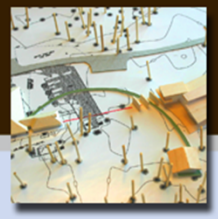
WATER EFFICIENCY

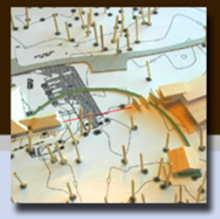



JOEL MCKELLAR, LEED AP BD+C

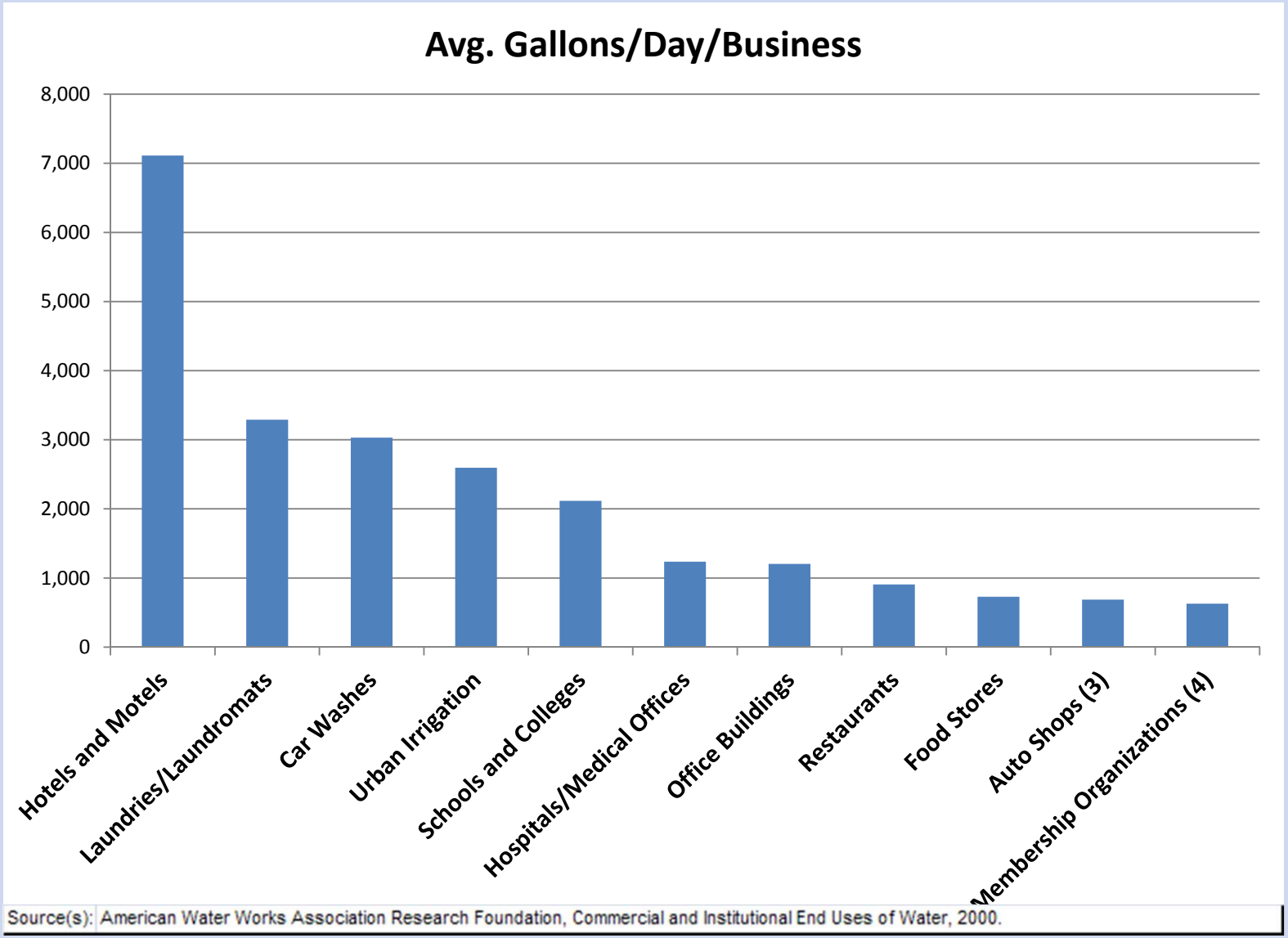
HARVARD GREEN BUILDING SERVICES

09.29.11

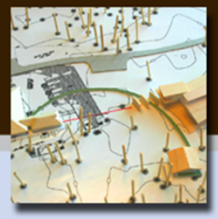
BASELINES




Some businesses will benefit from water conservation efforts more than others.



