This presentation premiered at WaterSmart Innovations

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Future Water Waste
Nipping it in the build

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Strategy

Use codes to require water efficient design, equipment, fixtures, fittings and appliances at time of construction or remodel; avoiding the costs of projects and incentives for retrofits or early replacement after construction.

Advantages

- Water efficiency assured upon occupation
- Minimal initial cost to owner and utility
- No annual program costs to utilities
- Reduced waste of replaced materials
- Some retrofits and replacements are cost prohibitive and have less than perfect performance compared to building it right at the start.

Where Codes Can Nip It In the Build

- Toilets, Showers, Faucets, etc.
- Appliances and Equipment
- HVAC Water Use
- Dual Plumbing for Alternate Water
- Landscape Irrigation
- Hot Water System Design
- Alternate Water Sources - SAFELY

Efficient Hot Water Distribution Design

- Proper design of hot water distribution system saves water and energy.
- Installation costs from efficient design code requirements are minimal compared to typical unplanned system.
- Post construction re-plumbing is often cost prohibitive (some re-circulation systems can somewhat improve pre-existing poor performance)

HW Distribution Design

Code Required at Build

- $100 to $800 added construction costs
- Almost instant hot water
- No program costs
- No financial incentive costs
- 100% participation

Post-build Programs

- $800 to $2000 added construction costs
- Variable HW wait times
- Administration costs
- Financial incentives
- 5-25% participation

Efficient Landscape & Irrigation

- Proper design and installation of both the landscape and irrigation system can save 50% of irrigation water
- Added costs from efficient system are only 10 to 20% greater
- Savings far exceed added costs
- Retrofitting existing poor design often requires complete redo - COSTLY.

Landscape and Irrigation

Code Required at Build

- $300 to $1000 added construction costs
- Landscape and irrigation integrated design
- No program costs
- No financial incentive costs
- 100% participation

Post-build Programs

- $1000 to $5000 added construction costs
- Retrofit often a patchwork of better, but imperfect improvements
- Administration costs
- Financial incentives
- 1-10% participation

Efficient Fixtures & Fittings

- 20% (+) reduced water use compared to Federal requirements
- Fixture and fitting lifespans are often 5 to 25+ years
- Materials usually have high embedded energy and water costs
- Savings far exceed added costs

Fixtures & Fittings

Code Required at Build

- $200 to $700 added construction costs
- Reduced flows can reduce pipe and meter size requirements
- Matched designs
- No program costs
- No financial incentive costs
- 100% participation

Post-build Programs

- $800 to $2000 added construction costs
- Replacements may not match other fixtures & fittings
- Water supply pipes and sewer pipes might be oversized.
- Administration costs
- Financial incentives
- 1-10% participation

Resources

- Alliance for Water Efficiency – a4we.org
- IAPMO Green Plumbing and Mechanical Supplement – iapmo.org
- ICC International Green Construction Code – iccsafe.org
- ASHRAE 189.1 Standard of High Performance Buildings - ashrae.org

More Information

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