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# Saving Water with WaterSense

**Cary McElhinney**

**U.S. EPA Region 5**

March 12, 2020



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# WaterSense Vision

- WaterSense offers people a simple way to use less water
- Our vision is that all Americans will understand the importance of water efficiency and take actions to reduce their water use – in their homes, outdoors, and at work
- How will we achieve it?
  - By transforming the marketplace for products and services that use water
  - By promoting a nationwide ethic of water efficiency to conserve water resources for future generations and reduce water infrastructure costs



# WaterSense Can Help



WaterSense is a voluntary partnership program launched by EPA in 2006 that provides a simple way to identify water-efficient:

- Products
- Programs
- Practices
- Homes

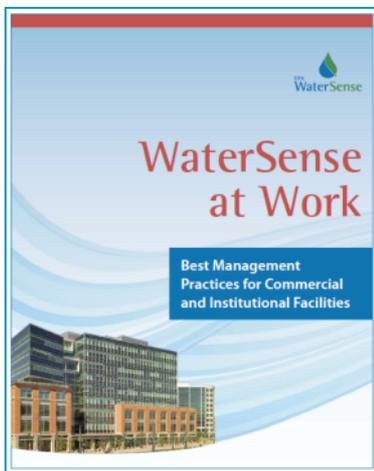


Products are independently certified for water efficiency **and** performance

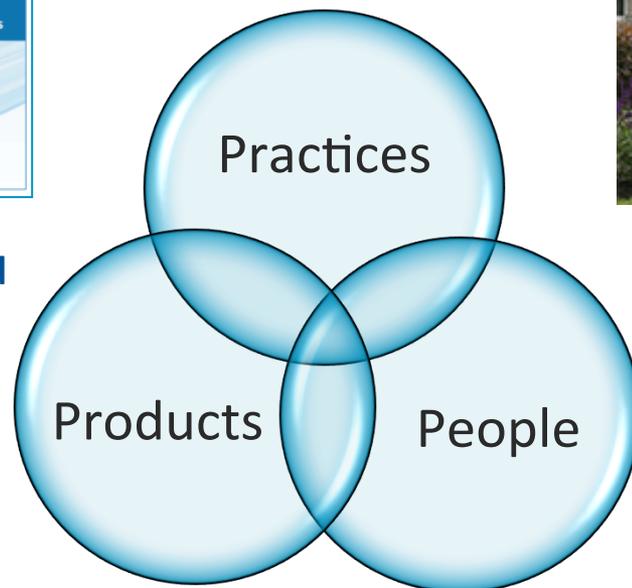
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# WaterSense Focus



Actions that can be taken to reduce water use -- at home, outdoors and at work



Specific fixtures and technologies save water



Partners reach users to change behavior



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# WaterSense Partners Make Savings Possible

WaterSense partners with water utilities, local/state governments, non-profits, builders, and HOAs



WaterSense and its partners are committed to bringing water-efficient smart water use. Search by partner type, state, and/or partner name

Partner Type

- All Partners
- Builder
- Home Builders Association
- Licensed Certification Provider
- Local/State/Federal Government

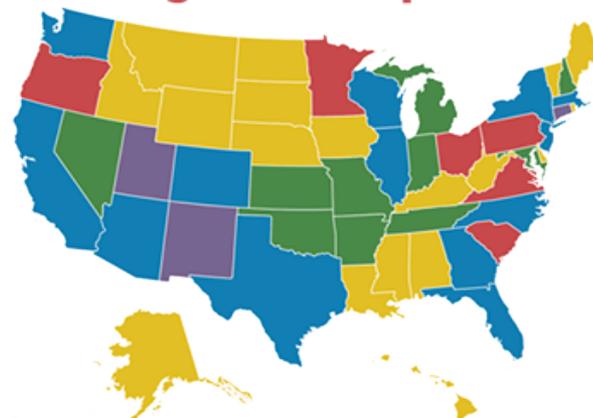
State

- All
- AK
- AL
- AR
- AZ

Partner Name

Search

WaterSense **1,948**  
has more than  
organizational partners...



Partner Totals by State

1-9 10-19 20-29 30-39 40+

...and more than **2,900** irrigation pros  
certified by WaterSense labeled programs

# Why Partner?

- EPA sets the stage & partners run with it
  - Our efforts are more powerful when partners join forces
- Support national specification for water-efficient products and services
- Access free materials, templates and logo or label
- Membership in a network of water efficiency experts
  - Learn new strategies
  - Collaborate with other types of partners
- Recognition from EPA as a water efficiency leader



WaterSense is **FREE** to join!