BASELINES




Commercial Fixtures, Fittings, and Appliances	Current Baseline
Commercial toilets	1.6 gallons per flush (gpf)* Except blow-out fixtures: 3.5 (gpf)
Commercial urinals	1.0 (gpf)
Commercial lavatory (restroom) faucets	2.2 gallons per minute (gpm) at 60 pounds per square inch (psi), private applications only (hotel or motel guest rooms, hospital patient rooms) 0.5 (gpm) at 60 (psi)** all others except private applications 0.25 gallons per cycle for metering faucets
Commercial prerinse spray valves (for food service applications)	Flow rate ≤ 1.6 (gpm) (no pressure specified; no performance requirement)

Federal guidelines for basic fixtures have not changed significantly since the Energy Policy Act of 1992.

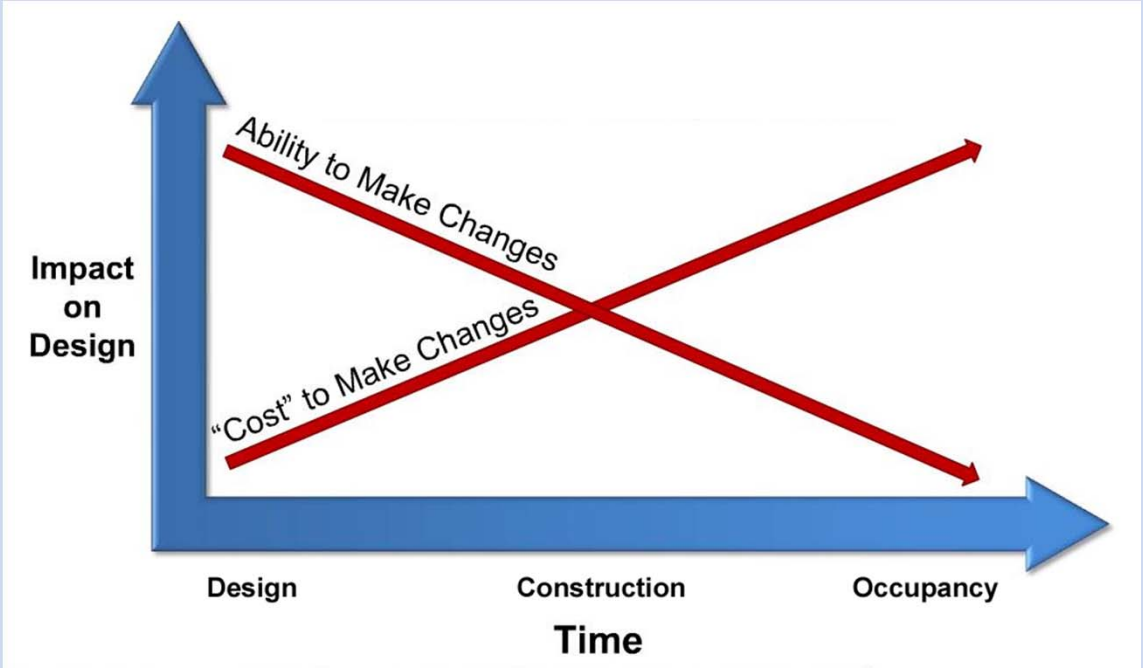
NEW vs. RETROFIT

New Construction

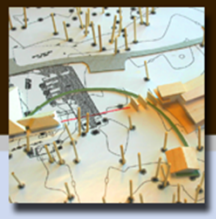
- 1.6 gpf toilet – $228 + $75 Labor
- 1.28 gpf toilet - $238 + $75 Labor
- Difference - $10
- Anticipated Annual Savings - $30.34
- **Simple Payback: <4 months**

Retrofit

- 1.6 gpf toilet – $0
- 1.28 gpf toilet - $238 + $75 Labor
- Difference - $313
- Anticipated Annual Savings - $30.34
- **Simple Payback: >10 years**



