMARKET. For the purposes of Section 5.508.2, a supermarket is any retail food facility with a total refrigeration load greater than 500,000 Btu/hour.

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 South Coast Air Quality Management District (SCAQMD), California Air Resources Board (ARB or CARB), etc. the VOC definition included in that specific regulation is the one that prevails for the specific measure in question.

SECTION 5.504
POLLUTANT CONTROL

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

TABLE 5.504.4.1
ADHESIVE VOC LIMIT¹
Less Water and Less Exempt Compounds in Grams per Liter

Architectural Applications	Current VOC Limit
Indoor Carpet Adhesives	50
Carpet Pad Adhesives	50
Outdoor Carpet Adhesives	150
Wood Flooring Adhesive	100
Rubber Floor Adhesives	60
Subfloor Adhesives	50

Ceramic Tile Adhesives	65
VCT and Asphalt Tile Adhesives	50
Dry Wall and Panel Adhesives	50
Cove Base Adhesives	50
Multipurpose Construction Adhesives	70
Structural Glazing Adhesives	100
Single Ply Roof Membrane Adhesives	250
Other Adhesive not specifically listed	50
Specialty Applications	
PVC Welding	510
CPVC Welding	490
ABS Welding	325
Plastic Cement Welding	250
Adhesive Primer for Plastic	550
Contact Adhesive	80
Special Purpose Contact Adhesive	250
Structural Wood Member Adhesive	140
Top and Trim Adhesive	250
Substrate Specific Applications	
Metal to Metal	30
Plastic Foams	50
Porous Material (except wood)	50
Wood	30
Fiberglass	80

1. If an adhesive is used to bond dissimilar substrates together the adhesive with the highest VOC content shall be allowed.
2. For additional information regarding methods to measure the VOC content specified in this table, see South Coast Air Quality Management District Rule 1168, <http://www.arb.ca.gov/DRD/SC/CURHTML/R1168.PDF>.

**TABLE 5.504.4.2
SEALANT VOC LIMIT
Less Water and Less Exempt Compounds in Grams per Liter**

SEALANTS	CURRENT VOC LIMIT
Architectural	250
Marine Deck	760
Nonmembrane Roof	300
Roadway	250
Single-Ply Roof Membrane	450
Other	420
SEALANT PRIMERS	Current VOC Limit
Architectural	
Non Porous	250
Porous	775
Modified Bituminous	500
Marine Deck	760
Other	750

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 more stringent 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.

TABLE 5.504.4.3
VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS^{2, 3}

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

COATING CATEGORY	EFFECTIVE 1/1/2010	EFFECTIVE 1/1/2012
Flat Coatings	50	
Nonflat Coatings	100	
Nonflat - High Gloss Coatings	150	
Specialty Coatings		
Aluminum Roof Coatings	400	
Basement Specialty Coatings	400	
Bituminous Roof Coatings	50	
Bituminous Roof Primers	350	
Bond Breakers	350	
Concrete Curing Compounds	350	
Concrete/Masonry Sealers	100	
Driveway Sealers	50	
Dry Fog Coatings	150	
Faux Finishing Coatings	350	
Fire Resistive Coatings	350	
Floor Coatings	100	
Form-Release Compounds	250	
Graphic Arts Coatings (Sign Paints)	500	
High Temperature Coatings	420	
Industrial Maintenance Coatings	250	
Low Solids Coatings ¹	120	
Magnesite Cement Coatings	450	
Mastic Texture Coatings	100	
Metallic Pigmented Coatings	500	
Multicolor Coatings	250	
Pretreatment Wash Primers	420	
Primers, Sealers, and Undercoaters	100	
Reactive Penetrating Sealers	350	
Recycled Coatings	250	
Roof Coatings	50	
Rust Preventative Coatings	400	250
Shellacs:		

Clear	730	
Opaque	550	
Specialty Primers, Sealers, and Undercoaters	350	100
Stains	250	
Stone Consolidants	450	
Swimming Pool Coatings	340	
Traffic Marking Coatings	100	
Tub and Tile Refinish Coatings	420	
Waterproofing Membranes	250	
Wood Coatings	275	
Wood Preservatives	350	
Zinc-Rich Primers	340	

1. Grams of VOC per liter of coating, including water and including exempt compounds.
2. The specified limits remain in effect unless revised limits are listed in subsequent columns in the Table.
3. Values in this table are derived from those specified by the California Air Resources Board, Architectural Coatings Suggested Control Measure, February 1, 2008. More information is available at: http://www.arb.ca.gov/coating/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. Manufacturer's 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 Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from indoor Sources Using Environmental Chambers, Version 1.1, February 2010 (also known as Specification 01350).
3. NSF/ANSI 140 at the Gold level or higher.
4. Scientific Certifications Systems Sustainable Choice

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.). Those materials not exempted under the ATCM must meet the specified emission limits by or before the dates specified in those sections, as shown in Table 5.504.4.5.

TABLE 5.504.4.5
FORMALDEHYDE LIMITS¹
 Maximum Formaldehyde Emissions in Parts per Million

PRODUCT	CURRENT LIMIT	JANUARY 1, 2012	JULY 1, 2012
Hardwood plywood veneer core	0.05		
Hardwood plywood composite core	0.08		0.05
Particleboard	0.09		
Medium density fiberboard	0.11		
Thin medium density fiberboard ²	0.21	0.13	

TABLE 5.504.4.5
FORMALDEHYDE LIMITS¹
 Maximum Formaldehyde Emissions in Parts per Million

<u>PRODUCT</u>	<u>CURRENT LIMIT</u>
<u>Hardwood plywood veneer core</u>	<u>0.05</u>
<u>Hardwood plywood composite core</u>	<u>0.05</u>
<u>Particleboard</u>	<u>0.09</u>
<u>Medium density fiberboard</u>	<u>0.11</u>
<u>Thin medium density fiberboard²</u>	<u>0.13</u>

1. 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 E 1333-96(2002). For additional information, see California Code of Regulations, Title 17, Sections 93120 through 93120.12.
2. Thin medium density fiberboard has a maximum thickness of 5/16 inch (8 millimeters).

5.504.4.6 Resilient flooring systems. For ~~50%~~ 80 percent of floor area receiving resilient flooring, install resilient flooring ~~that is complying with the VOC emission limits defined in the 2009 Collaborative for High Performance Schools (CHPS) criteria and listed on High Performance Products Database; products compliant with CHPS criteria certified under the Greenguard Children & Schools program; or certified under the Resilient Floor Covering Institute (RFCI) FloorScore program.; or meet California Department of Public Health 2010 Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.1, February 2010 (also known as Specification 01350.)~~

1. Certified under the Resilient Floor Covering Institute (RFCI) FloorScore program;
2. Compliant with the VOC-emission limits and testing requirements specified in the California Department of Public Health's 2010 Standard Method for the Testing and Evaluation Chambers, Version 1.1, February 2010;
3. Defined in the 2009 Collaborative for High Performance Schools (CHPS) criteria and listed on is High Performance Database; or
4. Compliant with CDPH criteria as certified under the Greenguard Children's & Schools Program.

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 that provide at least a Minimum Efficiency Reporting

Value (MERV) of 8. MERV 8 filters shall be installed prior to occupancy, and recommendations for maintenance with filters of the same value shall be included in the operation and maintenance manual.

Exception: A MERV 1 filter shall be allowed for return air only or return with prefiltered outside air, if the filter is of a re-usable, non-disposable type, and the fan energy use of that air delivery system is 0.4W/cfm or less at design airflow. An ASHRAE 10 percent – 15 percent efficiency filter shall be permitted for an HVAC unit meeting the 2013 California Energy Code having 60,000 Btu/h or less capacity per fan coil, if the energy use of the air delivery system is 0.4 W/cfm or less at design air flow.

5.504.5.3.1 Labeling. Installed filters shall be clearly labeled by the manufacturer indicating the MERV rating.

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, Sections 1203 (Ventilation) and Chapter 14 (Exterior Walls). 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 (Requirements For Ventilation) of the 2010 California Energy Code, or the applicable local code, whichever is more stringent, and Division 1, Chapter 4 of CCR, Title 8.

SECTION 5.507 ENVIRONMENTAL COMFORT

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

Exception: [DSA-SS] Requirements of this section only apply to new building construction for Public Schools and Community Colleges.

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

1. Within the 65 CNEL noise contour of an airport

Exceptions:

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

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

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

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

5.507.4.2.1 Site features. Exterior features such as sound walls or earth berms may be utilized as appropriate to the building, addition or alteration project to mitigate sound migration to the interior.