Easy online form at <https://www.epa.gov/watersense/join-watersense>

# Customizable Partner Tools

- Infographics
- Bill Stuffers
- Videos
- Sample web text
- Sample press release/  
newsletter text
- Social media
- Case studies
- Spanish Tools



# What's Special About WaterSense?



## A label with integrity

- Third-parties independently certify that products and homes meet EPA criteria
- Backed by the credibility of EPA

## Smart use of resources

- EPA provides national standardization and outreach for water-efficiency
- Manufacturers absorb product research, testing, and branding costs
- Licensed certifying bodies certify the products and police the label's use

# WaterSense Labeled Products



More than **35,000** product models have earned the label. Water factors are included in many **ENERGY STAR** certified products.



Flushing  
Urinals



Showerheads



Lavatory  
Faucets



New Homes



Flushometer  
Valve Toilets



Tank-Type  
Toilets



Irrigation  
Controllers



Spray  
Sprinkler  
Bodies

# Soil Moisture-Based Irrigation Control Technologies

- Also referred to as soil moisture sensors (SMSs)
- Save water by inhibiting an irrigation event if the soil is determined to be “wet” enough that the plants don’t need water
- Decision to allow watering is based on actual measurements in the soil
- Threshold to allow or inhibit irrigation is determined by the user, or automatically by the product, as part of the installation process
- While SMSs work in a different way from WBICs, they both provide a means to efficient scheduling compared to a typical clock-timer
- WaterSense is aiming to keep the WBIC and SMS specifications as consistent as possible



Photo courtesy of Hunter Industries, Inc.

# Scope



## Includes

- Products that enable or disable an irrigation event based on reading(s) from soil moisture sensor mechanism(s)
- SMSs for use in residential or commercial landscape applications
- Both wired and wireless technologies
- Stand-alone controllers, add-on devices, and plug-in devices



Photo COURTESY of Spiio

# Scope



## Excludes

- On-demand SMSs, which enable irrigation at a lower preset soil moisture level and disable irrigation at an upper preset soil moisture level
- Sensor mechanisms alone (i.e., an interface device is required)
- SMSs intended for use exclusively within agricultural irrigation systems



Photo courtesy of Michael Dukes, UF/IFAS

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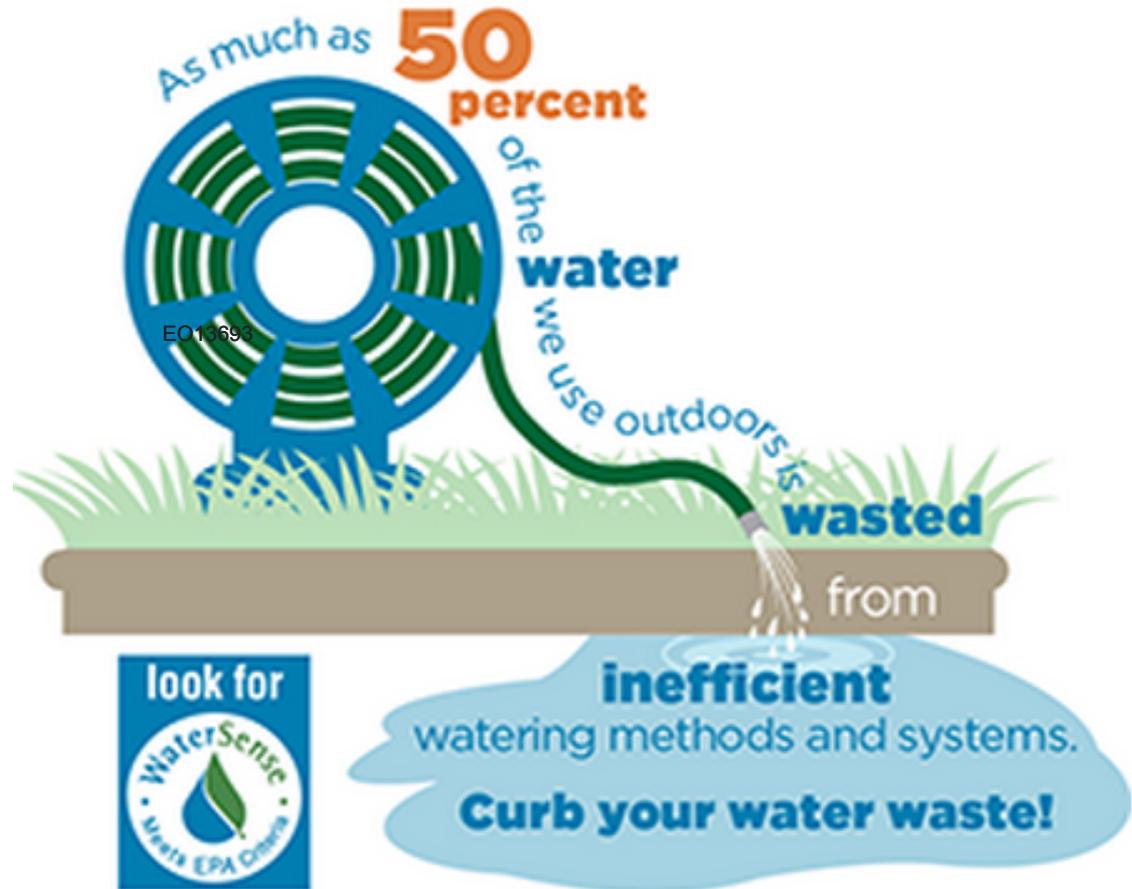
# Outdoor Water Waste

