



# 2008 CALIFORNIA GREEN BUILDING STANDARDS CODE

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**California Building Standards Commission**





# 2008 California Green Building Standards Code - CALGREEN

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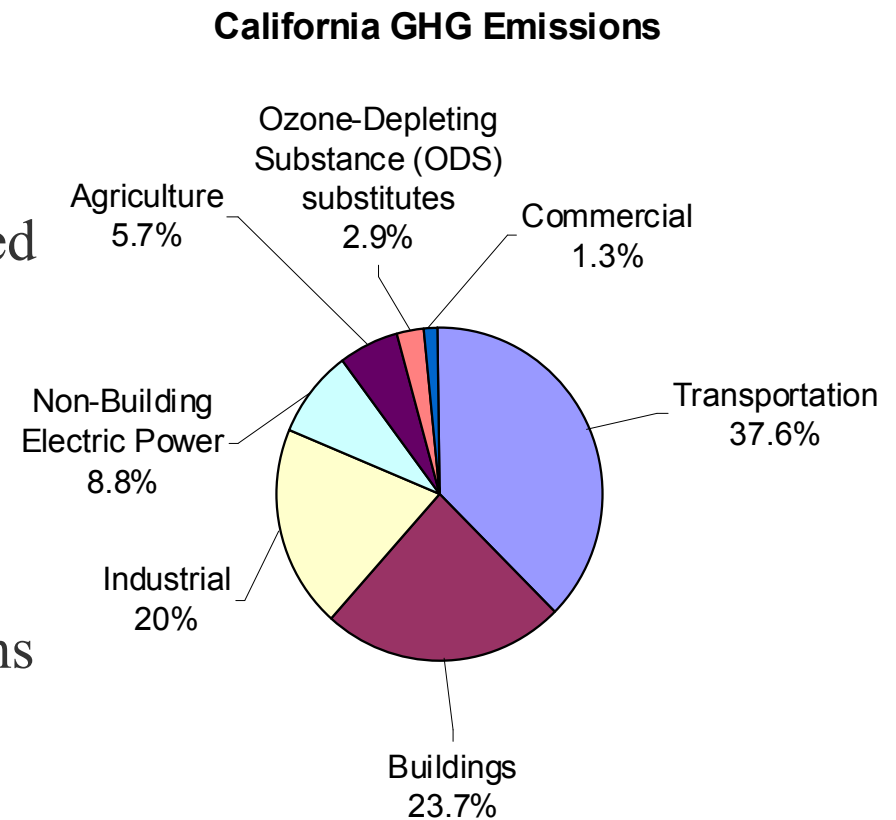
## ■ Presentation Overview

- Why a CALGREEN Code
- The Role of the CBSC
- How the CALGREEN Code was Developed
- Scope and Application of the Code
  - Voluntary
  - Mandatory
- Future of the CALGREEN Code



