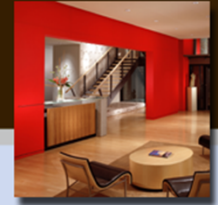
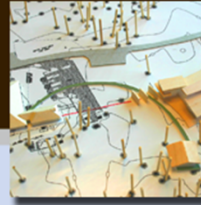


WATER EFFICIENCY



JOEL MCKELLAR, LEED AP BD+C

HARVARD GREEN BUILDING SERVICES

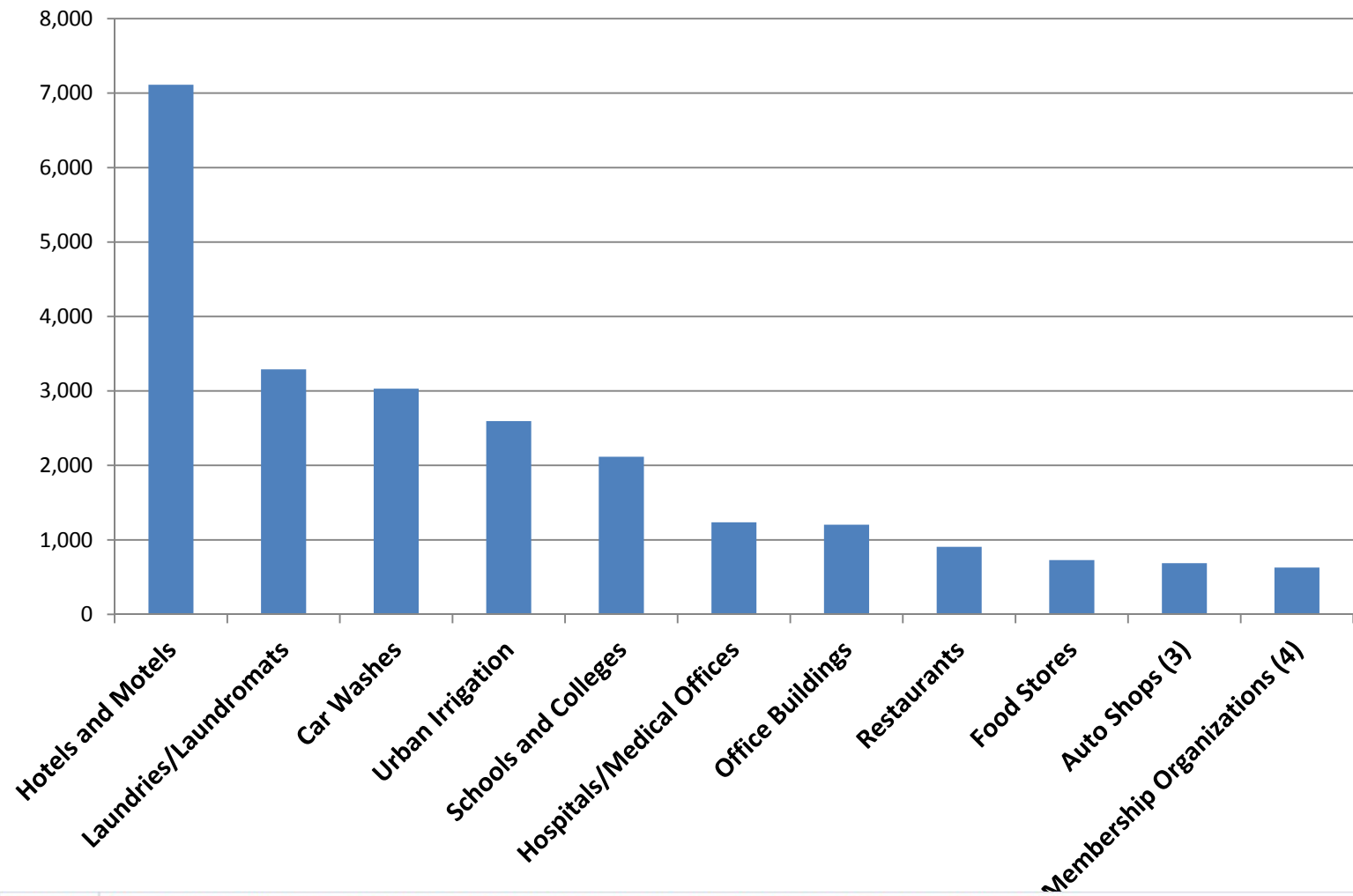
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BASELINES



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

Avg. Gallons/Day/Business



Source(s): American Water Works Association Research Foundation, Commercial and Institutional End Uses of Water, 2000.

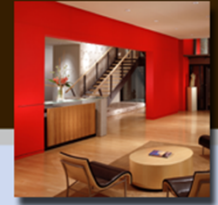
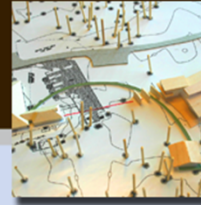
BASELINES



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 \leq 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

