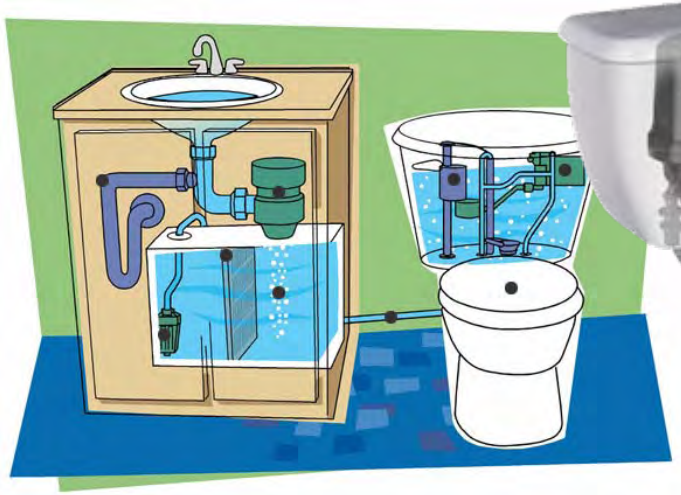
New Technology

Body Shop: Building Strategies

- What to Look for…



EPA's Water Sense Program

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- Certifies Products
  - Starting with HET Toilets

U.S. EPA WaterSense

WaterSense CERTIFIED

Indoor Water Usage

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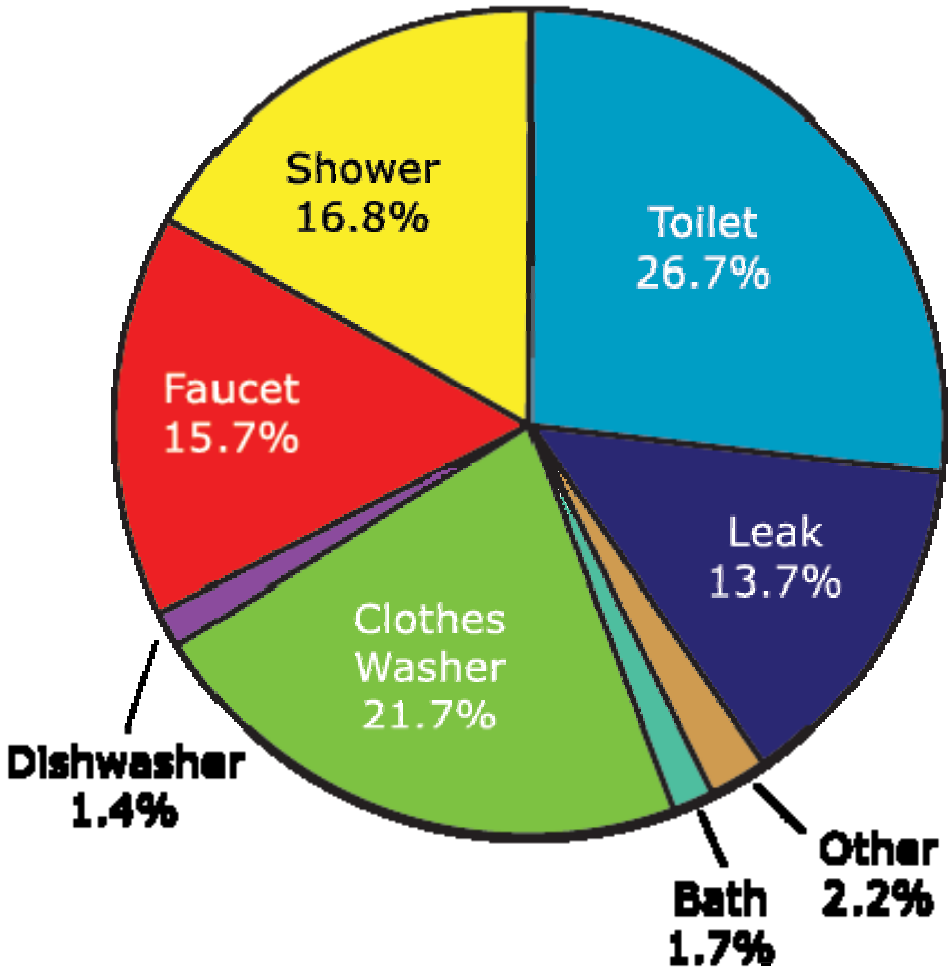

High-Efficiency Toilets (HET)

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- What are HET Toilets?

- Under federal law, toilets must not exceed 1.6 gallons per flush (gpf). High-efficiency toilets (HETs) go beyond the standard and use less than 1.3 gpf. WaterSense will label HETs that are verified by independent laboratory testing to meet rigorous criteria for both performance and efficiency. Only HETs that complete the third-party verification process can earn the WaterSense label.

HET Performance

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- What About Performance?

- Unlike first generation “low-flow” toilets, WaterSense labeled HETs will combine high efficiency with high performance. Design advances enable WaterSense labeled HETs to save water with no trade-off in flushing power. In fact, many perform better than standard toilets in consumer testing.