20-30% of a building's water can be used outdoors

Losses caused by:

- Poor irrigation system design
- Improper system installation and management
- Lack of maintenance
- Improper scheduling

Get help from an irrigation pro certified by a WaterSense labeled program





# Certified Irrigation Professionals

- Certified by a WaterSense labeled program
- Help reduce water consumption, save money, and maintain a healthy landscape
- Certification programs:
  - Irrigation system design
  - Irrigation system installation and maintenance
  - Irrigation system audits

Does your  
**Sprinkler**  
need a **Spruce-Up?**

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**Find a Pro!**

[epa.gov/watersense/findapro](http://epa.gov/watersense/findapro)

# Guidance for Outdoor Water Use

- Water Smart Landscapes
  - Planning and design tips for plants, soil health and maintenance; images; references
- Reduce Pressure/Waste from Sprinklers
  - Describes benefits of efficient sprinklers for irrigation pros and homeowners
- Case Study on Sprinkler Replacement
  - Oklahoma City replaced sprinklers in roadway medians



**Relieve Pressure and Reduce Water Waste From Spray Sprinklers**

Many irrigation systems operate at water pressures that are higher than what the manufacturer recommends, which can result in excess and uneven watering. Spray sprinkler bodies (SSBs) that have earned the U.S. Environmental Protection Agency (EPA) WaterSense® label can reduce water waste and improve plant health by regulating water pressure at the spray nozzle. This document describes the characteristics, benefits, optional features, and installation tips for WaterSense labeled SSBs, and how SSBs fit into a water-smart landscape.

**Background**

Most spray sprinklers have recommended operating pressures between 30 pounds per square inch (psi) and 40 psi. Operating a sprinkler system at a pressure higher than recommended can cause significant water waste, that is excessive flow rates, misting, fogging, misting, and uneven coverage.

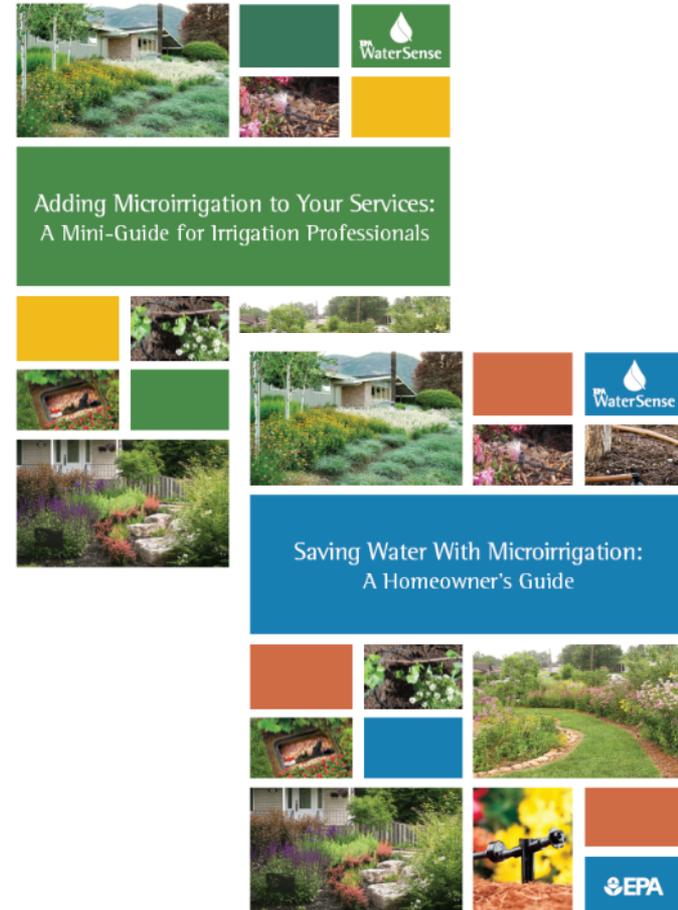
High water pressure can be caused by high static pressure or changes in landscape elevation. High pressure can be mitigated by installing pressure regulators on the main line near where that regulator regulates zones or separate valves that have internal pressure regulators. The location and number of pressure regulators will depend on where a system experiences high pressure. A pressure regulator on the main line will reduce existing water pressure for the entire system. Some systems will require multiple pressure regulators along the path of water. Some pressure regulators include an integral pressure regulator that is housed inside the body. This component is engaged when water entering the sprinkler body is at a pressure higher than the manufacturer specified regulation pressure. This "integral pressure regulator" allows the sprinkler body to work at or near its optimal operating pressure, resulting in a consistent flow of water, generating the appropriate water droplet size, and providing a more uniform distribution of water across the landscape.

