



GLOBAL CONNECTIONS DAY
OCTOBER 23, 2019

**WATER: SAFETY, EFFICIENCY
AND CONSERVATION**

2019 ANNUAL CONFERENCE
Oct. 20–23, 2019 | Rio Hotel & Convention Center



California Building Standards Commission



Water Efficiency and Conservation in the California Building Standards Code (Title 24, California Code of Regulations)

Mia Marvelli, Executive Director
Kevin Day, Staff Services Manager

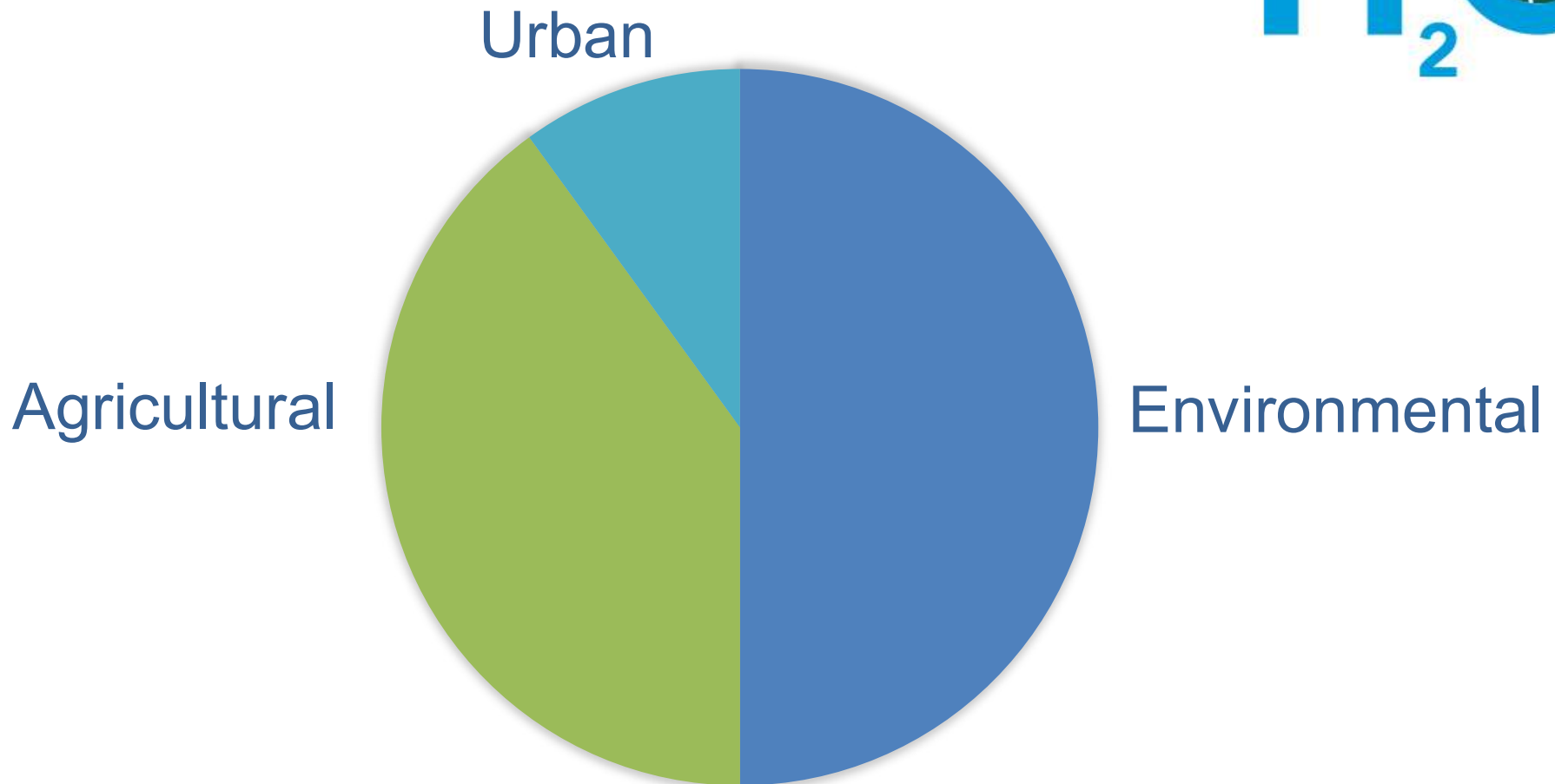


Who is the California Building Standards Commission?