MaP Testing of Toilets

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- Veritec Consulting with Koeller and Company
- Maximum Performance Testing
  - 1st Report released May 2004

MaP Test Minimum Performance

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A British medical report outlines the results of fecal tests completed on 10 male and 10 female subjects eating normal diets. Based on this study, it appears that for sanitary reasons as well as customer satisfaction, toilets should flush a minimum of approximately 250 grams of solids.

MaP Test Medium

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Test rig (top left), bulk & extruded media (top right), media (bottom left), and adding media to bowl (bottom right).

First Results

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- Flushed less than 250 grams: 20 models
- Flushed 250 to 500 grams: 13 models
- Flushed in excess of 500 grams: 11 models

MaP Testing: Top Performers

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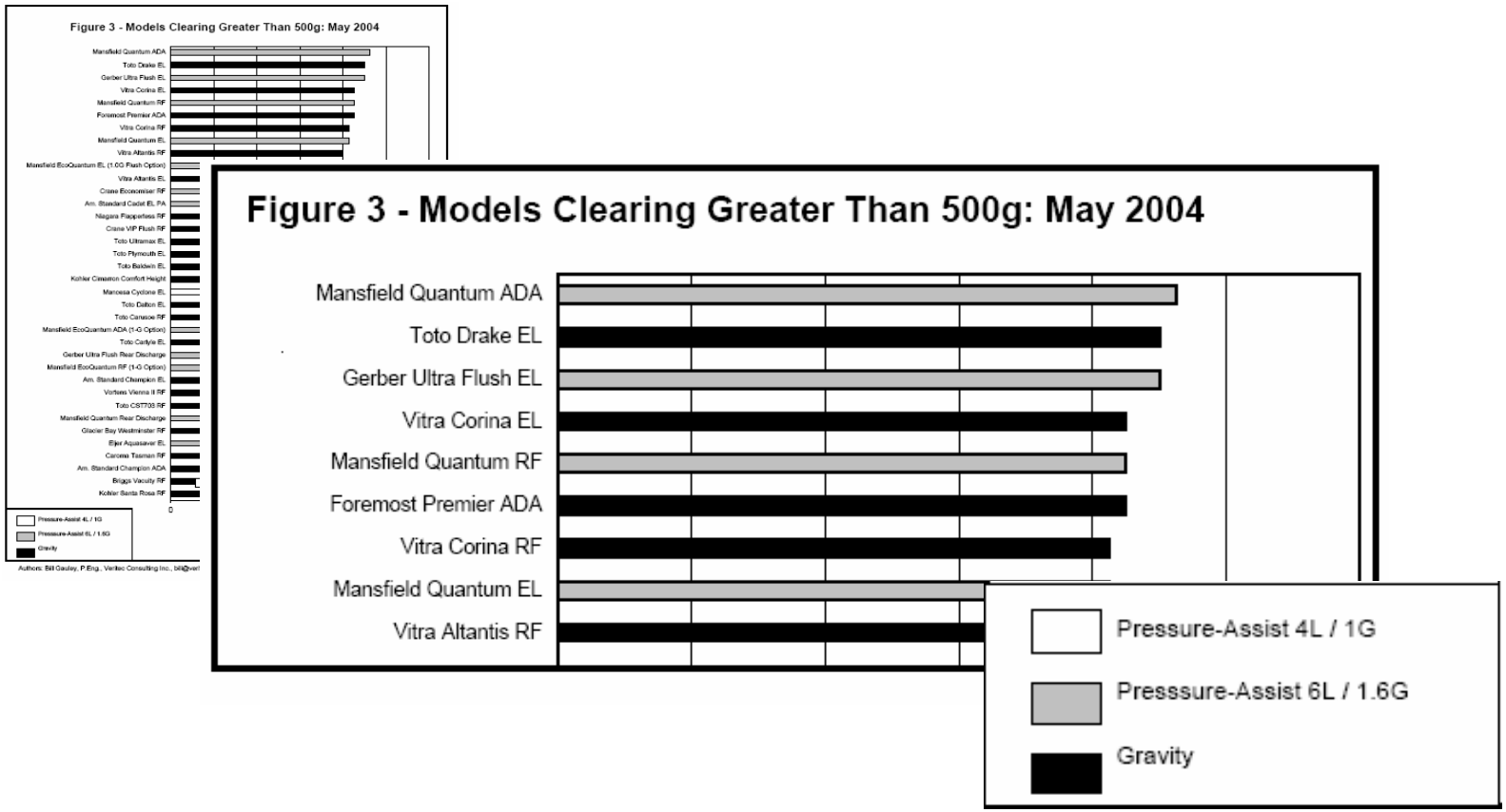

* Four (4) of the Top Ten (10) Use Pressure-Assist Technology

High Performance Toilets

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- **American Standard Champion**
- **3” flush valve**

High-Performance Toilets

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Kohler Cimarron

- Kohler Cimarron introduced in 2004
- 3-1/4” flush valve (largest in industry)
- 1.6 or 1.4 gpf
- ADA-compliant
- MaP performance
  - 675g @ 1.6 gpf setting
  - 450g @ 1.4 gpf setting

Pressure-Assist Toilets

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- Air compressed as inner tank refills
- Compressed air increases flush velocity
- 1.6 gpf and 1.0 gpf products

