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Where are they now?

Looking at the "Top 10" rated water-efficient products of 2008 and 2010

by

Bill Gauley, P.Eng.
Gauley Associates. Ltd.
Acton, Ontario

John Koeller, P.E.
Koeller and Company
Yorba Linda, California

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Questions, questions...

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- A review and update of the ‘top 10’ products we rated in 2008 and 2010
  - Where are they now?
  - Are they still viable in the marketplace?
  - What have we learned since 2010?
  - What are the impediments to success?
  - What future savings can be expected?

Disclaimers

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- ✓ The authors (Gauley & Koeller) have no special interest, financial or otherwise, in the products, technologies, companies, or organizations manufacturing, promoting, or selling the products described in this presentation.
- ✓ This presentation discusses those products that, **in the authors' opinion**, were innovative, and were likely to result in measurable water savings.

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Original criteria for selection…

- ✓ Indoor water use reduction (irrigation is another matter)
- ✓ Residential *and* non-residential applications
- ✓ Generally available in the marketplace
  - A product, technology, or program
  - Can be a new approach to an old application
  - ***But*, no 'ideas' or undeveloped products or 'concepts'**
- ✓ Water use can be determined
  - Field *or* laboratory - "real world" preferred
- ✓ Potential for significant, long-term impact
  - Regional *or* all of North America
  - Potable *or* non-potable water

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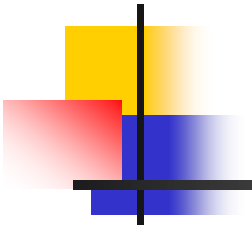
What's required for success?

- Must perform
- Must achieve savings
- Must be relatively easy to implement
- Must be affordable or have VERY short ROI
- Must require little or no change in behavior

A quick review from 2008-2010: Potential savings in billion gallons/yr

- High-efficiency residential humidifier: 9
- High-efficiency comm'l dishwashers: 21
- High-efficiency pre-rinse spray valve: 25
- Waterless wok: 37
- 0.5 Litre - 1-pint flushing urinal: 120
- H-E dual-flush toilets: 225
- Residential hot water demand system: 250
- 0.8-gal res. toilet vs. HET: 300
- After-market dual-flush kits: 350
- Package graywater systems: 675



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So - how do they stack up TODAY?

High-Efficiency Humidifier
9 billion gallons/year potential

- Must perform - YES
- Must achieve savings - YES
- Must be relatively easy to implement - Medium
- Must be affordable or have VERY short ROI - Medium
- Must require little or no change in behavior – Yes
- **Comments**: Not flashy, out of sight, limited geographically, consumers can't easily differentiate between efficient and non-efficient, slightly more costly than non-efficient
- **Conclusions**: Likely achieve only small percentage of total potential savings

H-E Commercial Dishwasher
21 billion gal/yr potential

- Must perform - YES
- Must achieve savings - YES
- Must be relatively easy to implement - only if already changing unit
- Must be affordable or have VERY short ROI - NO
- Must require little or no change in behavior - YES

- **Comments**: Used in all parts of North America.
  - High cost item, would typically only be installed if site is replacing existing dishwasher.
  - Significant energy savings component....which can drive the investment.
- **Conclusions**: Likely achieve a <u>modest</u> percentage of total potential savings over <u>very long</u> period time.

H-E Pre-Rinse Spray Valves 25 billion gal/yr potential

- Must perform - YES
- Must achieve savings - YES
- Must be relatively easy to implement - YES
- Must be affordable or have VERY short ROI - YES
- Must require little or no change in behavior - YES

- **Comments**: Used in food service throughout North America; marketplace already moving in this direction; WaterSense on the way.

- **Conclusions**: Likely to achieve a large percentage of total potential savings over time.

Waterless Wok
37 billion gal/yr potential

- Must perform - YES
- Must achieve savings - YES
- Must be relatively easy to implement - NO
- Must be affordable or have VERY short ROI - NO, VERY HIGH COST
- Must require little or no change in behavior - SOME CHANGE REQD

- **Comments**: Limited to certain ethnic food service types. Costs about 5+ times as much as conventional wok! Limited market due to these issues.
- **Conclusions**: Likely achieve a very small percentage of total potential savings over time (until capital costs are comparable to conventional wok)

1-Pint Flushing Urinal
120 billion gal/yr potential

- Must perform - YES (some question re: long term)
- Must achieve savings - YES
- Must be relatively easy to implement - YES (if replacing urinal)
- Must be affordable or have VERY short ROI - YES (if replacing urinal)
- Must require little or no change in behavior - YES

- **Comments**: Used in all locations, no real change in appearance, market moving to more efficient urinals, Question: do drainline issues identified with waterless also extend to 1-pint urinals?
- **Conclusions**: Likely to achieve a large percentage of total potential savings over time.