BATHROOMS




Toilets

- Standard – 1.6+ gpf
- Best Practice – 0.8/1.1 gpf dual flush

Urinals

- Standard – 1.0 gpf
- Best Practice – Waterless or 0.125 gpf

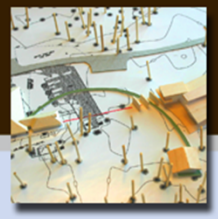
Lavatory Faucets

- Standard – 2.2 gpm
- Best Practice – 0.5 gpm
- $2-$20

Showers

- Standard – 2.5 gpm
- Best Practice – 1.5 gpm

KITCHEN/BREAK ROOMS

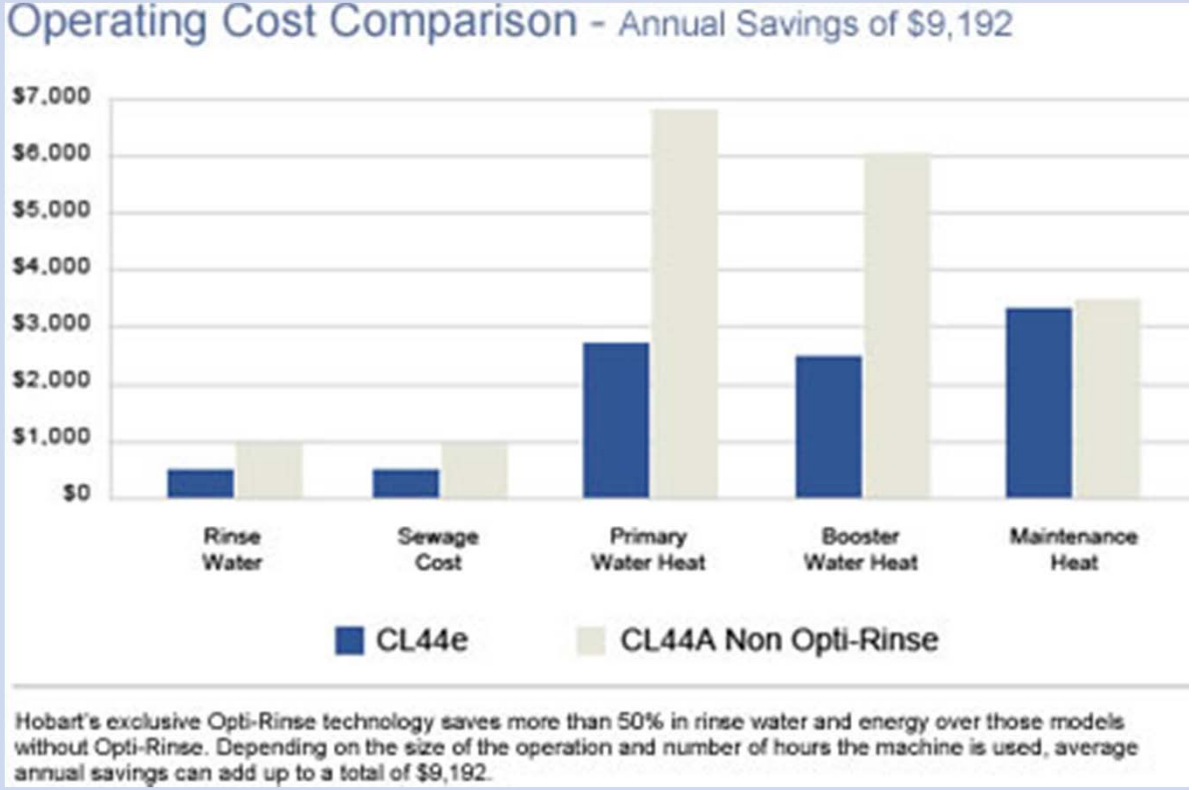



Kitchen Faucets

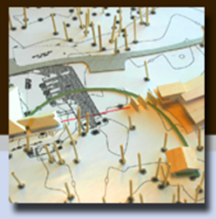
- Standard – 2.2 gpm
- Best Practice – 1.5 gpm

Spray Rinse Valves

- Pre 2005 – 3.2 gpm
- Post 2005 – 1.6 gpm max
- Best Practice – 0.65 gpm
- $1,000-1,300 savings per year @ 3.2 to 1.6 conversion: ~$60 cost!



LANDSCAPING




Plant Selection

- Up to 100% irrigation reduction!

Irrigation Method

- Drip irrigation = ~30% reduction compared to spray irrigation

Irrigation Controllers

- Weather responsive systems can reduce consumption a further 40%