Sloan *FLUSHMATE* IV 1.0 gpf Shown

MaP Test Results (grams) Pressure-Assist

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Pressure-Assist Models

Mansfield Quantum ADA	925 g
Gerber Ultra Flush PA	900 g
Mansfield Quantum RF	850 g
Mansfield Quantum EL	825 g
Mansfield EcoQuantum EL (@ 1.0 gpf)	750 g
American Standard Cadet PA	750 g
Crane Economizer	750 g
Mansfield Eco Quantum RF (@ 1.0 gpf)	650 g

For complete list: www.cuwcc.org

Dual Flush Toilets

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- Widely used in Europe and Australia
- 1.6 gpf button for flushing solids
- 1.0 gpf for liquids and paper

Caroma Dual Flush Fixture

Sloan UpperCut Dual Flush

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- Retrofits to existing Valve
- Available as a complete valve

Composting Toilets

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Chesapeake Bay Foundation

- Great water saving potential – no water use
- Human waste converts into humus that can be used on non-food plantings
- Products available from at least a half-dozen manufactures

Composting Toilets

- Ranging from simple twin chamber designs through to advanced systems with rotating tynes, temperature and moisture probes and electronic control systems.
- Effective biological converters of “waste”
- Saves water and starts regeneration

Commercial Toilets

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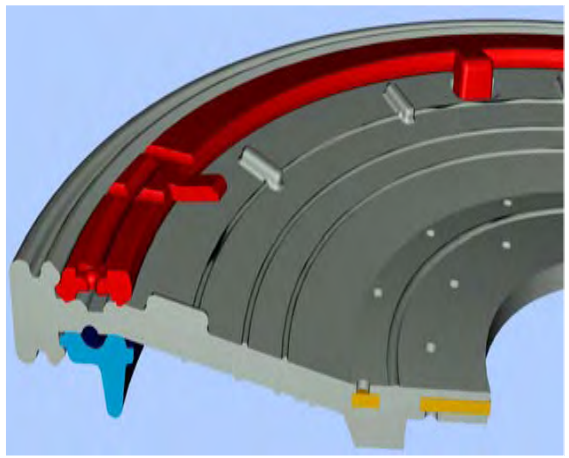
Manual Operation

- New Low Flow Valves
- Reliable
- Filtered Bypass



Examples of HET

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- Sub 1.3 Toilets
- Toilets that flush less
  Than 1.3 gpf are
  Considered HET

  New models on market
  That are 1.0gpf and out
  Perform old 1.6 low flow
  Fixture

Pressure assist Flushmate pictured

HEU High Efficiency Urinals

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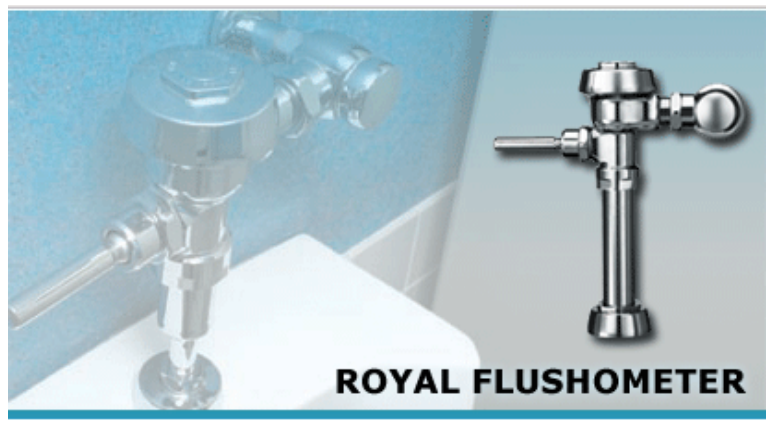
- 1992 EpACT Energy Act Mandates a 1.0 Gallon Per Flush Maximum on Urinals
- California Legislation Establishes Language On HEU – 0.5 gpf or less.



HEU's Cut Usage By 50%! Or More…

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- 0.5 gpf Urinal valves can be retrofitted to existing washdown style urinals
- 0.5 gpf Part kits can save without the need to replace the entire valve
- Trend toward lowering flush volumes further

Waterless Urinals

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- WaterFree Urinals
  - 100% Water savings

How They Work

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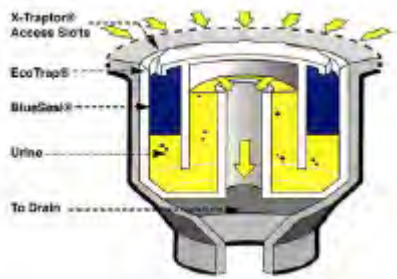
The cartridge is the main component and is installed at the base of the urinal.



