

Proposed Water Efficiency Program Analysis

WMI's water conservation programs focus on Water Conservation Measures (WCM's) that provide high comfort level and also save water. The products we recommend reduce the domestic water consumption and projected water maintenance and other related costs.

This brief report will identify the proposed upgrades for each of the domestic water consuming fixtures:

- **Measure-1** High Volume Toilet Replacement
- **Measure-2** Faucet Flow Controls
- **Measure-3** Shower Head Replacement
- **Measure-4** Ongoing Maintenance and Repairs

In the early 1970's congress passed the first law to regulate the amount of water used by domestic water closets. This law stipulated that toilets would be regulated to 3.5 gallons per flush (3.5 gpf) and showers be regulated to use 3.0 gallons per minute or less. In 1994 the standards were lowered even more. Below is a listing of the current EPA standards and what the standards are to qualify as an EPA WaterSense product.



Fixture	Current Standards	EPA WaterSense goal
Toilets	1.60	1.28
Urinals	1.00	0.5
Showerhead	2.50	1.5 - 2.0
Sink faucet residential	2.20	1.0 - 1.5
Lavatory faucet public	0.50	0.5

In summary to acquire a WaterSense certification a product must be 20% more water efficient than the standard and must be as effective as the standard product(s).

Toilet replacement

Over 50% of the toilets in the US are older models that use 4.0 gpf or more. Many of these toilets do not flush very well and are prone to a high level of maintenance calls. Many of these toilets are now out of calibration and use more water than what they were designed to use originally. Older toilets require frequent maintenance to the handle, fill valve and flush valve and as a result are prone to significant leakage. When replacing toilets in existing buildings consideration must be given to two items: 1) a toilet is needed that is unlikely to back up and 2) the toilet needs to have a large footprint that can cover up problems with the floor tile.



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The standard for receiving EPA certification as a Water Sense, high efficiency toilet (HET), is that the toilet must be able to flush at least 400 grams of solid matter. Approved HET toilets must also use 20% less water than traditional 1.6 gpf toilets.

For a listing of the best HET toilets refer to the MaP (Maximum Performance Testing) report that can be found by going to the Alliance for Water Efficiency web site <http://www.a4we.org/MaP-main.aspx>. The HET toilets we install flush significantly better than the older toilets they replace.

Faucet Flow Controls

Based on nationwide surveys, most faucets have an average flow rate of 2.2 gallons per minute. We suggest that flow controls should be installed on kitchen faucets that have a flow rate of 1.5 gallons per minute, and use 1.0 gallon per minute flow controls for the bathroom faucets.



WMI installs high quality aerators with conical screens to isolate debris and prevent clogging. The units are WaterSense approved and include a pressure compensating feature. They are also available in laminar flow, to reduce splashing.

Showerheads

The majority of existing showerheads are mixed models with flow restriction between 2.5 and 4.5 gallons per minute. We typically install showerheads with flow rates of 2.0 gallon per minute. WMI showerheads have adjustable spray selections to offer massage and combo settings, efficient non-aerating spray to reduce heat loss. WMI showerheads are field tested and have been used in many water efficiency programs for apartment buildings and condominiums. The results have been satisfying for both the properties and residents; this unit is in compliance with the EPA WaterSense guidelines.



Tub and Faucet Repairs

All faucets will be examined for leaks. During the course of the program if faucets are found to be leaking the seats, washers, o-rings, stems and or handles will be repaired or replaced.

Tub spouts will also be replaced if they are found to be leaking when the showers are turned on.

