

National Efficiency Standards and Specifications for Residential and Commercial Water-Using Fixtures and Appliances

(Adapted from information provided by the U.S. EPA Office of Water, Alliance for Water Efficiency, Energy Star, CEE, and other sources)

Fixtures and Appliances	EPAAct 1992, EPAAct 2005, "Energy Independence and Security Act of 2007" (or backlog NAECA updates)		WaterSense® or Energy Star®		Consortium for Energy Efficiency	
	Current Standard	Proposed/Future Standard	Current Specification	Proposed/Future Specification	Current Specification	Proposed/Future Specification
Residential Toilets	1.6 gpf ¹	1.28 gpf/ 4.8 Lpf proposed by efficiency advocates for tank-type only	Tank-type toilets: WaterSense = 1.28 gpf (4.8L) with at least 350 gram waste removal + LA Spec.		No specification	
Residential Lavatory (Bathroom) Faucets	2.2 gpm at 60 psi ²	1.5 gpm/ 5.7 Lpm proposed by efficiency advocates	WaterSense = 1.5 gpm maximum & 0.8 gpm minimum at 20 psi		No specification	
Residential Kitchen Faucets				None proposed at this time	No specification	
Residential Showerheads	2.5 gpm at 80 psi		WaterSense = 2.0 gpm		No specification	
Residential Clothes Washers	MEF ≥ 1.26 ft ³ /kWh/cycle *No specified water use factor Note: MEF measures energy consumption of the total laundry cycle (wash + dry). The higher the number, the greater the energy efficiency	Energy Independence and Security Act of 2007 specified effective in 2011: MEF ≥ 1.26 ft ³ /kWh/cycle WF ≤ 9.5 gal/cycle/ft ³ Also specified: DOE shall publish final rule by Dec 31, 2011, determining if standards will change effective 1/1/2015.	Energy Star (DOE) effective July 1, 2009: MEF ≥ 1.8 ft ³ /kWh/cycle WF ≤ 7.5 gal/cycle/ft ³	Energy Star (DOE) To be effective Jan 1, 2011: MEF ≥ 2.0 WF ≤ 6.0 gal/cycle/ft ³	Tier 1: MEF ≥ 1.80 ft ³ /kWh/cycle; WF ≤ 7.5 gal/cycle/ft ³ Tier 2: MEF ≥ 2.00 ft ³ /kWh/cycle; WF ≤ 6.0 gal/cycle/ft ³ Tier 3: MEF ≥ 2.20 ft ³ /kWh/cycle; WF ≤ 4.5 gal/cycle/ft ³	

¹ EPAAct 1992 standard for toilets applies to both commercial and residential models.

² EPAAct 1992 standard for faucets applies to both commercial and residential models.

DOE: Department of Energy
EPA: Environmental Protection Agency
EPAAct 1992: Energy Policy Act of 1992
EPAAct 2005: Energy Policy Act of 2005

EF: energy factor
ft³: cubic feet
gal: gallons
gpm: gallons per minute

gpf: gallons per flush
kWh: kilowatt hour
MEF: modified energy factor
MaP: maximum performance

NAECA: National Appliance Energy Conservation Act
psi: pounds per square inch
WF: water factor Lpf: Litres per flush

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	Current Standard	Proposed/Future Standard	Current Specification	Proposed/Future Specification	Current Specification	Proposed/Future Specification
Standard Size and Compact Residential Dishwashers ³	<p><i>Standard models:</i> Energy Independence and Security Act of 2007 specified: effective 1/1/2010: Standard Size: 355 KWh/year (.62 EF + 1 watt standby) WF ≤ 6.5 gallons/cycle Compact Size: 260 kWh WF ≤ 4.5 gallons/cycle</p> <p>EF is the number of cycles the machine can run for each kWh of electricity</p>	<p>Also specified by the Act: DOE shall publish final rule by 1/1/2015 determining if dishwasher standards will change effective 1/1/2018.</p>	<p>Energy Star (DOE) Effective since July 1, 2009 Standard Size: 324 kWh/year WF ≤ 5.8 gallons/cycle Compact Size: 234 kWh/year WF ≤ 4.0 gallons/cycle</p> <p>kWh/yr is replacing EF since it includes the cycles the machine can run for each kWh, but also includes up to 8 kWh/yr of standby power (when the machine isn't cycling)</p>	<p>Energy Star effective July 1, 2011: Standard Size: 307 kWh/yr 5.0 gallons per cycle Compact Size: 222 kWh/yr 3.5 gallons per cycle</p>	<p><i>Effective Aug. 11, 2009:</i> <i>Standard models:</i> EF; maximum kWh/year Tier 1: EF ≥ 0.72 cycles/kWh; and 307 max kWh/year; 5.0 gallons per cycle Tier 2: EF ≥ 0.75 cycles/kWh; 295 max kWh/year; 4.25 gallons per cycle <i>Compact models:</i> Tier 1: EF ≥ 1.0 cycles/kWh; 222 max kWh/year; 3.5 gallons per cycle</p>	<p>Could adjust Tiers after July 1, 2011 when new Energy Star becomes effective</p>