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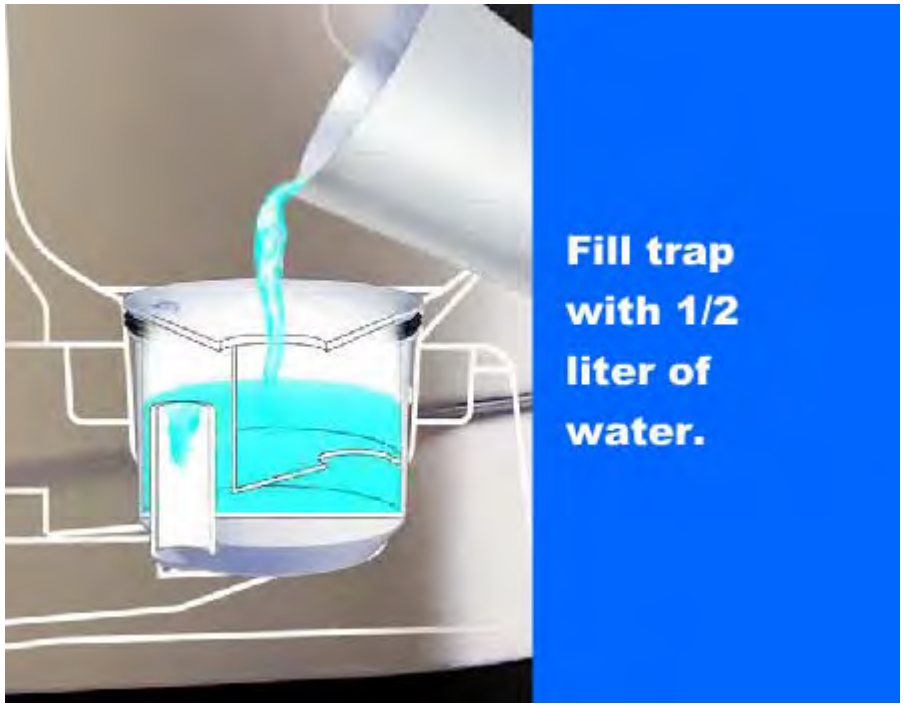
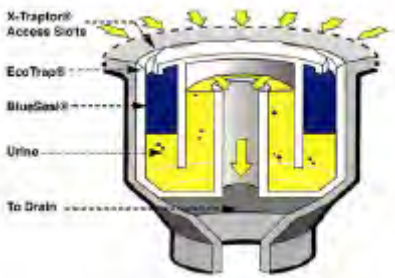
Body Shop: Building Strategies





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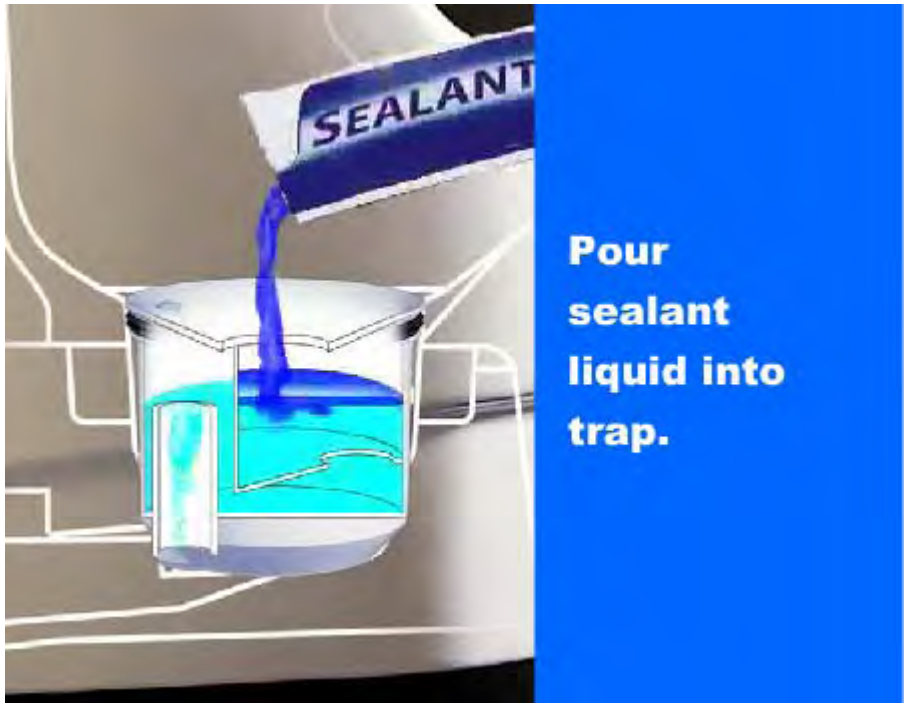

