



| v3 - LEED 2009

# Water use reduction

WEp1 | Required

Glossary

## Intent

To increase water efficiency within buildings to reduce the burden on municipal water supply and wastewater systems.

## Requirements

### Building water use

Employ strategies that in aggregate use 20% less water than the water use baseline calculated for the building (not including irrigation). The baseline shall meet the requirements of the Energy Policy Act (EPAct) of 1992 and subsequent rulings by the Department of Energy, requirements of the EPAct of 2005, and the plumbing code requirements as stated in the 2006 editions of the Uniform Plumbing Code or International Plumbing Code pertaining to fixture performance.

Calculations are based on estimated occupant usage and must include only the following fixtures and fixture fittings (as applicable to the project scope): water closets, urinals, lavatory faucets, showers, kitchen sink faucets and pre-rinse spray valves. Fixtures used for clinical use, such as surgical scrub sinks and exam room sinks are exempt from this calculation. [\[Europe ACP: Water Use Baseline\]](#)

**Table 1: National efficiency baselines for commercial and residential water-using fixtures, fittings and appliances**

Fixtures, Fittings, and Appliances	Current Baseline (Imperial Units)	Current Baseline (Metric Units)
Toilets	1.6 gallons per flush (gpf)*	6 liters per flush (lpf)
Urinals	1.0 (gpf)	4.0 lpf
Lavatory (restroom) faucets	2.2 gallons per minute (gpm) at 60 pounds per square inch (psi), private applications only (e.g., hospital patient rooms) 0.5 (gpm) at 60 (psi)** all others except private applications 0.25 gallons per cycle for metering faucets	8.5 liters per minute (lpm) at 4 bar (58 psi), private applications only (e.g., hospital patient rooms) 2.0 lpm at 4 bar (58 psi), all others except private applications 1 liter per cycle for metering faucets
Pre-rinse spray valves (for food service applications)	Flow rate ≤ 1.6 (gpm)	Flow rate ≤ 6 liters per minute (lpm)
Showerheads	2.5 gpm at 80 psi per shower stall***	9.5 lpm at 5.5 bar (80 psi) per shower stall

\* EPAct 1992 standard for toilets applies to both commercial and residential models.

\*\* In addition to EPAct requirements, the American Society of Mechanical Engineers standard for public lavatory faucets is 0.5 gpm at 60 psi (2.0 lpm at 4 bar (58 psi)) (ASME A112.18.1-2005). This maximum has been incorporated into the national Uniform Plumbing Code and the International Plumbing Code.

\*\*\* Residential shower compartment (stall) in dwelling units: The total allowable flow rate from all flowing showerheads at any given time, including rain systems, waterfalls, bodysprays, bodyspas and jets, must be limited to the allowable showerhead flow rate as specified above (2.5 gpm/9.5 lpm) per shower compartment, where the floor area of the shower compartment is less than 2,500 square inches (1.5 square meters). For each increment of 2,500 square inches (1.5 square meters) of floor area thereafter or part thereof, an additional showerhead with total allowable flow rate from all flowing devices equal to or less than the allowable flow rate as specified above must be allowed. Exception: Showers that emit recirculated nonpotable water originating from within the shower compartment while operating are allowed to exceed the maximum as long as the total potable water flow does not exceed the flow rate as specified above.

## AND

### Process water use

Employ strategies that in aggregate use 20% less water than the process water use baseline calculated for equipment performance requirements as listed in Table 2. Calculations are based on estimated occupant usage and shall include only the following fixtures (as applicable to the project scope): clothes washers, dishwashers, ice machines, food steamers and combination ovens.

Exemptions from calculations:

- Appliances and equipment for which water is used toward human consumption may be excluded. For example, bread misters, soda machines, coffee making machines, misters for produce and fixtures used to fill sinks for washing produce.
- Fixtures whose flow rates are regulated by health codes may be excluded from the calculation. For example, regulated medical equipment is excluded. See WE Prerequisite 2: Minimize Potable Water Use for Medical Equipment Cooling for requirements applicable to heat rejecting medical equipment.

For applicable equipment not addressed in Tables 1 or 2, additional equipment performance baseline requirements may be proposed, provided that documentation supporting the proposed benchmark or industry standard is provided.

**Table 2: Equipment performance requirements table**

Equipment	Baseline (Imperial Units)	Baseline (Metric Units)
Commercial Clothes Washer - less than 80 lbs (36.3 kg)	9 gallon/CF/cycle	1,200 liters/m <sup>3</sup> /cycle
Commercial Dishwashers		
Undercounter - high temp	1.98 gallon/rack	7.50 liters/rack
Undercounter - low temp	1.95 gallon/rack	7.38 liters/rack

Door type - high temp	1.44 gallon/rack	5.45 liters/rack
Door type - low temp	1.85 gallon/rack	7.00 liters/rack
Single tank rack conveyor - high temp	1.13 gallon/rack	4.28 liters/rack
Single tank rack conveyor - low temp	1.23 gallon/rack	4.66 liters/rack
Multi-tank rack conveyor - high temp	1.1 gallon/rack	4.16 liters/rack
Multi-tank rack conveyor - low temp	0.99 gallon/rack	3.75 liters/rack
Flight type	180 gallon/hour	681 liters/hour
Commercial Ice Machines		
Water-cooled ice machine capacity < 450 lb/day (<204.11 kg/day)	<25 gal/100 lb ice	<95 liters/46 kg ice
Air-cooled ice machine capacity > 450 lb/day (>204.11 kg/day)	<25 gal/100 lb ice	<95 liters/46 kg ice
Air-cooled ice machine with remote condensing unit (w/o remote compressor) capacity < 1000 lb/day (<453.59 kg/day)	<25 gal/100 lb ice	<95 liters/46 kg ice
Air-cooled ice machine with remote condensing unit (w/o remote compressor) capacity > 1000 lb/day (>453.59 kg/day)	<25 gal/100 lb ice	<95 liters/46 kg ice
Air-cooled ice machine with remote condensing unit (with remote compressor) capacity < 934 lb/day (<423.66 kg/day)	<25 gal/100 lb ice	<95 liters/46 kg ice
Air-cooled ice machine with remote condensing unit (with remote compressor) capacity > 934 lb/day (>423.66 kg/day)	<25 gal/100 lb ice	<95 liters/46 kg ice
Air-cooled ice machine Self Contained Unit (SCU)	<25 gal/100 lb ice	<95 liters/46 kg ice
Water-cooled ice machines	Must be on closed cooling loop	Must be on closed cooling loop
Water-cooled ice machines once through cooling	Not allowed	Not allowed
Food Steamers		
Boiler type steam cooker - batch cooking	8 gallon/hour/pan	30.28 liters/hour/pan
Boilerless type steam cooker - high production/cook to order	8 gallon/hour/pan	30.28 liters/hour/pan
Combination Oven	40 gph	151.42 lph
Countertop or stand mounted	40 gph	151.42 lph
Roll-in	60 gph	227.12 lph
Other equipment	Performance baseline based on industry standards	Performance baseline based on industry standards

### Alternative Compliance Paths (ACPs)

#### Europe ACP: Water Use Baseline

Projects in Europe may use the values defined by European Standards.