

1.0 Intent

Water conservation, efficiency and reuse are becoming increasingly important in light of reduced ground water and surface water levels, drought and changing climate patterns. C&W is committed to assisting its clients in increasing water efficiency to both conserve water by identifying and analyzing water conservation and efficiency opportunities, and reducing operational costs through implementing no and low cost solutions.

Implementation of the policy requires the following:

1. Review and understand the policy.
2. Determine to what extent the policy can be implemented within your portfolio, building or facility.
3. Discuss pertinent policy issues with the appropriate service suppliers/vendors.
4. Determine if there are any major impacts to the current building operations or additional costs associated with the implementation of the policy.
5. Develop written implementation plans along with the policy and discuss them with your client (i.e. cost impact, changes in operation, notification to occupants).
6. Obtain client approval in writing.
7. Assign a responsible party for the policy.
8. In the event that a property is unable to implement the policy or parts of the policy, supporting documentation outlining the reasons for non-compliance should be maintained on file. This policy will be incorporated into the C&W Quality Assurance Review (QAR) process.

Please note that the approaches described in each of the “green” policies constitute a baseline. Individual facilities/properties are encouraged to further enhance the policies as appropriate in consultation and approval with your respective clients and building ownership.

The policy will be periodically reviewed and updated as required. Notification will be provided as updates occur.

2.0 Scope

The C&W Water Efficiency Policy (the Policy) outlines C&W’s approach to reduce water consumption at managed properties including: (1) identifying and analyzing water conservation and efficiency improvements, (2) implementing no and low cost solutions, and (3) upgrading to efficient equipment, (4) educating employees and reaching out to building occupants/tenants, (5) quantifying the achievement of cost savings through water efficiency improvements; and (6) required reporting requirements.

3.0 Policy

Effective Date: M/D/Y

Responsible Party:

Process

C&W encourages building managers to take the following steps for implementing the C&W Water Efficiency Policy: (1) making a commitment, (2) assessing performance and setting goals, (3) creating an action plan, (4) implementing the action plan, (5) evaluating progress, and quantifying the achievement of cost savings through water efficiency improvements. In addition, compliance with the guidelines for tracking water consumption outlined in C&W's *ENERGY STAR Benchmarking Workbook* is required.

Tracking Water Consumption

Responsible Party:

- Track water consumption (indoor and outdoor) over time for all properties under management using the EPA Portfolio Manager (PM) tool in accordance with C&W guidelines outlined in [C&W's ENERGY STAR Benchmarking Workbook](#). All properties must track this data regardless of whether they are eligible for a national energy performance rating in PM.
- During each calendar year, maintain current information in Portfolio Manager (PM). Update PM account on a monthly basis as utility bills are received.
- Share individual Portfolio Manager accounts with the C&W Corporate Master Account and the BOMA International Master Account.
- Comply with C&W reporting requirements (see section 4)

Identifying and Analyzing Water Conservation and Efficiency Improvements

Responsible Party:

Auditing

Identify and analyze opportunities for water conservation and efficiency improvements by conducting a water audit.

- Contact your local water utility to determine whether free water audits are offered. Alternatively, download the Federal Energy Management Program's [WATERGY](#) software and use the tool to audit your building for water usage.

Audit the following categories:

- Domestic Water Use
 - Toilets

- Urinals
- Lavatory Sinks
- Other Sinks (janitor's closet, laundry, kitchen, etc.)
- Showers
- Known Leaks

- Plant Cooling and Heating
 - Cooling Towers
 - Evaporative Coolers
 - Air Washers
 - Humidifiers
 - Boilers
 - Pumps
- Once –Through Cooling
 - Air Conditioners
 - Other Once Through

- Other
 - Dishwashers
 - Washing Machines

- Landscape and Decorative Uses
 - Turf Area (square feet)
 - Landscaped Area (square feet)

Implementing No and Low Cost Solutions

Responsible Party:

Planning

- Establish and distribute a written Water Reduction Plan for the facility/building.
- Involve clients, building employees and occupants in the challenge to reduce water consumption.
- Make and meet environmental goals to reduce water consumption and promote a "green" image for the facility/building.
- Chart progress and post results.

Building Operations and Maintenance Practices

- Submeter all major water uses (i.e. kitchen, cooling towers, and irrigation) and read water meters regularly.
- Graph and analyze data to spot trends that could indicate leaks or malfunctioning equipment.
- Locate and repair leaks and develop a regular maintenance schedule to fix leaks immediately.
- Check solenoid valves and switches on all water-using equipment periodically; repair or replace as necessary.

- Maintain insulation on hot water pipes.
- Routinely adjust flushometer valves for proper flush volumes.

Heating and Cooling

Cooling Towers

- Contact your local water utility company to determine if cooling tower sewer abatements are offered.
- Ensure boiler and cooling tower blow-down rates are maintained at levels recommended by manufacturer's specification.
- Submeter and regularly record make-up water and blowdown to address any anomalous usage patterns that could increase leaks or problems in the system.
- Utilize sidestream filtration to reduce concentration of solids
- Investigate possibility of steam condensate for cooling tower make-up
- Consider ozone treatment for cooling tower

Other

- Check steam traps and ensure return of steam condensate to boiler for reuse.
- Limit boiler blowdown, check continuous blowdown systems and adjust if necessary.
- Minimize the water used in cooling equipment, such as compressors, in accordance with manufacturer's recommendations. Utilize solenoid controls and timers to match cooling water to duty cycle of equipment.
- Employ an expansion tank for boiler blowdown drainage rather than cold water mixing.
- Replace water-cooled equipment with air-cooled units where possible and economically feasible.