High pressure in irrigation systems is more common than one would expect. For example, based on irrigation audits conducted by Utah State University, Extension and by the Center for Resource Conservation in Boulder, Colorado, 62 percent of

HOME (202) 974-2000 (TDD) | 800EPA (202) 260-9000 | EPA | [www.epa.gov](http://www.epa.gov) | 2022 EPA 3348

# Microirrigation Guides

- Microirrigation equipment and techniques can save homeowners more than 25,000 gallons of water per year.
- Uses 20 to 50 percent less water than conventional sprinkler systems.
- Two Audiences:
  - Irrigation Professionals Guide
  - Homeowners Guide



# Summer Outdoor Water Savings Partner Tools



- Infographics
- Bill stuffers
  - English/Spanish
- Door hanger
- Web banner
- Facts and tips
- Fact sheets
  - Outdoor water use
  - Irrigation controller
- Drought materials

**Simple Things We Can All Do**

- **Step on it!** Don't step on the pipe. It can break.
- **Leave it long!** Leave the pipe long enough to reach the end of the line.
- **Take a sprinkler break!** Check for leaks in the system.

**Simple Things Irrigation System Owners Can Do**

Homeowners with automatic irrigation systems can save about 50% more water outdoors.

**Timing is everything!** Plan to water in the early morning or evening to avoid daytime evaporation.

**Go with a pro!** Certified irrigation auditors can help you determine if your system is working properly or if you need a new one.

**Look for the label!** If your sprinkler uses a rotor, make sure you're using a WaterSense certified rotor. That way you're guaranteed to save water. They can also help you save up to 10% on your water bill, saving nearly 8,000 gallons of water per year.

**Tune up your system!** Get a certified irrigation auditor to check your system. They can help you save up to \$300 a year on your water bill. The cost is about \$100 per hour.

WaterSense, a partnership program by the U.S. Environmental Protection Agency, seeks to protect the future of our nation's water supply. For more tips on reducing outdoor water use, visit [www.epa.gov/watersense/outdoor](http://www.epa.gov/watersense/outdoor).

As much as **50 percent** of the water we use outdoors is **wasted** from **inefficient** watering methods and systems. **Curb your water waste!**

La forma más aburrida de dañar el medioambiente.

**Reduce Your Outdoor Water Use**

The average American household uses 200 gallons of water per day, about 30 percent of which is devoted to outdoor uses. More than half of that outdoor water is used for watering lawns and gardens. Nationwide, landscape irrigation is estimated to account for nearly one-third of all residential water use, totaling nearly 9 billion gallons per day.

**WATER WASTE OUTDOORS!** Outdoor water use varies greatly depending upon geographic location. In dry climates such as the Southwest, it's estimated that outdoor water use can be as high as 60 percent. In addition, some experts estimate that as much as 50 percent of water used for irrigation is wasted due to inappropriate, used, or worn-out irrigation methods and systems.

It's usually not necessary to water grass every day. Instead, let your lawn sleep on a pair of pants. If a couple days go by without watering, it's better. Water your lawn using the same irrigation system you have. Check for leaks and adjust the system to make sure you're getting the most out of your system.

**WATERWISE SAVINGS** The U.S. Environmental Protection Agency's (EPA) WaterSense program offers a variety of water-saving products and practices. If you combine them with irrigation systems that are certified through the WaterSense program, you can save up to 10 percent on your water bill. That's nearly 8,000 gallons of water per year.

**LOOK FOR THE WATERWISE LABEL!** Acting like a WaterSense for your irrigation system. WaterSense certified irrigation controllers save water.

EPA is also considering developing a specification for soil moisture-based control technologies, which water plants based on the amount of moisture in the soil and adjust irrigation schedules accordingly. For more information and water-saving action tips, visit [www.epa.gov/watersense](http://www.epa.gov/watersense).

