



**Contractors Guide to the understanding the mandatory
CalGreen Building Code**

Code effective January 1st 2011



In a joint effort, the Redwood Coast Energy Authority and PLAN IT GREEN have developed a simple guide to the new California Green Building Code for Humboldt County. The contents of this packet have been organized to help local builders, engineers, architects, officials, and individuals or entities involved in the local building industry. The goal of this guide is to simplify the new mandatory Cal Green codes and to offer assistance in understanding and implementing these new codes.

****Notes: CalGreen became effective January 1st 2011, with portions not effective until July 2011.***

CalGreen only applies to NEW residential and commercial construction at this time.

We highly recommended reading the entire 2010 CalGreen Code. It can be found on the State of California's Green Building Codes Commission Page at <http://www.bsc.ca.gov/CALGreen/default.htm>

This document is the 11th of 12 parts and is the official publication of adoptions, amendments and repeal to the California Code of Regulations, Title 24, also referred to as the California Building Standards Code. This section is known as the California Green Building Standards Code, and it is intended that it shall also be known as the CALGreen Code.

The California Building Standards Code is published in its entirety every three years by order of the California Legislature. The California Legislature delegated authority to various State agencies, boards, commissions and departments to create building regulations. These building regulations or standards have the same force of law, and take effect 180 days after their publication unless otherwise stated. The California Building Standards Code applies to all occupancies in the State of California.

A city and/or county may establish more effective or more restrictive standards as they see reasonably necessary due to local climatic, geological, or topographical conditions. For the purpose of this code, these conditions include local environmental conditions as established by a city and/or county. Findings of the local conditions and the corresponding adapted local building standard(s) must be filed with the California Building Standards Commission to become effective.

The 2010 California Green Building Standards Code was developed through the outstanding collaborative efforts of the Department of Housing and Community Development, the Division of State Architect, the Office of the State Fire Marshal, the Office of Statewide Health Planning and Development, the California Energy Commission and the Building Standards Commission.

The following forms are included in this guide along with additional blank Contractor Signature forms:

- * Erosion and Sediment Control Plan
- * Fixture flow rates
- * Baseline water usage
- * Water use Reduction Calculation Table
- * Irrigation Controller
- *Waste Management
- * Certification of Duct Coverings
- * VOC limits of Finish Materials (Adhesives and Sealants, Architectural Coatings, Flooring, and Composite Wood Products)

2010 CALIFORNIA GREEN BUILDING STANDARDS CODE

The following is a brief summary of some of the more significant requirements found in the new
2010 CALGreen Code, effective as of January 1, 2011.

All of the information listed here is for the residential portion of the code.

Section 4.1 - Planning and Design

4.106.2 Site Development – Management of storm water drainage and retention during construction is required for all projects disturbing less than 1 acre. (Those projects disturbing more than 1 acre will continue to be subject to NPDES requirements.) Measures shall be implemented to prevent flooding of adjacent property, prevent erosion, and retain soil runoff on the site. This shall be accomplished by one of the following methods:

- 1) On-site retention basins.
- 2) Where storm water is conveyed to a public drainage system, water shall be filtered by a barrier system, wattles, etc approved by the jurisdiction.
- 3) Compliance with a legal Storm Water Management Ordinance

4.106.3 Surface Drainage – The site shall be planned and developed to prevent surface water from entering buildings. Plans shall show grading/drainage requirements and identify swales, drains, retention basins, etc.

******Erosion and Sediment Control Plan* Documentation Form required.
See Supporting Documents*****

Section 4.2 - Energy Efficiency

4.201.1 Scope – Department of Housing and Community Development (HCD) does not regulate mandatory energy standards in residential buildings. The California Energy Commission will continue to adopt mandatory building standards. The CEC believes a green building should achieve at least a 15 percent reduction in energy usage when compared to the State's mandatory energy efficiency standards. However there are no mandatory requirements beyond the CEC's.

Section 4.3 – Water Efficiency and Conservation

Indoor Water Use

4.303.1 Twenty Percent Savings – A schedule of plumbing fixtures and fittings that reduces the overall use of potable water within the building by at least 20 percent shall be provided. The reduction is based on the maximum allowable water use per plumbing fixture per the California Building Standards Code. This shall be demonstrated by one of the following methods:

1) **Prescriptive Method** – Each plumbing fixture shall meet the flow rates specified in table 4.303.2

*****Worksheet (WS-4) Fixture Flow Rates.** See Supporting Documents ***

2) **Performance Method** – Provide calculations demonstrating a 20% reduction in the building “water use” baseline established in Table 4.303.1. For low rise residential occupancies, the calculations need only include water closets, urinals, lavatory faucets and showerheads.