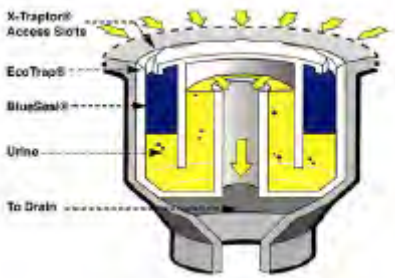

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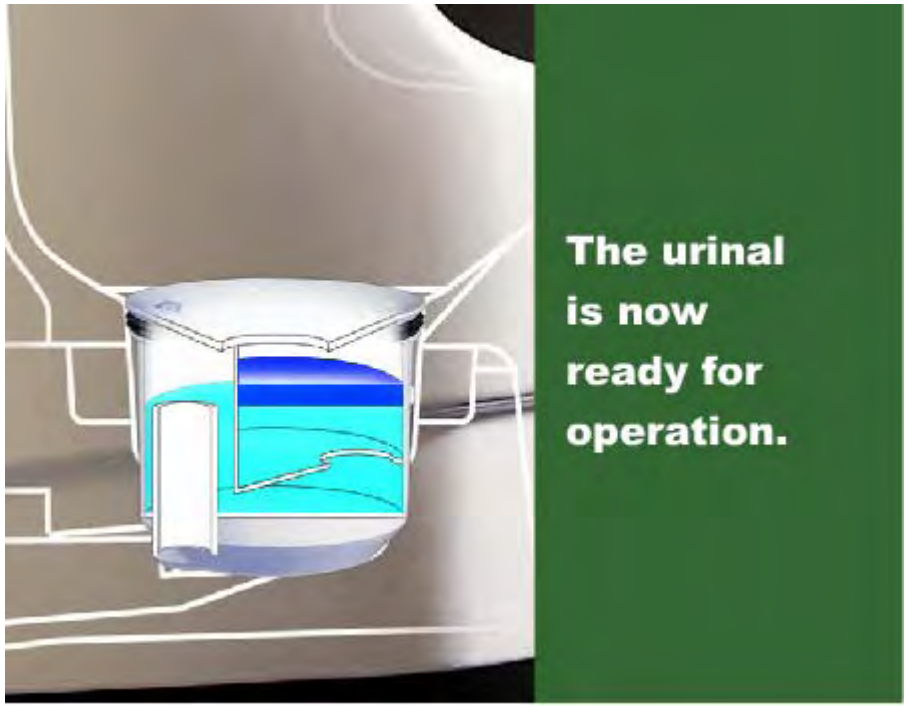

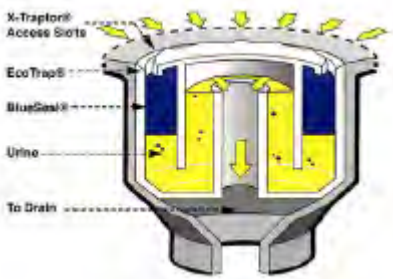

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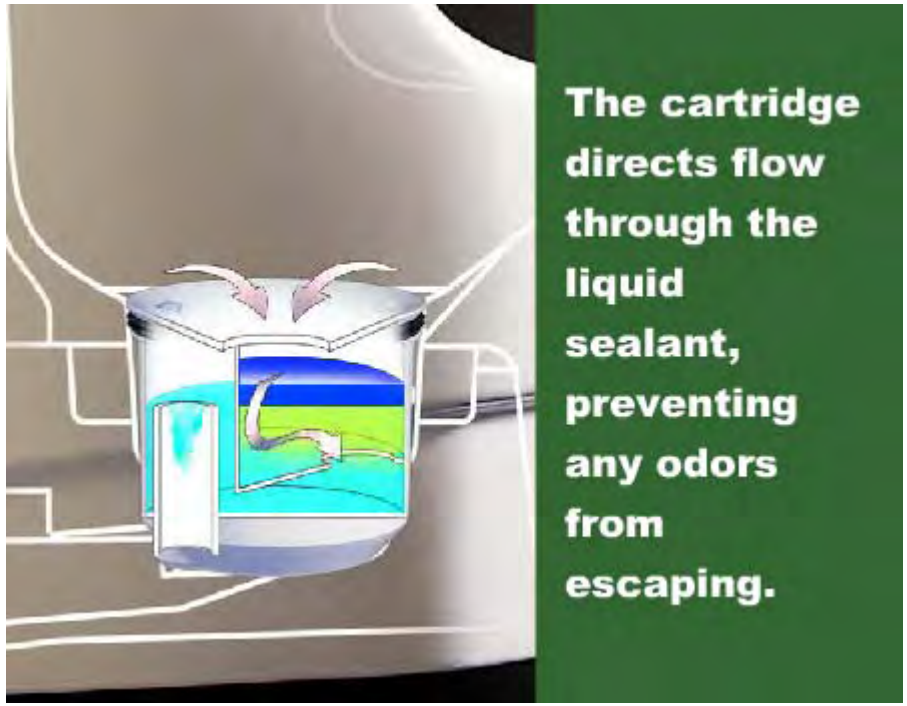