# Sprinkler Spruce-Up



- First weekend in May—or any time in spring
- Encourage consumers to “spruce-up” their sprinklers
  - Inspect for clogged, broken, or missing sprinkler heads
  - Connect hoses and pipes and check for leaks
  - Direct spray away from sidewalks
  - Select WaterSense labeled products
- Tools/graphics on the partner website





# WaterSense Labeled Homes



- First national new home labeling program for water efficiency
- Applies to single and multifamily homes
- Works with other green building programs
- WaterSense labeled new homes:
  - Reduce water use in new homes by **at least 20%**
  - Educate homeowners about continuing water-efficient behaviors
  - Encourage community infrastructure savings
  - Are third-party certified

*Photo: First community of all  
WaterSense labeled new homes in  
Issaquah, W.A.*



## Objectives for Version 2

- Increase the number of WaterSense labeled homes
- Provide flexibility in technical requirements, while maintaining an equal (or greater) level of water efficiency
  - Allow builders to choose efficiency measures that maximize the value prospect in their market/region
- Maintain quality performance measures
- Encourage broader participation in the certification process
  - Better leverage the existing certification structure in green building/energy efficiency
  - Open the door for additional home certification organizations
- Better quantify the savings and value of a WaterSense labeled home
- Harmonize more cleanly with ENERGY STAR, IAP, and other green building programs
- Make the program easier for WaterSense to administer

## Requirements for WaterSense Labeled Homes V2

### Technical Requirements for WaterSense Labeled Homes

- Be 30% more efficient than typical new construction
- Meet all items of a mandatory checklist

### Requirements for Home Certification Organizations (HCOs)

- Organizational requirements
- Certification method development
- Certification method technical evaluation

# Transitioning From v1 to v2



- WaterSense anticipates a one year transition

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

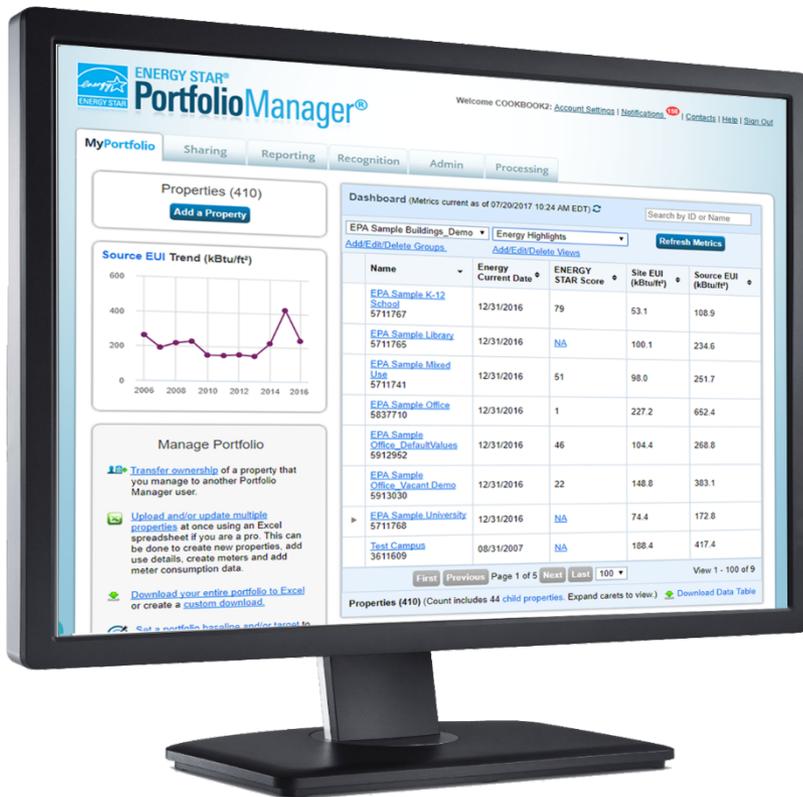
- WaterSense is coordinating with potential HCOs to determine the exact timing of the transition period

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ENERGY STAR®

PortfolioManager®



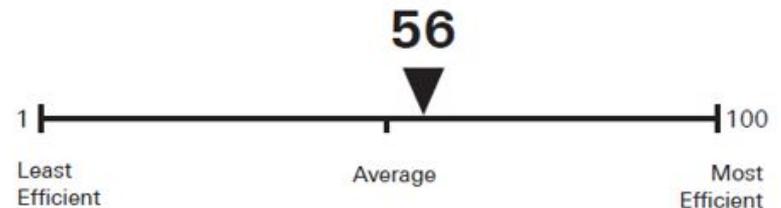
## Management Tool

- Assess whole building energy, water, and waste consumption
- Track changes in performance over time
- Create custom reports
- Share/report data with others
- Apply for ENERGY STAR certification (*based on energy performance only*)