*****Worksheet (WS-1) Baseline Water Use.** See Supporting Documents.

The Worksheets for 20%, 30%, 35%, and 40% Reductions are also included ***

4.303.3 Plumbing Fixtures and Fittings - Plumbing fixtures and fittings shall meet the standards listed in Table 4.303.3, which references US EPA WaterSense label that could be used to meet the 20% reduction criteria.

Outdoor Water Use

4.304.1 Irrigation Controllers - Automatic irrigation system controllers for landscaping provided by the builder and installed at the time of final shall comply with the following:

1) Controller shall be weather –or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants’ needs as weather conditions change.

2) 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 communicate with the controller(s). Soil Moisture-based controllers are not required to have rain sensor input.

*****Irrigation Controller Self Certification Form** required. See Supporting Documents***

Section 4.4- Material Conservation and Resource Efficiency

Enhanced Durability and Reduced Maintenance

4.406.1 Joints and Openings - Openings in the building envelope separating conditioned space from unconditioned space needed to accommodate gas, plumbing, electrical cables, conduits, and other necessary penetrations must be sealed in compliance with the California Energy Code.

Exception: Annular space around pipes, electric cables, conduits, or other openings in plates at exterior walls shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry or similar method acceptable to the enforcing agency.

Construction Waste Reduction, Disposal and Recycling

4.408.1 Construction waste reduction of at least 50 percent - Recycle and/or salvage for reuse a minimum of 50 percent of the non-hazardous construction and demolition debris, or meet a local construction and demolition waste management ordinance, whichever is more stringent.

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 or are not located reasonable close to the jobsite.

4.408.2 Construction Waste Management Plan - Where a local jurisdiction does not have a construction and demolition waste management ordinance, a construction waste management plan shall be submitted for approval to the enforcing agency that:

- 1) Identifies the materials to be diverted from disposal by recycling, reuse on the project or salvage for future use or sale.
- 2) Specifies if materials will be sorted on-site or mixed for transportation to a diversion facility.
- 3) Identifies the diversion facility
- 4) Identifies construction methods used to reduce the amount of waste generated.
- 5) Specifies that the amount of materials diverted will be calculated by weight or volume, but not by both.

4.408.2.1 Documentation - Documentation shall be provided to the enforcing agency to demonstrate compliance. The management plan shall be updated accordingly and made accessible to the enforcing agency. Forms and worksheets are available in CalGreen to assist in demonstrating compliance.

*****A Construction Waste Management Plan is REQUIRED. See Supporting Documents.**

Included are sample forms to assist in documenting compliance
with waste management plan***

Building Maintenance and Operation

4.410.1 Operation and Maintenance Manual – At the time of final inspection, a manual, compact disc, web-based reference or other media acceptable to the enforcing agency that includes all of the following shall be placed in the building.

- 1) Direction to the owner or occupant that the manual shall remain with the building throughout the life cycle of the structure.
- 2) Operation and maintenance instructions for the following:
 - a. Equipment and appliances, including water saving devices and systems, HVAC systems, water heating systems and other major appliances and equipment.
 - b. Roof and yard drainage, including gutters and downspouts.
 - c. Space conditioning systems including condensers and air filters.
 - d. Landscape irrigation systems.
 - e. Water re-use systems.
- 3) Information from local utility, water, and waste recovery providers on methods to further reduce resource consumption including recycling programs and locations.
- 4) Public transportation and/or carpool options available in the area.

- 5) Educational material on the positive impacts of an interior relative humidity between 30-60% and what methods an occupant may use to maintain the relative humidity in that level range.
- 6) Information about water conserving landscape and irrigation design and controller, which conserve water.
- 7) Instructions for maintaining gutters and downspouts and the importance of diverting water at least five feet away from the foundation.
- 8) Information on required routine maintenance measures including, but not limited to, caulking, painting, grading around building, etc.
- 9) Information about state solar energy and incentive programs available.
- 10) A copy of all special inspection verifications required by the enforcing agency or this code.

