

Executive Order 13423 Technical Guidance - Indoor Water Conservation

General Principles and Commitments

Employ strategies that in aggregate use a minimum of 20 percent less potable water than the indoor water use baseline calculated for the building, after meeting the Energy Policy Act of 1992 fixture performance requirements.

Technical Guidance

Introduction

The Federal Government uses an estimated 244-256 billion gallons of water annually. This water is consumed as potable water, to cool or heat buildings, to support processes occurring within the buildings, and to maintain healthy landscaping. Options for water efficiency in Federal facilities range from simple strategies, such as installing low-flow faucets, to sophisticated solutions, such as using computer- and climate-controlled irrigation systems. In an era of ever-tightening budgets, it is important for facilities to be aware of all the options available to them to save money while maintaining or expanding mission-critical activities.

Why is water efficiency important to federal facilities?

1. Water resources are becoming increasingly scarce. As the U.S. population increases, so does our water use. Many regions are starting to feel the strain, as indicated by data on the overuse of groundwater and the intrusion of saltwater into many areas.
2. Legislation mandates conservation. Both [Executive Order 13423](#) and the Energy Policy Act of 1992 call for Federal agencies to install all cost-effective energy and water conservation measures in their facilities. (see [Related Mandates](#) below).
3. Costs for water and sewer services are increasing steadily. Unlike electric rates, water rates are projected to increase in the future. A conservative estimate of future increases in water rates for Federal agencies is about 10% per year nationwide.
4. Federal facilities can play an important role in preserving local water resources. They are often a major user of water in their communities, and can Lead By Example in demonstrating good water management practices. This is especially true for facilities that have their own water supply.

For all these reasons, Federal agencies should be determining the most cost-effective ways to

save water, energy, and money in their facilities by implementing efficiency measures.

Indoor water is described in this guidance as water used for potable water purposes and for processes occurring within a building (e.g., laboratory processes). Indoor water uses also include losses associated with hydronic or steam systems that heat and cool a building. This guidance addresses both conservation and efficiency measures to reduce indoor water consumption for new and replacement installations so as to exceed EPA Act 1992 standards when appropriate. Guidance is provided to help establish meaningful water minimization goals and best management practices for your agency's building portfolio.

Implementing water efficiency and conservation measures reduces the strain placed on the source of that water, whether it be a municipal water source, from a well, or reclaimed water. These measures also decrease the energy implications of treating water to make it suitable for potable water.

WATERGY is a spreadsheet model that is often used to analyze the potential of water savings and associated energy savings. The spreadsheet allows input of utility data (energy and water cost and consumption data for the most recent twelve months) and facility data (number and kind of water consuming/moving devices and their water consumption and/or flow rates). It then estimates direct water, direct energy, and indirect energy annual savings, as well as total cost and payback times for a number of conservation methods.

Issues to Resolve

Some water processes may be excluded from complying with executive orders and legislative mandates.

Related Mandates

- Energy policy Act of 1992 Title F- Federal Agency Energy Management Section 152 Federal Energy Management Amendments Paragraph (b) (4) states that: "Not later than January 1, 2005, each agency shall, to the maximum extent practicable, install in Federal buildings owned by the United States all energy and water conservation measures with a payback period of less than 10 years, as determined by using methods and procedures developed pursuant to section 544."
- Executive Order 13423, "Strengthening Federal Environmental, Energy, and Transportation Management"
- Federal Acquisition Regulations Part 23, 48 CFR 23—Specify plumbing fixtures and hot-water-using appliances that meet federal requirements for water-efficiency purchasing.
- Safe Drinking Water Act Section 1417—requires certain certified components to be installed in the last liter of plumbing.

Additional Considerations

Safe Drinking Water

- Plumbing products should meet NSF standard 61, Section 9 and should be shown to leach little or no lead under the testing protocol set in EPA's Guidance "Lead in Drinking Water in Schools and Non-residential Buildings."
- Institute practices to passivate new plumbing components. See [EPA's Post-Remediation Sampling](#)
- Prevent accidental contamination of drinking water sources from permanent or temporary cross connections. See [EPA Cross Connection Control Manual EPA 816-R-03-002, Feb 2003](#)

Major Resources

WBDG

DESIGN OBJECTIVES

Water Conservation

Model Contract and Specification Language

- [15400 - Plumbing Fixtures & Equipment](#)

Publications

- [Labs21 Water Efficiency Guide for Laboratories](#)

Other

- [EPA Water Efficiency program](#)
- [FEMP Water Efficiency Program](#)

Best Management Practices for Water Conservation (Per the requirements of Executive Order 13123)

[BMP #1](#)—Public Information and Education Programs

[BMP #2](#)—Distribution System Audits, Leak Detection, and Repair

[BMP #3](#)—Water Efficient Landscaping

[BMP #4](#)—Toilets and Urinals

[BMP #5](#)—Faucets and Showerheads

[BMP #6](#)—Boiler/Steam Systems

[BMP #7](#)—Single-Pass Cooling Systems

[BMP #8](#)—Cooling Tower Systems

[BMP #9](#)—Miscellaneous High Water-Using Processes

[BMP #10](#)—Water Reuse and Recycling

[Guidance to Federal Agencies for Determining Baseline Water Usage](#)

[Water Efficiency Federal Requirements](#)

- [LEED™ for New Construction](#)
 - [Watergy software](#)
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