# EPA's 1-100 Score for Multifamily Buildings

- Available for existing multifamily buildings with 20 or more units
- Approach consistent with the ENERGY STAR Score
  - Statistical evaluation of measured whole building resource (water) use
  - Normalize for weather and operation
  - Provide a meaningful peer comparison
  - Drive reductions in resource (water) use

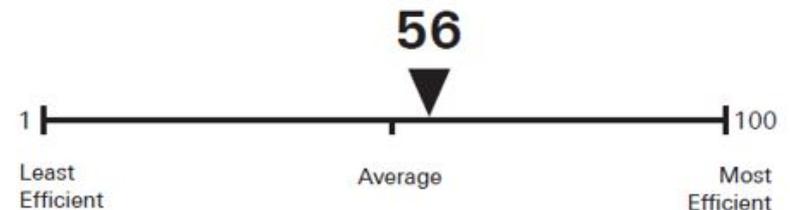
What's similar to ENERGY STAR score approach?



# EPA's 1-100 Score for Multifamily Buildings

- Inputs Adjusted Appropriately for Water
  - Include all water use (indoor and outdoor)
  - Focus on water intensity: Total water use divided by building square foot
  - Assess normalization factors in the context of water
    - Operation is assessed with an understanding of water use
    - Climate terms capture outdoor water needs
    - Irrigated Area is an important factor (capped at a 1:1 ratio with floor area)

What's different from ENERGY STAR score approach ?



No EPA certification based on the Water Score

# How Do You Get the Score?

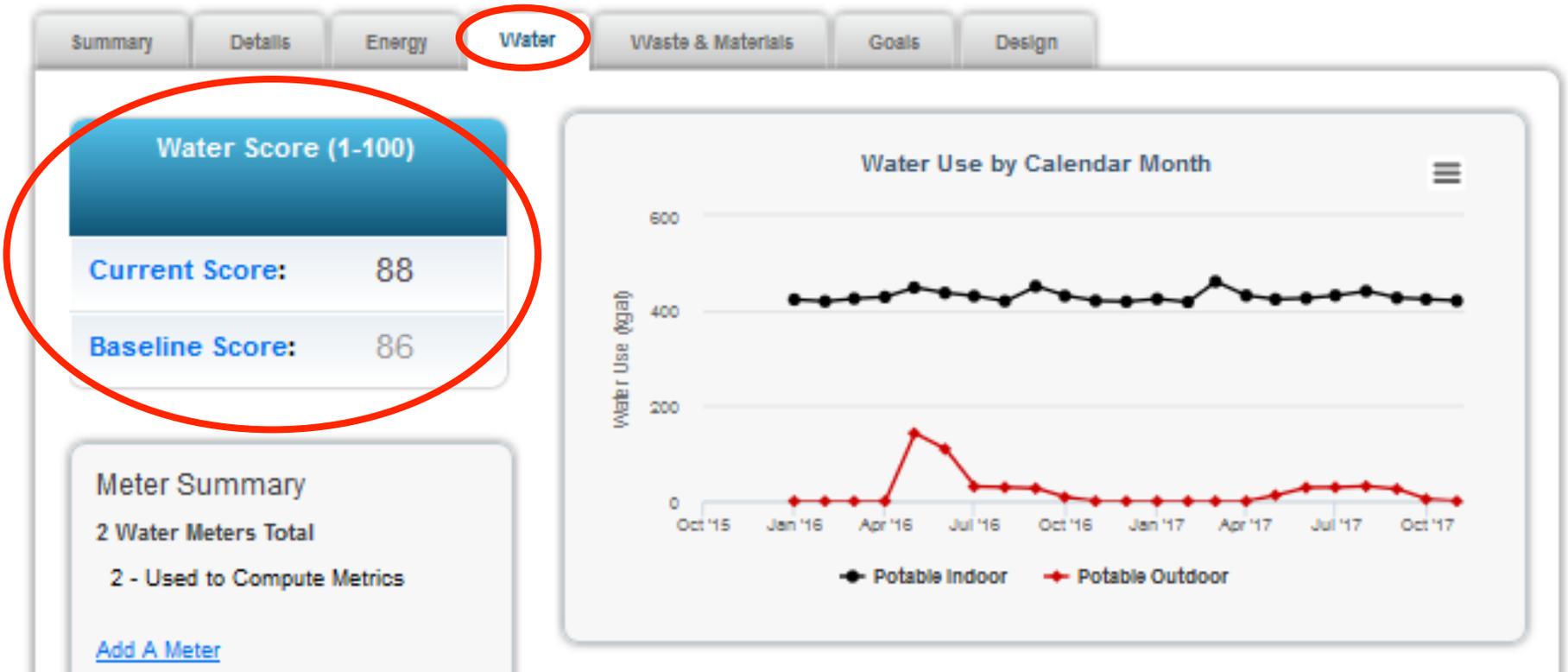


Required inputs for a building of 20 units or more

- 12 months of water use
- Building location
- Building size
  - floor area
  - number of units
  - total number of bedrooms
- Irrigated area – options to determine:
  - Check service contract of the property to find area of landscape
  - Deduct footprint of the building and hardscape (pavements and parking area) from the total property area.
  - Use an online mapping tool (e.g, free tool [www.freemaptools.com/area-calculator.htm](http://www.freemaptools.com/area-calculator.htm))