Section 4.5 – Environmental Quality

Fireplaces

4.503 General - Installed gas fireplaces shall be a direct-vent sealed-combustion type. All fire places shall also comply with current local regulations.

Pollutant Control

4.504.1 Covering of Duct Openings and Protection of Mechanical Equipment During Construction - During construction until start-up, duct opening and mechanical equipment shall be covered with tape, plastic, etc to reduce the amount of dust or debris which may collect in the system.

*****Self Cert for Covering the Duct Openings Before Rough Framing** Form required.
See Supporting Documents***

4.504.2 Finish Material Pollution Control – Adhesives, primers, sealants and caulks used on a project shall meet stringent air pollution control rules. Paints and coatings shall comply with VOC limits. Aerosol paints and coatings shall meet MIR limits. Verification shall be in the form of manufacturer’s specifications, or field verification of on-site product containers.

4.504.3 Carpet systems – Carpet systems (carpet, pad, adhesives) must meet specific criteria.

4.504.4 Resilient Flooring Systems - Where resilient flooring is installed, at least 50% of it shall meet specific VOC- emissions limits.

4.504.5 Composite Wood Products - Composite wood products used on the interior or exterior of the building shall meet certain requirements for formaldehyde limits.

*****Finished Material Certificate** Forms required. See Supporting Documents***

Interior Moisture Control

4.505.2 Concrete slab foundations - Concrete slab foundations shall have a vapor barrier and shall also have a capillary break in accordance with one of the following.

- 1) A 4-inch thick base of ½ inch aggregate with a vapor barrier in direct contact with concrete and a concrete mix design which will address bleeding, shrinkage, and curling.
- 2) A slab design specified by a licensed design professional.

4.505.3 Moisture Content of Building Materials - Building materials with visible signs of water damage shall not be installed. *Wall and floor framing shall not be enclosed when moisture content exceeds 19% moisture content.* Moisture content shall be verified by a probe or contact-type moisture meter in a specific manner. Wet insulation products shall be replaced or allowed to dry completely prior to enclosing.

Indoor Air Quality and Exhaust

4.506.1 Bathroom Exhaust Fans – Any bathroom with shower and/or tub will have exhaust fans that shall comply with the following:

- 1) ENERGY STAR compliant and ducted directly to the outside.
- 2) Unless functioning as a component of a whole house ventilation system, fans must be controlled by a readily accessible humidistat. Humidistat controls shall be capable of a relative humidity range between 50 to 80 percent.

Environmental Comfort

4.507.1 Openings - Whole house exhaust fans shall have insulated (R 4.2) louvers or covers, which close when the fan is off

4.507.2 HVAC System Design - HVAC systems shall be sized, designed and equipment selected using the following methods:

- 1) Heat loss and gain according to ACCA Manual J., ASHRAE, or equivalent
- 2) Duct systems sized according to ACCA 29-D Manual D., ASHRAE, or equivalent
- 3) Select heating and cooling equipment according to ACCA 36-S Manual S or equivalent

Supporting Documents

Code 4.106: Planning and Design; Site Development

Erosion and Sediment Control Plan for Small Projects

Code 4.303.1: Water Efficiency and Conservation; Indoor Water Use; Prescriptive Method Worksheet (WS-4) Fixture Flow Rates

Code 4.303.1: Water Efficiency and Conservation; Indoor Water Use; Performance Method

Worksheet (WS-1) Baseline Water Use

Code 4.303.1: Water Efficiency and Conservation; Indoor Water Use; Twenty Percent Savings

Worksheet (WS-2) 20% Reduction Water Use Calculation Table

Worksheet (WS-3) 30%, 35%, or 40% Reduction Water Use Calculation Table

Code 4.304.1: Water Efficiency and Conservation; Outdoor Water Use; Irrigation Controllers

Irrigation Controller Self Certification

Code 4.408: Material Conservation and Resource Efficiency; Construction Waste Reduction, Disposal, and Recycling

Construction Waste Management (CWM) Plan

Construction Waste Management (CWM) Worksheet

Construction Waste Management (CWM) Acknowledgment

Code 4.504.1: Environmental Quality; Pollutant Control; Covering of Duct Openings and Protection of Mechanical Equipment During Construction

