



....a dialogue for California's water conservation community

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This issue.....

- **New products shown at KBIS...**
As in previous issues, we talk about the GOOD NEWS first...more High-Efficiency Toilets (HETs) and High-Efficiency Urinals (HEUs) in the marketplace.
- **...and then, the BAD news...**some manufacturers talk a good story but cannot seem to walk it! We look at one manufacturer in particular.
- **ADA vs. universal height toilets – what do the terms mean?**
We define the various interchangeable terms for elevated height toilet bowls – including some new terms invented by the manufacturers' marketing departments.
- **Package systems for graywater recycling and reuse**
Taking a look at two systems designed to recycle water within the home or business for reuse in toilets and clothes washers, or on landscape.

- **Efficient commercial ice-machines – air- or water-cooled?**
Two recently developed water and energy use calculators are made available to water conservation practitioners and others.
- **Water-efficient product labeling programs**
Links are provided to three water-related product labeling programs, two voluntary and one mandatory.
- **Residential dishwashers**
View and use the Council's new residential dishwasher webpage, which contains information on water-efficient products and initiatives now underway.
- **Benchmarking office building water use**
A 2005 study of public office building water usage may be a valuable resource – free download from the Council library of documents.

1. New Products at the Kitchen & Bath Industry Show (KBIS)

With thousands of products on display to designers, specifiers, contractors, and others, there are always some that address the need for water efficiency in the home. This year, the show in Chicago was a case in point – water-using products on display covered the spectrum: plumbing products, appliances, and all manner of devices and systems for the water-conscious individual.

New High-Efficiency Toilets (HETs)¹

With California's emphasis on HETs in water conservation programs (AND pending California legislation that could mandate such fixtures in the future), numerous manufacturers were in the process of developing and introducing new HETs to the KBIS attendees. Here are just a few...

Kohler debuts three HETs:

- Cimarron EcoSmart™ at 1.28-gallons (4.8-liters) per flush gravity-fed single-flush
www.us.kohler.com/onlinecatalog/detail.jsp?item=11258502§ion=2&category=13&subcategory=
- Wellworth® Pressure Lite™ at 1.0-gallon (3.8-liters) per flush, single-flush
www.us.kohler.com/onlinecatalog/detail.jsp?item=10452502§ion=2&category=13&subcategory=
- Highline™ Pressure Lite™ also at 1.0-gallon (3.8-liters) per flush, single-flush

¹ The HET is defined by the water industry as a fixture that flushes at 20 percent below the 1.6-gallons/6.0-liters maximum or less, equating to a maximum of 1.28-gallons/4.8-liters per flush. This 20 percent reduction threshold serves as a metric for water authorities and municipalities designing more aggressive toilet replacement programs and, in some cases, establishing an additional performance tier for their financial incentives (e.g., rebate and voucher programs). Previous field studies in the U.S. and Canada have demonstrated that the average flush volume of dual-flush toilets in residential applications ranges between 1.1 and 1.2 gals. As such, dual-flush toilets qualify as HETs.

www.us.kohler.com/onlinecatalog/detail.jsp?item=10452402§ion=2&category=13&subcategory

American Standard shows its FloWise™ at 1.28-gallons (4.8-liters) per flush gravity-fed single-flush

www.americanstandard-us.com/products/productDetail.aspx?area=bath&cat=3&col=&prodID=1627

COMING SOON...

- **Toto's** HET-Drake, also a single flush gravity-fed toilet rated at 1.28-gallons (4.8-liters) per flush with a Universal Height bowl. This fixture will likely be available for delivery later in 2007.
- **Mansfield's**® new one-piece low-profile QuantumOne 710, a single-flush pressure-assist HET at 1.0-gallon (3.8-liters) per flush. This fixture will likely be available for delivery later in 2007.

Over the next 18 months, expect an avalanche of new HETs of all types to be introduced to the North American marketplace!

New High-Efficiency Urinals (HEUs)²

Manufacturers introduced several new HEU models at KBIS and at other venues since early 2006. Among those are Kohler Company and Zurn Plumbing Products:

Kohler features two new non-water (dry) urinals: Steward™ S (model K-4917) and the Steward™ (model K-4918). The latter unit features a back plate to cover the wall print of an older urinal when it is replaced by the new Kohler model. Further details here: [http://www.us.kohler.com/onlinecatalog/product_result.jsp?module=Commercial%20Urinals&category=30&subcategory=24&Qbrand=Steward\(TM\)&conservation=true](http://www.us.kohler.com/onlinecatalog/product_result.jsp?module=Commercial%20Urinals&category=30&subcategory=24&Qbrand=Steward(TM)&conservation=true)

Zurn also introduces its new non-cartridge non-water (dry) urinal, the Sahara (model Z-5795): <http://www.zurn.com/operations/Z1/pdfs/SpecSheet/81055.pdf>

Further pushing the envelope, **Zurn** appears to be the first entry into the HEU market with a product flushing with only one pint of water (model Z-5798), the Zurn AquaSense® Urinal: <http://www.zurn.com/operations/aquaflushsense/pdfs/specsheets/81300.pdf>

Other Products of Interest

AquaOne™ Technologies showed the H2Orb at KBIS. The H2Orb is intended to detect and stop leaks and prevent overflows in a tank-type toilet by shutting off the supply line when errant flow is detected by the H2Orb. <http://www.aquaone.com/main.asp>

² For the purpose of this report, HEU is defined as a urinal that functions on 0.5-gallons (1.9-liters) of water or less; the HEU category includes non-water (dry) urinals.

