

# 2013 CALIFORNIA GREEN BUILDING STANDARDS CODE

### Instructions:

This checklist is to be used on an individual project basis and may be modified by the applicant to meet the needs of their specific project. The applicant shall strike out those sections that are not applicable to their project. The applicant and property owner assume all responsibility associated with the use of this document.

**2013 CGC 301.3 Nonresidential additions and alterations.** [BSC] The provisions of individual sections of Chapter 5 apply to newly constructed buildings, building additions of 1,000 square feet or greater, and/or building alterations with a permit valuation of \$200,000 or above (for occupancies within the authority of California Building Standards Commission). Code sections relevant to additions and alterations shall only apply to the portions of the building being added or altered with the scope of the permitted work.

## CHAPTER 5 NONRESIDENTIAL MANDATORY MEASURES

### DIVISION 5.1 PLANNING AND DESIGN

#### SECTION 5.101 Scope

##### 5.101 Purpose

The provisions of this chapter outline planning, design and development methods that include environmentally responsible site selection, building design, building design 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 terms are defined in Chapter 2.

##### CUTOFF LUMINAIRES.

##### LOW-EMITTING AND FUEL EFFICIENT VEHICLES.

##### NEIGHBORHOOD ELECTRIC VEHICLE (NEV).

##### TENANT-OCCUPANTS.

##### VANPOOL VEHICLE.

##### ZEV.

(REFER TO <SHEET><DETAIL><SPECIFICATION>\_\_\_\_\_)

#### SECTION 5.103 SITE SELECTION (Reserved)

#### SECTION 5.104 SITE PRESERVATION (Reserved)

#### SECTION 5.105 SITE DECONSTRUCTION AND REUSE OF EXISTING STRUCTURES (Reserved)

#### SECTION 5.106 SITE DEVELOPMENT

##### 5.106.1 STORM WATER POLLUTION PREVENTION PLAN

Newly constructed projects and additions which disturb less than one acre of land shall prevent the pollution of stormwater runoff from the construction activities through one or more of the following measures:

**5.106.1.1 LOCAL ORDINANCE.** Comply with a lawfully enacted stormwater management and/or erosion control ordinance.

**5.106.1.2 BEST MANAGEMENT PRACTICES (BMP).** Prevent the loss of soil through wind or water erosion by implementing an effective combination of erosion and sediment control and good housekeeping BMP.

1. Soil loss BMP that should be considered for implementation as appropriate for each project include, but are not limited to, the following:

- Scheduling construction activity.
- Preservation of natural features, vegetation and soil.
- Drainage swales or lined ditches to control stormwater flow.
- Mulching or hydros seeding to stabilize disturbed soils.
- Erosion control to protect slopes.
- Protection of storm drain inlets (gravel bags or catch basin inserts).
- Perimeter sediment control (perimeter silt fence, fiber rolls).
- Sediment trap or sediment basin to retain sediment on site.
- Stabilized construction exits.
- Wind erosion control.
- Other soil loss BMP acceptable to the enforcing agency.

2. Good housekeeping BMP to manage construction equipment, materials and wastes that should be considered for implementation as appropriate for each project include, but are not limited to, the following:

- Material handling and waste management.
- Building materials stockpile management.
- Management of washout areas (concrete, paints, stucco, etc.).
- Control of vehicle/equipment fueling to contractor's staging area.
- Vehicle and equipment cleaning performed off site.
- Spill prevention and control.
- Other housekeeping BMP acceptable to the enforcing agency.

(REFER TO <SHEET><DETAIL><SPECIFICATION>\_\_\_\_\_)

**5.106.4 BICYCLE PARKING.** For buildings within the authority of California Building Standards Commission as specified in Section 103, comply with Section 5.106.4.1. For buildings within the authority of the Division of the State Architect pursuant to Section 105, Comply with Section 5.106.4.2.

**5.106.4.1 Bicycle Parking [BSC].** Comply with Sections 5.106.4.1.1 and 5.106.4.1.2; or meet the applicable local ordinance, whichever is stricter.