Self cert for covering duct openings before rough framing inspection

Code 4.504.2: Environmental Quality; Pollutant Control; Finish Material Pollution Control

Finish Material Certificate – Adhesives & Sealants

Finish Material Certificate – Architectural Coatings

Finish Material Certificate – Flooring

Finish Material Certificate – Composite Wood Products

Erosion and Sediment Control Plan for Small Projects

1) PROJECT INFORMATION

Owner: _____ Assessor Parcel #: _____

Project Location: _____ Application #: _____

Construction Start Date: _____ Estimated Completion Date: _____

2) PROJECT ELIGIBILITY

Check all that apply:

- _____ 1. The total area of grading and related activities does not exceed 5,000 square feet.
- _____ 2. The total volume of soil material involved is less than 250 cubic yards (25 dump trucks of 10 cubic yards each).
- _____ 3. The slope of the project area does not exceed 15%.
- _____ 4. The project site does not encompass a stream channel or public drainage channel.
- _____ 5. The project does not involve grading for a driveway that exceeds 300 feet.

If you did not check all of the items above, you do not qualify for the Small Project Erosion and Sediment Control Plan, and must submit a site-specific Erosion and Sedimentation Control Plan prepared by a qualified professional (see HCC Section 331-12, H-6-d).

3) EROSION CONTROL STANDARDS

These standards shall be incorporated into the project design and adhered to during project construction:

General

- Minimize soil exposure during the rainy season by proper timing of grading and construction.
- Retain trees and natural vegetation to stabilize hillsides, retain moisture and reduce erosion.
- Divert runoff away from steep, denuded slopes or other critical areas with barriers, berms, ditches or other facilities.
- Design grading to be compatible with adjacent areas and result in minimal disturbance of the terrain and natural land features.
- Limit construction, clearing of vegetation and disturbance of the soil to areas of proven stability.
- Conduct frequent site inspections (before and after significant storm events) to ensure that control measures are working properly and to correct problems as needed.

Sediment Control

- Eliminate sediment transport off the site to the maximum extent feasible through the use of published Best Management Practices (BMPs).
- Use sediment ponds, silt traps, wattles, straw bale barriers or similar measures to retain sediment transported by runoff water onsite.
- Collect and direct surface runoff at non-erosive velocities to the common drainage courses.
- Avoid concentrating surface water anywhere except drainage courses.
- Prevent mud from being tracked onto the public roadway with gravel driveways, entrances or truck tire washing.
- Deposit or store excavated materials away from drainage courses.

Disposal of Excavated Materials

- c Stockpile topsoil on the site for use on areas to be revegetated.
- c Place stockpiled soil in locations, so that if erosion occurs, it will not contribute to offsite sediment discharge.
- c Dispose of excavated material not used at the site at a location approved by the County.

Dust Control

- c All construction areas and access roads shall be treated and maintained as necessary to minimize the emission of dust and nuisance to offsite properties.

Revegetation

- Apply temporary seeding or mulching to denuded areas for storm protection.
- Establish a permanent vegetative cover on denuded areas as soon as possible. Permanent vegetation ground cover must control erosion and survive severe weather conditions.
- Retain a vegetative barrier whenever possible around property boundaries.
- Use self-sustaining, non-invasive plants that require little or no maintenance and do not create an extreme fire hazard.
- Use native plant species whenever feasible.

4) EROSION AND SEDIMENT CONTROL MEASURES

Check all that will be used at the site to ensure compliance with Erosion and Sediment Control Standards:

- Trap sediment-laden runoff water in basins or silt traps to allow soil particles to settle out before flows are released to storm drains, streets or adjacent property.
- Silt fencing or wattles will be installed at downhill locations, five feet from the toe of stockpiles, and as necessary to retain all sediment on site.
- All temporary stockpiles will be covered with 6 mil plastic sheeting (e.g. visqueen) which is anchored suitably to prevent disruption during high wind events.
- Drainage courses will be installed to control surface water flow over cut and fill slopes and direct surface water away from stockpiles.
- Drainage courses will contain check dams to reduce drainage flow velocities and straw bale barriers and energy dissipaters at drainage outlets.
- All driveways and construction access roads shall be gravel surfaced and maintained in good condition.
- All other exposed bare ground shall be covered with mulching, jute mat or other erosion control blankets.
- Site monitoring will be conducted by the contractor/developer before and after significant rainfall events to verify that the erosion control measures are satisfactory.
- Disturbed vegetated areas will be revegetated.
- All erosion control material shall be onsite or readily accessible prior to construction for installation due to untimely wet weather.
- Other _____

I agree to comply with applicable standards and implement all of the above control measures.