# The EPA Water Score in Action

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# WATER SCORECARD

# 56

out of 100

## Uptown Lofts

Primary Function: Multifamily  
Gross Floor Area (ft2): 14,800  
Built: 1960

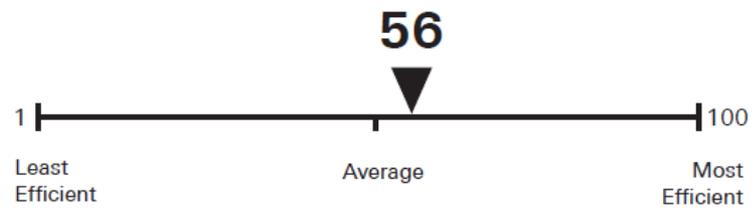
Property Address:  
123 Main Street  
Anytown, CA 12345

For Year Ending: April 30, 2015

Date Generated: June 30, 2017

Platform provides ability to create a scorecard, but there is no formal certification for buildings (a'la ENERGY STAR)

For the year ending May 2017, this building used 198 gallons of water per square foot. Here's how that compares to similar buildings nationwide:



**About this Score**  
The U.S. Environmental Protection Agency's (EPA) Water Score is generated by the ENERGY STAR® Portfolio Manager® tool and supported by WaterSense. The Score offers a 1 - 100 measurement of how efficiently this property uses water, compared to similar properties nationwide, when normalized for climate and operational characteristics. Learn more at [www.epa.gov/WaterSense](http://www.epa.gov/WaterSense).



This scorecard was generated from EPA's ENERGY STAR Portfolio Manager tool.

### VERIFICATION (Optional)

I, \_\_\_\_\_, verify that the information regarding water use and property use details is true and correct to the best of my knowledge.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

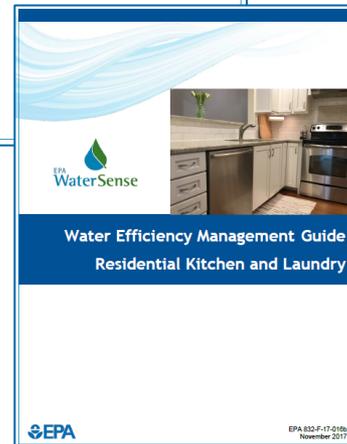
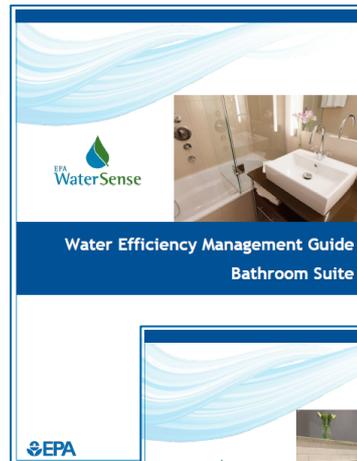
# WaterSense Resources

Water efficiency management guides focused on multifamily buildings cover:

- Bathrooms
- Residential kitchens and laundries
- Outdoor Water Use
- Mechanical systems

Multifamily Water Assessment Worksheets

<https://www.epa.gov/watersense/water-score-multifamily-housing>



## ENERGY STAR Resources

### Training

EPA offers training on a range of energy efficiency topics guidance on improving the energy performance of your building, and no cost. We make it easy to get the information you need.

Explore the categories below and be sure to check back often.



#### Training

Access how-to guides, videos, and webinars at



#### Slide Library

Find annotated ENERGY STAR PowerPoint presentations.



#### Knowledgebase

Browse through an array of energy efficiency topics.

<https://www.energystar.gov/buildings/training>

# WaterSense Commercial Facility Resources

- Water use information by facility type
- Water-saving tips
- Best Management Practices
- Assessment tools
- Worksheets and checklists
- Live and recorded training webinars
- Case studies and more!



