

The Other 50% of Household Water

Water Pressure Regulation at the Meter
(Not at the Building)

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Outline of presentation

Objective

Who needs this information and why

What is the issue

Water use

Impact of Outdoor water pressure regulation

Outdoor water use

Conclusion

Objective

- Protecting the supply line
- Protecting the building
- Saving water

Who needs this information and why:

- New construction industry
 - To comply with EPA, IA, and local water district goals.
- Property management
 - To decrease irrigation leaks and water costs.
 - Possibly to comply with water district mandated water budget.
- Water districts
 - To comply with metro and regional water suppliers.
- Code officials
 - To comply with code intent.

What is the issue?

- High pressure in outdoor water systems wastes water
- Reasons:
 - Misting
 - Over spray and runoff
 - Valve leakage
 - Head blow off and system damage

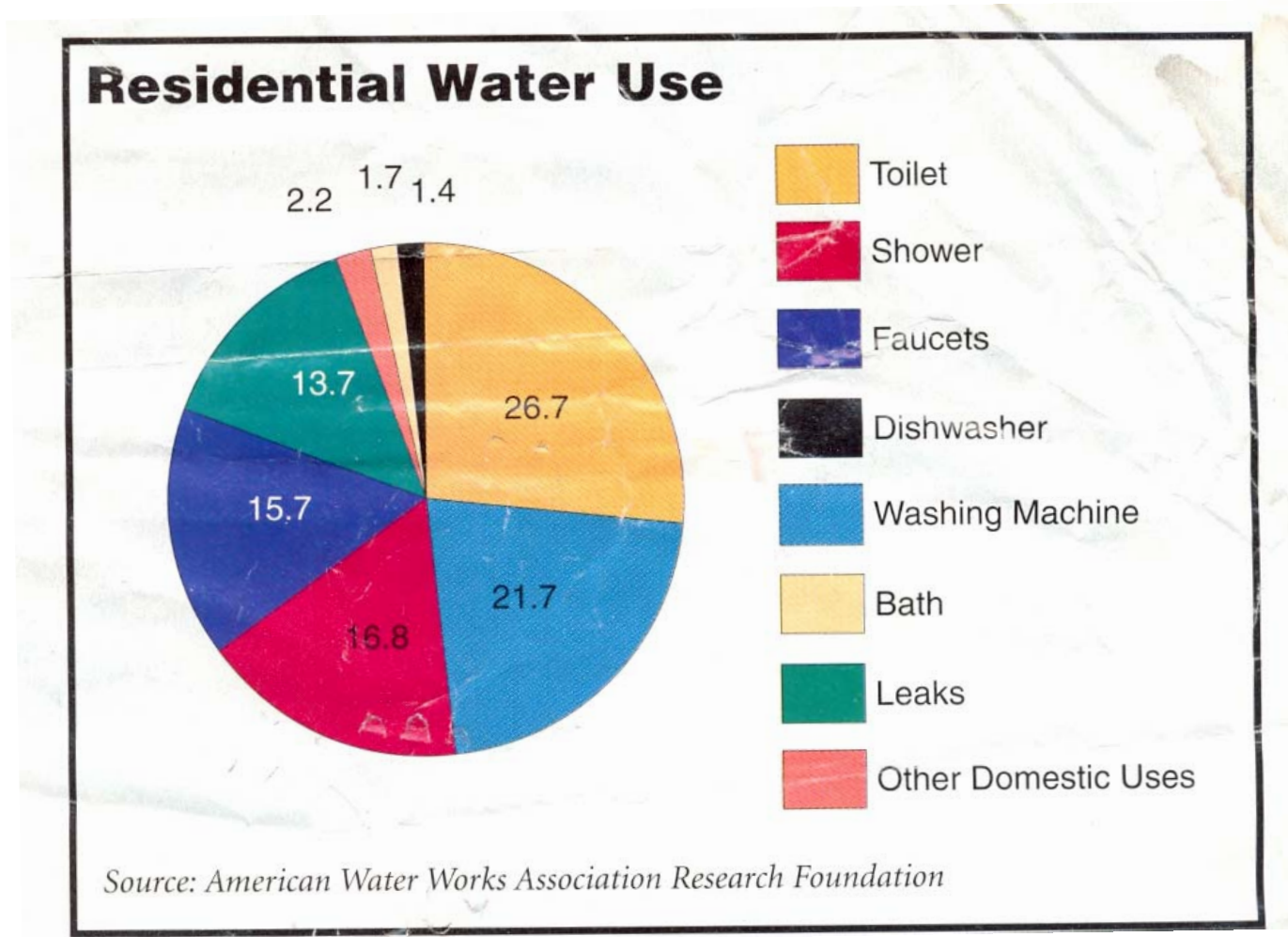
An Example



Water Use

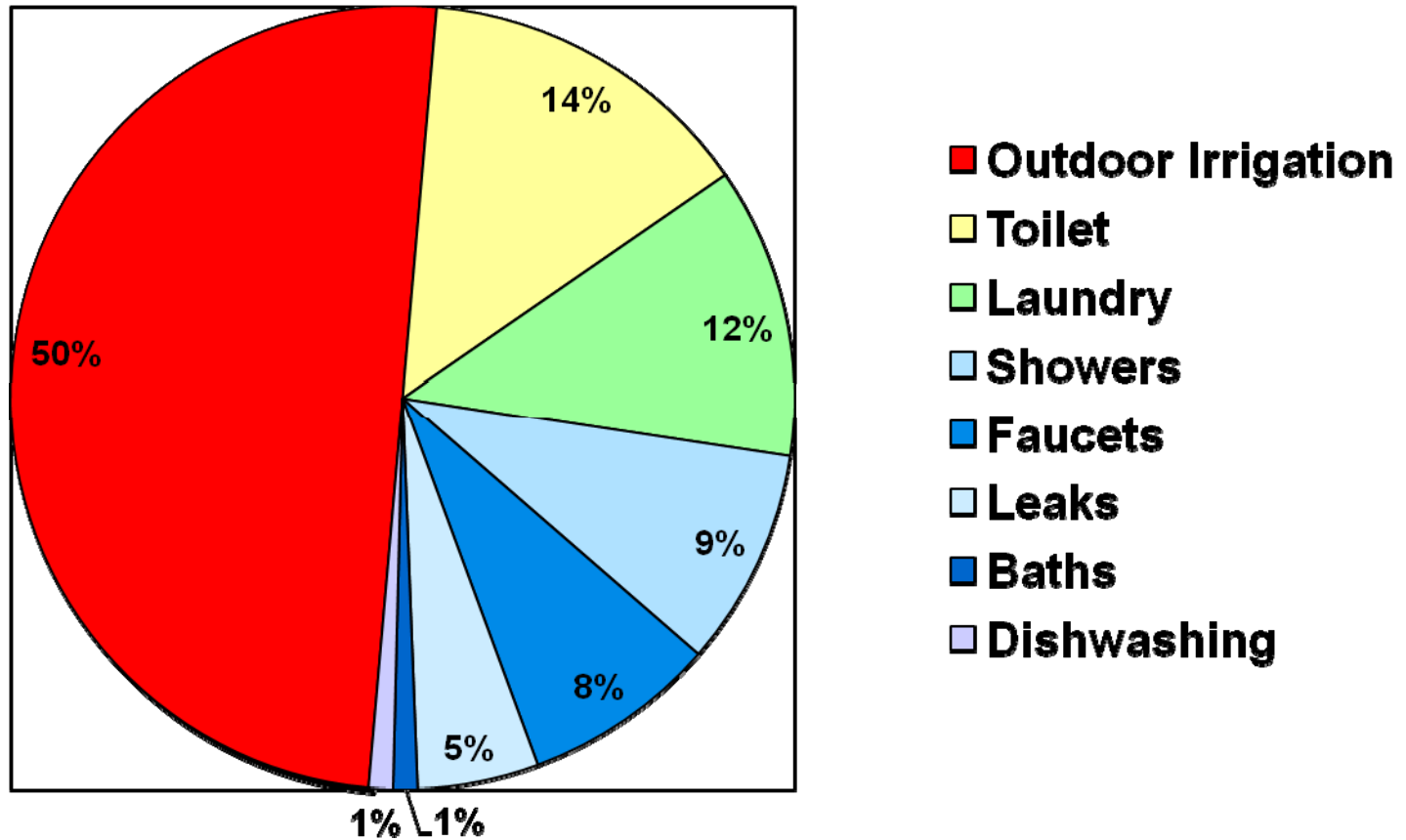
A Common Chart

Hiding the Elephant in the Room



Single Family Water Use

Showing *the other* 50%



Source: California Urban Water Conservation Council: CONTRACTOR Magazine

Factoids: (In my opinion)