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

5.507.4.3 Interior sound transmission. Wall and floor-ceiling assemblies separating tenant spaces and tenant 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 the California Office of Noise Control: http://www.toolbase.org/PDF/CaseStudies/stc_icc_ratings.pdf .

Exception: Requirement for this section only applies to new site construction for public elementary and secondary schools and community colleges.

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.

CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE
 CHAPTER 5 -- NONRESIDENTIAL MANDATORY MEASURES
 DIVISION 5.7 – ADDITIONS AND ALTERATIONS TO EXISTING NONRESIDENTIAL BUILDINGS

Adopting Agency	DSA-SS	COMMENTS
Adopt entire CA chapter		DSA-SS is not proposing adoption of Division 5.7
Adopt entire chapter as amended (amended sections listed below)		
Adopt only those sections that are listed below		
Chapter / Section		

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

Adopting Agency	DSA-SS	COMMENTS
Adopt entire CA chapter	<u>X</u>	Adopt as amended - standards table listed in 601.1
Adopt entire chapter as amended (amended sections listed below)		
Adopt only those sections that are listed below		
Chapter / Section		

CHAPTER 6
 REFERENCED ORGANIZATIONS AND STANDARDS

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.

ORGANIZATION	STANDARD	REFERENCED SECTION
AABC – Associated Air Balance Council		
1518 K St NW Washington, DC 20005 www.aabc.com	National Standards, 1989	5.410.3.1
ACCA - Air Conditioning Contractors of America		
2800 Shirlington Road, Suite 300 Arlington, VA 22206 www.acca.org	ANSI/ACCA 2 Manual J-2004	4.507.2 4.507.2
	ANSI/ACCA 1 Manual D-2009	4.507.2
	ANSI/ACCA 3 Manual S-2004	
ANSI - American National Standards Institute		

Operations Office 25 West 43rd Street, Fourth Floor New York, NY 10036 www.ansi.org	ANSI A190.1-2002 ANSI AZ124.9-2004 NSF/ANSI 140-2007 ANSI/ACCA 2 Manual J-2004 ANSI/ACCA 1 Manual D-2009 ANSI/ACCA 3 Manual S-2004	4.502 Table 4.303.3 4.504.3.5.504.4.4 4.507.2 4.507.2 4.507.2
ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.		
1791 Tullie Circle, NE Atlanta, GA 30329 www.ashrae.org	52.1-92 52.2-99 62.2 90.1	A5.504.1 <u>5.502</u> , A4.502 A5.504.1 5.108.8
ASME - American Society of Mechanical Engineers		
Three Park Avenue New York, NY 10016-5990 www.asme.org	A112.18.1 A112.19 A112.19.2 A112.19.14 A1112.19	Table 4.303.3, 5.303.6 5.303.6 Table 4.303.3, 5.303.2, <u>Ch 8 WS-2 & WS-3</u> Table 4.303.3, 5.303.6, <u>Ch</u> <u>8 WS-2 & WS-3</u> Table 4.303.3
ASTM - ASTM International		
100 Barr Harbor Drive West Conshohocken, PA 19428-2859 www.astm.org	ASTM C 33 ASTM C 150 ASTM C 595 ASTM C 618 ASTM C 989 ASTM C 1157 ASTM C 1240 ASTM C 1371-98 ASTM C 1549 ASTM C 1602 ASTM C 1697 ASTM E 90 ASTM E 408-02 ASTM E 413 ASTM E 1332 ASTM E 1333-02 ASTM E 1903-97 ASTM E 1918 ASTM E 1980-01	A 5.405.5.3.2 A5.405.5.1 A5.405.5.1 A5.405.5.2.1 A5.405.5.2.1 A5.405.5.1 A5.405.5.2.1 A5.205.1, A5.106.11.2.2 A5.106.11.1 A5.405.5.3.2.3 A5.405.5.2.1 5.507.4, A5.507.4 A4.205.1, A5.10.6.11.2.2 5.507.4, A5.507.4 5.507.4, A5.507.4 Table 4.504.5 & 5.504.4.5 A5.103.4 A5.106.11.1 A4.106.5.3, A5.106.11.2.3
CSA - Canadian Standards Association		
5060 Spectrum Way, Suite 100 Mississauga, Ontario, Canada L4W 5N6 www.csa.ca	CSA B45.1 CSA B125.1	Table 4.303.1, Table 4.303.3 Table 4.303.3, 5.303.6
IAPMO - International Association of Plumbing and Mechanical Officials		

5001 E. Philadelphia St. Ontario, CA 91761 iapmo@iapmo.org	IAPMO Z124.9	Table 4.303.3, 5.303.6
<u>IES - Illuminating Engineering Society</u>		
170 Wall St, Floor 17 New York, NY 10005-4001 http://www.ies.org	<u>IES TM-15-11</u>	<u>5.10</u> <u>6.8</u>
<u>NEBB – National Environmental Balancing Bureau</u>		
8575 Government Cir Gaithersburg, MD 20877 http://neb.org/index.php	Procedural Standards, 1983	5.410.4.3.1 A5.410.5.3.1
<u>NSF International</u>		
789 Dixboro Rd. Ann Arbor, MI 48113-0140 http://www.nsf.org/	NSF/ANSI 140-2007	4.504.3, 5.504.4.4
<u>TABB – Testing, Adjusting and Balancing Bureau</u>		
601 N Fairfax St, Ste 250 Alexandria, VA 22314 http://www.tabbcertified.org/contact.html	National Standards, 2003	5.410.3.3.1 A5.410.5.3.1

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

Adopting Agency	DSA-SS	COMMENTS
Adopt entire CA chapter		No new adoptions, amendments or repeals proposed by DSA-SS
Adopt entire chapter as amended (amended sections listed below)		
Adopt only those sections that are listed below	X	
Chapter / Section		
702.2	X	
703.1	X	

CHAPTER 7
INSTALLER AND SPECIAL INSPECTOR QUALIFICATIONS

SECTION 701
GENERAL
(Reserved)

SECTION 702
QUALIFICATIONS

702.2 Special inspection. [HCD] ...

[BSC] ...

[DSA-SS] 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. ...

[DSA-SS] 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.

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

Adopting Agency	DSA-SS	COMMENTS
Adopt entire CA chapter	<u>X</u>	Adopt as amended - WS-1, WS-2, WS-3
Adopt entire chapter as amended (amended sections listed below)		
Adopt only those sections that are listed below		
Chapter / Section		
WS 1 - BASELINE WATER USE		
WS 2 - REDUCTION WATER USE CALCULATION TABLE		
WS 3 - 30%, 35%, 40% REDUCTION WATER USE CALCULATION TABLE		

WORKSHEET (WS-1)
BASELINE WATER USE

FIXTURE TYPE	FLOW-RATE (gpm)		DURATION		DAILY USES		OCCUPANTS ^{1,2}		GALLONS PER DAY
Showerheads	2.5 gpm	X	5 min.	X	1	X	Note 2a	=	
Showerheads Residential	2.5 gpm	X	8 min.	X	1	X		=	
Lavatory Faucets Residential	2.2 gpm	X	.25 min.	X	3	X		=	
Lavatory Faucets Nonresidential	0.5 gpm	X	.25 min.	X	3	X		=	

Kitchen Faucets	2.2 gpm	X	4 min.	X	1	X	Note 2b	=	
Replacement Aerators	2.2 gpm	X		X		X		=	
Wash Fountains	2.2 gpm	X		X		X		=	
Metering Faucets	0.25 gal/cycle	X	.25 min.	X	3	X		=	
Metering Faucets for Wash Fountains	2.2 gpm	X	.25 min.	X		X		=	
Gravity tank type Water Closets	1.6 gal/flush	X	1 flush	X	1 male ¹ 3 female	X		=	
Flushometer Tank Water Closets	1.6 gal/flush	X	1 flush	X	1 male ¹ 3 female	X		=	
Flushometer Valve Water Closets	1.6 gal/flush	X	1 flush	X	1 male ¹ 3 female	X		=	
Electromechanical Hydraulic Water Closets	1.6 gal/flush	X	1 flush	X	1 male ¹ 3 female	X		=	
Urinals	1.0 gal/flush	X	1 flush	X	2 male	X		=	
Total daily baseline water use (BWU)								=	
_____ (BWU) x .80 = _____									Allowable water use

- 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.
- For non-residential occupancies, refer to Table A, Chapter 4, 2010 California Plumbing Code, for occupant load factors.
 - Shower use by occupants depends on the type of use of a building or portion of a building, e.g., total occupant load for a health club, but only a fraction of the occupants in an office building as determined by the anticipated number of users.
 - Nonresidential kitchen faucet use is determined by the occupant load of the area served by the fixture.
- The daily use number shall be increased to three if urinals are not installed in the room.