Technical Concepts (www.technicalconcepts.com/home.htm), a manufacturer of various touch-free devices for the commercial restroom (including sensor-activated flush valves), introduced its AutoFlush® automatic flushing system for tank-type toilets. While it is yet to be proven that sensor-activated flush valves in commercial installations actually lead to water use reduction³, this device offers homeowners a touch-free, sanitary interface with their own toilets.
www.technicalconcepts.com/pages/products/autoflush_tank.htm

2. ...and now, for the other side of the coin!

Dornbracht (<http://www.dornbracht.com/en/>), a well-known German company, used the KBIS venue to tout (but not display) its latest attempt to bring European trends to the U.S. Here is an excellent example of one manufacturers' effort to circumvent the national goal of water-efficiency by cloaking a new and clearly water-wasteful product in the guise of "higher bathing culture"! Interestingly, Dornbracht's designer (who is not based in the U.S.) is quoted as saying "We try to make the customer aware that water is important, and not use too much of it; for example, to not run water while brushing their teeth, etc." All this toothy rhetoric while promoting the RainSky, a product that the company itself acknowledges in its literature does not meet U.S. codes for plumbing fixtures (so it is being promoted and sold here as a "water sculpture")!

Not only that, Dornbracht promotes the use of this unapproved product on its own website (directed at the American consumer and designer), stating as follows: "The first luxury in the morning, the last luxury at night. It rains from the BALANCE MODULES, almost even more beautifully than in nature. Upon awakening, a strong, energising gush of rain, and at night a relaxing shower which lets you glide gently into the night."

Read about Dornbracht's self-contradictory philosophy on page 30 of World Plumbing Review magazine (http://www.cuwcc.com/World_Plumbing_Review.lasso) and then view the RainSky system and the company's own words on their website:
www.dornbracht.com/en/products/prod_dtl.htm?cid=302

3. ADA vs. Universal Height Toilets – what do all the terms mean?

When talking toilet fixtures, we encounter a variety of terms that relate to bowl height. According to the plumbing industry, more and more new fixture purchasers are preferring an elevated bowl height rather than the "standard" bowl. Thus, what previously was designated for the disabled (such as "ADA") is now becoming more commonplace in homes throughout the U.S. where disabled is not a factor. In order to avoid the label of "ADA" in the marketing process, some manufacturers have adopted their own equivalent terms for fixture combinations with higher bowls. In most cases, the terms are all interchangeable.

³ In fact, many water efficiency professionals believe that sensor-activated flush valves (toilets and urinals) in commercial restrooms actually *increase* water use! Studies are now underway designed to yield authoritative data on water use with these commercial installations.

Most “standard” bowls measure around 14-1/2 to 15-1/2 inches from the floor to the top of the rim of the bowl. Bowls can be designated as “ADA” when the rim height is 16 inches from the floor (resulting in a height to the top of the seat of 17 inches). The following terms (some of which are trademarked) are used when describing these higher bowls:

- ADA (Americans with Disabilities Act)
- Universal Height
- Comfort Height™ (Kohler Company)
- Comfort (Vitra)
- Extended Height (Gerber)
- Right Height™ (American Standard)
- SmartHeight™ (Mansfield)

4. Package Systems for Graywater Recycling and Reuse

One of the areas of ongoing interest by water efficiency professionals is that related to the treatment and reuse of graywater⁴ in homes and businesses. While the concept of package systems (within a building) for the treatment and reuse of such water may appear logical and the correct path to water efficiency, significant hurdles with health and safety codes and, to a lesser degree, with plumbing codes can delay their introduction here. Watch for progress in this area with these two new systems -

Pontos® by Hansgrohe

While opportunities exist for municipal recycling and reuse of wastewater, commercially viable self-contained package systems for residential and non-residential graywater applications are rare. Hansgrohe⁵, another German firm (but one with an eye toward efficiency), is engaged in research and development into maintenance-free package systems for recycling domestic and commercial graywater. Such research has yielded positive results and soon it may make its way to the U.S. for field trials. Hansgrohe’s Aquacycle® systems by Pontos® (www.pontos-aquacycle.com/pontos/en/company/pontos.html) treat water from showers, baths, and personal wash basins/lavatories for reuse in toilet flushing, landscape irrigation, clothes washing, street sweeping, and numerous other applications where non-potable water is

⁴ In domestic applications, graywater generally encompasses water that would ordinarily be sent to waste from bathroom lavatories, tubs, showers, and clothes washers, although local and statewide regulations may use other definitions and may also restrict the reuse of such water based upon health and safety codes.