- Administers the rulemaking process for the California Building Standards Codes (Title 24, CCR)
- Authority to propose green building standards for nonresidential occupancies

Water Use in California



Water Use in California



- Urban water use has been falling even as the population grows
- 1990 – 231 gallons per day per capita
- 2010 – 180 gallons per day per capita
- 2015 – 146 gallons per day per capita

Drought in California



- 2007-2009 Drought—1st State of Emergency proclamation
- 2011-2017—Two State of Emergency proclamations
- Governor's Executive Orders
- Legislation

California Policy



Droughts drive policy in California:

- Executive Orders (B-29-15, B-37-16)
 - Urged water conservation (water districts, agriculture, etc.)
- Legislation (SB 407, SB 518, AB 2515, SB 7, AB 1668/SB 606)
- We'll focus on Title 24

California Legislation



- Senate Bill 407 (2009)
 - Required replacement of noncompliant plumbing fixtures in certain existing buildings
 - Built prior to 1994
 - Undergoing additions/alterations
 - Upon transfer or sale of building

California Legislation



- Senate Bill 518 (2010)
 - Required CBSC and HCD to develop graywater building standards for indoor and outdoor water use in California Plumbing Code and CALGreen

Governor Executive Orders



- Executive Order B-29-15 (2015)
 - Directed California Energy Commission & Department of Water Resources (DWR) to adopt emergency regulations in Title 20 and Title 23
 - CBSC developed corresponding building standards in Title 24

California Legislation



- Assembly Bill 2515 (2016)
 - Directed DWR to update the Model Water Efficient Landscape Ordinance (MWELO) every 3 years
 - DWR must also coordinate with CBSC for consistency with CALGreen

California Legislation



- Senate Bill 7 (2016)
 - Directed the Department of Housing and Community to develop building standards for multifamily submeters

California Policy Going Forward



- Executive Order B-37-16 & Companion Legislation AB 1668/SB 606 (2018)
 - Making Water Conservation a Way of Life
 - Sets forth actions to use water more wisely, eliminate water waste, strengthen local drought resilience, and improve agricultural water use efficiency and drought planning

2019 CALIFORNIA GREEN BUILDING STANDARDS CODE

*CAL*Green®

CALIFORNIA CODE OF REGULATIONS | TITLE 24, PART 11

California Building Standards Commission



CALGreen Water Use Efficiency

- Indoor (fixture flow rates)
- Outdoor (reference to MWEL0)
- Tiers 1 & 2 (voluntary reach standards)
- Performance-based

SECTION 5.303 INDOOR WATER USE

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.

5.303.3.2.1 Wall-mounted urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush.

5.303.3.2.2 Floor-mounted urinals. The effective flush volume of floor-mounted or other 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 1.8 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification 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 1.8 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.

5.303.3.4 Faucets and fountains.

5.303.3.4.1 Nonresidential lavatory faucets. Lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi.

5.303.3.4.2 Kitchen faucets. Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons

SECTION 5.304 OUTDOOR WATER USE

5.304.1 Outdoor potable water use in landscape areas.

Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent.

Notes:

1. The Model Water Efficient Landscape Ordinance (MWELO) is located in the *California Code of Regulations*, Title 23, Chapter 2.7, Division 2.
2. MWELO and supporting documents, including a water budget calculator, are available at: <https://www.water.ca.gov/>.

> **5.304.6 Outdoor potable water use in landscape areas.** For public schools and community colleges, landscape projects as described in Sections 5.304.6.1 and 5.304.6.2 shall comply with the California Department of Water Resources Model Water Efficient Landscape Ordinance (MWELO) commencing with Section 490 of Chapter 2.7, Division 2, Title 23, *California Code of Regulations*, except that the evapotranspiration adjustment factor (ETAF) shall be 0.65 with an additional water allowance for special landscape areas (SLA) of 0.35.

Exception: Any project with an aggregate landscape area of 2,500 square feet or less may comply with the prescriptive measures contained in Appendix D of the MWELO.

> **5.304.6.1 Newly constructed landscapes.** New construction projects with an aggregate landscape area equal to or greater than 500 square feet.