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

20 PERCENT REDUCTION WATER USE CALCULATION TABLE									
Fixture Type	Flow-rate (gpm)		Duration		Daily uses		Occupants ^{2,3}		Gallons per day
Showerheads		X	5 min.	X	1	X	Note 3a	=	

Showerheads Residential		X	8 min.	X	1	X		=	
Lavatory Faucets Residential		X	.25 min.	X	3	X		=	
Lavatory Faucets Residential Lavatory Faucets Nonresidential		X	.25 min.	X	3	X		=	
Kitchen Faucets		X	4 min.	X	1	X	Note 3b	=	
Replacement Aerators		X		X		X		=	
Wash Fountains		X		X		X		=	
Metering Faucets		X	.25 min.	X	3	X		=	
Metering Faucets for Wash Fountains		X	.25 min.	X		X		=	
Gravity tank type Water Closets		X	1 flush	X	1 male ⁵ 3 female	X		=	
HET ⁴ High-Efficiency Toilet	1.28 gal/flush	X	1 flush	X	1 male ⁵ 3 female	X		=	
Flushometer Tank Water Closets		X	1 flush	X	1 male ⁵ 3 female ⁵	X		=	
Flushometer Valve Water Closets		X	1 flush	X	1 male ¹ 3 female	X		=	
Electromechanical Hydraulic Water Closets		X	1 flush	X	1 male ⁵ 3 female	X		=	
Urinals		X	1 flush	X	2 male	X		=	
Urinals Non-water supplied	0.0 gal/flush	X	1 flush	X	2 male	X		=	
Proposed water use								=	
_____ (BWU from WS-1) x .80 = _____ Allowable water use									

1. The flow rate values shall not exceed the baseline flow rates from the California Code of Regulations, Title 20, 2010 Appliance Efficiency Regulations (See Table 4.303.2).
2. 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.
3. For non-residential occupancies, refer to Table A, Chapter 4, 2007 California Plumbing Code, for occupant load factors.
 - a. Shower use by occupants depends on the type of use of a building or portion of a building, e.g., total occupant load for a health club, but only a fraction of the occupants in an office building as determined by the anticipated number of users.
 - b. Nonresidential kitchen faucet use is determined by the occupant load of the area served by the fixture.
4. Includes single and dual flush water closets with an effective flush rate 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 defined as the composite,

average flush volume of two reduced flushes and one full flush. Flush volumes will be tested in accordance with ASME A 112.19.2 and ASME A 112.19.14.

5. The daily use number shall be increased to three if urinals are not installed in the room.

WORKSHEET (WS-3)
30, 35 OR 40 PERCENT REDUCTION WATER USE

30, 35 OR 40 PERCENT REDUCTION WATER USE CALCULATION TABLE									
FIXTURE TYPE	FLOW - RATE (gpm)		DURA- TION		DAILY USES		OCCUPANT S ^{2,3}		GALLONS PER DAY
Showerheads		X	5 min.	X	1	X	Note 3a	=	
Showerheads Residential		X	8 min.	X	1	X		=	
Lavatory Faucets Residential		X	.25 min.	X	3	X		=	
Lavatory Faucets Nonresidential ⁶		X	.25 min.	X	3	X		=	
Kitchen Faucets		X	4 min.	X	1	X	Note 3b	=	
Replacement Aerators		X		X		X		=	
Wash Fountains		X		X		X		=	
Metering Faucets		X	.25 min.	X	3	X		=	
Metering Faucets for Wash Fountains		X	.25 min.	X		X		=	
Gravity tank type Water Closets		X	1 flush	X	1 male ⁵ 3 female	X		=	
HET ⁴ High- Efficiency Toilet	1.12 gal/ flush	X	1 flush	X	1 male ⁵ 3 female	X		=	
Flushometer Tank Water Closets		X	1 flush	X	1 male ⁵ 3 female ⁵	X		=	
Flushometer Valve Water Closets		X	1 flush	X	1 male ¹ 3 female	X		=	
Electromechanical Hydraulic Water Closets		X	1 flush	X	1 male ⁵ 3 female	X		=	
Urinals		X	1 flush	X	2 male	X		=	
Urinals Non-water supplied	0.0 gal/flu sh	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

1. The flow rate values shall not exceed the baseline flow rates from the California Code of Regulations, Title 20, 2010 Appliance Efficiency Regulations (See Table 4.303.2).
2. 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.
3. For nonresidential occupancies, refer to Table A, Chapter 4, 2010 California Plumbing Code, for occupant load factors.
 - a. Shower use by occupants depends on the type of use of a building or portion of a building, e.g., total occupant load for a health club, but only a fraction of the occupants in an office building as determined by the anticipated number of users.
 - b. Nonresidential kitchen faucet use is determined by the occupant load of the area served by the fixture.
4. Includes single and dual flush water closets with an effective flush rate 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 A 112.19.2 and ASME A 112.19.14.
5. The daily use number shall be increased to three if urinals are not installed in the room.
6. Where complying faucets are unavailable, aerators rated at .35 gpm or other means may be used to achieve reduction.

CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE
DIVISION A4 – RESIDENTIAL VOLUNTARY MEASURES

Adopting Agency	DSA-SS	COMMENTS
Adopt entire CA Chapter		DSA-SS is not proposing adoption of Division A4 (Residential Voluntary Measures)
Adopt entire chapter as amended (amended sections listed below)		
Adopt only those sections that are listed below		
Chapter / Section		

CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE
 CHAPTER A5 – NONRESIDENTIAL VOLUNTARY MEASURES
 DIVISION A5.1 PLANNING AND DESIGN

Adopting Agency	DSA-SS	COMMENTS
Adopt entire CA Chapter		
Adopt entire chapter as amended (amended sections listed below)		
Adopt only those sections that are listed below	✗	Repeal - Appendix A5.1, in its entirety, the DSA-SS <i>CALGreen</i> Code measures. See changes made to Section 306 for an explanation of the use of Appendix A5 as a guideline for Public Schools and Community Colleges
Chapter / Section		
A5.101.1	✗	
A5.102.1 Definitions	✗	
A5.106.4		
A5.106.4.1	✗	
A5.106.4.2	✗	
A5.106.4.3	✗	
Table A5.106.4.3	✗	
A5.106.5.1	✗	
A5.106.5.1.1	✗	
Table A5.106.5.1.1	✗	
A5.106.5.1.3	✗	
A5.106.5.1.4	✗	
A5.106.5.3	✗	
A5.106.5.3.1	✗	
Table A5.106.5.3.1	✗	
A5.106.6	✗	
A5.106.6.1	✗	
A5.106.7 and subsections	✗	
A5.106.9	✗	
A5.106.9.1	✗	
A5.106.11	✗	
A5.106.11.1	✗	
A5.106.11.2 and subsections	✗	
Table A5.106.11.2.1	✗	
Table A5.106.11.2.2	✗	

[Information: Repeal - Appendix A5.1, in its entirety, the DSA-SS *CALGreen* Code measures. See changes made to Section 306 for an explanation of the use of Appendix A5 as a guideline for Public Schools and Community Colleges]

APPENDIX A5
NONRESIDENTIAL VOLUNTARY MEASURES

The measures contained in this appendix are not mandatory unless adopted by a city, county, or city and county 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 – PLANNING AND DESIGN

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 storm water 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 High Occupancy Vehicle (HOV) 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.~~

~~SOLAR REFLECTANCE. A measure of the fraction of solar energy that is reflected by a surface (measured on a scale of 0 to 1).~~

~~SOLAR REFLECTANCE INDEX (SRI). A measure of a material surface's ability to reflect solar heat, as shown by a small temperature rise. It includes both solar reflectance and thermal emittance and is quantified such that a standard black surface (solar reflectance 0.05, thermal emittance 0.90) is 0 and a standard white surface (solar reflectance 0.80, thermal emittance 0.90) is 100.~~

~~THERMAL EMITTANCE. The relative ability of a surface to radiate absorbed heat (measured on a scale of 0 to 1).~~

~~VANPOOL VEHICLE. Eligible vehicles are limited to any motor vehicle, other than a motor truck 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: Vehicule Code, Division 1, Section 668.~~

~~VEGETATED SPACE. Vegetated spaces include, but are not limited to, native, undisturbed areas; rehabilitation of previously disturbed areas with landscaping; green belts; and recreation facilities that include landscaping, such as golf courses.~~

~~ZEV. Any vehicle certified to zero emission standards.~~

~~SECTION A5.106 SITE DEVELOPMENT~~

~~A5.106.4 Bicycle parking and changing rooms. Comply with Sections A5.106.4.1 through A5.106.4.3; or meet local ordinance, whichever is stricter.~~

~~A5.106.4.1 Short term bicycle parking. If the project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 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.~~

~~A5.106.4.2 Long term bicycle parking. For buildings with over 10 tenant-occupants, provide secure bicycle parking for 5% of tenant-occupant motorized vehicle parking capacity, with a minimum of one space. For public schools and community colleges, provide secure bicycle~~

parking for 15% of occupants (students, teachers, and staff). Acceptable parking facilities shall be convenient from the street and may include, but not be limited to:

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.