³ **Standard models:** capacity is greater than or equal to eight place settings and six serving pieces; **Compact models:** capacity is less than eight place settings and six serving pieces

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	Current Standard	Proposed/ Future Standard	Current Specification	Proposed/Future Specification	Current Specification	Proposed /Future Specification
Commercial Toilets	1.6 gpf ⁴ /6.0 Lpf Except blow-out fixtures: 3.5-gpf/13 Lpf Note: Some states prohibit blow-out at 3.5 gpf	1.28 gpf/ 4.8 Lpf proposed by efficiency advocates for tank-type only	Tank-type only: WaterSense at 1.28 gpf (4.8L) with at least 350 gram waste removal + LA Spec.	Flushometer valve/ bowl combinations: WaterSense specification in development. No release date promised.	No specification	
Commercial Urinals	1.0 gpf	0.5 gpf/ 1.9 Lpf proposed by efficiency advocates	WaterSense = 0.5 gpf/1.9Lpf (flushing urinals only)		No specification	
Commercial Faucets	Private faucets: 2.2 gpm at 60 psi ⁵ Public Restroom faucets: 0.5 gpm at 60 psi ⁵ Metering (auto shut of) faucets: 0.25 gallons per cycle ⁶			WaterSense draft specification now under consideration	No specification	

⁴ EPA 1992 standard for toilets applies to both commercial and residential models.

⁵ In addition to EPA requirements, the American Society of Mechanical Engineers standard for public lavatory faucets is 0.5 gpm at 60 psi (ASME A112.18.1-2005). This maximum has been incorporated into the national Uniform Plumbing Code and the International Plumbing Code for all except private applications, private being defined as residential, hotel guest rooms, and health care patient rooms. All other applications subject to the 0.5 gpm/1.9 Lpm flow rate maximum.

⁶ Metering faucets not subject to flow rate maximum

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	Current Standard	Proposed/ Future Standard	Current Specification	Proposed/Future Specification	Current Specification	Proposed /Future Specification
Commercial Clothes Washers (Family-sized)	MEF ≥ 1.26 ft ³ /kWh; WF ≤ 9.5 gal/cycle/ft ³	New standards under development: DOE scheduled final action: January 2010; Rulemaking process postponed by DOE in 2008; began again in Dec. 2009.	Energy Star (DOE) MEF ≥ 1.72 ft ³ /kWh/cycle; WF ≤ 8.0 gal/cycle/ft ³		Adopted Jan 1, 2007 (Note: this spec covers only normal capacity family washers, NOT large capacity commercial washers) Tier 1: 1.80 MEF 7.5 gal/cycle/ft ³ Tier 2: 2.00 MEF 6.0 gal/cycle/ft ³ Tier 3: 2.20 MEF 4.5 gal/cycle/ft ³	

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	Current Standard	Proposed/ Future Standard	Current Specification	Proposed/Future Specification	Current Specification	Proposed /Future Specification
Commercial Dishwashers	No standard		Energy Star (EPA) using NSF/ANSI standards for water use and ASTM standards for energy use Effective 10/11/2007 <i>Under counter:</i> Hi Temp: 1.0 gal/rack; <= 0.90 kW; Lo Temp 1.70 gal/rack <= 0.5 kW <i>Stationary Single Tank Door:</i> Hi Temp: 0.95 gal/rack; <= 1.0 kW Lo Temp: 1.18 gal/rack; <= 0.6 kW <i>Single Tank Conveyor:</i> Hi Temp: 0.70 gal/rack; <= 2.0 kW; Lo Temp: 0.79 gal/rack; <= 1.6 kW <i>Multiple Tank Conveyor:</i> Hi Temp: 0.54 gal/rack; <= 2.6 kW Lo Temp: 0.54 gal/rack; <= 2.0 kW		No specification	