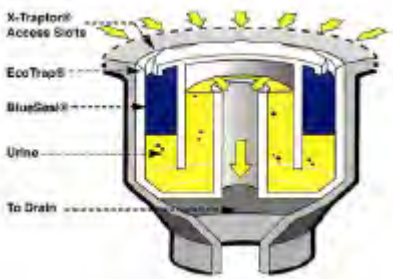

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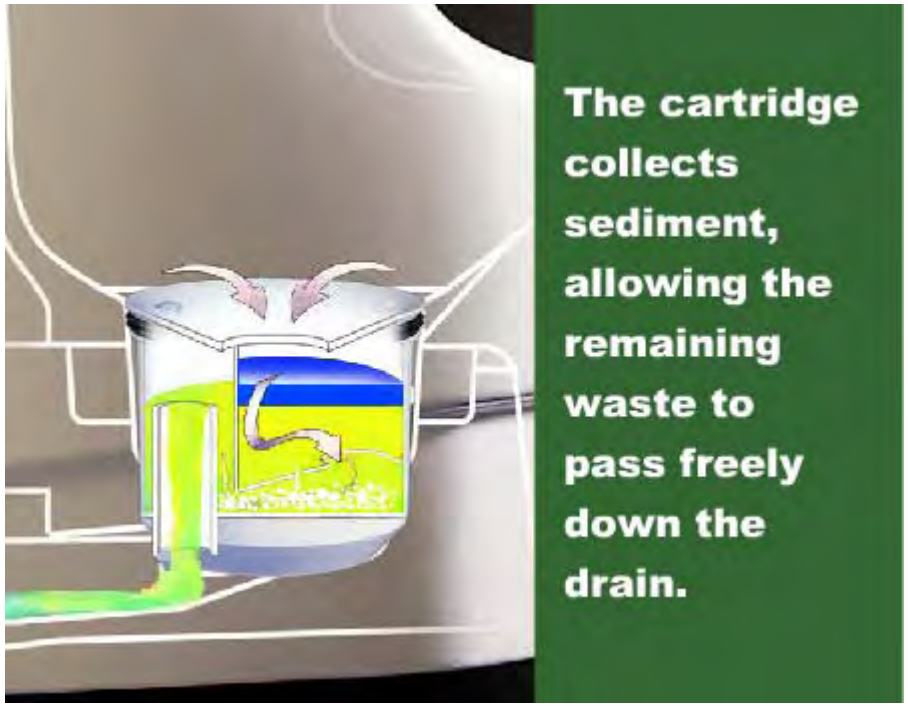

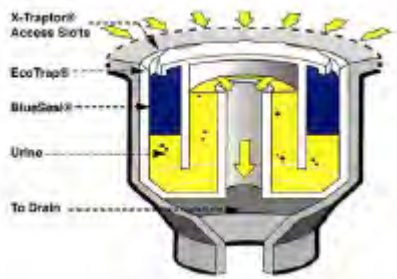

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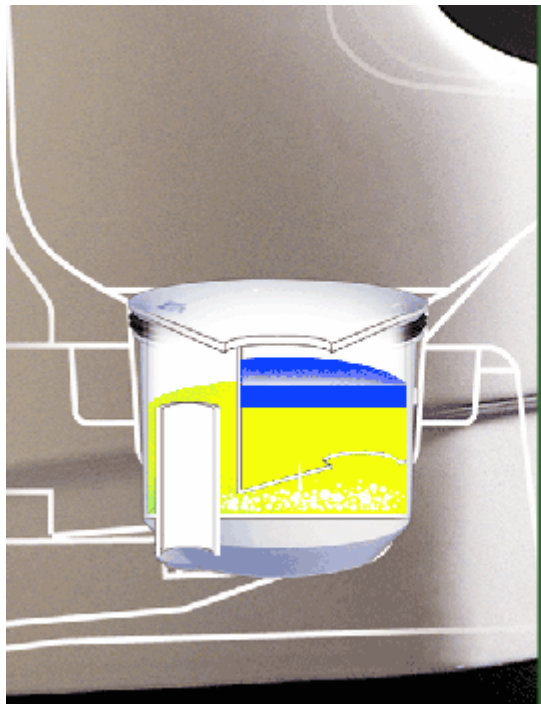
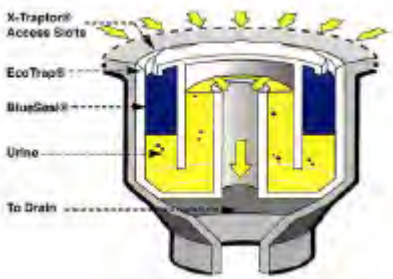


The cartridge collects sediment, allowing the remaining waste to pass freely down the drain.



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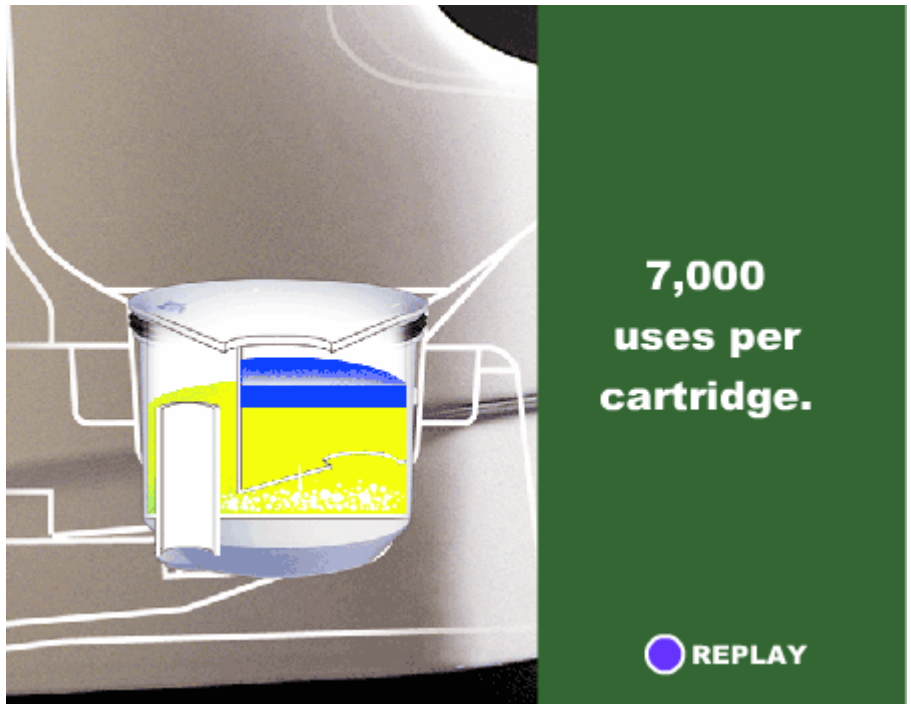

