WaterSense® Labeled Homes

Version 2.0

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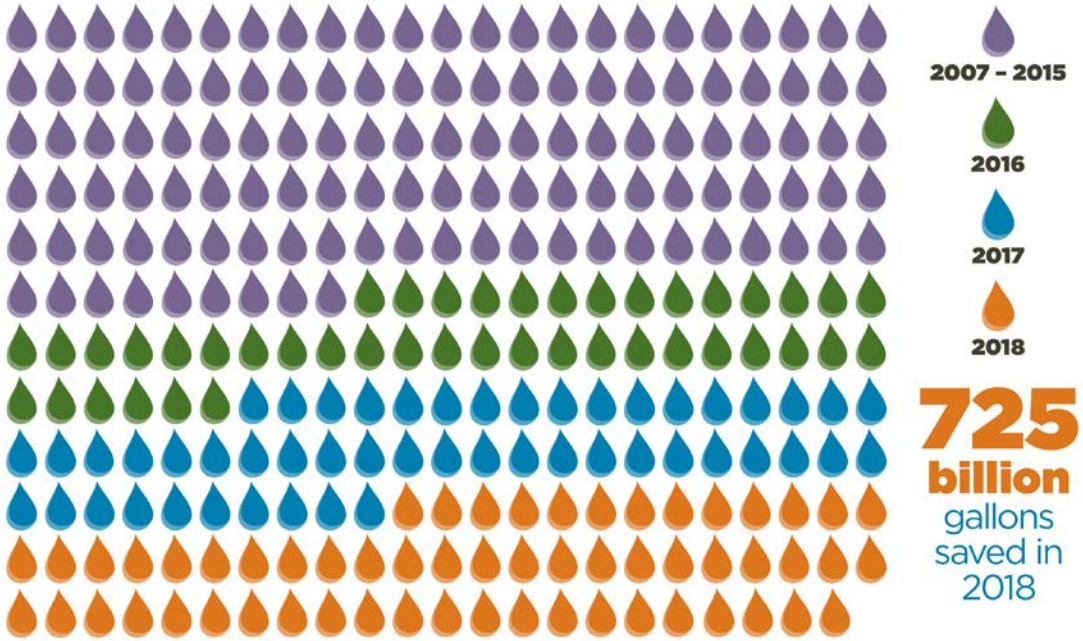
Fun Fact/Recent “Vacation”

Detailed to the U.S. Embassy in Tashkent, Uzbekistan

Through 2018

3.4 trillion **gallons of water** saved since 2006!

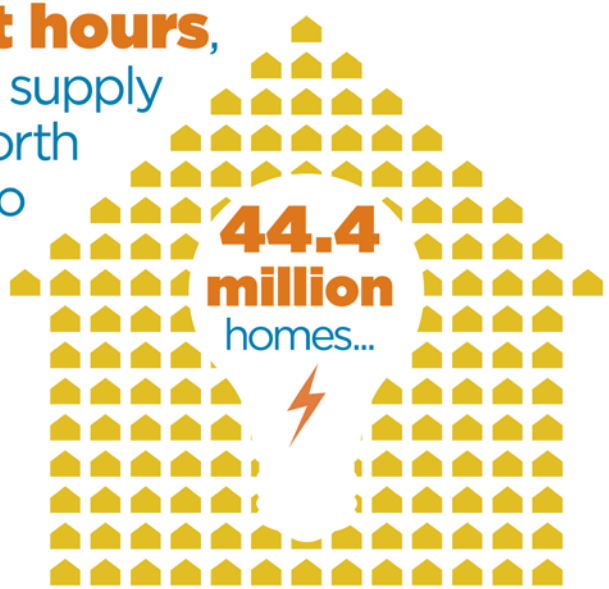


725 billion gallons saved in 2018

WaterSense has helped **reduce** the amount of **energy needed** to heat, pump, and treat water by

462.5 billion

kilowatt hours, enough to supply a year's worth of power to more than



WaterSense partners helped...

...**consumers save**

$84.2 billion

in water and energy bills

The *America's Water Infrastructure Act of 2018*

Not later than December 31, 2019, EPA shall,

- "Consider for review and revise, if necessary, any WaterSense performance criteria adopted before January 1, 2012."