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

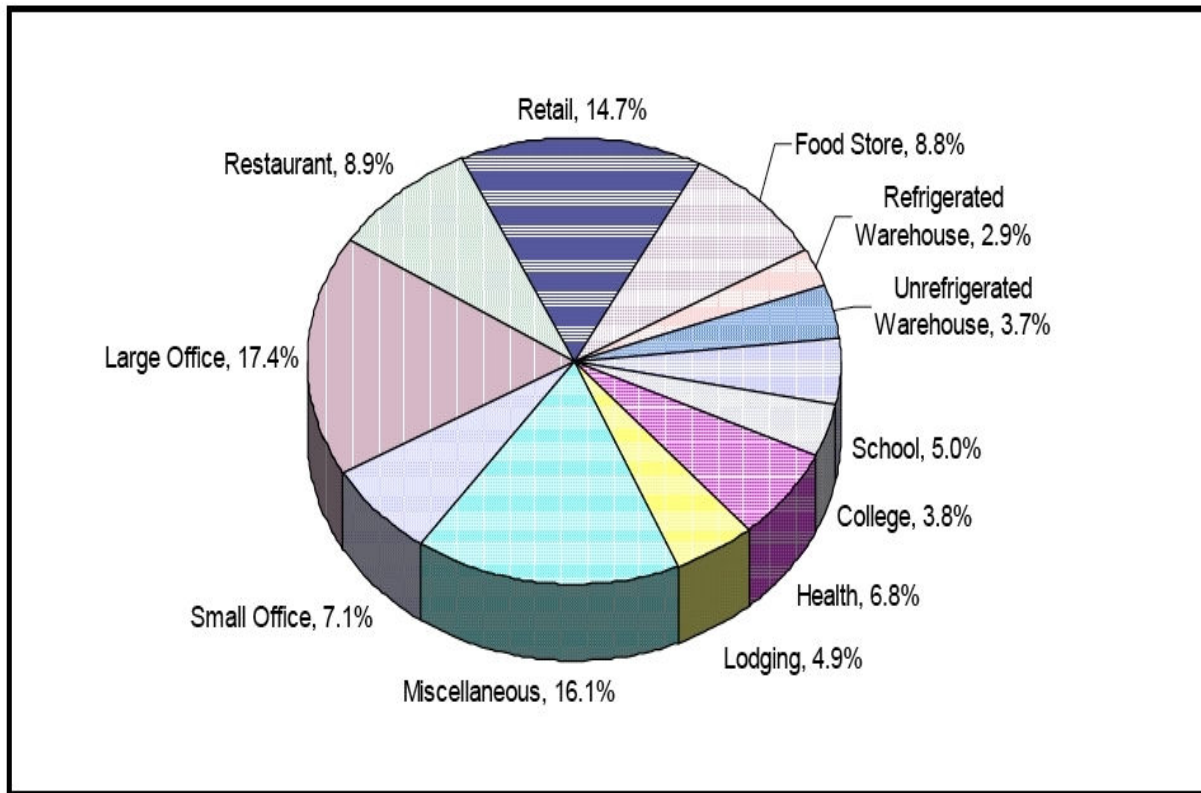
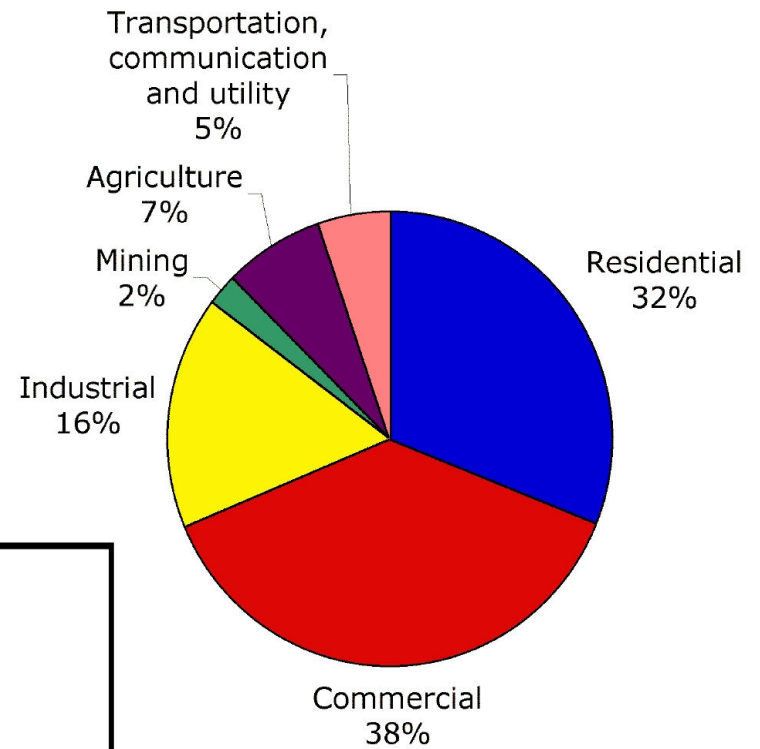
- Buildings are 2<sup>nd</sup> largest contributor (23.7%) to GHG emissions
- EO S-20-04: Reduce grid-based electricity by 20% in state-owned buildings by 2015; reduce associated greenhouse gas emissions
- AB 32: Reduce GHG emissions to 1990 levels by 2020



