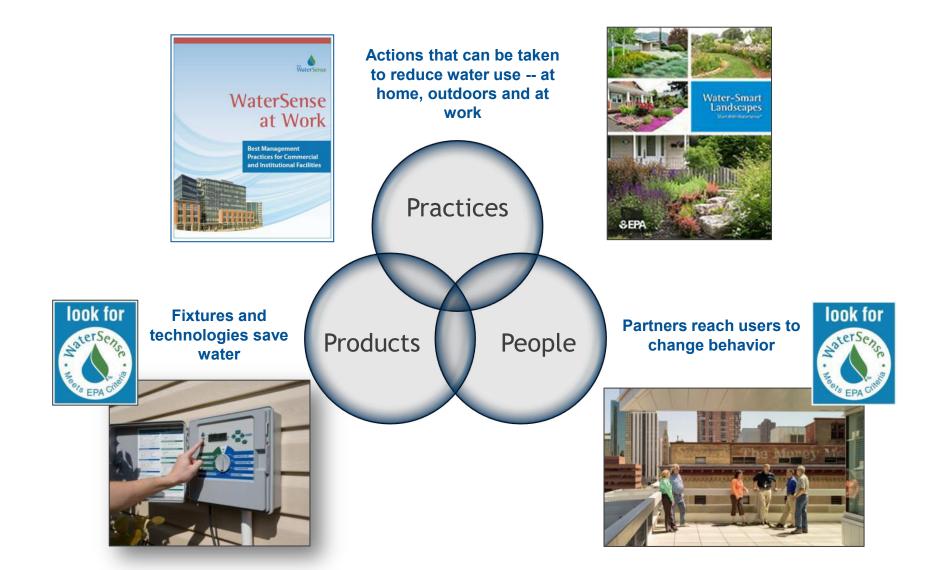


Saving Water in Multifamily Buildings

î - II



What is WaterSese?