~~A5.106.4.3 For buildings with over 10 tenant occupants, provide changing/shower facilities for tenant occupants only in accordance with Table A5.106.4.3, or document arrangements with nearby changing/shower facilities. For public schools and community colleges, provide changing/shower facilities for the “number of administrative/teaching staff” equal to the “number of tenant occupants” shown in Table 5.106.4.3.~~

TABLE A5.106.4.3

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

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

² 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 obtained from Sacramento Area Bicycle Advocates.

~~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 shown in Table A5.106.5.1.1 or A5.106.5.1.2.~~

~~A5.106.5.1.1 Tier 1 [BSC]. 10% of Total Spaces [DSA-SS]. Provide 10 percent of total designated parking spaces for any combination of low-emitting, fuel efficient and carpool/van pool vehicles as follows:~~

TABLE A5.106.5.1.1

TOTAL NUMBER OF PARKING SPACES	NUMBER OF REQUIRED SPACES
0-9	0
10-25	2
26-50	4
51-75	6
76-100	9
101-150	11

151-200	18
201 and over	At least 10 percent of total

A5.106.5.1.2 Tier 2. Provide 12% of total designated parking spaces for any combination of low-emitting, fuel-efficient, and carpool/van pool vehicles as follows:

Table A5.106.5.1.2

TOTAL NUMBER OF PARKING SPACES	NUMBER OF REQUIRED SPACES
0-9	1
10-25	2
26-50	5
51-75	7
76-100	9
101-150	13
151-200	19
201 and over	At least 12 percent of total

A5.106.5.1.3 Parking stall marking [DSA-SS]. 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/
VANPOOL/EV

Note: Vehicles bearing Clean Air Vehicle stickers from expired HOV lane programs may be considered eligible for designated parking spaces.

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
 - b. California Air Resources Board
 - c. US EPA fuel efficiency standards
 - 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 the Department of General Services

A5.106.5.3 Electric vehicle charging. Provide facilities meeting Section 406.7 (Electric Vehicle) of the California Building Code and as follows:

~~A5.106.5.3.1 Electric vehicle supply wiring. For each space required in Table A5.106.5.3.1, provide panel capacity and dedicated conduit for one 208/240 V 40 amp circuit terminating within 5 feet of the midline of each parking space.~~

~~TABLE A5.106.5.3.1~~

TOTAL NUMBER OF PARKING SPACES[†]	NUMBER OF REQUIRED SPACES
1—50	1
51—200	2
201—and over	4

~~† 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.~~

~~Note: 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 comply with either Section AQ5.106.7.1 or A5.106.7.2 for wall surfaces. If using vegetative shade, plant species documented to reach desired coverage within 5 years of building occupancy.~~

~~A5.106.7.1 Fenestration. Provide vegetative or man-made shading devices for all fenestration on east-, south-, and west-facing walls.~~

~~A5.106.7.1.1 East and west walls. Shading devices shall have 30% coverage to a height of 20 feet or to the top of the exterior wall, whichever is less. Calculate shade coverage on the summer solstice at 10 AM for east facing walls and at 3 PM for west facing walls.~~

~~A5.106.7.1.2 South walls. Shading devices shall have 60% coverage to a height of 20 feet or to the top of the exterior wall, whichever is less.~~

~~A5.106.7.2 Opaque wall areas. Use wall surfacing with minimum SRI 25 (aged), for 75% of opaque wall areas.~~

~~Exception: Use of vegetated shade in Wildland Urban Interface Areas as defined in Chapter 7A (Materials and Construction Methods for Exterior Wildfire Exposure) 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.~~

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

- ~~1. When site and location permit, orient the long axis of the building east and west, with a maximum allowable deviation of 30°.~~

~~2. [OSHPD 1, 2 & 4]~~

~~3. 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 materials with an initial solar reflectance value of at least .30 as determined in accordance with American Society for Testing and Materials (ASTM) Standards E 1918 or C 1549.~~

~~3. Use open-grid pavement system or pervious or permeable pavement system.~~

~~A5.106.11.2 Cool roof. Use roofing materials having a minimum 3-year aged solar reflectance and thermal emittance complying with Sections A5.106.11.2.1 and A5.106.11.2.2 or a minimum aged Solar Reflectance Index (SRI) complying with Section A5.106.11.2.3 and as shown in Table A5.106.11.2.1 for Tier 1 or A5.106.11.2.2 for Tier 2.~~

~~A5.106.11.2.1 Solar reflectance. Roofing materials shall have a minimum 3-year aged solar reflectance equal to or greater than the values specified in Table A5.106.11.2.1 for Tier 1 and Table A5.106.11.2.2 for Tier 2.~~

~~———— If CRRRC testing for 3-year aged reflectance is not available for any roofing products, the 3-year aged value shall be determined using the Cool Roof Rating Council (CRRRC) certified initial value using the equation $R_{aged} = [0.2 + 0.7(P_{initial} - 0.2)]$, where $P_{initial}$ = the initial Solar Reflectance.~~

~~———— Solar reflectance may also be certified by other supervisory entities approved by the Commission pursuant to Title 24, Part 1, Section 10-113.~~

~~A5.106.11.2.2 Thermal emittance. Roofing materials shall have a CRRRC initial or 3-year aged thermal emittance as determined in accordance with ASTM E 408 or C 1371 equal to or greater than those specified in Table A5.106.11.2.1 for Tier 1 and Table A5.106.11.2.2 for Tier 2.~~

~~———— Thermal emittance may also be certified by other supervisory entities approved by the~~

Commission pursuant to Title 24, Part 1, Section 10-113.

~~A5.106.11.2.3 Solar reflectance index alternative. Solar Reflectance Index (SRI) equal to or greater than the values specified in Table A5.106.11.2.1 for Tier 1 and Table A5.106.11.2.2 for Tier 2 may be used as an alternative to compliance with the 3-year aged solar reflectance values and thermal emittance.~~

~~SRI values used to comply with this section shall be calculated using the Solar Reflectance Index (SRI) Calculation Worksheet (SRI-WS) developed by the California Energy Commission or in compliance with ASTM E1980-01 as specified in the California Energy Code, Section 118(i)3. Solar reflectance values used in the SRI-WS shall be based on the 3-year aged reflectance value of the roofing product or the equation in section A5.106.11.2.1 if the CRRG certified aged solar reflectance are not available. Certified Thermal emittance used in the SRI-WS may be either the initial value or the three year aged value listed by the CRRG.~~

~~Solar reflectance and thermal emittance may also be certified by other supervisory entities approved by the Commission pursuant to Title 24, Part 1, Section 10-113.~~

~~Note: The Solar Reflectance Index Calculation Worksheet (SRI-WS) is available by contacting the Energy Standard Hotline at 1-800-772-3300, website at www.energy.ca.gov or by email at Title24@energy.state.ca.us.~~

~~A5.106.11.3 Verification of compliance. If no documentation is available, an inspection shall be conducted to ensure roofing materials meet cool roof aged solar reflectance and thermal emittance or SRI values.~~

~~Table A5.106.11.2.1 [BSC]
TIER 2~~

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

~~Table A5.106.11.2.2
TIER 2~~

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

CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE
APPENDIX A5 -- NONRESIDENTIAL VOLUNTARY MEASURES
DIVISION A5.2 -- ENERGY EFFICIENCY

Adopting Agency	DSA-SS	Comments
Adopt entire CA chapter		
Adopt entire chapter as amended (amended sections listed below)		
Adopt only those sections that are listed below	✗	Repeal - Appendix A5.2, in its entirety, the DSA-SS <i>CALGreen</i> Code measures. See changes made to Section 306 for an explanation of the use of Appendix A5 as a guideline for Public Schools and Community Colleges
Chapter / Section		
A5.201.1	✗	
A5.202.1 Definitions	✗	
A5.203.1 and subsections	✗	
A5.211.1	✗	
A5.211.1.1	✗	
A5.211.1.2	✗	
A5.211.2.3	✗	
A5.212.1	✗	
A5.212.1.1 and subsections	✗	
A5.212.1.2	✗	
A5.212.1.3	✗	
A5.212.1.4	✗	

[Information: Repeal - Appendix A5.2, in its entirety, the DSA-SS *CALGreen* Code measures. See changes made to Section 306 for an explanation of the use of Appendix A5 as a guideline for Public Schools and Community Colleges.]