Owner/Applicant Signature: _____ Date: _____

**WORKSHEET (WS-4)
FIXTURE FLOW RATES**

**DRAFT
CALGreen
Std. – BSC-5.3-X
7-16-10**

Fixture Type	Flow-rate	Maximum flow rate at 20% Reduction	Number installed	SUB-CONTR. INITIAL
Showerheads	2.5 gpm @ 80 psi	2 gpm @ 80 psi		
Lavatory Faucets Nonresidential	0.5 gpm @ 60 psi	0.4 gpm @ 60 psi		
Kitchen Faucets	2.2 gpm @ 60 psi	1.8 gpm @ 60 psi		
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 ¹		
Flushometer Tank Water Closets	1.6 gallons/flush	1.28 gallons/flush ¹		
Flushometer Valve Water Closets	1.6 gallons/flush	1.28 gallons/flush ¹		
Electromechanical Hydraulic Water Closets	1.6 gallons/flush	1.28 gallons/flush ¹		
Urinals	1.0 gallons/flush	.5 gallons/flush		

¹ Includes single and dual flush water closets with an effective flush of 1.28 gallons or.
 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.

Plumbing fixtures installed meet the requirements of Section 5.303.6.

Contractor (Documentation Author's /Responsible Designer's Declaration Statement)	
<ul style="list-style-type: none"> I certify that this Certificate of Compliance documentation is accurate and complete. I certify that the features and performance specifications for the design identified on this Certificate of Compliance conform to the requirements of Title 24, Parts 11 of the California Code of Regulations. The design features identified on this Certificate of Compliance are consistent with the information documented on other applicable compliance forms, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with the permit application. 	
Signature:	
Company:	Date:
Address:	License:
City/State/Zip:	Phone:

WORKSHEET (WS-1) BASELINE WATER USE

**DRAFT
CALGreen
Std. – BSC-5.3-X
7-16-10**

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

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

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

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

⁴ For non-residential occupancies, refer to Table A, Chapter 4, 2010 California Plumbing Code, for occupant load factors.

Contractor (Documentation Author's /Responsible Designer's Declaration Statement)	
<ul style="list-style-type: none"> • I certify that this Certificate of Compliance documentation is accurate and complete. • I certify that the features and performance specifications for the design identified on this Certificate of Compliance conform to the requirements of Title 24, Parts 11 of the California Code of Regulations. • The design features identified on this Certificate of Compliance are consistent with the information documented on other applicable compliance forms, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with the permit application. 	
Signature:	
Company:	Date:
Address:	License:
City/State/Zip:	Phone:

COMPLIANCE FORMS AND WORKSHEETS

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

20 PERCENT REDUCTION WATER USE CALCULATION TABLE								
FIXTURE TYPE	FLOW RATE (gpm) ²		DURATION		DAILY USES		OCCUPANTS ^{3,4}	GALLONS PER DAY
Showerheads		×	5 min.	×	1	×		=
Showerheads residential		×	8 min.	×	1	×		=
Lavatory faucets residential		×	.25 min.	×	3	×		=
Kitchen faucets		×	4 min.	×	1	×		=
Replacement aerators		×		×		×		=
Wash fountains		×		×		×		=
Metering faucets		×	.25 min.	×	3	×		=
Metering faucets for wash fountains		×	.25 min.	×		×		=
Gravity tank type water closets		×	1 flush	×	1 male ¹ 3 female	×		=
HET ⁵ High-efficiency toilet	1.28	×	1 flush	×	1 male ¹ 3 female	×		=
Flushometer tank water closets		×	1 flush	×	1 male ¹ 3 female	×		=
Flushometer valve water closets		×	1 flush	×	1 male ¹ 3 female	×		=
Electromechanical hydraulic water closets		×	1 flush	×	1 male ¹ 3 female	×		=
Urinals		×	1 flush	×	2 male	×		=
Urinals Nonwater supplied	0.0	×	1 flush	×	2 male	×		=
Proposed water use								=
(BWU from WS-1) × .80 =								Allowable water use

- The daily use number shall be increased to three if urinals are not installed in the room.
- The flow rate is from the CEC Appliance Efficiency Standards, Title 20 *California Code of Regulations*; where a conflict occurs, the CEC standards shall apply.
- 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 nonresidential occupancies, refer to Table A, Chapter 4, 2010 *California Plumbing Code*, for occupant load factors.
- 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 A 112.19.233.2.
 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.