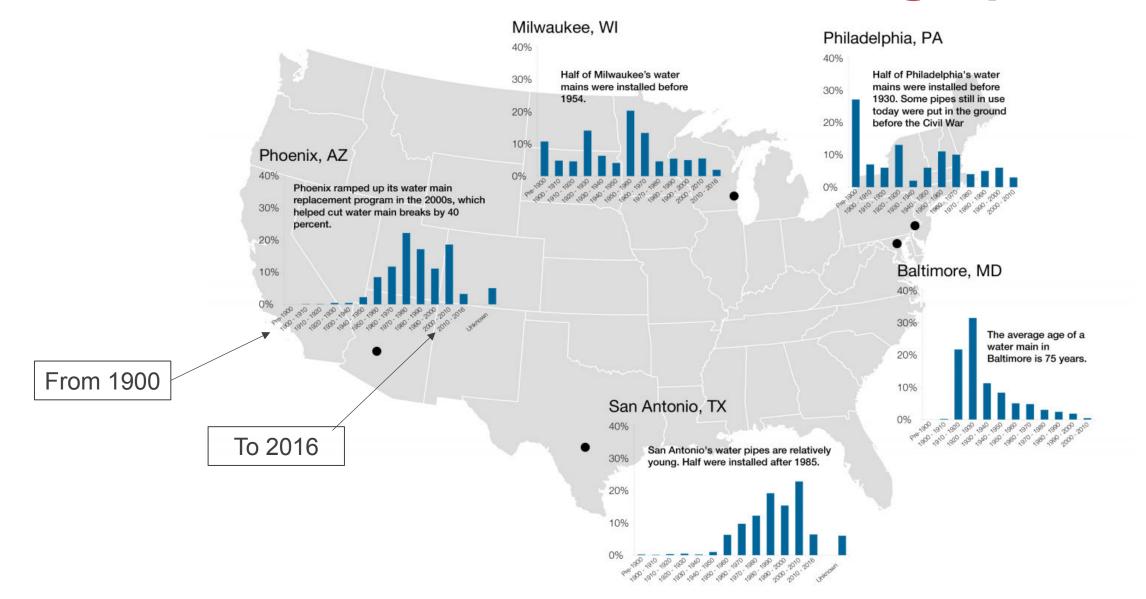


WaterSense Labeled Products



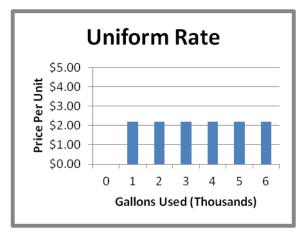


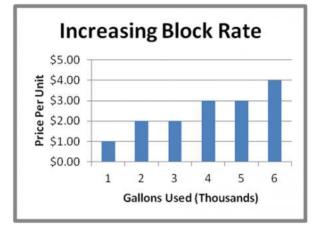
What Are Water Rates Going Up?

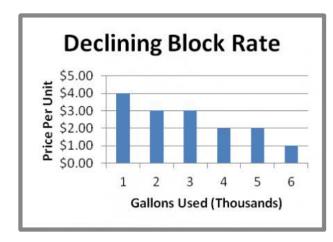


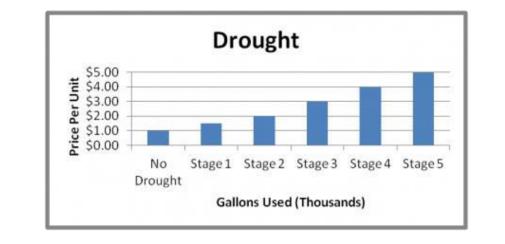


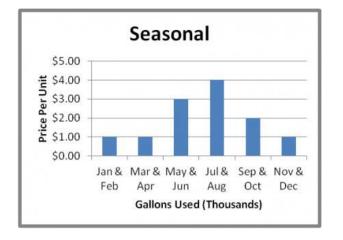
How Are You Being Charged for Water?