Source: CARB 2004 Inventory



# Energy Use in California





# California Building Standards Commission

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## ■ **CBSC Responsibilities**

- Review building standards proposed by state agencies
- Develop building standards for non-residential occupancies where no other state agency has the authority

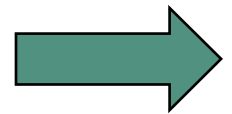




# California Building Standards Commission

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- Adopt and approve building standards for publication
- Codify approved building standards
- File approved building standards with the Secretary of State





# California Building Standards Commission

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- Contract to publish the California Building Standards Code
- Act as the state depository for local government modifications



# California Building Standards Commission

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## ■ **Chairman**

- 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

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- **Code Advisory Committees (CAC)**
  - Advise Commission and CBSC staff on proposed building standards
  - Six Committees
    - **Green Building Committee**



# 2008 California Building Standards Code – Title 24

## ■ California Building Standards Code

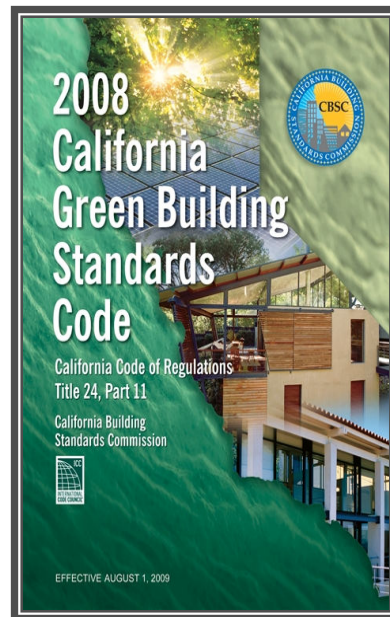
- Part 1 - California Administrative Code
- Part 2 - California Building Code
- Part 3 - California Electrical Code
- Part 4 - California Mechanical Code
- Part 5 - California Plumbing Code
- Part 6 - California Energy Code
- *Part 7 - Vacant*
- Part 8 - California Historical Building Code
- Part 9 - California Fire Code
- Part 10 - California Existing Building Code
- **Part 11 - California Green Building Standards Code**
- Part 12 - California Referenced Standards Code





# 2008 California Green Building Standards Code -CALGREEN

- **New Part of California Building Standards Code**
  - Part 11 - Green Building Standards Code





# 2008 California Green Building Standards Code -CALGREEN

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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)





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- **Contributing State Agencies**
  - California Integrated Waste Management Board
  - Department of General Services
  - Department of Public Health
  - Department of Water Resources
  - Energy Resources Conservation and Development Commission





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- **Additional resources utilized in developing Green Building Standards Code**
  - Collaborative for High Performance Schools (CHPS)
  - Leadership in Energy and Environmental Design (LEED)
  - Green Globes
  - UC Berkeley Green Building Baseline
  - Draft ASHRAE Standard 189P





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- Sustainable Building Task Force
  - Established by Executive Order D-16-00
- Green Building Action Team
  - Established by Executive Order S-20-04
- CBSC and HCD Green Building Focus Group
  - Building officials
  - Representatives from the construction industry
  - Representatives from international building code writing bodies
  - Representatives from the environmental community
  - State agency representatives



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- **Green Building Standards Code**
  - Initial Voluntary Standards
    - Effective August 1, 2009
    - Tier 1
    - Tier 2





# 2008 California Green Building Standards Code -CALGREEN

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## ■ **Local Government Ordinances**

- Local jurisdictions may adopt more stringent versions of the California Building Standards Code
- Justification for making local modifications
  - Climate
  - Topography
  - Geology