APPENDIX A5
NONRESIDENTIAL VOLUNTARY MEASURES

Division A5.2—ENERGY EFFICIENCY

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 percent 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 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.~~

~~GEOHERMAL. 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.~~

~~SECTION A5.203 PERFORMANCE APPROACH~~

~~A5.203.1 Energy performance. Using an Alternative Calculation Method approved by the California Energy Commission, calculate each nonresidential building's annual TDV-regulated energy use components and compare them to the standard or "budget" building.~~

~~Note: The "percent better than" calculation omits Process and Receptacle energy use components in comparing the Standard and Proposed energy use.~~

~~A5.203.1.1 Tier 1 [BSC]. Energy efficiency — 15 percent above the California Energy Code [DSA-SS]. Exceed the 2010 California Energy Code requirements by 15 percent.~~

~~A5.203.1.2 Tier 2 [BSC]. Energy efficiency — 30 percent the California Energy Code [DSA-SS]. Exceed the 2010 California Energy Code requirements by 30 percent.~~

~~_____ Field verify and document the measures and calculations used to reach the desired level of efficiency following the requirements specified in the Title 24 Reference Appendices.~~

~~A5.203.2 Energy performance. It is the intent of this code to encourage green buildings to achieve exemplary performance in the area of energy efficiency.~~

~~A5.203.2.1 CALGreen Tier 1. To achieve CALGreen Tier 1, buildings must comply with the latest edition of "Savings By Design, Healthcare Modeling procedures" found online at <http://www.energysoft.com/ep/2007SBDHProcedures.pdf>.~~

~~A5.203.2.2 CALGreen Tier 2. To achieve CALGreen Tier 2, buildings must exceed the latest~~

edition of "Savings By Design, healthcare Modeling Procedures" b a minimum of 15 percent.

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.~~

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 2010 California Electrical Code. Natural gas or propane use is calculated in accordance with the 2010 California Plumbing Code.~~

~~A5.211.1.1 Documentation. Using a calculation method approved by the California Energy Commission, calculate the renewable on-site energy system to meet requirements of Section A5.211.1, expressed in kW. Factor in net metering, if offered by local utility, on an annual basis.~~

~~A5.211.1.2 Grid neutral. 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.~~

~~A5.211.2.1 35 percent grid neutral. A site's annual electrical production and consumption ratio is equal or greater than 0.35.~~

~~A5.211.2.2 75 percent grid neutral. A site's annual electrical 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. If offered by local utility provider, participate in a renewable energy portfolio program that provides a minimum of 50 percent electrical power from renewable sources. Maintain documentation through utility billings.~~

~~A5.211.4 Pre-wiring for future rooftop solar. Size and install conduit from the building roof or eave to a location within the building identified as suitable for future installation of controls and/or storage batteries.~~

~~A5.211.4.1 Grid-connected system without storage. Location within the building shall be of sufficient dimensions to accommodate an inverter and/or other controls as approved by the utility.~~

~~A5.211.4.2 System for future energy storage. If battery storage is anticipated, location within the building shall:~~

- ~~1. Be stable, weather-proof, insulated against very hot and very cold weather, and isolated from occupied spaces.~~
- ~~2. Be able to accommodate batteries, ventilation complying with the California Fire Code, an inverter with or without a charge controller (regulator) and, if grid-connected, other controls as approved by the utility.~~

~~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 systems and controls to reduce the energy demand of elevators and escalators as follows. Document systems operation and controls in the project specifications and commissioning plan.~~

~~A5.212.1.1 Elevators. Traction elevators shall have a regenerative drive system that feeds electrical power back into the building grid when the elevator is in motion.~~

~~A5.212.1.1.1 Car lights and fan. A parked elevator shall turn off its car lights and fan automatically until the elevator is called for use.~~

~~A5.212.1.2 Escalators. An escalator shall have a VVVF motor drive system that is fully regenerative when the escalator is in motion.~~

~~A5.212.1.3 Stairs as an alternative [DSA-SS]. In Public School and Community College buildings, locate stairs conveniently to encourage their use in lieu of elevators or escalators.~~

~~A5.212.1.1.4 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.~~

CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE
APPENDIX A5 -- NONRESIDENTIAL VOLUNTARY MEASURES
DIVISION A5.3 WATER EFFICIENCY AND CONSERVATION

Adopting Agency	DSA-SS	COMMENTS
Adopt entire CA chapter		
Adopt entire chapter as amended (amended sections listed below)		
Adopt only those sections that are listed below	✗	Repeal - Appendix A5.3, in its entirety, the DSA-SS <i>CALGreen</i> Code measures. See changes made to Section 306 for an explanation of the use of Appendix A5 as a guideline for Public Schools and Community Colleges
Chapter / Section		
A5.301.1	✗	
A5.302.1 Definitions	✗	
A5.303.2.3.1	✗	
Table A5.303.2.2	✗	
A5.303.3	✗	
Table A5.303.3	✗	
A5.304.1.1	✗	
A5.304.4.4	✗	

[Information: Repeal - Appendix A5.3, in its entirety, the DSA-SS *CALGreen* Code measures. See changes made to Section 306 for an explanation of the use of Appendix A5 as a guideline for Public Schools and Community Colleges.]

APPENDIX A5
NONRESIDENTIAL VOLUNTARY MEASURES

~~Division A5.3—WATER EFFICIENCY AND CONSERVATION~~

~~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.~~

~~LANDSCAPE (PLANT) COEFFICIENT [KL]. The product of the species factor multiplied by the density factor and the microclimate factor, ($Kl = Ks \times Kd \times Kmc$). The landscape coefficient is used in the landscape water budget calculation. (UCCE, 2000).~~

~~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.~~

~~Native plants. Native plants are plants that have adapted to a given area and are not invasive.~~

~~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.~~

~~REFERENCE EVAPORANSPIRATION (ET_0). The estimated rate of evapotranspiration from a standardized surface of well watered, actively growing cool season turfgrass clipped to 12 cm with sufficient density to fully shade the soil. The water needs of a landscape planting can be calculated by multiplying the Landscape Coefficient (Kl) and reference evapotranspiration (ET_0).~~

~~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 Tier 1 — 30 percent savings [BSC]. 30 percent savings [DSA-SS]. A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 30 percent 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 percent reduction in potable water use shall be demonstrated by one of the following methods.~~

- ~~1. Prescriptive method. Each plumbing fixture and fitting shall not exceed the maximum flow rate at \geq 30 percent reduction as specified in Table A5.303.2.1, or~~
- ~~2. Performance method. A calculation demonstrating a 30 percent reduction in the building "water use baseline" as established in Table A5.303.2.2 shall be provided.~~

**TABLE A5.303.2.2
WATER USE BASELINE³**

FIXTURE TYPE	FLOW RATE	DURATION	DAILY USES	OCCUPANTS ²
Showerheads	2.5 gpm @ 80 psi	5 min.	1	X ^{2a}
Lavatory faucets nonresidential	.5 gpm @ 60 psi	.25 min.	3	X
Kitchen faucets	2.6 gpm @ 60 psi	4 min.	1	X ^{2b}
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 ⁺ 3 female	X
Gravity tank type water closets	1.6 gallons/flush	1 flush	1 male ⁺ 3 female	X
Flushometer tank water closets	1.6 gallons/flush	1 flush	1 male ⁺ 3 female	X
Flushometer valve water closets	1.6 gallons/flush	1 flush	1 male ⁺ 3 female	X
Electromechanical hydraulic water closets	1.6 gallons/flush	1 flush	1 male ⁺ 3 female	X
Urinals	1.6 gallons/flush	1 flush	2 male	X

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

2. Refer to Table A, Chapter 4, 2007 California Plumbing Code, for occupant load factors.

a. Shower use by occupants depends on the type of use of a building or portion of a building, e.g., total occupant load for a health club, but only a fraction of the occupants in an office building as determined by the anticipated number of users.

b. Nonresidential kitchen faucet use is determined by the occupant load of the area served by the fixture.