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Automatic Commercial Ice Makers ⁷	Effective 1/1/2010: Energy and condenser water efficiency standards vary by equipment type on a sliding scale depending upon harvest rate and type of cooling (see link to additional information at end of this table)		Energy Star (EPA) Energy and water efficiency standards vary by equipment type on a sliding scale depending upon harvest rate and type of cooling (see link to additional information at end of this table). <u>Water cooled machines excluded from Energy Star</u>		Energy and water (potable and condenser) standards are tiered and vary by equipment type on a sliding scale depending upon harvest rate and type of cooling (see link to additional information at end of this table)	
Commercial Pre-rinse Spray Valves (for food service applications)	Flow rate ≤ 1.6 gpm (no pressure specified; no performance requirement)		No specification	Proposed Energy Star specification abandoned after standard established in EPAAct 2005; WaterSense specification in development in conjunction with Energy Star	No specification (program guidance recommends 1.6 gpm at 60 psi and a cleanability requirement)	

⁷ Optional standards for other types of automatic ice makers are also authorized under EPAAct 2005.

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Commercial Steam Cookers ⁸	No standard		Energy Star (EPA) <i>Electric:</i> 50% cooking energy efficiency; idle rate 400–800 Watts <i>Gas:</i> 38% cooking energy efficiency; idle rate 6,250–12,500 British thermal units/hour *No specified water use factor		<i>Electric:</i> 50% cooking energy efficiency; idle rate 400–800 Watts <i>Gas:</i> 38% cooking energy efficiency; idle rate 6,250–12,500 British thermal units/hour Water Use Factor (for both electric and gas models): Tier 1A: ≤ 15 gal/hr Tier 1B: ≤ 4 gal/hr	

⁸ Idle rate standards vary for 3-, 4-, 5-, and 6-pan commercial steam cooker models.

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Information/materials on EAct 2005/NAECA standards:

Schedule for development of appliance and commercial equipment efficiency standards:

http://www.eere.energy.gov/buildings/appliance_standards/2006_schedule_setting.html

Commercial Clothes Washers and Dishwashers (agenda/presentations at 4/27/06 DOE public meeting on rulemaking):

http://www.eere.energy.gov/buildings/appliance_standards/residential/home_appl_mtg.html

Automatic Commercial Ice Maker Standards:

http://www.eere.energy.gov/buildings/appliance_standards/pdfs/epact2005_appliance_stds.pdf (Page 18)

Pre-rinse Spray Valves

http://www.eere.energy.gov/buildings/appliance_standards/pdfs/epact2005_appliance_stds.pdf (Page 10)

Information/materials on WaterSense specifications:

Toilets

<http://www.epa.gov/watersense/products/toilets.html>

Urinals

<http://www.epa.gov/watersense/products/urinals.html>

Bathroom Lavatory Faucets

http://www.epa.gov/watersense/products/bathroom_sink_faucets.html

Information/materials on Energy Star specifications:

Residential Clothes Washers

http://www.energystar.gov/index.cfm?c=clotheswash.pr_crit_clothes_washers

Commercial Clothes Washers

http://www.energystar.gov/index.cfm?fuseaction=clotheswash.display_commercial_cw

Residential Dishwashers

http://www.energystar.gov/index.cfm?c=dishwash.pr_dishwashers

Commercial Dishwashers

http://www.energystar.gov/index.cfm?c=new_specs.comm_dishwashers

Automatic Commercial Ice Makers

http://www.energystar.gov/index.cfm?c=new_specs.ice_machines

Commercial Steam Cookers

http://www.energystar.gov/index.cfm?c=steamcookers.pr_steamcookers

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Information/materials on CEE specifications:

Residential Clothes Washers

<http://www.cee1.org/resid/seha/rwsh/rwsh-main.php3>

Residential Dishwashers

<http://www.cee1.org/resid/seha/dishw/dishw-main.php3>

Commercial, Family-Sized Clothes Washers

<http://www.cee1.org/com/cwsh/cwsh-main.php3>

Commercial Ice-Makers

<http://www.cee1.org/com/com-ref/ice-main.php3>; Spec Table: <http://www.cee1.org/com/com-kit/ice-specs.pdf>

Pre-rinse Spray Valves

<http://www.cee1.org/com/com-kit/prv-guides.pdf>

Commercial Steam Cookers

<http://www.cee1.org/com/com-kit/sc-hc-specs.pdf>

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