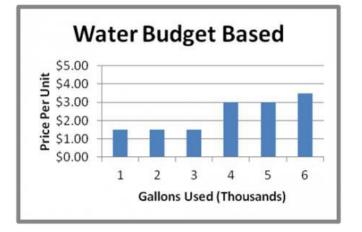






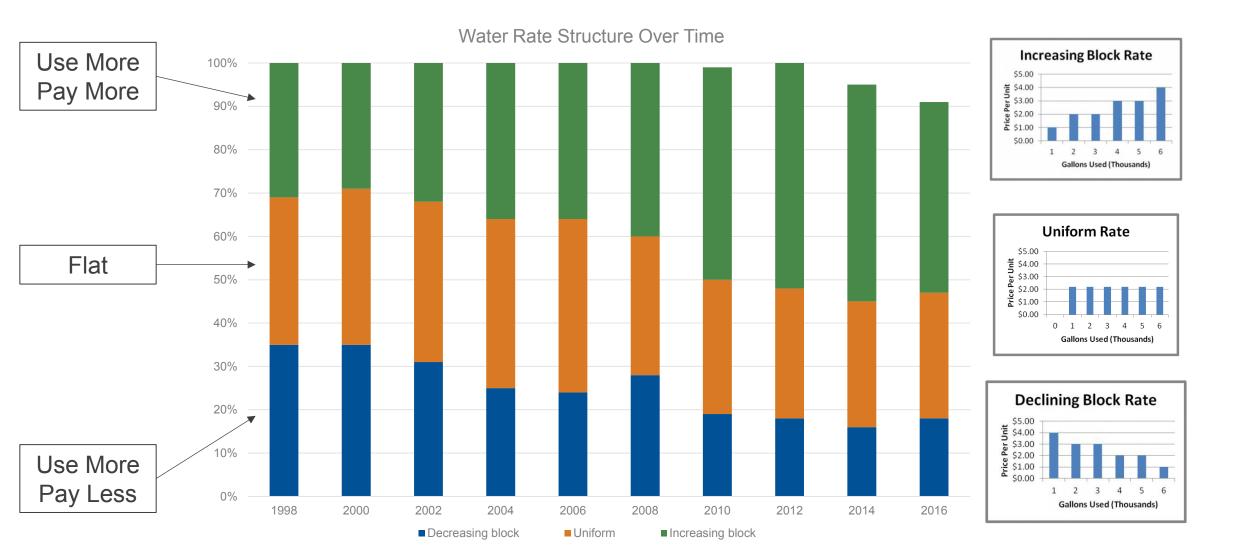








Be Careful... It Could Change





ENERGY STAR® Portfolio Manager®

EP	shboard (Metrics current a A Sample Buildings_Demo Edit/Delete Groups			Search by	y ID or Name
Add	Edit/Delete Craws	* Eneroy Minh			
		Add/Edit/Delo	lights •	Refres	sh Metrics
	Name -	Energy Current Date	ENERGY STAR Score	Site EUI (kBtu/ft²) •	Source EUI (kBtu/ft ¹)
	EPA Sample K-12 School 5711767	12/31/2016	79	53.1	108.9
	EPA Sample Library 5711765	12/31/2016	NA	100.1	234.6
	EPA Sample Mixed Use 5711741	12/31/2016	51	98.0	251.7
	EPA Sample Office 5837710	12/31/2016	1	227.2	652.4
	EPA Sample Office_DefaultValues 5912952	12/31/2016	46	104.4	268.8
	EPA Sample Office_Vacant.Demo 5913030	12/31/2016	22	148.8	383.1
+	EPA Sample University 5711768	12/31/2016	NA	74,4	172.8
	Test Campus 3611609	08/31/2007	NA	188.4	417.4
	First Provid	Page 1 of 5	Next Last 100 •		View 1 - 100 of
		Scheal Shifter PA Sample Mand Bar Shifter EPA Sample Mand Bar Shifter EPA Sample Office Solitors PA Sample Office Solitors PA Sample Office Solitors PA Sample Office Solitors PA Sample Office Solitors Part Schemes Solitors Solitors Provider Provi	School S711767 12/31/2016 EPA Sample Linary S711763 12/31/2016 EPA Sample Mand S711741 12/31/2016 EPA Sample Office S971740 12/31/2016 EPA Sample Office S971740 12/31/2016 EPA Sample Office S971740 12/31/2016 EPA Sample Office S971760 12/31/2016 S912852 12/31/2016 S912952 12/31/2016 S912952 12/31/2016 S912952 12/31/2016 S912952 12/31/2016 S912952 12/31/2016 S912952 06/31/2007 S912952 06/31/2007	School S711767 12/31/2016 79 EPA Sample Unary S711764 12/31/2016 NA EPA Sample Office S7171741 12/31/2016 S1 EPA Sample Office S971744 12/31/2016 1 EPA Sample Office S971745 12/31/2016 1 EPA Sample Office S971756 12/31/2016 2 Office Variat Damp S912952 12/31/2016 22 * EPA Sample University S711756 06/31/2007 NA Tast Campate Office Variat Damp 06/31/2007 NA	School S711767 12/31/2016 79 53.1 EPA Sample Ukraty S711767 12/31/2016 Na 100.1 EPA Sample Ukraty S711767 12/31/2016 S1 96.0 EPA Sample Office S9371704 12/31/2016 S1 96.0 EPA Sample Office S9371704 12/31/2016 1 227.2 EPA Sample Office S937100 12/31/2016 46 104.4 Office Journal S519303 12/31/2016 22 148.8 EPA Sample University S711708 12/31/2016 Na 74.4 Test Cample Angle

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)



Who Uses Portfolio Manger?

