

**Welcome to the
Green California
Summit
Education Program
Sustainable Design**

**2010 California Green
Building Standards Code
from
Voluntary to Mandatory**



Introductions

California Building Standards Commission

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**2010 California Green Building Standards Code
development and adoption process for
nonresidential and residential building codes**

- Transparency of process
- Key stakeholders
- Code cycle
- Rulemaking process
- Code overview

CALGreen

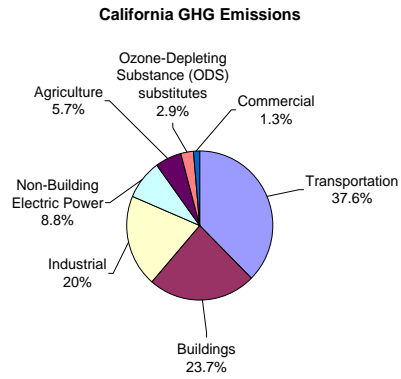
CALGreen Overview

- Why a CALGreen Code
- How the CALGreen Code was developed
- Brief overview of each occupancy group
and their role in CALGreen

CALGreen

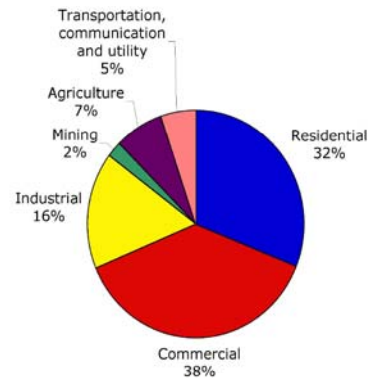
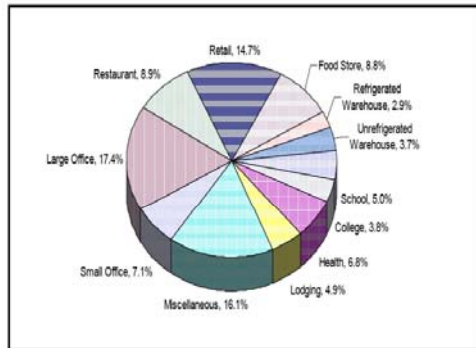
California Green Building Initiative & Global Warming Solutions Act of 2006 (EO S-20-04 & AB32)

- Buildings are 2nd largest contributor (23.7%) to GHG emissions
- EO S-20-04: Reduce grid-based electricity by 20% in state-owned buildings by 2015; reduce associated greenhouse gas emissions
- AB 32: Reduce GHG emissions to 1990 levels by 2020



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Energy Use in California



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Water Use in California

■ Executive Order S-06-08

- Implement actions to promote water conservation which will contribute to long term reductions in water use

■ Governor's 2009 Proclamation

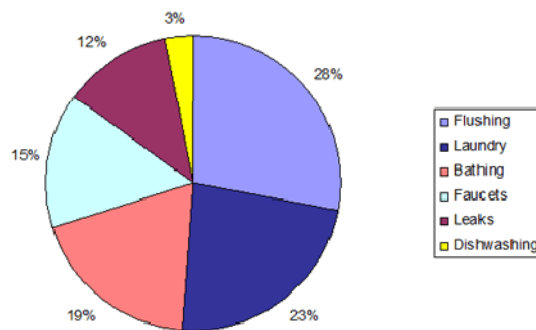
- Three years of drought
- The Governor called on all Californians to reduce water use by 20%
- DWR developed "Save Our Water" Program

CALGreen

Water Use in California

Water-related uses account for 19% of California's electricity, 30% of its natural gas and 88 billion gallons of diesel fuel every year. Water-efficiency measures can reduce water and sewer costs by up to 30 percent. Significant savings in energy, chemical and maintenance expenses often follow.

SOURCE - USGS



Typical indoor residential water usage

50 to 300 gpcd - landscape 50%

Source - Water Education Foundation

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Adopting State Agencies

- ❑ California Building Standards Commission (CBSC)
- ❑ The Department of Housing and Community Development (HCD)
- ❑ Division of the State Architect (DSA)
- ❑ Office of Statewide Health Planning and Development (OSHPD)

The logo for CALGreen, featuring the text "CALGreen" in a green, sans-serif font with a horizontal line underneath.