[www.epa.gov/watersense/tools](http://www.epa.gov/watersense/tools)

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# Best Management Practices

*WaterSense at Work* is an online guide facilities can use to manage water use:

Water management planning

Water use monitoring and education

Sanitary fixtures and equipment

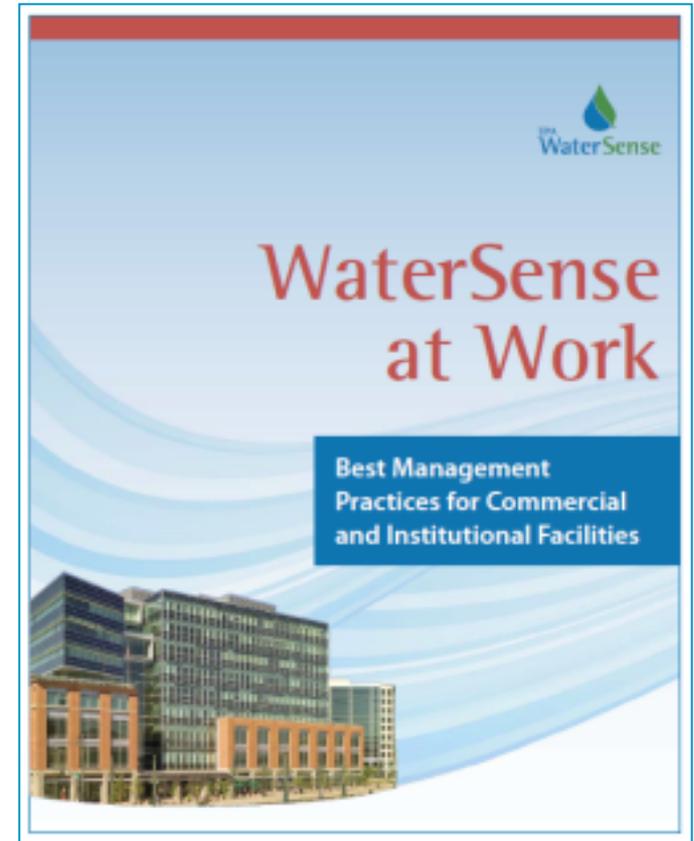
Commercial kitchen equipment

Outdoor water use

Mechanical systems

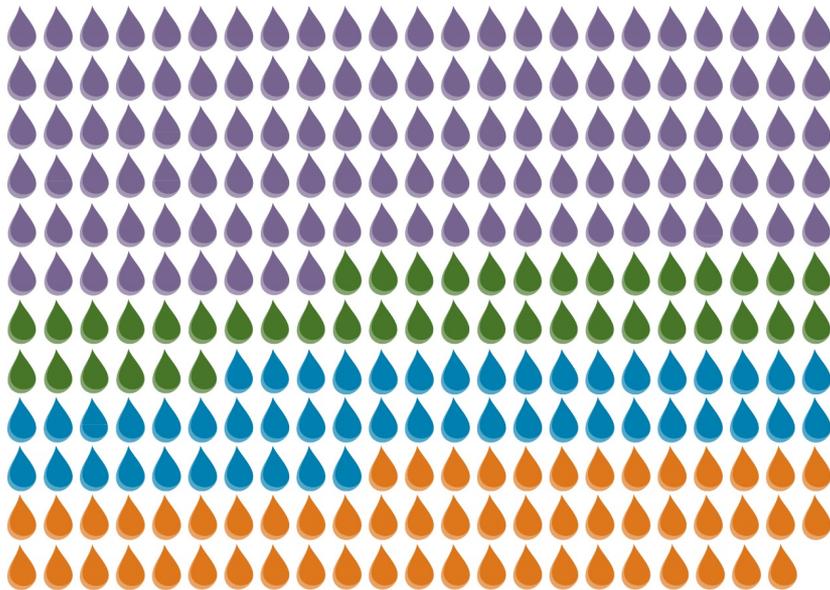
Laboratory and medical equipment

Onsite alternative sources of water



# Accomplishments

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



**725 billion** gallons saved in 2018



**saving consumers**  
**\$84.2 billion**  
in water and energy bills



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# More Information

- WaterSense Information
  - Web site: [www.epa.gov/watersense](http://www.epa.gov/watersense)
    - List of products
    - Partnership information
    - Educational fact sheets and resources
  - E-mail: [watersense@epa.gov](mailto:watersense@epa.gov)
  - [www.facebook.com/epawatersense](https://www.facebook.com/epawatersense)
  - [www.twitter.com/epawatersense](https://www.twitter.com/epawatersense)
  - Toll-free Helpline: (866) WTR-SENS
  
  - Cary McElhinney – EPA Region 5
  - E-mail: [mcelhinney.cary@epa.gov](mailto:mcelhinney.cary@epa.gov)
  - Phone: (312) 886-4313