- Are result of a study, weighted by perspective.
- Can exclude areas of relevance, leaving a skewed conclusion.
 - (e.g., household water use excluding outdoor water)
- In my opinion, factoids can be opinion
 - when a respectable publication states figures, don't assume more information doesn't exist.

Impact of Outdoor Water Pressure Regulation

- 60% of San Diego Regional water is residential
 - 55% of that is landscaping
 - (33% of total regional water!)

(SD Equinox Ctr. Regional dashboard)

- Elephant-sized opportunity for conservation!
- Result: Saving water on outdoor water use can have a HUGE effect on overall water use.
 - Instead of squeaking out 2% of 15% (e.g. toilets), shoot at the 30% of the 50% wasted in irrigation!

Water Conservation Metrics

(AWWA Subcommittee Report, Jan 2010)

- Water use *and loss* are directly proportional to water pressure.
- All recommended metrics used for outdoor water use are 80 psi or less.
- Outdoor systems are designed for 80 psi or less

Outdoor Water Use

- Spray Irrigation Distribution Uniformity Metrics are changing
 - 80% was once the goal,
 - Now, 65% is being accepted as realistic and achievable.
- Products themselves will not solve water waste.
- A major change in the way landscape is designed, built, sold and maintained will be needed.

Conclusion

- Indoor pressure regulation saves water & prevents damage
- Outdoor water use has been largely ignored
- High pressure in outdoor watering wastes water & can cause damage
- Outdoor pressure regulation will save water & prevent damage
- As conservation efforts improve, codes will need to adjust. ([example](#))
- All AHJ need to be on same page.

Conclusion

- Therefore:
 - All AHJ should require pressure regulation to be at the meter, instead of at the building [\(example\)](#)
 - Thereby:
 - Protecting the supply line
 - Protecting the building
 - Saving water

Discussion

- “Spaghetti”
- Meter being the location for future mandated devices
- Sub-meters for outdoor water systems
- Regulators at the backflow

Thank You

An example of change

- AWWA 2009 Water Conservation Metrics

Table 24. Examples of Average and Efficient Levels of Indoor Residential End Uses

ET_c	Reference evapotranspiration
K_c	crop coefficient
K_m	microclimate factor
K_d	canopy density
IE	irrigation efficiency, typically 0.80
A	irrigated area
0.8	assumption for supplying only 80 percent of ET

K_c = crop coefficient
 K_m = microclimate factor
 K_d = canopy density
 IE = irrigation efficiency, typically 0.80
 A = irrigated area
0.8 = assumption for supplying only 80 percent of ET

Another option is to use the method developed by the EPA's WaterSense® Water Budget Approach (EPA, 2009). On May 8, 2009, EPA released a revised draft of the tool (file name: WaterSense Water Budget Tool_050809.xls) in a Microsoft Excel spreadsheet format that facilitates the water budget calculation for urban landscapes. This calculation can determine how much water the designed landscape requires based on climate, plant type, and irrigation system design.

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Current Code Interpretation (That needs to change)

608.2 – Item Number 2

SUBJECT: Pressure Regulator Location

SECTION: 608.2
Applicable Code Edition(s):
2000/2003/2006

QUESTION: Where should the regulator be installed? At the meter or at the house? It is felt by many people that if the pressure is over 80 psi, the static pressure regulator should be used to protect the water service as well as the items in the house.

ANSWER: The pressure regulator should be installed at the house, leaving added pressure in the water service to operate lawn sprinklers, hose bibbs, etc. One of the conditions in approving pipe is that it must be able to withstand the working pressure provided by the water supplier.

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