Stakeholder Focus Group

- ❑ CBSC's and HCD's Green Building Focus Group
 - ❑ Building officials
 - ❑ Representatives from the construction industry
 - ❑ Representatives from model code writing bodies
 - ❑ Representatives from the environmental community
 - ❑ State agency representatives
 - ❑ Public members

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Contributing State Agencies

- ❑ Air Resources Board
- ❑ California Integrated Waste Management Board (CalRecycle)
- ❑ Department of General Services
- ❑ Department of Public Health
- ❑ Department of Water Resources
- ❑ Energy Resources Conservation and Development Commission

CALGreen

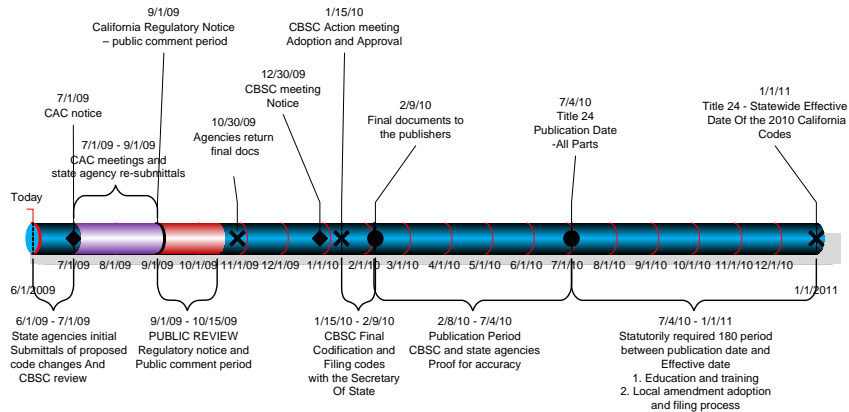
Resources utilized in developing California Green Building Standards Code

- ❑ Collaborative for High Performance Schools (CHPS)
- ❑ Leadership in Energy and Environmental Design (LEED)
- ❑ Green Globes
- ❑ Build It Green
- ❑ UC Berkeley Green Building Baseline
- ❑ Draft ASHRAE Standard 189P

CALGreen

2009 Annual Code Adoption Cycle

2010 California Building Standards Code | Jan. 1, 2011 Effective Date



California Building Standards Commission

- **Chair**
 - Secretary of the State and Consumer Services Agency
- **Commissioners (10)**
 - Appointees specified by law
 - One architect
 - One mechanical, electrical or fire protection engineer
 - One structural engineer
 - One licensed contractor
 - Three public members, at least one must be a person with disabilities
 - One member from organized labor in the building trades
 - One local building official
 - One local fire official
 - At least one member knowledgeable in barrier-free architecture
 - At least one member knowledgeable in energy efficiency standards



California Building Standards Commission

CBSC Responsibilities



- Review building standards proposed by state agencies
- Develop building standards for non-residential occupancies where no other state agency has the authority
- Adopt and approve building standards for publication
- File approved building standards with the Secretary of State
- Codify approved building standards
- Contract to publish the California Building Standards Code
- Act as the state depository for local government modifications



California Building Standards Commission

California Building Standards Commission

Code Advisory Committees (CAC)

- Advise Commission and CBSC staff on proposed building standards
- Six Committees
 - **Green Building Committee**
 - Accessibility Committee
 - Building, Fire and Other Committee
 - Health Facilities Committee
 - Plumbing, Electrical, Mechanical and Energy Committee
 - Structural Design/Lateral Forces Committee



California Building Standards Commission

California Green Building Standards Code

- **Initial Voluntary Standards**
 - Effective August 1, 2009
- **City and County Adoption**
- **2010 Mandatory Standards**
 - Effective January 1, 2011

CALGreen

2010 California Green Building Standards Code

- Chapter 1 Administration
- Chapter 2 Definitions
- Chapter 3 Green Building
- Chapter 4 Residential Mandatory Measures
- Chapter 5 Nonresidential Mandatory Measures
- Chapter 6 Referenced Organizations and Standards
- Chapter 7 Installer and Special Inspector Qualifications
- Chapter 8 Forms and Worksheets

CALGreen

California Building Standards Commission

2010 California Green Building Standards Code

NONRESIDENTIAL MANDATORY MEASURES

Chapter 5

- Planning and Design
- Energy Efficiency
- Water Efficiency and Conservation
- Material Conservation and Resource Efficiency
- Environmental Quality