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- **Topics addressed in the Voluntary Standards**
  - Planning and design
  - Energy conservation
  - Water efficiency
  - Materials usage efficiency
  - Indoor environmental quality



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## ■ Chapter 4 Planning and Design

- Storm Water runoff

## ■ Chapter 5 Energy Efficiency

- Tier 1 – 15% energy reduction
- Tier 2 – 30% energy reduction
- Energy Star Appliances
- Building Commissioning



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- **Chapter 6 Water Efficiency and Conservation**
  - 20% indoor
  - Landscape irrigation
  - Energy star
  - DWR Water Budget



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- **Chapter 7 Material Conservation and Resource Efficiency**
  - Material Sources
  - Recycled Content
  - Recyclable Materials
  - Construction Waste



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## ■ Chapter 8 Environmental Quality

- Ventilate during construction
- Building flush out prior to occupancy
- Tables relating to material VOC limits
- Flooring
- IAQ
- Environmental Comfort



# 2010 California Green Building Standards Code -CALGREEN

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- **Transition from Voluntary to Mandatory Compliance**
  - 2010 Mandatory CALGREEN Codes
    - Effective January 1, 2011



# 2010 California Green Building Standards Code -CALGREEN

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- **Nonresidential Mandatory Measures**
  - 2010 Chapter 5
    - Tier 1
    - Tier 2
    - Optional Measures in Appendices





# 2010 California Green Building Standards Code -CALGREEN

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- **Planning & Design**
  - Storm Water Pollution < One Acre
  - Bicycle Parking and Changing Rooms
  - Designated Parking
  - Light Pollution Reduction
  - Grading and Paving



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- **Energy Efficiency**
  - California Energy Commission



# 2010 California Green Building Standards Code -CALGREEN

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- **Water Efficiency and Conservation**
  - **Indoor Water Use**
    - Meters
    - 20% Savings
    - Wastewater Reduction
    - Plumbing Fixtures and Fittings



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- **Outdoor Water Use**
  - Water Budget
  - Irrigation Design
    - Irrigation Controllers
    - Sensors
  - Rainwater or stormwater collection systems



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- **Material Conservation and Resource Efficiency**
  - Weather Resistance and Moisture Management
    - Weather Protection
    - Moisture Control
      - Sprinklers
      - Entries and Openings



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- **Construction Waste Reduction, Disposal and Recycling**
  - Waste Diversion
  - Management Plan
  - Waste Reduction of at Least 50%
  - Excavated Soil and Land Clearing Debris



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- **Building Maintenance and Operation**
  - Recycling by Occupants
    - Sample Ordinance
  - Commissioning
    - Owner's Project Requirements (OPR)
    - Basis of Design (BOD)
    - Commissioning Plan
    - Functional Performance Testing
    - Post Construction Documentation and Training
    - Commissioning Report



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## ■ Environmental Quality

### ■ Fireplaces

- Woodstoves

### ■ Pollutant Control

- IAQ Post Construction
- Covering of Duct Openings and Protection of Mechanical Equipment During Construction
- Finish Material Pollutant Control







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- Carpet Systems
  - Cushion
  - Adhesive
- Composite Wood Products
  - Documentation
- Resilient Flooring Systems
- Environmental Tobacco Smoke (ETS) Control



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- **Indoor Moisture Control**
- **Indoor Air Quality and Exhaust**
  - Outside Air Delivery
  - Carbon Dioxide (CO<sub>2</sub>) Monitoring



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- **Environmental Comfort**
  - Exterior Noise Transmission
  - Interior Sound



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## ■ Long Term Goals

- Future Code Adoptions
  - Code Adoption Cycles
- Outreach & Education



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## ■ CALGREEN Building Standards

### Outreach & Education

- Visit the California Building Standards Commission website, [www.bsc.ca.gov](http://www.bsc.ca.gov) for information
- CBSC CALGREEN Outreach & Education Contact
  - Cynthia Biedermann
  - (916) 263-0916





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