H-E Dual-Flush Toilets
225 billion gal/yr potential

- Must perform - YES (though washdown flush action noticeably different)
- Must achieve savings - YES (if used properly)
- Must be relatively easy to implement - YES (if replacing toilet)
- Must be affordable or have VERY short ROI - YES (if needing to replace toilet)
- Must require little or no change in behavior - Significant change required (as compared to single-flush)

- **Comments**: More efficient single-flush fixtures now available. Savings totally dependent on consumer behavior.
- **Conclusions**: Expected to achieve a very small percentage of total potential savings over time.

Resid. Hot Water Demand Systems 250 billion gal/yr potential

- Must perform - YES
- Must achieve savings - YES
- Must be relatively easy to implement - MODERATE
- Must be affordable or have VERY short ROI - NO
- Must require little or no change in behavior - VERY SLIGHT

- **Comments**: Product is more about convenience than efficiency. Can be used in all types of installations, but retrofits more difficult.
- **Conclusions**: Expected to achieve a small percentage of total potential savings over time unless costs come down or systems are mandated.

0.8-Gal (3.0L) Resid. Toilet 300 billion gal/yr potential

- Must perform - YES
- Must achieve savings - YES
- Must be relatively easy to implement - YES (if changing toilet)
- Must be affordable or have VERY short ROI - YES (if needing to replace toilet)
- Must require little or no change in behavior - YES

- **Comments**: Can be used in all residential locations.
  - Very few different makes and models now available.
  - Not offered by Tier #1 major mfrs.
  - Not well-suited to heavy-use in non-residential installations.
- **Conclusions**: Rebates & availability in big box stores will help to achieve significant market potential.

  More models + other mfrs = greater market potential

After-Market Dual-Flush Conversion Kits 350 billion gal/yr potential

- Must perform - SOME, BUT MOST DO NOT!
- Must achieve savings - SOME
- Must be relatively easy to implement - MOST ARE NOT
- Must be affordable or have VERY short ROI - POSSIBLY
- Must require little or no change in behavior - SLIGHT (vs. single-flush)

- **Comments**:
  - Should ONLY be used on 3.5 gal (13L) toilets and above
  - Significant performance and installation issues with some kits
  - Savings not assured….this is a behavior item!
  - May degrade toilet performance or increase flush volume!
- **Conclusions**: Limited to small niche market (owners that want to save a little water with little cost)

  Likely to achieve a small percentage of potential savings

Res. Graywater Treatment Systems 675 billion gal/yr potential

- Must perform - SOME
- Must achieve savings - SOME
- Must be relatively easy to implement - MODERATE to VERY DIFFICULT
- Must be affordable or have VERY short ROI - NO
- Must require little or no change in behavior - NO (maintenance, cleaning, replacement components)
- **Comments**: Today's high-efficiency fixtures & appliances severely limit availability of graywater in the home
  - Mostly suited only to new construction
  - EXTREMELY long payback (>50 yrs)
  - Requires frequent cleaning and maintenance
  - Potential health and safety issues when not maintained
- **Conclusions**: Limited to niche market ("green" people) unless costs and maintenance requirements decline. Likely to achieve a small percentage of total potential savings over time.

Which will have ***major*** impact!

- High-efficiency residential humidifier .....NO
- High-efficiency comm'l dishwashers .....YES (but very long-term)
- High-efficiency pre-rinse spray valve .....YES
- Waterless wok .....NO
- 0.5 Litre - 1-pint flushing urinal .....YES
- H-E dual-flush toilets .....NO
- Residential hot water demand system .....MAYBE
- 0.8-gal res. toilet vs. HET .....MAYBE
- After-market dual-flush conversion kits .....NO
- Package graywater systems .....NO

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Don’t Underestimate...

- ✓ People are lazy - want product that does not require additional effort or decision-making
- ✓ Except for very “GREEN” consumers, most are not willing to pay too much more for advancements
- ✓ Power of WaterSense label - consumers don’t have to evaluate products, they trust independent 3rd party testing
- ✓ Power of Tier #1 mfrs. - would you trust Apple or IBM more than “Jack’s Computers”?

Wrapping up... Which items will have ***major*** impact?

- COMMERCIAL
  - High-efficiency comm'l dishwashers ...YES (but very long-term)
  - High-efficiency pre-rinse spray valve .....YES
  - 0.5 Litre - 1-pint flushing urinal .....YES
- RESIDENTIAL
  - Residential hot water demand system .....MAYBE
  - 0.8-gal residential toilet vs. HET .....MAYBE

Thank you…

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Contact…

John Koeller, Prof. Engr.
Koeller & Company
Yorba Linda, California

Tel. (714) 777-2744
jkoeller@map-testing.com

Bill Gauley, Prof. Engr.
Gauley Associates Ltd.
Acton, Ontario

Tel. (519) 853-4057
bill@gauley.ca