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PLANNING AND DESIGN

Site Development

- Storm water pollution prevention plan (SWPPPs)
- Bicycle parking
- Designated parking for clean air vehicles
- Light pollution reduction
- Grading & paving



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ENERGY EFFICIENCY

Regulated by the California Energy
Commission



California Building Standards Commission

WATER EFFICIENCY AND CONSERVATION

Indoor Water Use

- Separate water meters
 - Buildings in excess of 50,000 square feet where tenants use more than 100 gallons per day
 - Excess consumption more than 1000 gallons per day
- 20% Savings of potable water
 - Performance or prescriptive standards, using tables 5.303.2.2 or 5.303.2.3



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WATER EFFICIENCY AND CONSERVATION

Outdoor Water Use

- Water budget – Currently required by DWR or local agency for landscapes 2,500 square feet and over
- Separate meter for outdoor potable water use for landscape areas between 1,000 & 5,000 square feet
- Irrigation design
 - Weather or soil moisture-based irrigation controllers and rain sensors



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MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

Construction Waste Reduction, Disposal and Recycling

- Construction waste diversion – establish a waste management plan
- Construction waste management plan (WMP)
- Construction waste reduction of at least 50%
 - Exception to allow alternate waste reduction method
- 100% of excavated soil and land clearing debris



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MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

Building Maintenance and Operation

- Commissioning for new buildings 10,000 square feet and over including:
 - Owner's or Owners Representative's Project Requirements (OPR)
 - Basis of Design (BOD)
 - Commissioning plan
 - Functional performance testing
 - Documentation and training
 - Commissioning report
 - Verification of compliance



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MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

Building Maintenance and Operation

- Testing and adjusting for new buildings under 10,000 square feet
 - Balancing of HVAC systems
 - Verification of compliance – inspection verifications and reports



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ENVIRONMENTAL QUALITY

Pollutant Control

- Finish material pollutant control – low VOC-emitting products
 - Adhesives and sealants and caulks
 - Paints and coatings – Air Resources Board standards
 - Aerosol Paints and Coatings
 - Carpet systems – 100%
 - Carpet cushion and carpet adhesives
 - Composite wood products – Air Resources Board standards
 - Resilient flooring – 50% of resilient flooring
 - Verification of compliance may be record of product data or other methods acceptable to the enforcing agency



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ENVIRONMENTAL QUALITY

Pollutant Control

- Covering of duct openings
- Protection of mechanical equipment during construction
- Air filters at least MERV 8
- Environmental tobacco smoke control – outdoor areas for smoking
 - Local ordinance may apply



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ENVIRONMENTAL QUALITY

Environmental Comfort

- Acoustical Control based on ASTM E90 and ASTM E413
 - Exterior noise transmission – depends on project location
 - Interior sound – minimum STC 40 for separations

Outdoor Air Quality

- Ozone depletion and greenhouse gas reductions
 - Chlorofluorocarbons (CFCs) and Halons



California Building Standards Commission

2010 California Green Building Standards Code

(effective January 1, 2011)

NONRESIDENTIAL VOLUNTARY MEASURES

Appendix A5

The measures contained in the appendix are not mandatory unless adopted by a city, county, or city and county. CALGreen Tier 1 and Tier 2 are intended for adoption by cities, counties, and cities and counties to help California meet its goals for greenhouse gas emission reduction. Appendix provisions may also be used voluntarily by designers, builders, and property owners.



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NONRESIDENTIAL VOLUNTARY MEASURES

CALGreen Tier 1 and Tier 2

Meet all mandatory requirements;

- Exceed 2008 Energy Efficiency Standards by 15% or 30%;
- Employ additional voluntary measures in all the following areas:
 - Parking for clean air vehicles
 - Cool roofs
 - Reduction of indoor and outdoor water use
 - Construction waste diversion
 - Use of materials with recycled content
 - Installation of low-emitting resilient flooring and thermal insulation;
- **And**



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NONRESIDENTIAL VOLUNTARY MEASURES

- **Additional elective measures as follows:**
 - 5 electives for Tier 1
 - 15 electives for Tier 2
- **Application Checklist**
 - Mandatory provisions
 - Provisions required for compliance with tiers



California Building Standards Commission

California Building Standards Commission

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Questions?



THANK YOU!

Please visit us at our **CALGreen Booth**

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