Equipment/Fixtures

- Replace any water-using equipment or fixtures that wear out with water-saving models or air-cooled units where possible.
- Select [EPA WaterSense](#)-labeled products when replacements are needed.
- Install [ultra-low flow toilets](#), or adjust flush valves or install dams on existing toilets.
- Install urinal cubes (microbial cubes that can be used to turn existing urinals into waterless units), low-flow urinals or waterless urinals
- Install low flow faucet aerators and high efficiency shower heads.

Restaurant Kitchens and Cafeterias

- Operate dishwashers with full loads only; ensure that water shuts off when no ware is in the washer.
- Reduce flow of water to minimum necessary in scrapper troughs, food prep, wash down and frozen food thawing.
- Install high pressure/low flow spray rinsers with automatic shut off for pot washing.
- Adjust ice machines to dispense less ice if excess ice is produced.
- Control flow of water to garbage disposer or consider eliminating the use of the disposer altogether.

- Retrofit once-through water-cooled refrigeration and ice machines and incorporate into recirculating cooling loop wherever possible.
- Turn off dishwashers when not in use.
- Scrape rather than rinse dishes before washing.
- Use water from steam tables to wash down cooking areas.
- Do not use running water to melt ice or frozen foods.
- Handle waste materials in a dry state whenever possible.
- Install Energy Star dishwashers when replacing dishwashers.

Laundries

- Wash only full loads of laundry or select the appropriate washing cycle provided on the washing machine.
- Use a rinse water recycle system.
- Purchase high efficiency equipment when replacing equipment.

Exterior Water Usage

Non-Landscaping Uses

- Wash vehicles less often; use a commercial car wash that recycles water.
- Sweep or blow paved areas to clean. If water is necessary, use water efficient spray brooms or low flow nozzles with automatic shut-offs.
- Use porous or permeable pavement for parking lots and other paved areas.

Watering

- Install separate water meters for irrigation uses.
- Use a drip or bubbler irrigation system where appropriate.
- Install a “smart” irrigation system that uses a combination of daily evapotranspiration, weather data, slope, soil types, planting coefficients, and precipitation and infiltration rates to calculate actual water requirements on a daily basis.
- Detect and repair all leaks in irrigation systems.
- Use properly treated wastewater for irrigation where available.
- Capture rainwater and use for landscaping.
- Water the lawn or garden during the coolest part of the day (early morning is best). Do not water on windy or rainy days.
- Water trees and shrubs, which have deep root systems, longer and less frequently than shallow-rooted plants which require smaller amounts of water more often. Check with the local agricultural extension service for advice on the amount and frequency of watering needed in your area.
- Plant drought resistant and native plants.
- Set sprinklers to water the lawn or garden only—not the street or sidewalk.
- Use soaker hoses and trickle irrigation systems.
- Install moisture sensors on sprinkler systems.
- Use automated irrigation systems.

Planting

- Test soil for nutrient content and add organic matter if needed.
- Minimize turf areas and use native grasses.
- Use native and drought-resistant plants

Maintaining

- Use mulch around shrubs and garden plants to reduce evaporation from the soil surface and cut down on weed growth.
- Remove thatch and aerate turf to encourage movement of water to the root zone.
- Raise lawn mower cutting height
- Minimize or eliminate fertilizing

Ornamental Water Features

- Do not install or use ornamental water features unless they recycle the water. Use signs to indicate that water is recycled. Do not operate during a drought.

Employee Education and Building Occupant Outreach

Responsible Party:

- Educate and involve building employees and tenants in water efficiency efforts.
- Post signs in restrooms and common areas that promote water conservation.
- Increase public awareness by distributing electronic reminders with water saving ideas.
- Post signs showing your building-wide commitment to saving water.
- Encourage water conservation at home.

Quantifying the Achievement of Cost Savings

Responsible Party:

- Develop a table to illustrate costs and benefits of improvements to include:
 - Summary of improvement measures
 - Cost of each project
 - Rebates or other incentives received
 - Annual savings
 - Simple payback

Upgrading to Efficient Equipment

Responsible Party:

- After completing the no and low cost measures above, evaluate opportunities for replacing worn out equipment with water efficient equipment.
- When purchasing new water-related products, select [EPA Watersense](#) labeled products.

Financing

If financing is required for water efficiency capital improvements, seek client approval to pursue state- or utility-based incentives.

Water Reuse Systems

- After completing no and low cost measures and completing upgrades to more efficient equipment encourage clients to evaluate opportunities to:
 - [Harvest rainwater](#) for landscaping
 - [Reclaim greywater](#) from bathroom lavatory drains for reuse in toilets

4.0 Reporting Requirements

Responsible Party:

- Track water consumption using the EPA Portfolio Manager (PM) tool in accordance with C&W guidelines outlined in [C&W's ENERGY STAR Benchmarking Workbook](#).
- During each calendar year, maintain current information in PM. Update PM account on a monthly basis as water bills are received.
- Enter complete data for January 2008 through December 2008.
 - C&W is using calendar year 2008 as a corporate-wide baseline year against which to track water use reduction
- Share individual Portfolio Manager accounts with the C&W Corporate Master Account and the BOMA International Master Account.

5.0 Resources

- EPA ENERGY STAR [Portfolio Manager](#)
- C&W ENERGY STAR Benchmarking Workbook (posted on CW Now; Business Resources, Client Solutions, Energy Committee folder)
- [WATERGY Manual and Software](#)
- Water Efficiency [Manual](#) for Commercial, Industrial and Institutional Facilities.
- General Services Administration [Water Management Guide](#)
- [Maximum Performance Testing of Toilet Models](#)
- [American Rainwater Catchment Systems Association](#)
- [Water Wiser: The Water Efficiency Clearinghouse](#)
- [Water Efficient Landscaping](#)
- Urinal cubes (1) (2) (3)