- 5.106.4.1.1 Short-term bicycle parking [BSC].** If the new project or an addition or alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrances, readily visible to passers-by, for 5 percent of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack.

**Exception:** Additions or alterations which add nine or less visitor vehicular parking spaces.

**5.106.4.1.2 Long-term bicycle parking.** For new buildings with over 10 tenant-occupants or for additions or alterations that add 10 or more tenant vehicular parking spaces, provide secure bicycle parking for 5 percent of the tenant vehicular parking spaces being added, with a minimum of one space. Acceptable parking facilities shall be convenient from the street and shall meet one of the following:

- Covered, lockable enclosures with permanently anchored racks for bicycles;
- Lockable bicycle rooms with permanently anchored racks; or
- Lockable, permanently anchored bicycle lockers.

**Note:** Additional information on recommended bicycle accommodations may be obtained from Sacramento Area Bicycle Advocates.

(REFER TO <SHEET><DETAIL><SPECIFICATION>\_\_\_\_\_)

**5.106.5.2 Designated Parking.** In new project or additions or alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as follows:

#### Table 5.106.5.2

TOTAL NUMBER OF PARKING SPACES	NUMBER OF REQUIRED SPACES
0 - 9	0
10 - 25	1
26 - 50	3
51 - 75	5
76 - 100	8
101 - 150	11
151 - 200	16
201 and over	At least 8 percent of total

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

CLEAN AIR/  
VANPOOL/EV

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

(REFER TO <SHEET><DETAIL><SPECIFICATION>\_\_\_\_\_)

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

- The minimum requirements in the California Energy Code for Lighting Zones 1-4 as defined in Chapter 10 of the California Administrative Code; and
- Backlight, Uplight and Glare (BUG) ratings as defined in IES TM-15-11; and
- 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.

Exception: [N]

- Luminaires that qualify as exceptions in Section 140.7 of the California Energy Code.
- 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 CLARE (BUG) RATINGS <sup>1,2</sup>

Allowable Rating	Lighting Zone 1	Lighting Zone 2	Lighting Zone 3	Lighting Zone 4
	Maximum Allowable Backlight Rating <sup>3</sup>	No limit	No limit	No limit
Luminaire greater than 2 mounting heights (MH) from property line	B2	B3	B4	B4
Luminaire back hemisphere is 1-2 MH from property line	B1	B2	B3	B3
Luminaire back hemisphere is 0.5-1 MH from property line	B0	B0	B1	B2
Luminaire back hemisphere is less than 0.5 MH from property line	B0	B0	B1	B3
<b>Maximum Allowable Uplight Rating</b>				
For area lighting <sup>4</sup>	U0	U0	U0	U0
For all outdoor lighting, including decorative luminaires	U1	U2	U3	U4
<b>Maximum Allowable Glare Rating <sup>5</sup></b>				
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 purposes 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 area 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.

(REFER TO <SHEET><DETAIL><SPECIFICATION>\_\_\_\_\_)

**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:

- Swales.
- Water collection and disposal systems.
- French drains.
- Water retention gardens.
- Other water measures which keep surface water away from buildings and aid in groundwater recharge.

**Exception:** Additions and alteration not altering the drainage path.

(REFER TO <SHEET><DETAIL><SPECIFICATION>\_\_\_\_\_)

### DIVISION 5.2 ENERGY EFFICIENCY

#### 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.

### DIVISION 5.3 WATER EFFICIENCY AND CONSERVATION

#### SECTION 5.301 GENERAL

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

#### SECTION 5.302 DEFINITIONS

**5.302.1 Definitions.** The following terms are defined in Chapter 2

##### GRAYWATER.

##### MODEL WATER EFFICIENT LANDSCAPE ORDINANCE (MWELO).

##### POTABLE WATER.

##### RECYCLED WATER.

##### SUBMETER.

##### WATER BUDGET.

#### SECTION 5.303 INDOOR WATER USE

**5.303.1 Meters.** Separate submeters or metering devices shall be installed for the uses described in Sections 5303.1.1 and 503.1.2.