Contractor (Documentation Author's /Responsible Designer's Declaration Statement)	
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Signature:	
Company:	Date:
Address:	License:
City/State/Zip:	Phone:

**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) ²		DURATION		DAILY USES		OCCUPANTS ^{3,4}	GALLONS PER DAY
Showerheads		x	5 min.	x	1	x		=
Showerheads residential		x	8 min.	x	1	x		=
Lavatory faucets residential		x	.25 min.	x	3	x		=
Kitchen faucets		x	4 min.	x	1	x		=
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 ¹ 3 female	x		=
HET ⁵ High-efficiency toilet	1.12	x	1 flush	x	1 male ¹ 3 female	x		=
Flushometer tank water closets		x	1 flush	x	1 male ¹ 3 female	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 ¹ 3 female	x		=
Urinals		x	1 flush	x	2 male	x		=
Urinals Nonwater supplied	0.0	x	1 flush	x	2 male	x		=
Proposed water use								=
30% Reduction _____ (BWU from WS-1) × .70 = _____ Allowable water use								
35% Reduction _____ (BWU from WS-1) × .65 = _____ Allowable water use								
40% Reduction _____ (BWU from WS-1) × .60 = _____ Allowable water use								

- The daily use number shall be increased to three if urinals are not installed in the room.
- The flow rate is from the CEC Appliance Efficiency Standards, Title 20 *California Code of Regulations*; where a conflict occurs, the CEC standards shall apply.
- 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 nonresidential occupancies, refer to Table A, Chapter 4, 2010 *California Plumbing Code*, for occupant load factors.
- 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 A 112.19.233.2.
 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.

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Signature:	
Company:	Date:
Address:	License:
City/State/Zip:	Phone:

Irrigation Controller Self Certification

Cal Green Building Code Section 4.304 Outdoor Water Use

Irrigation Controllers. Automatic irrigation system controllers for landscaping provided by the builder and installed at the time of final shall comply with the following:

1. Controller shall be weather –or soil moisture-based controllers that automatically adjust irrigation in 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 communicate with the controllers(s) Soil Moisture-based controllers are not required to have rain sensor input.

Installed By	Manufacturer	Date of Final
Notes:	Notes:	Notes:

Contractor (Documentation Author's /Responsible Designer's Declaration Statement)

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Signature:

Company:

Date:

Address:

License:

City/State/Zip:

Construction Waste Management (CWM) Plan

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

Project Name: _____
Job #: _____
Project Manager: _____
Waste Hauling Company: _____
Contact Name: _____

All Subcontractors shall comply with the project's Construction Waste Management Plan.
All Subcontractor foremen shall sign the CWM Plan Acknowledgment Sheet.

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

1. The project's overall rate of waste diversion will be ____ %.
2. This project shall generate the least amount of waste possible by planning and ordering carefully, following all proper storage and handling procedures to reduce broken and damaged materials and reusing materials whenever possible. The majority of the waste that is generated on this jobsite will be diverted from the landfill and recycled for other use.
3. Spreadsheet 1, enclosed, identifies the waste materials that will be generated on this project, the diversion strategy for each waste type and the anticipated diversion rate.
4. Waste prevention and recycling activities will be discussed at the beginning of weekly subcontractor meetings. As each new subcontractor comes on-site, the WMP Coordinator will present him/her with a copy of the CWM Plan and provide a tour of the jobsite to identify materials to be salvaged and the procedures for handling jobsite debris. All Subcontractor foremen will acknowledge in writing that they have read and will abide by the CWM Plan. Subcontractor Acknowledgment Sheet enclosed. The CWM Plan will be posted at the jobsite trailer.
5. Salvage: Excess materials that cannot be used in the project, nor returned to the vendor, will be offered to site workers, the owner, or donated to charity if feasible.
6. [HAULING COMPANY] will provide a commingled drop box at the jobsite for most of the construction waste. These commingled drop boxes will be taken to [Sorting Facility Name and Location]. The average diversion rate for commingled waste will be ____%. As site conditions permit, additional drop boxes will be used for particular phases of construction (e.g., concrete and wood waste) to ensure the highest waste diversion rate possible.
7. In the event that the waste diversion rate achievable via the strategy described in (6) above, is projected to be lower than what is required, then a strategy of source-separated waste diversion and/or waste stream reduction will be implemented. Source separated waste refers to jobsite waste that is not commingled but is instead allocated to a debris box designated for a single material type, such as clean wood or metal.