3. Use worksheet WS-1 to calculate base-line water use.

**TABLE A5.303.2.3.1
FIXTURE FLOW RATE**

FIXTURE TYPE	FLOW RATE ²	MAXIMUM FLOW RATE AT ≥ 30% PERCENT REDUCTION
Showerheads	2.5 gpm @ 80 psi	1.8 gpm @ 80 psi
Lavatory Faucets Nonresidential	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 ⁺
Flushometer Tank Water Closets	1.6 gallons/flush	1.12 gallons/flush ⁺
Flushometer Valve Water Closets	1.6 gallons/flush	1.12 gallons/flush ⁺
Electromechanical Hydraulic Water Closets	1.6 gallons/flush	1.12 gallons/flush ⁺

Urinals	1.0 gallons/flush	.5 gallons/flush
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1 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.

2 See Table 5.503.2.3 for additional notes and references.

~~A5.303.3 Appliances and fixtures for commercial application. Appliances and fixtures shall meet the following:~~

- ~~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 (21.9 L) per cycle.~~
 - ~~b. Commercial—refer to Table A5.303.3.~~~~
- ~~3. Ice makers shall be air cooled.~~
- ~~4. Food steamers shall be connectionless or boilerless.~~
- ~~5. [BSC] The use and installation of water softeners that discharge to the community sewer system may be limited or prohibited by local agencies if certain conditions are met.~~
- ~~6. Combination ovens shall not consume more than 10 gph (38 l/h) in the full operational mode.~~
- ~~7. Commercial pre-rinse spray valves manufactured on or after January 1, 2006 shall function at equal to or less than 1.6 gpm (0.10 L/s) at 60 psi (414 KPa) and

 - ~~a. Be capable of cleaning 60 plates in an average time of not more than 30 seconds per plate.~~
 - ~~b. Be equipped with an integral automatic shutoff.~~
 - ~~c. Operate at static pressure of at least 30 psi (207 kPa) when designed for a flow rate of 1.3 gpm (0.08 L/S) or less.~~~~

TABLE A5.303.3
COMMERCIAL DISHWASHER WATER USE

TYPE	HIGH TEMPERATURE— MAXIMUM GALLONS PER RACK	CHEMICAL—MAXIMUM GALLONS PER RACK
Conveyer	0.70 (2.6 L)	0.62 (4.4 L)
Door	0.95 (3.6 L)	2.26 (2.6 L) [BSC]
Undercounter	0.90 (3.4 L)	0.98 (3.7 L)

SECTION A5.304
OUTDOOR WATER USE

~~A5.304.1.1 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>.

~~A5.304.4 Potable water reduction.~~

~~A5.304.4.4 Potable water reduction. Provide water efficient landscape irrigation design that reduces the use of installation and establishment by 50 percent. Calculations for the reduction shall be based on the water budget developed pursuant to section A5.304.1.1.~~

~~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.~~

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	COMMENTS
Adopt entire CA chapter		
Adopt entire chapter as amended (amended sections listed below)		
Adopt only those sections that are listed below	✗	Repeal - Appendix A5.4, in its entirety, the DSA-SS <i>CALGreen</i> Code measures. See changes made to Section 306 for an explanation of the use of Appendix A5 as a guideline for Public Schools and Community Colleges
Chapter / Section		
A5.401.1	✗	
A5.402.1 Definitions	✗	
A5.402.1 BUILDING COMMISSIONING	✗	
A5.402.1 EMBODIED ENERGY	✗	
A5.402.1 LIFE CYCLE ASSESSMENT	✗	
A5.402.1 OVE	✗	
A5.402.1 POSTCONSUMER CONTENT	✗	

A5.402.1 PRECONSUMER (or POST-INDUSTRIAL) CONTENT	X	
A5.402.1 RECYCLED CONTENT	X	
A5.402.1 RECYCLED CONTENT VALUE RCV)	X	
A5.404 and subsections	X	
A5.405.4, 10% only	X	
A5.405.4.1	X	
A5.405.4.2	X	
A5.405.4.3	X	
A5.405.4.4	X	
A5.406.1	X	
A5.406.1.1	X	
A5.406.1.3	X	
A5.408.3.1.1	X	
A5.408.3.1.2	X	
A5.409.1	X	
A5.409.2 and subsections		
409.3	X	
A5.410.3 and subsections	X	
A5.410.4 and subsections	X	

[Information: Repeal - Appendix A5.4, in its entirety, the DSA-SS *CALGreen* Code measures. See changes made to Section 306 for an explanation of the use of Appendix A5 as a guideline for Public Schools and Community Colleges.]

**APPENDIX A5
NONRESIDENTIAL VOLUNTARY MEASURES**

Division A5.4 – MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

**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 from the U.S. DOE Energy Efficiency and Renewable Energy (EERE) website.~~

SECTION A5.405 MATERIAL SOURCES

~~A5.405.4 Recycled content. Use materials, equivalent in performance to virgin materials, with a total (combined) recycled content value (RCV) of:~~

~~Tier 1 [BSC]. Recycled content [DSA]. The RCV shall not be less than 10 percent of the total material cost of the project.~~

~~Required Total RCV (dollars) =
Total Material Cost (dollars) x 10 percent (Equation A5.4-1)~~

~~Tier 2 [BSC]. The RCV shall not be less than 15 percent of the total material cost of the project.~~

~~Required Total RCV (dollars) =
Total Material Cost (dollars) x 15 percent (Equation A5.4-2)~~

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

~~Notes:~~

- ~~1. Sample forms which allow user input and automatic calculation are located at www.hcd.ca.gov/CALGreen.html and may be used to simplify documenting compliance with this section and for calculating recycled content value of materials or assembly products.~~
- ~~2. Sources and recycled content of some recycled materials can be obtained from CalRecycle if not provided by the manufacturer.~~

~~A5.405.4.1 Total material cost. Total material cost is the total estimated or actual cost of materials and assembly products used in the project. The required total recycled content value for the project (in dollars) shall be determined by Equation A5.4-1 or Equation A5.4-2.~~

~~Total material cost shall be calculated by using one of the methods specified below:~~

- ~~1. Simplified method. To obtain the total cost of the project multiply the square footage of the structure by the square foot valuation established by the enforcing agency. The total material cost is 45 percent of the total cost of the project. Use Equations A5.4-3A or A5.4-3B to determine total material costs using the simplified method.~~

~~Total material costs =~~

~~Project square footage x square foot valuation x 45 percent (Equation A5.4-3A)~~

~~Total estimated or actual cost of project x 45 percent (Equation A5.4-3B)~~

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

A5.405.4.2 Determination of recycled content value (RCV). Total RCV may be determined either by dollars or percentage as noted below.

1. Total recycled content value for the project (in dollars). This is the sum of the recycled content value of the materials and/or assemblies considered and shall be determined by Equation A5.4.4. The result of this calculation may be directly compared to Equations A5.4.1 and A5.4.2 to determine compliance with Tier 1 or Tier 2 prerequisites.

$$\text{Total Recycled Content Value (dollars)} = (\text{RCV}_M + \text{RCV}_A) \quad \text{(Equation A5.4.4)}$$

2. Total recycled content value for the project (by percentage). This is expressed as a percentage of the total material cost and shall be determined by Equation A5.4.4 and Equation A5.4.5. The result of this calculation may be directly compared for compliance with Tier 1 (10 percent) or Tier 2 (15 percent) prerequisites.

$$\text{Total Recycled Content Value (percent)} = \frac{[\text{Total Recycled Content Value (dollars)} \div \text{Total Material Cost (dollars)}] \times 100}{\text{(Equation A5.4.5)}}$$

A5.405.4.3 Determination of recycled content value of materials (RCV_M). The recycled content value of each material (RCV_M) is calculated by multiplying the cost of material, as defined by the recycled content. See Equations A5.4.6 and A5.4.7.

$$\text{RCV}_M \text{ (dollars)} = \text{Material cost (dollars)} \times \text{RC}_M \text{ (percent)} \quad \text{(Equation A5.4.6)}$$

$$\text{RC}_M \text{ (percent)} = \text{Post consumer content percentage} + \left(\frac{1}{2}\right) \text{ Pre-consumer content percentage} \quad \text{(Equation A5.4.7)}$$

Notes:

1. If the post-consumer and pre-consumer recycled content is provided in pounds, Equation A5.4.7 may be used, but the final result (in pounds) must be multiplied by 100 to show RC_M as a percentage.
2. If the manufacturer does not separately identify the pre-consumer and post-consumer recycled content of a material but reports it as a total single percentage, one half of the total shall be considered pre-consumer and one half shall be considered post-consumer recycled material.