Specifications covered by the provision:

- Tank-type toilets
- Flushing urinals
- Lavatory faucets and faucet accessories
- Showerheads
- Weather-based irrigation controllers
- **Homes (revision was already underway when the Act was passed)**
- Irrigation professionals (had undergone major revision in 2014)

History of WaterSense Labeled Homes

December, 2009	August, 2012	July, 2014	February, 2018	October, 2019	April, 2019	Late 2019/ Early 2020
Final V. 1.0 Specification	V 1.1 Specification	V 1.2 Specification	V 2.0 NOI	Concept Paper	V 2.0 Draft	V 2 Final & Rollout

- Version 1.1
  - Removed one of two options for the outdoor requirements
  - Modified product requirements to include WaterSense labeled showerheads and WBICs
- Version 1.2
  - Included minor changes to reflect removal of irrigation partners from the program
- Version 2.0
  - Wholesale change to methodology in the technical and certification requirements

What Was the World Like A Decade Ago?

- How have typical practices in new construction changed in regards to:
  - WaterSense labeled products
  - High efficiency appliances
  - Efficient design of plumbing systems
  - Landscape and irrigation design and installation
- How has the relationship between builders and local jurisdictions, water authorities, and utilities changes?
- How has the green building community's attitude toward water evolved?
- How have water efficiency and conservation priorities changed?

Challenges with Version 1

- **Lack of flexibility**
  - Hot water distribution requirement is difficult/costly to meet
  - Certified irrigation professionals aren’t always available
- **Variable value proposition**
  - Specifically outdoors due to regional variation
- **Lack of a specific designation for WaterSense training**
  - Inconsistent accessibility/high barrier of entry
  - Made raters difficult to find
- **Inability for additional administrators/certifying organizations to participate in the program**

Components of Version 2.0

- **Technical Requirements for Homes**
  - Defines mandatory requirements and efficiency target

- **Requirements for Home Certification Organizations (HCOs)**
  - Organizational requirements
  - Certification method development process*
  - Certification method technical evaluation (i.e. how efficiency is measured)*

*** WaterSense does not specify a specific standard, but does retain the role of reviewing and approving proposed standards for use in the program**

Specification/Technical Requirements

- Establishes requirements that homes must meet to be eligible for the WaterSense label
  - Mandatory checklist
  - 30% efficiency requirement
- Efficiency is measured by an HCOs approved methodology
- Scope
  - Single/multifamily and new/existing homes

MANDATORY CHECKLIST FOR WATERSENSE LABELED HOMES

Item	Requirements	Confirmed
Leaks	Pressure-loss test on all water supplies detected no leaks	☐ Yes ☐ No
	Free of visible leaks from hot water delivery system	☐ Yes ☐ No
	Free of visible leaks from toilet(s), as determined through visual assessment and by conducting a dye tablet test in each toilet to ensure the flapper is not leaking	☐ Yes ☐ No
	Free of visible leaks from bathroom faucet(s)	☐ Yes ☐ No
	Free of visible leaks from showerhead(s)	☐ Yes ☐ No
	Free of visible leaks from bathroom tub faucet(s), i.e., tub spout(s), when showerhead(s) is activated, as determine through visual assessment after showerhead has been activated for one minute	☐ Yes ☐ No
	Free of visible leaks from kitchen and other sink faucet(s)	☐ Yes ☐ No
	Free of visible leaks from other fixtures or appliances (e.g., clothes washers, dishwashers, hose bibs, irrigation systems) at point of use or point of connection to water distribution system	☐ Yes ☐ No
Toilets	WaterSense labeled	☐ Yes ☐ No
Bathroom sink faucets	WaterSense labeled	☐ Yes ☐ No
Showerheads	WaterSense labeled	☐ Yes ☐ No

Mandatory Checklist

- Must be completed for all WaterSense labeled homes regardless of HCO
- Ensures that all WaterSense labeled homes contain a minimum set of features that meet homeowners' expectations for quality performance
- Criteria for checklist features
  - Basic measure of quality performance not represented by volumetric use
  - Universally applicable to homes regardless of market or climate
  - Easily attainable at little or no incremental cost

Why Require Any Mandatory Measures?