Current Portfolio Manager users include:

- 500,000+ properties benchmarking energy use
- 110,000+ properties benchmark water use
- 200,000+ properties benchmark energy/water using web services
- 31,000+ ENERGY STAR certified properties
- 40% of U.S. commercial buildings space
- Leveraged by municipal/state benchmarking requirements

Why Multifamily?

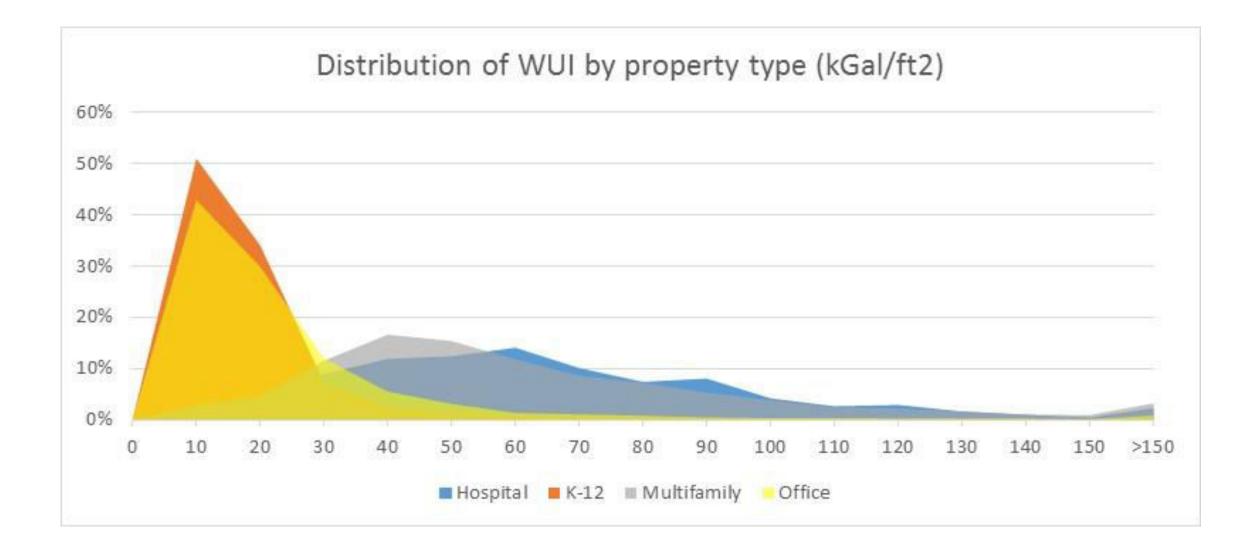
lookfor



- Portfolio Manager trends indicate that multifamily housing is among the most intense users of waters of all sectors (behind only food service, hotels, senior care facilities, and hospitals)
- Presence in the national building stock
 - More 33.1 million residences in the U.S. are located in multifamily buildings, roughly 25% of all housing the country
 - Distributed throughout the country
- Availability of data
 - Fannie Mae Multifamily Energy and Water Market Research Survey
- Willingness of partners to participate
 - Industry and utility partners have shown a tremendous amount of interest



It's a Highly Variable Building Type

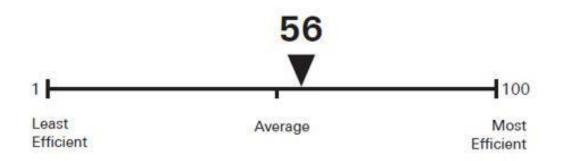




EPA's 1-100 Score for Multifamily Buildings

- 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?

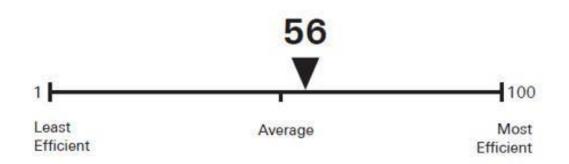




Saving Water in Restaurants

- 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)
- No EPA certification based on the Water Score

What's different from ENERGY STAR score approach ?





