

# Water Efficiency and Opportunities energy

## Commercial & Institutional

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*Energy 2002 Exposition*

# Where It Flows

- Landscape
- Cooling Towers
- Toilets
- Urinals
- Wash Basins
- Kitchens
- Laundry

# Share Your Goals

## There's No "I" In Water Conservation

- Most water conserving technology ~~can~~ will be misused by employees
- Beware of Tools of Convenience
  - Irrigation Controllers
  - Auto-flush controls
- Most water waste is known by some, but goes unreported
- Avoid information overload

# Survey the Facility

And You Audit Do It Annually

- Internal audits often suffer from Familiarity Syndrome
- Independent audits are usually more effective - try a Facility Manager swap
- We have *always* found significant cost effective savings in 20 years of energy and water audits (despite self selection bias)

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# Landscape

## Rules of Green Thumb

- 90% of controllers over water
  - Non-turf requires 1/2 water of turf
  - Turf H<sub>2</sub>O needs approximately (5-precip.) ft<sup>3</sup> / ft<sup>2</sup> / year
  - "Football Season Starts Half Time"
- ©
- *Take control of the controller*

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# Toilets

## Come Out of the Water Closet

- Replace with ULFTs
- Repair with proper parts
- Educate employees
- Move towel dispensers away from stalls
- Do not use in-tank cleaners
- Weekly leak checks (esp. hotels)

# Urinals

## Taking Aim

- Replace valves with 1 GPF
- Weekly leak checks
- Repair valves with proper parts
- Replace with waterless urinals
  - Educate employees
  - Educate maintenance staff

# Wash Basins

## No Fairer Faucet

- 1 GPM aerators for hand washing
- Auto turn-off valves
- Hot water may not be necessary
- Operational drain stops  
(especially hotels)
- Weekly leak checks

# Boiler/Steam Systems

## A Topic For Condensation

- Schedule routine inspections
- Water treatment reduces blowdown
- Reduce scale buildup to improve heat transfer
- Install and maintain condensate return
- Do not guess at blowdown rates
  - too few causes scale = energy waste
  - too many = water waste
  - input water quality is variable

# Cooling Equipment

## Single Pass Intercepted

- Inventory: ice machines, A/Cs, CAT scanners, degreasers, hydraulics, condensers, air compressors, welders, pumps, etc.
- Investigate multi-pass system options
- Set input rates at lowest possible
  - input water temp may be variable
- Maintain and clean equipment
- Investigate water reuse options

# Evaporative Cooling

## All Along the Cooling Tower

- Water management requires:
  - dedicated water meter
  - TDS meter (conductivity meter)
- Input water needs depend on:
  - Allowable TDS threshold of system
  - Evaporation
  - Input water TDS level
- Overflow leaks
- Use your *power over the tower*

# Food Service

## Fresh Catch of the Day: Poached Habits with Watercrisis Salad

- Wasteful practices common
- Glass of water on request only
- New dishwasher technology
- Efficient spray nozzles
- Fill basins *may* not need aerators

# Laundry

## What To Wash Out For When Linen Dancing

- Hotels should include “WAVE” practices
  - change linens only upon request
  - launder towels only upon request
- H-axis washing machines save 30%
- Cold water wash
- Recycle rinse water

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