A5.405.4.4. Determination of recycled content value of assemblies (RCV_A). Recycled content value of assemblies is calculated by multiplying the total cost of assembly by the total recycled content of the assembly (RC_A), and shall be determined by Equation A5.4.8.

$$\text{RCV}_A \text{ (dollars)} =$$

~~Assembly cost (dollars) x Total RC_A (percent)~~
(Equation A5.4-8)

~~If not provided by the manufacturer, Total RC_A (percent) is the sum (Σ) of the Proportional Recycled Content (PRC_M) of each material in the assembly. RC_A shall be determined by Equation A4.4-9.~~

~~RC_A = Σ PRC_M~~
(Equation A5.4-9)

~~PRC_M of each material may be calculated by one of two methods using the following formulas:~~

~~Method 1: Recycled content (Post consumer and Pre consumer) of each material provided in percentages~~

~~PRC_M (percent) =
Weight of material (percent) x RC_M (percent)~~
(Equation A5.4-10)

~~Weight of material (percent) =
[Weight of material (lbs) ÷ Weight of assembly (lbs)] x 100~~
(Equation A5.4-11)

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

~~Method 2: Recycled content (Post consumer and Pre consumer) provided in pounds~~

~~PRC_M (percent) =
[RC_M (lbs) ÷ Weight of material (lbs)] x 100~~
(Equation A5.4-12)

~~RC_M (lbs) =
Post consumer content (lbs) + (1/2) Pre consumer content (lbs)~~
(Equation A5.4-13)

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

~~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.~~

~~A5.406.1.2 Reduced maintenance. Select materials that require little, if any, finishing. For those with surface protection, choose materials that do not require frequent applications of toxic or~~

~~malodorous finishes.~~

~~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 — Tier 1....~~

~~A5.408.3.1.1 Enhanced construction waste reduction — Tier 2 [BSC]. Enhanced construction waste reduction (80 percent) [DSA-SS]. Divert to recycle or salvage at least 80% of non-hazardous construction waste generated at the site.~~

~~A5.408.3.1.2 Verification of compliance. A copy of the completed waste management report or documentation of certification of the waste management company utilized shall be provided.~~

~~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.~~
- ~~3. Demolition waste meeting local ordinance or calculated in consideration of local recycling facilities and markets, where demolition of an existing structure(s) is necessary for the construction of a new structure.~~

~~SECTION A5.409 LIFE CYCLE ASSESSMENT~~

~~A4.409.1 General. Life cycle assessment shall be ISO 14044 compliant. The service life of the building and materials assemblies shall not be less than 60 years unless designated in the construction documents as having a shorter service life as approved by the enforcing agency.~~

~~A5.409.2 Whole building life cycle assessment. Conduct a whole building life assessment, including operating energy, showing that the building project achieves at least a 10 percent improvement for at least three of the impacts listed in Section A5.409.2.2, one of which shall be climate change, compared to a reference building of similar size, function, complexity and operating energy performance, and meeting the 2010 California Energy Code at a minimum.~~

~~A5.409.2.1 Building components. The building envelope, structural elements, including footings and foundations, interior ceilings, walls, and floors; and exterior finishes shall be considered in the assessment.~~

~~Exceptions:~~

- ~~1. Plumbing, mechanical and electrical systems and controls; fire and smoke detection and alarm systems and controls; and conveying systems.~~
- ~~2. Interior finishes are not required to be included.~~

Notes:

- ~~1. Software for calculating whole building life cycle assessments includes those found at the Athena Institute website (Impact Estimator software), the PE International website (GaBi software), and the PRe Consultants website (SimaPro software).~~
- ~~2. Interior finishes, if included, may be assessed using the NIST BEES tool.~~

~~A5.409.2.2 Impacts to be considered. Select from the following impacts in the assessment:~~

- ~~1. Climate change (greenhouse gases)~~
- ~~2. Fossil fuel depletion~~
- ~~3. Stratospheric ozone depletion~~
- ~~4. Acidification of land and water sources~~
- ~~5. Eutrophication~~
- ~~6. Photochemical oxidants (smog)~~

~~A5.409.3 Materials and system assemblies [DSA-SS]. If whole building analysis of the project is not elected, select a minimum of 50 percent of materials or assemblies based on life cycle assessment of at least three for the impacts listed in Section A5.409.2.2, one of which shall be climate change.~~

~~Note: Software for calculating life cycle assessments for assemblies and materials may be found at the Athena Institute web site and the NIST BEES web site.~~

~~SECTION A5.410 BUILDING MAINTENANCE AND OPERATION~~

~~A5.410.3 Commissioning [DSA-SS]. 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 or owner representative's project requirements. Commissioning shall be performed in accordance with this section by trained personnel with experience on projects of comparable size and complexity. Commissioning requirements shall include:~~

- ~~1. Owner's or owner representative's project requirements~~
- ~~2. Basic design~~
- ~~3. Commissioning measures shown in the construction documents~~
- ~~4. Commissioning plan~~
- ~~5. Functional performance testing~~
- ~~6. Documentation and training~~
- ~~7. Commissioning report~~

Exceptions:

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

~~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.~~

~~A5.410.3.1 Owner's or owner representative's Project Requirements (OPR). The expectations and requirements of the building appropriate to its phase shall be documented before the design phase of the project begins. At a minimum, this documentation shall include the following:~~

1. ~~Environmental and sustainability goals.~~
2. ~~Energy efficiency goals.~~
3. ~~Indoor environmental quality requirements.~~
4. ~~Project program, including facility functions and hours of operation, and need for after house operation.~~
5. ~~Equipment and systems expectations.~~
6. ~~Building occupant and operation and maintenance O&M personnel expectations.~~

~~A5.410.3.2 Basis of Design (BOD). A written explanation of how the design of the building systems meets the OPR shall be completed at the design phase of the building project. 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.~~
5. ~~Landscape irrigation systems.~~

~~A5.410.2.3 Commissioning plan. Prior to permit issuance a commissioning plan shall be completed to document how the project will be commissioned. The commissioning plan shall include the following:~~

1. ~~General project information~~
2. ~~Commissioning goals~~

- ~~3. Systems to be commissioned. Plans to test systems and components shall include at a minimum:
 - ~~a. An 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 and responsibilities. Plans for the completion of commissioning shall be included.~~

~~A5.410.3.4 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.~~

~~A5.410.3.5 Documentation and training. A systems manual and systems operations training are required, including Occupational Safety and Health Act (OSHA) requirements in California Code of Regulations (CCR), Title 8, Section 5142, and other related regulations.~~

~~A5.410.3.5.1 Systems manual. Documentation of the operational aspects of the building shall be completed within the systems manual and delivered to the building owner or representative. The systems manual shall include the following:~~

- ~~1. Site Information, including facility description, history and current requirements.~~
- ~~2. Site contact information.~~
- ~~3. Basic Operations and Maintenance, including general site operating procedures, basic troubleshooting, recommended maintenance requirements, site events log~~
- ~~4. Major Systems.~~
- ~~5. Site Equipment Inventory and Maintenance Notes.~~
- ~~6. A copy of all special inspection verifications required by the enforcing agency or this code.~~

~~A5.410.3.5.2 Systems operations training. A program for training of the appropriate maintenance staff for each equipment type and/or system shall be developed and documented in the commissioning report and shall include the following:~~

- ~~1. System/Equipment overview (what it is, what it does and what other systems and/or equipment it interfaces).~~

- ~~2. Review and demonstration of servicing/preventive maintenance.~~
- ~~3. Review of the information in the systems manual.~~
- ~~4. Review of the record drawings on the system/equipment.~~

~~A5.410.3.6 Commissioning report. A report of commissioning process activities undertaken through the design and construction phases of the building project shall be completed and provided to the owner or representative.~~

~~A5.410.4 Testing and adjusting [DSA-SS]. Testing and adjusting of systems shall be required for buildings less than 10,000 square feet.~~

~~A5.410.4.1 Reserved~~

~~A5.410.4.2 Systems. Develop a written plan of procedures for testing and adjusting systems. Systems to be included for testing, and adjusting and balancing shall include the following, 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~~
- ~~5. Landscape irrigation systems~~