> **5.304.6.2 Rehabilitated landscapes.** Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 1,200 square feet.



CALGreen Code Mandatory Regulations

SECTION A5.303 INDOOR WATER USE

A5.303.2.3.1 Tier 1 – 12-percent savings. A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 12 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 12-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 greater than or equal to 12-percent reduction as specified in Table A5.303.2.3.1; or
2. **Performance method.** A calculation demonstrating a 12-percent reduction in the building “water use baseline” as established in Table A5.303.2.2 shall be provided.

A5.303.2.3.2 Tier 2 – 20-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. A calculation demonstrating a 20-percent reduction in the building “water use baseline” as established in Table A5.303.2.2 shall be provided.

A5.303.2.3.3 25-percent savings. A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 25 percent shall be provided. A calculation demonstrating a 25-percent reduction in the building “water use baseline” as established in Table A5.303.2.2 shall be provided.

A5.303.2.3.4 Nonpotable water systems for indoor use. Utilizing nonpotable water systems (such as captured rainwater, treated graywater and recycled water) intended to supply water closets, urinals, and other allowed uses, may be used in the calculations demonstrating the 12-, 20- or 25-percent reduction. The non-potable water systems shall comply with the current edition of the *California Plumbing Code*.

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

1. **Clothes washers** shall have a maximum Water Factor (WF) that will reduce the use of water by 10 percent below the California Energy Commissions’ 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—ENERGY STAR.
 - i. Standard Dishwashers – 4.25 gallons per cycle.
 - ii. Compact Dishwashers – 3.5 gallons per cycle.
 - b. Commercial—Shall be in accordance with ENERGY STAR requirements. Refer to Table A5.303.3.
3. **Ice makers** shall be air cooled.
4. **Food steamers** shall be connectionless or boilerless – and shall consume no more than 2 gallons of water per pan per hour, including condensate water, for batch type steamers, and no more than 5 gallons of water per pan per hour, including condensate water, for cook to order steamers.

A5.303.4 Water conserving plumbing fixtures and fittings.

A5.303.4.1 Nonwater supplied urinals. Nonwater supplied urinals are installed in accordance with the *California Plumbing Code*.

Where approved, urinal, hybrids as defined in Chapter 2, shall be considered waterless urinals.

A5.303.5 Dual plumbing. New buildings and facilities shall be dual plumbed for potable and recycled water systems for toilet flushing when recycled water is available as determined by the enforcement authority.



CALGreen Code Voluntary Regulations

CALGreen Code Voluntary Regulations



SECTION A5.304 OUTDOOR WATER USE

A5.304.1 Reserved.

A5.304.2 Outdoor water use. For new water service not subject to the provisions of *Water Code* Section 535, separate meters or submeters shall be installed for indoor and outdoor potable water use for landscaped areas of at least 500 square feet but not more than 1,000 square feet.

A5.304.6 Restoration of areas disturbed by construction. Restore all landscape areas disturbed during construction by planting with local adaptive and/or noninvasive vegetation.

A5.304.7 Previously developed sites. On previously developed or graded sites, restore or protect at least 50 percent of the site area with adaptive and/or noninvasive vegetation. Projects complying with Section A5.106.3, Item 3 may apply vegetated roof surface to this calculation if the roof plants meet the definition of adaptive and noninvasive.

Exception: Area of the building footprint is excluded from the calculation.

A5.304.8 Graywater irrigation system. Install a graywater collection system for onsite subsurface irrigation using graywater collected from bathtubs, showers, bathroom wash basins and laundry water. See *California Plumbing Code*.

SECTION A5.305 WATER REUSE

A5.305.1 Nonpotable water systems. Nonpotable water systems for indoor and outdoor use shall comply with the current edition of the *California Plumbing Code*.

A5.305.2 Irrigation systems. Irrigation systems regulated by a local water efficient landscape ordinance or by the California Department of Water Resources Model Water Efficient Landscape Ordinance (MWELO) shall use recycled water.



- Website www.dgs.ca.gov/bsc
- Visit the *Contact* page to sign up for our email notifications
- Email cbsc@dgs.ca.gov
- Call us at 916.263.0916

Resources cited:

- https://water.ca.gov/LegacyFiles/wateruseefficiency/conservation/docs/20170407_EO_B-37-16_Final_Report.pdf
- <https://www.ppic.org/publication/water-use-in-california>