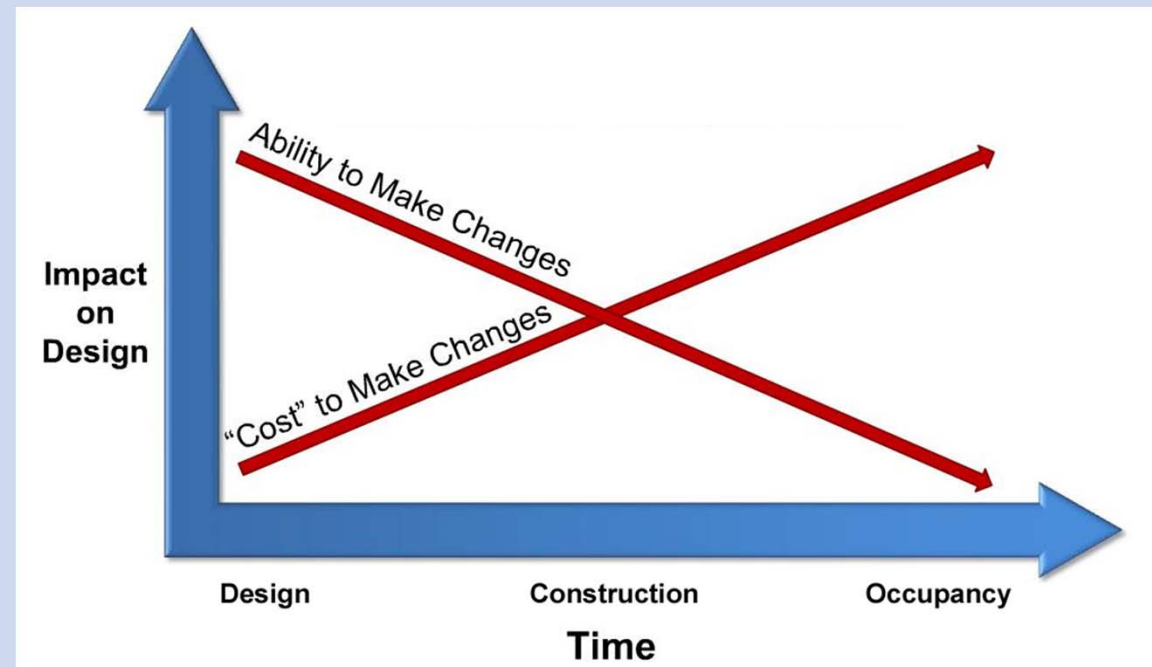


New Construction

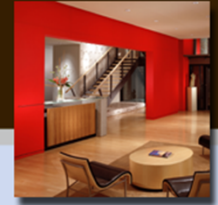
- 1.6 gpf toilet – \$228 + \$75 Labor
- 1.28 gpf toilet - \$238 + \$75 Labor
- Difference - \$10
- Anticipated Annual Savings - \$30.34
- **Simple Payback: <4 months**

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

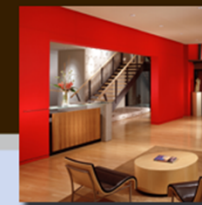
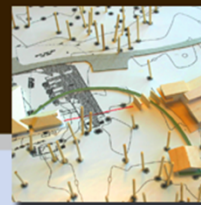
Lavatory Faucets

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

Showers

- Standard – 2.5 gpm
- Best Practice – 1.5 gpm

KITCHEN/BREAK ROOMS



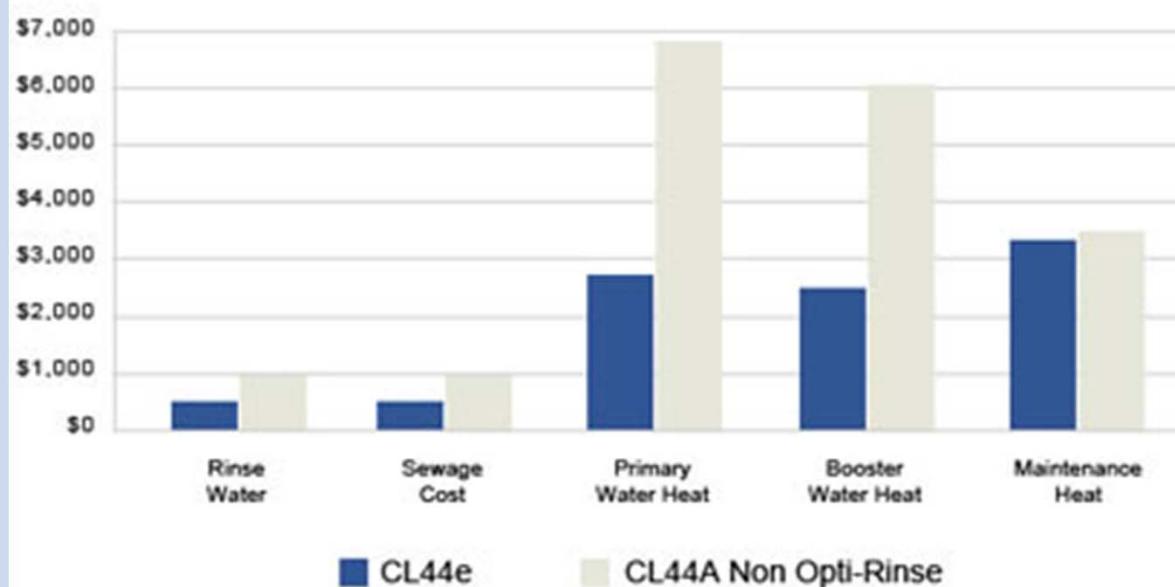
Kitchen Faucets

- 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!

Operating Cost Comparison - Annual Savings of \$9,192



Hobart's exclusive Opti-Rinse technology saves more than 50% in rinse water and energy over those models without Opti-Rinse. Depending on the size of the operation and number of hours the machine is used, average annual savings can add up to a total of \$9,192.

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%