~~A5.410.4.3 Procedures. Perform testing and adjusting procedures in accordance with manufacturer's specifications and applicable national standards on each system.~~

~~A5.410.4.3.1 HVAC balancing. In addition to testing and adjusting, before a new space-conditioning system serving a building or space is operated for normal use, balance the system in accordance with the procedures defined by the Testing Adjusting and Balancing Bureau National Standards; the National Environmental Balancing Bureau Procedural Standards; or Associated Air Balance Council National Standards or as approved by the enforcing agency.~~

~~A5.410.4.4 Reporting. After completion of testing, adjusting and balancing, provide a final report of testing signed by the individual responsible for performing these services.~~

~~A5.410.4.5 Operation and maintenance (O & M) manual. Provide the building owner or representative with detailed operating and maintenance instructions and copies of guaranties/warranties for each system, O & M instructions shall be consistent with OSHA requirements in CCR, Title 8, Section 5142 and other related regulations~~

~~A5.410.4.5.1 Inspections and reports. Include a copy of all inspection verifications and reports required by the enforcing agency.~~

CALIFORNIA GREEN BUILDING STANDARDS CODE—MATRIX ADOPTION TABLE
APPENDIX A5 - NONRESIDENTIAL VOLUNTARY MEASURES
DIVISION A5.5 ENVIRONMENTAL QUALITY

Adopting Agency	DSA-SS	
Adopt entire CA chapter		
Adopt entire chapter as amended (amended sections listed below)		
Adopt only those sections that are listed below	✗	Repeal - Appendix A5.5, in its entirety, the DSA-SS <i>CALGreen</i> Code measures. See changes made to Section 306 for an explanation of the use of Appendix A5 as a guideline for Public Schools and Community Colleges
Chapter / Section		
A5.501.1	✗	
A5.502.1 Definitions	✗	
A5.504.1	✗	
A5.504.1.1, Items 1 – 4	✗	
A5.504.1.2	✗	
A5.504.2	✗	
A5.504.4.5.1	✗	
A5.504.4.7	✗	
A5.504.4.8	✗	
A5.504.4.8.1	✗	
A5.504.4.9	✗	
A5.504.5	✗	
A5.504.5.1	✗	
A5.504.5.2	✗	
A5.504.5.3.1	✗	
Table A504.8.5	✗	
A5.507.1 and subsections	✗	
A5.507.2	✗	
A5.507.3 and subsections	✗	
A5.507.5	✗	

[Repeal - Appendix A5.5, in its entirety, the DSA-SS *CALGreen* Code measures. See changes made to Section 306 for an explanation of the use of Appendix A5 as a guideline for Public Schools and Community Colleges.]

APPENDIX A5
NONRESIDENTIAL VOLUNTARY MEASURES

~~Division A5.5—ENVIRONMENTAL QUALITY~~

~~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. [DSA-SS] 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) BASED RESINS. Resins 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. See CCR, Title 17, Section 93120.1(a).~~

~~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. See CCR, Title 17, Section 93120.1(a).~~

~~SECTION A5.504
POLLUTANT CONTROL~~

~~A5.504.1 Indoor air quality (IAQ) during construction [DSA-SS]. 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 (Requirements For Ventilation) 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. 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.~~

- ~~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 percent based on ASHRAE 52.1 1992. Replace all filters immediately prior to occupancy.~~
- ~~4. During dust-producing operations, protect supply and return HVAC system openings from dust.~~

~~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 CGR, 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 evidence of mold, mildew or moisture infiltration.~~
- ~~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.~~

~~A5.504.2 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 percent. 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 air must total the equivalent of 14 days of maximum outdoor air. The equivalent of 14 days of maximum outdoor air (the target air volume) shall be calculated by multiplying the maximum feasible air flow rate (in ft³/m) by 14 days (20,160 minutes). The air volumes for each period of ventilation are then calculated and summed and the flush out continues until the total equals the target air volume.~~

~~A5.504.4.5.1 Early compliance with formaldehyde limits, Tier 1 [BSC]. Early compliance with formaldehyde limits [DSA-SS]. Meet the requirements contained in Table A5.504.8.5 before the compliance dates.~~

~~A5.504.4.5.2 No added formaldehyde, Tier 2. Use composite wood products approved by the California Air Resources Board (ARB) as no added formaldehyde (NAF) based resins or ultra low emitting formaldehyde (ULEF) resins.~~

~~Notes:~~

~~1. For Tier 2 requirements, see Title 17, Section 93120.3(e) and (d), respectively.~~

~~2. Documentation must be provided verifying that materials are certified to meet the pollutant emission limits. A list of manufacturers and their NAF and ULEF certified materials is provided at:
http://www.arb.ca.gov/toxics/compwood/naf_ulef/listofnaf_ulef.htm~~

~~[DSA-SS] Where complying composite wood product is readily available for nonresidential occupancies, meet requirements before the compliance dates indicated in Table A5.504.8.5 or use composite wood products made with either CARB approved no added formaldehyde (NAF) resins or CARB approved ultra low emitting formaldehyde (ULEF) resins.~~

~~A5.504.4.7 Resilient flooring systems, Tier 1 [BSC]. Resilient flooring systems [DSA-SS]. For 80 percent 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 the High Performance Products Database; products compliant with CHPS criteria certified under the Greenguard Children & Schools program; certified under the Resilient Floor Covering Institute (RFCI) FloorScore program; or meet California Department of Public Health 2010 Standard Method for the testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources using Environmental Chambers, Version 1.1, February 2010 (also known as Specification 01350.)~~

~~A5.504.4.8 Thermal insulation, Tier 1 [BSC]. Thermal insulation [DSA-SS]. Comply with the following standards:~~

- ~~1. Chapters 12-13 (Standards For Insulating Material) in Title 24, Part 12, the California Referenced Standards Code~~
- ~~2. The VOC emission limits defined in 2009 CHPS criteria and listed on its High Performance Products Database.~~
- ~~3. California Department of Public Health 2010 Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from indoor Sources Using Environmental Chambers, Version 1.2, February 2010 (also known as Specification 01350.)~~

~~A5.504.4.8.1 Thermal insulation, Tier 2 [BSC]. Thermal insulation, No-Added Formaldehyde, [DSA-SS]. Install thermal insulation which complies with Tier 1 plus does not contain any added formaldehyde.~~

~~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 CHPS criteria and listed on its High Performance Products Database.~~

~~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 11.~~

TABLE A5.504.8.5
FORMALDEHYDE LIMITS¹
Maximum formaldehyde emissions in parts per million.

Product	Current Limit	Jan 1, 2012	July 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 ²	0.21	0.13	

¹ 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 E 1333-96 (2002). For additional information, see California Code of Regulations, Title 17, Sections 93120 through 93120.12.

² Thin medium density fiberboard has a maximum thickness of eight millimeters.

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 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 day lighting 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 (Requirements for Ventilation) 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 day lit spaces as required for top lighting and side lighting 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 photo sensors to turn off electric lighting when daylight is sufficient.~~
- ~~4. Not using diffuse day lighting 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 Acoustical control. [DSA-SS] Public Schools and Community Colleges unoccupied, furnished classrooms must have a maximum background noise level of no more than 45 dBA LAeq, and a maximum (unoccupied, furnished) reverberation of 0.6 second time for classrooms with less than 10,000 cubic feet and a maximum (unoccupied, furnished) reverberation of 0.7 second time for classroom volumes with between 10,000 cubic feet and 20,000 cubic feet.~~

CALIFORNIA GREEN BUILDING STANDARDS CODE -- MATRIX ADOPTION TABLE
 APPENDIX A5 – NONRESIDENTIAL VOLUNTARY MEASURES
 DIVISION A5.6 – VOLUNTARY TIERS

Adopting Agency	DSA-SS	COMMENTS
		DSA-SS is not proposing adoption of Division A5.6 (Voluntary Tiers)
Adopt entire CA chapter		
Adopt entire chapter as amended (amended sections listed below)		
Adopt only those sections that are listed below		
Chapter / Section		

CALIFORNIA GREEN BUILDING STANDARDS CODE -- MATRIX ADOPTION TABLE
 APPENDIX A6 -- REFERENCED STANDARDS

Adopting Agency	DSA-SS	COMMENTS
		DSA-SS is not proposing adoption of Appendix A6
Adopt entire CA chapter		
Adopt entire chapter as amended (amended sections listed below)		
Adopt only those sections that are listed below		
Chapter / Section		

Notation

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

Reference(s): Education Code Sections 17310 and 81142.