How the score works – Example 1

Variables	Multifamily A	Multifamily B
Size	150,000	150,000
Number of Units	220	200
Number of Bedrooms	280	200
Irrigated Area	300	300
Climate	Wet & Cool	Wet & Cool
Expected WUI (gal/ft2)	61	48
Actual WUI (gal/ft2)	56	56
EPA Water Score	50	29

How the score works – Example 1



What is the Same?
Size
Climate
Irrigated area
Water Use
What is Different?

•Number of Units
•Number of Bedrooms
•Score

Variables	Multifamily A	Multifamily B
Size	150,000	150,000
Number of Units	220	200
Number of Bedrooms	280	200
Irrigated Area	300	300
Climate	Wet & Cool	Wet & Cool
Expected WUI (gal/ft2)	61	48
Actual WUI (gal/ft2)	56	56
EPA Water Score	50	29
Gal/unit	38k	42k

Why?

Multifamily A is expected to use more water due to

- Higher unit density
- More bedrooms per unit



How the score works – Example 2

Variables	Multifamily A	Multifamily B
Size	150,000	150,000
Number of Units	220	220
Number of Bedrooms	280	280
Irrigated Area	50,000	300
Climate	Dry & Hot	Wet & Cool
Expected WUI (gal/ft2)	82	61
Actual WUI (gal/ft2)	56	56
EPA Water Score	74	50



Β

How the score works – Example 2

	Variables	Multifamily A	Multifamily B
What is the Same?			
 Size Number of Units Number of Bedrooms Water Use 	Size	150,000	150,000
	Number of Units	220	220
	Number of Bedrooms	280	280
	Irrigated Area	50,000	300
	Climate	Dry & Hot	Wet & Cool
What is Different?	Expected WUI (gal/ft2)	82	61
 Climate Irrigated Area Score 	Actual WUI (gal/ft2)	56	56
	EPA Water Score	74	50
	Gal/unit	38k	38k

Why?

Multifamily A is expected to use more water due to

- Climate
- **Irrigated Area**



Multifamily Guides

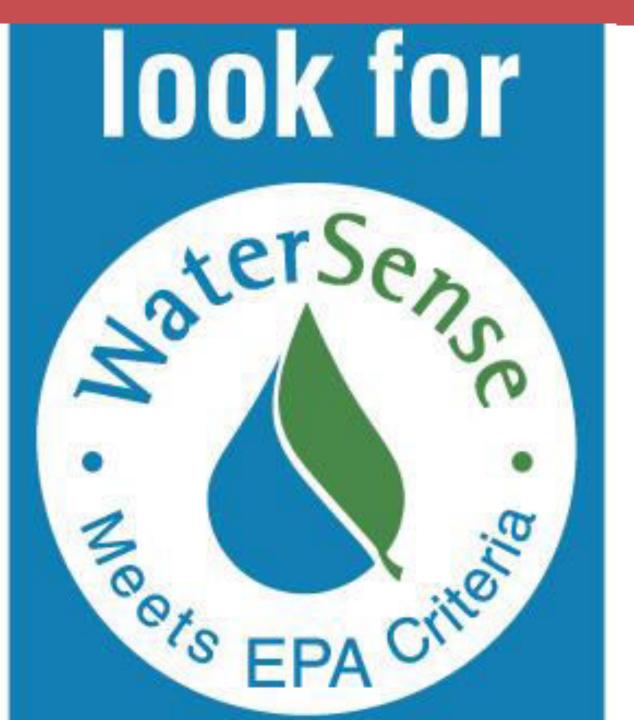
Water efficiency management guides focused on multifamily buildings cover:

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

Multifamily Water Assessment Tool – (coming soon)

https://www.epa.gov/watersense/water-scoremultifamily-housing





Questions?

Contact

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 - <u>Schein.Jonah@epa.gov</u>
- WaterSense Helpline
 - E-mail: <u>watersense@epa.gov</u>
 - Phone: (866) WTR-SENS (987-7367)