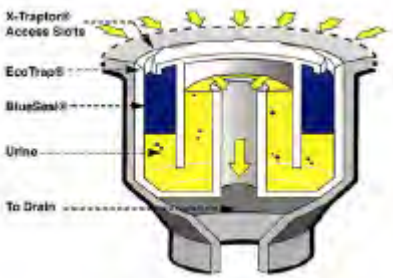

Water Savings – Sensor Faucets

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Sensor Faucets Save Water

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- **Study's indicate that sensor faucets save as much as 70%**
- **Only dispense when user needs water**
- **Increased reliability**

Research Backs Claims

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A study was conducted at a major U.S. university where faucet consumption in eight women's restrooms and eight men's restrooms was monitored and measured.

Three phases of the study:

- **Tune Up Phase:** Existing manual faucets were tested after having been regulated to 1.0 gpm flow rates. Data collection began for two weeks in all restrooms to establish a baseline.
- **Low Consumption Phase:** Low-consumption, 0.5 gpm aerators were installed on the manual faucets and lavatory flows were re-measured. Again, data was collected for two weeks in all restrooms.
- **Automatic Phase:** Installation of Sloan Optima sensor-operated faucets with 0.5 gpm aerators took place and lavatory flows were re-measured. Another set of data was collected for two weeks in all restrooms.

Research Findings

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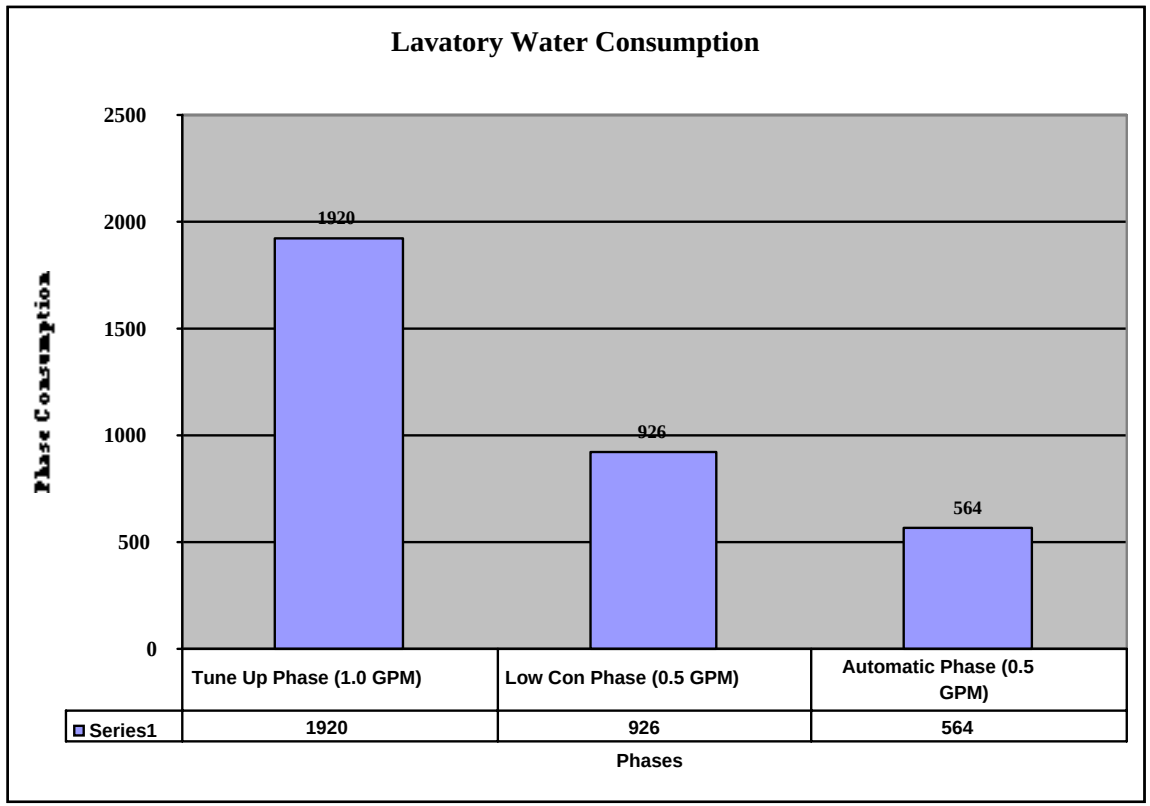
- The **“Automatic”** phase - with Sloan Optima faucets installed - accounted for a 70% reduction relative to the original manual lavatory valve “**Tune Up**” phase.
- There was a 39% reduction relative to the “**Low Consumption**” manual valve phase.



