



Performance Goals for Water-Efficient Equipment in New or Renovated Stanford University Buildings

Notes: gal = gallons, gpm = gallons per minute, gph = gallons per hour, gpf = gallons per flush, gpc = gallons per cycle
The term "Food Service Establishments" includes cafes, cafeterias, dining halls, and large and small kitchens

suwater.stanford.edu

Additional Resources: [WaterSense](#), [Energy Star](#), [Cardinal Green Labs](#)

Fixture or Equipment Type	Examples of Applicable Campus Building Types	Typical Practice or Other Standard	Best Practice Goal at Stanford University
Toilet	Student Housing, Residential, Academic, Athletic	$\leq 1.28 \text{ gpf}^{1,2,3}$	< 1.28 gpf Use Ultra High Efficiency Toilets . Dual-plumb new buildings for non-potable water.
Urinal	Student Housing, Residential, Academic, Athletic	$\leq 0.125 \text{ gpf}^{1,2,3}$	$\leq 0.125 \text{ gpf}$ Use High Efficiency Urinals . Dual-plumb new buildings for non-potable water.
Public bathroom faucet	Non-residential, (Academic, Athletic, etc.)	Manual or Sensor Faucets: $\leq 0.5 \text{ gpm}^{1,2,3}$ Metering Faucets: $\leq 0.20 \text{ gpc}^{1,3}$	Manual or Sensor Faucets: $\leq 0.5 \text{ gpm}$ Metering Faucets: set at $\leq 10 \text{ sec. per cycle}$ (or $< 0.20 \text{ gpc}$)
Residential bathroom faucet	Student Housing, Residential	$\leq 1.2 \text{ gpm}^{1,2,3}$	< 1.0 gpm
Showerhead	Student Housing, Residential, Academic, Athletic	$\leq 1.8 \text{ gpm}^{1,2,3}$	$\leq 1.5 \text{ gpm}$. Need to specify building water pressure before ordering. Tamper-resistant for student housing, academic, and athletic areas.
Clothes washing machine	Student Housing, Residential, Academic, Athletic	Front-load Energy Star clothes washers : Integrated Water Factor (gal/ft ³): ≤ 3.2 (residential, $> 2.5 \text{ ft}^3$) ≤ 4.2 (residential, $\leq 2.5 \text{ ft}^3$) ≤ 4.0 (commercial)	Use Energy Star Qualified clothes washers (front-load only).
Dishwasher	Student Housing, Residential, Academic, Athletic	Energy Star dish washers : ≤ 3.5 (standard) or ≤ 3.1 (compact) gpc	Use Energy Star Qualified dish washers .
Kitchen faucet	Food Service Establishments, Student Housing, Academic, Research, Athletic	$\leq 1.8 \text{ gpm}^{1,2,3}$	< 1.5 gpm
Pre-rinse spray valve	Food Service Establishments	Dept. of Energy Pre-rinse spray valves : $\leq 1.28 \text{ gpm}^3$	$\leq 1.15 \text{ gpm}$
Food steamer	Food Service Establishments	$\leq 5 \text{ gph/pan}^3$	Use Energy Star Qualified boilerless steamers that consume < 1.5 gph . Boilerless (also known as connectionless) steamers are closed systems that recirculate steam. Once-through domestic water use prohibited.
Ice machine	Food Service Establishments, Athletic	Energy Star air-cooled ice machines : Batch: ≤ 20 or $\leq 25 \text{ gal/100 lb ice}$ Continuous: $\leq 15 \text{ gal/100 lb ice}$	Use recirculating closed-loop chilled water or Energy Star Qualified air-cooled ice machines . Once-through domestic water cooling prohibited.
Commercial (conveyor) dish washer	Food Service Establishments	Energy Star commercial dish washers : Conveyor: $\leq 0.54 \text{ gal/rack}$ (multi tank) ≤ 0.7 or $\leq 0.79 \text{ gal/rack}$ (single tank) Flight: $\leq 4.96x + 17.00 \text{ gph}$ (multi tank) $\leq 2.975x + 55.00 \text{ gph}$ (single tank) <small>x = max conveyor speed (ft/min) x conveyor belt width (ft)</small>	Use Energy Star Qualified commercial dishwashers . Retrofit nozzles to be efficient - use Opti-Rinse (Hobart) or comparable.
House vacuum system	Academic, Research	Liquid ring (domestic water continuously added)	Use dry vacuum pumps
Glassware washer	Academic, Research	No current efficiency standards specified	Purchase efficient units. An example is the HAMO brand.
Lasers, electron microscopes, or other research equipment needing cooling	Academic, Research	Once-through water-cooled	Use recirculating closed-loop chilled water for cooling. Once-through domestic water cooling is prohibited.
Autoclave, sterilizer	Academic, Research	Domestic water runs continuously at $\geq 2.2 \text{ gpm}$ (24/7, 365 days)	Install water mizers. Quench water runs only when $> 140^\circ\text{F}$ wastewater is detected (typically $< 6 \text{ hours/day}$). If available, use recycled water for quenching. If water used for vacuum for drying cycle, use recirculating systems only, not once-through domestic water. See Autoclave/Sterilizer Fact Sheet
Reverse Osmosis (RO) water treatment system	Academic, Research	RO reject wastewater to sewer, no re-use	Capture RO reject water for non-potable reuse , such as quenching, toilet flushing, and sewer trap priming. Medical School RO Reuse Project

¹ [2019 California Green Building Standards Code \(CALGreen\)](#)

² [California Energy Commission appliance efficiency regulations](#)

³ [2019 California Plumbing Code](#)