Notes:

1. Waste stream reduction refers to efforts taken by the builder to reduce the amount of waste generated by the project to below four (4) pounds per square foot of building area.
2. When using waste stream reduction measures, the gross weight of the product is subtracted from a base weight of four (4) pounds per square foot of building area. This reduction is considered additional diversion and can be used in the waste reduction percentage calculations.
8. [HAULING COMPANY] will track and calculate the quantity (in tons) of all waste leaving the project and calculate the waste diversion rate for the project. [HAULING COMPANY] will provide Project Manager with an updated monthly report on gross weight hauled and the waste diversion rate being achieved on the project. [HAULING COMPANY]'s monthly report will track separately the gross weights and diversion rates for commingled debris and for each source-separated waste stream leaving the project. In the event that [HAULING COMPANY] does not service any or all of the debris boxes on the project, the [HAULING COMPANY] will work with the responsible parties to track the material type and weight (in tons) in such debris boxes in order to determine waste diversion rates for these materials.
9. In the event that Subcontractors furnish their own debris boxes as part of their scope of work, such Subcontractors shall not be excluded from complying with the CWM Plan and will provide [HAULING COMPANY] weight and waste diversion data for their debris boxes.
10. In the event that site use constraints (such as limited space) restrict the number of debris boxes that can be used for collection of designated waste the project Superintendent will, as deemed appropriate, allocate specific areas onsite where individual material types are to be consolidated. These collection points are not to be contaminated with non-designated waste types.
11. Debris from jobsite office and meeting rooms will be collected by [DISPOSAL SERVICE COMPANY]. [DISPOSAL SERVICE COMPANY] will, at a minimum, recycle office paper, plastic, metal and cardboard.

Construction Waste Management (CWM) Worksheet

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

Project Name: _____

Job Number: _____

Project Manager: _____

Waste Hauling Company: _____

Construction Waste Management (CWM) Plan

WASTE MATERIAL TYPE	DIVERSION METHOD:		PROJECTED DIVERSION RATE
	COMMINGLED AND SORTED OFF SITE	SOURCE SEPARATED ON SITE	
Asphalt			
Concrete			
Shotcrete			
Metals			
Wood			
Rigid insulation			
Fiberglass insulation			
Acoustic ceiling tile			
Gypsum drywall			
Carpet/carpet pad			
Plastic pipe			
Plastic buckets			
Plastic			
Hardiplank siding and boards			
Glass			
Cardboard			
Pallets			
Job office trash, paper, glass & plastic bottles, cans, plastic			
Alkaline and rechargeable batteries, toner cartridges, and electronic devices			
Other:			
Other:			
Other:			
Other:			

Self cert for covering the duct openings before rough framing inspection

Mandatory at Rough Framing inspection

4.504.1 Duct openings and other related air distribution component openings shall be covered during construction.

Date inspected	Address of Project	Contractor of Project	Signature of enforcing agency
Notes:	Notes:	Notes:	Notes:

Contractor (Documentation Author's /Responsible Designer's Declaration Statement)

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Signature:

Company: _____

Date: _____

Address: _____

License: _____

City/State/Zip: Phone _____

FINISH MATERIAL CERTIFICATE – ADHESIVES & SEALANTS

**DRAFT
CALGreen
Std. BSC-5.5-X
7-16-10**

FINISH	WHERE USED (TYPE)	MANUFACTURER	VOC LIMIT (GPL)^{1,2}	SUB- CONTR. INITIAL
<u>ADHESIVES</u>				
Indoor carpet adhesives			50	
Carpet pad adhesives			50	
Outdoor carpet adhesives			150	
Wood flooring adhesives			100	
Rubber floor adhesives			60	
Subfloor adhesives			50	
Ceramic tile adhesives			65	
VCT and asphalt tile adhesives			50	
Drywall & panel adhesives	Wall Surface		50	
Cove base adhesives	Floor Base		50	
Multi-purpose construction adhesives	Varies		70	
Structural glazing adhesives	Glazing		100	
Single-ply adhesives	Roof		250	
Other adhesive not specifically listed			50	
<u>SPECIALTY APPLICATIONS</u>				
PVC welding			510	
CPVC welding			490	
ABS welding			325	
Plastic cement welding			250	
Adhesive primer for plastic			550	
Contact adhesive			80	
Special purpose contact			250	
Structural wood member			140	