**5.303.1.1 New Buildings or additions in excess of 50,000 square feet.** Separate submeters shall be installed as follows:

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

**5.303.1.2 Excess consumption.** A separate submeter or metering device shall be provided for any tenant within a new building or within an addition that is projected to consume more than 1,000 gal/day.

**5.303.2 Water reduction.** Plumbing fixtures shall meet the maximum flow rate shown in Table 5.303.2.3

**Exception:** Buildings that demonstrate 20-percent overall water use reduction. In this case, a calculation demonstrating a 20-percent reduction in the building "water use baseline," as established in Table 5.303.2.2, shall be provided.

**5.303.2.1 Areas of addition or alteration.** For those occupancies within the authority of the California Building Standards Commission as specified in Section 103, the provisions of Section 5.303.2 and Section 5.303.3 shall apply to new fixtures in additions or areas of alteration to the building.

**5.303.3 Water conserving plumbing fixtures and fittings.** Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:

**5.303.3.1 Water closets.** The effective flush volume of all water closets shall not exceed 1.28 gallons per flush. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-Type Toilets.

**Note:** The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.

**5.303.3.2 Urinals.** The effective flush volume of urinals shall not exceed 0.5 gallons per flush.

#### 5.303.3.3 Showerheads.

**5.303.3.3.1 Single showerhead.** Showerheads shall have a maximum flow rate of not more than 2.0 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specifications for Showerheads.

**5.303.3.3.2 Multiple showerheads serving one shower.** When a shower is served by more than one showerhead, the combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 2.0 gallons per minute at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operation at a time.

**Note:** A hand-held shower shall be considered a showerhead.

Table 5.303.2.3 - WATER REDUCTION FIXTURE FLOW RATES

FIXTURE TYPE	MAXIMUM FLOW RATE
Kitchen faucets	1.8 gpm @ 80 psi
Wash fountains	1.8 fpm space (in 120 gpm @ 60 psi)
Metering faucets	0.20 gallons/cycle
Metering faucets for wash wash fountains	20 fpm space (in 120 gpm @ 60 psi)

Table 5.303.2.2 - WATER USE BASELINE <sup>1</sup>

FIXTURE TYPE	BASELINE FLOW RATE	DURATION	DAILY USES	OCCUPANTS
Showerheads	2.0 gpm @ 80 psi	5 min.	1	X <sup>2</sup>
Lavatory faucets, nonresidential	0.5 gpm @ 60 psi	25 min.	3	X
Kitchen faucets	2.2 gpm @ 80 psi	4 min.	1	X
Reciprocating aerators	2.2 gpm @ 60 psi			X
Wash fountains	2.2 fpm space (in 120 gpm @ 60 psi)			X
Metering faucets	0.25 gallons/cycle	25 min.	3	X
Metering faucets for wash fountains	25 fpm space (in 120 gpm @ 60 psi)	25 min.		X
Gravily tank-type water closets	1.28 gallons/flush	1 flush	1 male <sup>1</sup> 3 female	X
Flushometer tank water closets	1.28 gallons/flush	1 flush	1 male <sup>1</sup> 3 female	X
Flushometer valve water closets	1.28 gallons/flush	1 flush	1 male <sup>1</sup> 3 female	X
Electromechanical hydraulic water closets	1.28 gallons/flush	1 flush	1 male <sup>1</sup> 3 female	X
Urinals	0.5 gpm 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 occupants load factors.

a. Shower use by occupants depends on the type of use of a building or portion of a building, e.g., retail, health care, or educational facility, but only a fraction of the occupants in an office building as determined by the anticipated number of users.