- Loss of quality-performance was identified as a risk of setting a standard based on performance efficiency
- Ensures some measure of balance in climates that are more likely to have high outdoor water use

What About Outdoors?

- Outdoor requirements don’t appear on the checklist, but *this doesn’t mean they aren’t included in the program*
  - It will be virtually impossible for many homes to meet the efficiency requirements without substantial outdoor efficiency measures
- It is difficult to identify outdoor measures that meet the checklist’s goals for
  - Universal applicability
  - Minimal incremental cost
  - Focus on quality-performance

What About Hot Water Distribution?

Current Requirement

1. Systems must be designed to store no more than 0.5 gallons of water between the source and furthest use of DHW
2. Systems are tested to a 10◦ F temperature rise in 0.6 gallons
3. Recirculation systems must be demand initiated

- EPA expects DHW distribution efficiency will be a tool used in meeting the efficiency requirement
- *Unless* you're willing to place size limits on homes, it is difficult to meet the checklist's goals for
  - Universal applicability
  - Minimal incremental cost
- Changes to code are starting to outpace the WaterSense requirement

Why a Percent Reduction/Performance Measure?

- Focuses on WaterSense's primary objective: saving water
- Increases flexibility and adapts to regional differences
  - Allows builder to choose which technologies or practices best suit their process, market, and style
- Aligns impacts of specific measures with their quantifiable impacts
- Easily translates to water and cost savings
- Scales with climate
  - Reference home is consistent across all states/jurisdictions

Why 30 Percent?

- Maintains—or in some cases, increases—water savings compared to current requirements
- Establishes a level that, while rigorous, is still universally achievable in all markets and climates
  - Will apply even in markets with more efficient code requirements
- Provides a balance of indoor and outdoor measures that scale appropriately with climate

Baseline Home

Does not necessarily follow California (CA) code, the WaterSense mandatory checklist, or WaterSense efficiency requirement

- Los Angeles, CA
- 2,400 sq ft. home
- 3 bedroom, 2 bath
- 10,000 sq. ft lot
- EPAct level plumbing products
- DOE standard level appliances
- Typical landscape and irrigation

Home Meeting WaterSense Version 2.0 Mandatory Checklist

Homes that incorporate all of the items on the WaterSense Mandatory Checklist

- WaterSense labeled plumbing products
- Leak detection protocol
- DOE standard level appliances
- Typical landscape and irrigation

3% Below Baseline

California Code Home (indoor and outdoor)

Follows the mandatory checklist plus California's plumbing code requirements for indoors and outdoors

- WaterSense labeled & California compliant plumbing products
- California compliant appliances
- California minimum requirements for landscape and irrigation

16% Below Baseline

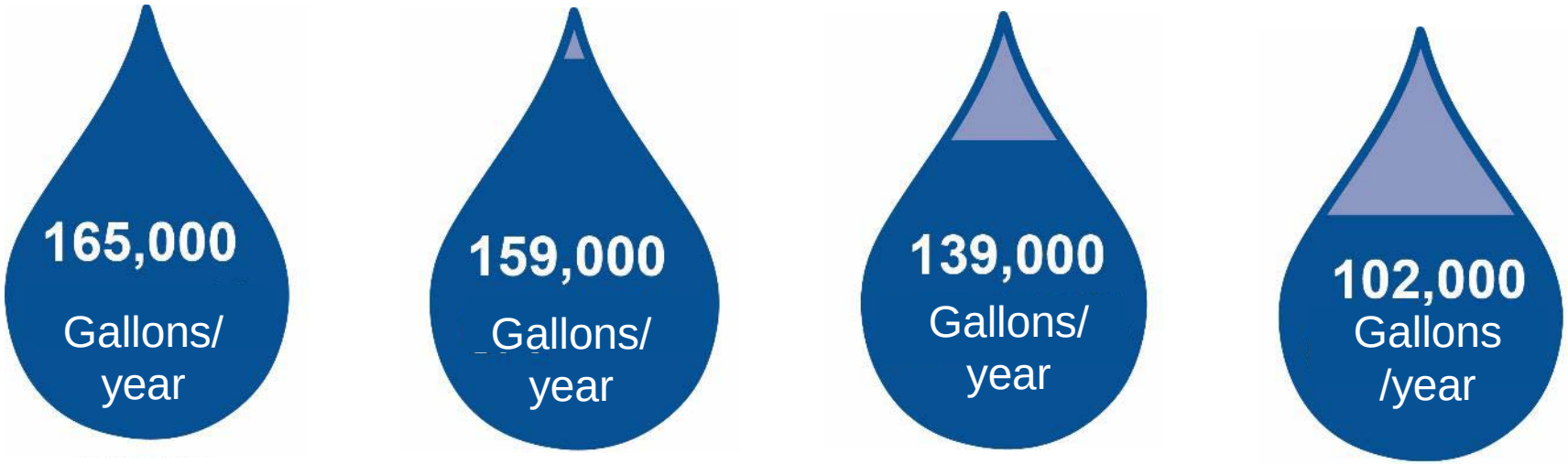
California State Code Plus/WaterSense Labeled Home: 30 Percent More Water-Efficient