Top and trim adhesive			250	
<u>SUBSTRAIGHT SPECIFIC APPLICATION</u>				
Metal to metal			30	
Plastic foams / porous material			50	
Wood			30	
Fiberglass			80	
<u>SEALANTS & CAULKS</u>				
Architectural			250	
Marine deck			760	
Nonmembrane roof			300	
Roadway			250	
Single-ply roof membrane			450	
Other			420	
<u>SEALANT PRIMERS</u>				
Architectural nonporous porous			250 775	
Modified bituminous			500	
Marine deck			760	
Other			750	

1. (GPI.) = Grams per liter
2. Where no local or regional air pollution control or quality management district rules are applicable, use the VOC limits in this table.

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Signature:	
Company:	Date:
Address:	License:
City/State/Zip:	Phone:

FINISH MATERIAL CERTIFICATE – ARCHITECTURAL COATINGS

**DRAFT
CALGreen
Std. BSC-5.5-X
7-16-10**

FINISH	WHERE USED (TYPE)	MANUFACTURER	VOC LIMIT (GPL)¹	SUB- CONTR. INITIAL
<u>PAINTS & COATINGS</u>				
Flat coatings			50	
Nonflat coatings			100	
Nonflat high gloss coatings			150	
<u>Specialty coatings</u>				
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 coverings			100	
Form-release compounds			250	
Graphic arts coatings (sign paints)			500	
High-temperature coatings			420	
Industrial maintenance coatings			250	
Low solids coatings ²			120	
Magnesite cement coatings			450	
Mastic texture coatings			100	
Metallic pigmented coatings			500	
Multicolor coatings			250	
Pretreatment wash primers			420	
Primers, sealers and			100	

undercoaters				
Reactive penetrating sealers			350	
Recycled coatings			250	
Roof coatings			50	
Rust preventative coatings			400/250 ³	
Shellacs: Clear Opaque			730 550	
Specialty primers, sealers and undercoaters			350/100 ³	
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. (GPL) = Grams per liter of coating
2. Grams of VOC per liter of coating, including water and including exempt compounds.
3. Effective on January 1, 2012

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Signature:	
Company:	Date:
Address:	License:
City/State/Zip:	Phone:

**FINISH MATERIAL CERTIFICATE – FLOORING
(CARPET, CARPET CUSHION & RESILIENT)**

**DRAFT
CALGreen
Std. BSC-5.5-X
7-16-10**

FINISH	MANUFACTURER	CERTIFICATION ORGANIZATION	SUB-CONTR. INITIAL
FLOORING			
Carpet 1		Carpet and Rug Institute – Green Label Plus Program	
		Specification 01350	
		NSF/ANSI 140 – Gold	
Carpet 2		Scientific Certification Systems – Sustainable Choice	
Carpet cushion 1		Carpet and Rug Institute – Green Label Plus Program	
Carpet cushion 2		Carpet and Rug Institute – Green Label Plus Program	
Resilient flooring 1		CHPS Product Registry	
		RFCI – Floor Score Program	
		Greenguard Children & Schools	
Resilient flooring 2		CHPS Product Registry	
		RFCI – Floor Score Program	
		Greenguard Children & Schools	

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Signature:

Company:

Date:

Address:

License:

City/State/Zip:

Phone:

**FINISH MATERIAL CERTIFICATE –
COMPOSITE WOOD PRODUCTS**

**DRAFT
CALGreen
Std. BSC-5.5-X
7-16-10**

FINISH	FORMALDEHYDE LIMITS¹ (Max. emissions in Parts per Million)	Effective JAN. 1, 2012	Effective JUL. 1, 2012	SUB- CONTR. INITIAL
<u>Composite wood products</u>				
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.

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Company:	Date:
Address:	License:
City/State/Zip:	Phone:

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