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

3. Use Worksheet WS-1 to calculate baseline water use.

(REFER TO <SHEET><DETAIL><SPECIFICATION>\_\_\_\_\_)

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

1. [BSC, DSA-SS] The installation of water-conserving fixtures (water closets, urinals) meeting the criteria established in Sections 5.303.2 or 5.303.3.

2. [BSC] Utilizing nonpotable water systems (captured rainwater, graywater, and municipally treated wastewater (recycled water) complying with the current edition of the or other methods described in Section A5.304.8).

**5.303.6 Standards for plumbing fixtures and fittings.** Plumbing fixtures and fittings shall 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.

#### SECTION 5.304 OUTDOOR WATER USE

**5.304.1 Water budget.** A water budget shall be developed for landscape irrigation use that installed in conjunction with a new building or an addition or alteration conforms to the local water efficient landscape ordinance or 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 Section 492.5 through 492.8, 492.10 and 492.11 of the ordinance, which may be found at <http://www.water.ca.gov/wateruseefficiency/docs/WaterOrdSec492.cfm>.

**5.304.2 Outdoor potable water use.** For new water service or for addition or alteration requiring upgraded water service for landscaped areas of at least 1,000 square feet but not more than 5,000 square feet (the level at which Water Code 535 applies), separate submeters or metering devices shall be installed for outdoor potable water use.

**5.304.2 Irrigation design.** In new nonresidential construction or building addition or alteration with a least 1,000 but not more than 2,500 square feet of cumulative landscaped area (the level at which the MWELO applies), install irrigation controllers and sensors which include the following criteria, and meet manufacturer's recommendations:

**5.304.3.1 Irrigation controllers.** Automatic irrigation system controllers installed at the time of final inspection shall comply with the following:

- Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in 31 response to changes in plants' needs as weather conditions change.
- Weather-based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s). Soil moisture-based controllers are not required to have rain sensor input.

**Note:** More information regarding irrigation controller function and specifications is available from the Irrigation Association

(REFER TO <SHEET><DETAIL><SPECIFICATION>\_\_\_\_\_)

### 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 and adjusting.

#### SECTION 5.402 DEFINITIONS

**5.402.1 Definitions.** The following terms are defined in Chapter 2.

##### ADJUST.

##### BALANCE.

##### BUILDING COMMISSIONING.

##### TEST.

(REFER TO <SHEET><DETAIL><SPECIFICATION>\_\_\_\_\_)

#### 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 nonabsorbent floor and wall finishes within at least 2 feet around and perpendicular to such openings plus at least one of the following:

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

**5.407.2.2.2 Flashing.** Install flashings integrated with a drainage plane.

(REFER TO <SHEET><DETAIL><SPECIFICATION>\_\_\_\_\_)

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

**5.408.1 Construction waste management.** Recycle and/or salvage or reuse a minimum of 50 percent of the nonhazardous 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:

- 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.
- Determines if construction and demolition waste materials will be sorted on-site (source separated) or bulk mixed (single stream).
- Identifies diversion facilities where construction and demolition waste materials collected will be taken.
- 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 Section 5.408.1.1 and 5.408.1.2:
- Excavated soil and land-clearing debris.
  - Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist.
  - Demolition waste meeting local ordinance or calculated in consideration of local recycling facilities and markets.

**5.408.1.3 Waste stream reduction alternative.** The combined weight of new construction disposal that does not exceed two pounds per square foot 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 Section 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:

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

**5.408.3 Excavated soil and land clearing debris [BSC].** 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed.

**Exception:** Reuse, either on- or off-site, of vegetation or soil contaminated by disease or pest infestation.

##### Notes:

- If contamination by disease or pest infestation is suspected, contact the County Agricultural Commissioner and follow its direction for recycling or disposal of the material. ([www.cdffa.ca.gov/exec/county/county\\_contacts.html](http://www.cdffa.ca.gov/exec/county/county_contacts.html))
- For a map of know pest and/or disease quarantine zones, consult with the California Department of Food and Agriculture. ([www.cdffa.ca.gov](http://www.cdffa.ca.gov))