Follows the mandatory checklist, California's plumbing code requirements for indoor and outdoor, and additional items to achieve 30%+ efficiency requirement

Strategies for earning WaterSense label could include:

- WaterSense labeled plumbing products
- Leak detection protocol
- ENERGY STAR® certified appliances
- Thermostatic shutoff valves in showers
- Typical landscape with WaterSense labeled irrigation products

38% Below Baseline



Baseline Home

Mandatory Checklist
3% reduction

California Code
16% reduction

WaterSense Certification
38% reduction

Approval of HCOs

- A valid standard development process
  - An ANSI standard
  - A public agency following its internal rules for transparency and stakeholder engagement
  - Adherence to the ANSI essential requirements
- Evaluation of their technical methodology
  - Are we confident it can differentiate homes that meet the efficiency requirement from homes that don’t?
- Ability to meet high level requirements for certification, training, and oversight

WaterSense Home Verifiers

- Verifiers are approved by the individual HCOs and can use the designation "WaterSense Home Verifier"
- Will be listed on the WaterSense website
- HCOs will provide information directly to WaterSense
  - Verifier information
  - Reporting of certified homes
- WaterSense specific training is transferable between HCOs

Potential Example HCO: RESNET
for discussion purposes only

- Home will have to have a $HERS_{H2O}$ score of 70 or lower
  - Meet all items of the mandatory checklist
- Raters and providers will be required to take a basic $HERS_{H2O}$ training via the RESNET training portal
  - Includes WaterSense program training
- Quality assurance structure will leverage existing HERS infrastructure
- All $HERS_{H2O}$ raters will be WaterSense Home Verifiers

What Version 2 Will Mean for You

- Hot water distribution requirement
  - No longer mandatory but can be used to meet efficiency target
- WaterSense water budget tool
  - No longer mandatory but landscape and irrigation technology can be used to meet efficiency target
- Certified irrigation professional
  - No longer mandatory but could provide other benefits toward the efficiency target
- “WaterSense Providership”
  - No longer required

Overview of Potential Benefits

- Reduce prescriptive requirements
  - Version 2.0 draft requires a single, short, easily achievable checklist
  - Version 1.2 requires multiple checklists and several requirements where difficulty and impact varied greatly by region and market
- Focus on primary goal of saving water
  - Efficiency requirement focuses on quantifiable water savings
- Allow for easier implementation and certification by using the organization and processes of existing HCOs

Transitioning From v1 to v2

- WaterSense anticipates a one year transition

Potential dates (for example)	Requirements
January 1, 2020 to *June 30, 2020*	Any home may use either the v1 or v2 requirements
July 1, 2020 to *December 31, 2020*	Homes permitted prior to the start of the transition period may use v1 or v2, all other homes must use v2
After *January 1, 2021*	All homes use v2

- WaterSense is coordinating with potential HCOs to determine the exact timing of the transition period

Questions?

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