⁵ Founded in 1901 and headquartered in Schiltach, Germany, Hansgrohe AG is a leading manufacturer of decorative plumbing products for the kitchen and bath. In addition, Hansgrohe sells water-recycling products through its Pontos brand name in Europe. Masco gained majority ownership of Hansgrohe in 2002; it also owns Delta Faucet as well as numerous other companies (www.masco.com/our_companies/index.html)

allowed. Read a further review of Pontos® research on Page 87 of the introductory issue of World Plumbing Review magazine (www.cuwcc.org/publications).

Aqus™ by WaterSaver Technologies™

A similar concept developed by WaterSaver Technologies™ has been piloted in several U.S. cities. The Aquus™ system is designed for residential dwellings and treats graywater for subsequent use for toilet flushing: www.watersavertech.com/

5. Efficient Ice-Machines: Air- or Water-Cooled?

The debate on efficient ice-machines continues. Energy-efficiency advocates frequently prefer water-cooled machines, while the proponents of water-efficiency say the air-cooled machines are the best. Which way to go? Thanks to Bill Hoffman, P.E., City of Austin TX, decision-makers can now estimate life-cycle costs for all types of new ice-makers, considering a wide variety of variables and comparing air-cooled with water-cooled equipment. Download Bill's Excel-based worksheet and try it out:

www.cuwcc.org/uploads/product/ice-machine-calculator.xls

(NOTE: the database requires that you have access to the equipment database of the American Refrigeration Institute – ARI – at www.ari.org/cert/directories/acim/).

The Food Service Technology Center (FSTC) in San Ramon CA has also developed a calculator that estimates water and energy use for ice machines slightly differently. It also requires the ARI database. Go to the FSTC's calculator at:

<http://www.fishnick.com/tools/calculators/icemachines.php>

6. Water-efficient Product Labeling Programs

WaterSense (U.S.)

The WaterSense Program of the U.S. EPA gets off to a great start! Visit the new WaterSense website to learn about the program, its current status, and what products are being considered for addition to this voluntary water-efficient product labeling and market-enhancement program:

www.epa.gov/watersense/index.htm

WELS (Australia)

On the international front, the WELS (Water Efficiency Labelling and Standards) scheme was adopted by the Australian government "...to apply national water efficiency labeling and minimum performance standards to certain water-use products. The aim of water efficiency labeling is to encourage the uptake of water efficient products and appliances in domestic and commercial areas while maintaining individual choice and accounting for regional variations in water supply."

WELS introduces mandatory water efficiency performance thresholds and associated product labels that stratify products according to seven different performance categories, six of which earn from one to six “stars”. Product categories within WELS are:

- Clothes washers
- Dishwashers
- Flow controllers
- Toilets
- Showers
- Taps (faucets)
- Urinals

Rigorous enforcement (with criminal penalties for non-compliance) of the WELS scheme is underway as implementation began in 2006. By January 1, 2008, all products in the above list are required to display the WELS water rating labels. For further information, including excellent summaries of the program, product requirements, and other program aspects, go to: www.waterrating.gov.au/about/index.html

Read more about WELS in Plumbing Connection Magazine:
www.cuwcc.org/uploads/product/PC-WELS.pdf

Smart Approved WaterMark (Australia)

Alternatively, the Australian Smart Approved WaterMark (SAWM) scheme is a voluntary endorsement program available to services and organizations as well as to products. The award criteria in this scheme are based on the assessment of an expert panel, not against a technical standard as with WELS. The product types currently covered by SAWM include: trigger hoses, drip systems, weep hoses, microspray systems, tap timers, electronic water controllers, moisture sensors/rainfall, mulch, rain water tanks, watering spikes, high pressure cleaning devices, grey water permanent tank systems and temporary grey water diverters. For more information on this scheme, contact the Water Services Association of Australia through their web site at www.wsaa.asn.au/

7. Residential Dishwashers

Residential dishwashers are now coming under some degree of scrutiny as to water use and water efficiency, even though these machines are reported to consume only about 1.4 percent of household water use⁶. Yet, as green building programs for residential developments take shape, the incorporation of water use criteria for automatic dishwashers into green building guidelines and practices is gaining attention. For a wide range of valuable information on these products and their performance, consult the Council's brand new residential dishwasher webpage:
www.cuwcc.org/residential_dishwashers.lasso

⁶ Mayer, Peter and DeOreo, William et.al., 1999. *Residential End Uses of Water*, for American Water Works Association Research Foundation.

8. Office Building Water Use Benchmarks

The Council is making available a 2005 study of public office building water consumption benchmarks that can aid planners and water efficiency professionals in forecasting water use and implementing cost-effective conservation programs directed at this building sector. Download the study from:

http://www.cuwcc.org/uploads/product/Office_Bldg_Water_Use_Benchmark_Rpt_05-09-19.pdf

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