Power Generating Faucets

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- Hydro Power
- Solar Power

Eco Fa

Water Saver - Aquis

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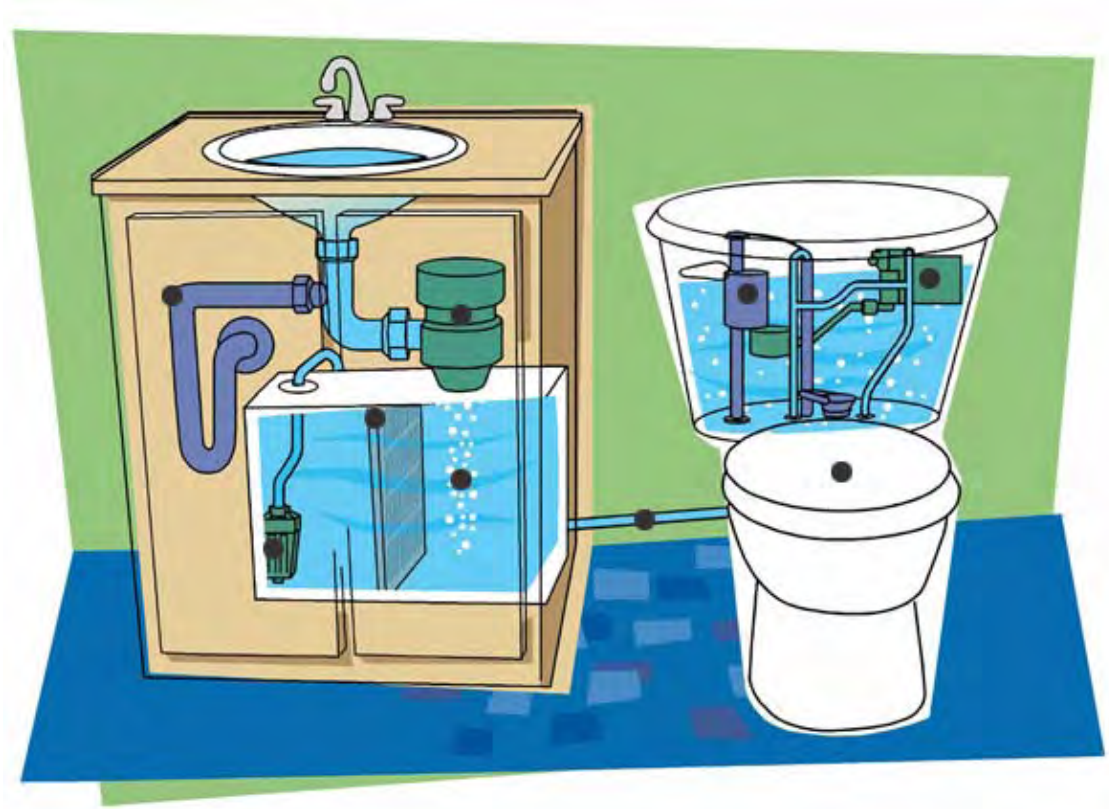
- Closed Loop Recycled Water System



Weather Based Irrigation

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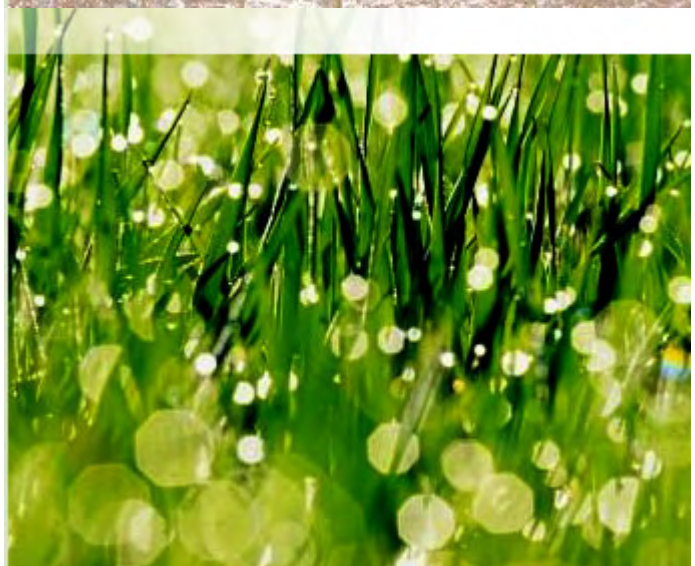
- Sensors detect precipitation
- Case Studies indicate a potential for 50% savings - irrigation water use...or more!



Kitchen Technology

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- Efficient **Pre-Rinse Spray Heads**

On August 8, 2005, President Bush signed into law the Energy Policy Act of 2005, which states that all commercial pre-rinse spray valves manufactured on or after January 1, 2006, shall have a flow rate of not more than 1.6 gallons per minute at 60 psi.

Air Cooled Ice Makers

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- Use Air Conditioning to cool the machine rather than water
- Reduces Overall Water Consumption vs. water cooled machines

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Strategies

Consideration when choosing water efficient products

Keys to Choosing Efficient Prducts

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- Meets the needs of the facility
  - Hygiene
  - Water Conserving
  - Sensor
  - Approved by Local Code
- Easy to maintain
- Low cost of ownership
- Easily available parts and service
- Saves water but does *NOT* sacrifice performance*!!*