### 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, the Alliance for Water Efficiency, Energy Star, CEE, and other sources)

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Residential Toilets</td>
<td>U.S. Federal max = 1.6 gpf(^1)</td>
<td>1.28 gpf/ 4.8 Lpf proposed as new U.S. Federal maximum by efficiency advocates for tank-type only</td>
<td>Tank-type toilets: WaterSense = 1.28 gpf (4.8L) with at least 350 gram waste removal + LA Spec.</td>
</tr>
<tr>
<td>Residential Lavatory (Bathroom) Faucets</td>
<td>U.S. Federal max = 2.2 gpm (8.3 Lpm) at 60 psi(^2)</td>
<td>1.5 gpm/ 5.7 Lpm proposed by some efficiency advocates</td>
<td>WaterSense = 1.5 gpm maximum &amp; 0.8 gpm minimum at 20 psi</td>
</tr>
<tr>
<td>Residential Kitchen Faucets</td>
<td>None proposed at this time</td>
<td>None proposed at this time</td>
<td>No specification</td>
</tr>
<tr>
<td>Residential Showerheads</td>
<td>U.S. Federal max = 2.5 gpm (9.5 Lpm) at 80 psi</td>
<td>WaterSense = 2.0 gpm</td>
<td>No specification</td>
</tr>
</tbody>
</table>

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\(^1\) EPAct 1992 standard for toilets applies to both commercial and residential models.

\(^2\) EPAct 1992 standard for faucets applies to both commercial and residential models.
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<tbody>
<tr>
<td>Residential Clothes Washers</td>
<td>MEF ≥ 1.26 ft³/kWh/cycle</td>
<td>DOE to publish final rule by Dec 31, 2011, determining if standards will change effective 1/1/2015.</td>
<td>Energy Star (DOE)</td>
</tr>
<tr>
<td></td>
<td>WF ≤ 9.5 gal/cycle/ft³</td>
<td></td>
<td>New: Energy Star Most Efficient (Tier 2 Energy Star) Effective May 5, 2011 to Dec 31, 2011: washers greater than 2.5 cubic feet, MEF 3.0 ft³/kWh/cycle; WF 3.3 gal/cycle/ft³</td>
</tr>
<tr>
<td></td>
<td>Note: MEF measures energy consumption of the total laundry cycle (wash + dry). The higher the number, the greater the energy efficiency</td>
<td>And for compact capacity washers less than 2.5 cubic feet, MEF 2.3 and WF 4.5</td>
<td>Tier 2: MEF ≥ 2.2 ft³/kWh/cycle; WF ≤ 4.5 gal/cycle/ft³</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Note: Only EPA certified by independent body residential clothes washers (no combo washer-dryers) with capacity larger than 1.6 cubic feet are eligible for the Most Efficient Label</td>
</tr>
</tbody>
</table>

**DOE**: Department of Energy  
**EPA**: Environmental Protection Agency  
**NAECA**: National Appliance Energy Conservation Act  
**psi**: pounds per square inch  
**gpm**: gallons per minute  
**gallons per flush**  
**kWh**: kilowatt hour  
**modified energy factor**  
**water factor**  
**foot³**: cubic feet  
**gal**: gallons  
**Lpf**: litres per flush  

* Koeller/Dietemann  

**Updated**: August 2011
### National Efficiency Standards and Specifications for Residential and Commercial Water-Using Fixtures and Appliances

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<tr>
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<tbody>
<tr>
<td><strong>Current Standard</strong></td>
<td><strong>Proposed/Future Standard</strong></td>
<td><strong>Current Specification</strong></td>
<td><strong>Proposed/Future Specification</strong></td>
</tr>
<tr>
<td><strong>Standard Size and Compact Residential Dishwashers</strong>&lt;sup&gt;3&lt;/sup&gt;</td>
<td><em>Standard models:</em> 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 EF is the number of cycles the machine can run for each kWh of electricity</td>
<td>Energy Star (DOE) Effective July 1, 2009 Standard Size: 324 kWh/year WF ≤ 5.8 gallons/cycle Compact Size: 234 kWh/year WF ≤ 4.0 gallons/cycle 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)</td>
<td>Energy Star Proposed effective Jan 1, 2013: Tier 1: Standard Size: 307 kWh/yr 5.0 gallons per cycle Compact Size: 222 kWh/yr 3.5 gallons per cycle Note: Tier 2 now being considered by EPA dates and metrics TBD</td>
</tr>
</tbody>
</table>

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<sup>3</sup> *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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DOE: Department of Energy  
EPA: Environmental Protection Agency  
EF: energy factor  
f<sup>2</sup>: 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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## 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, the Alliance for Water Efficiency, Energy Star, CEE, and other sources*

|-------------------------|--------------------------------------------------|-----------------------------|--------------------------------|
| **Commercial Toilets**  | U.S. Federal max = 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  
ASME/CSA nat’l plumb std provides for flush volumes of 1.28, 1.6, & 3.5 gal per flush (4.8, 6.0 & 13 Lpf) | 1.28 gpf/ 4.8 Lpf proposed as a new U.S. Federal maximum by efficiency advocates for tank-type only | Tank-type only: WaterSense at 1.28 gpf (4.8 Lpf) with at least 350 gram waste removal + LA Spec. | Flushometer valve/ bowl combinations: WaterSense specification to be developed. NOI yet to be issued. No release date for the spec promised. | No specification |
| **Urinals (Commercial & Residential)** | U.S. Federal max = 1.0 gpf  
ASME/CSA nat’l plumb std provides for flush volumes of 0.5 and 1.0 gal per flush (1.9 & 3.8 Lpf) | 0.5 gpf (1.9 Lpf) proposed as a new U.S. Federal max. by efficiency advocates | WaterSense = 0.5 gpf (1.9 Lpf) (flushing urinals only) | No specification |
| **Commercial Faucets** | Private faucets: 2.2 gpm at 60 psi$^5$  
Public Restroom faucets: | WaterSense draft specification now under consideration | No specification |

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$^4$ EPAct 1992 standard for toilets applies to both commercial and residential models.

$^5$ In addition to EPAct 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.

**Abbreviations:**
- DOE: Department of Energy  
- EPA: Environmental Protection Agency  
- EF: energy factor  
- EF: energy factor  
- ft$^3$: cubic feet  
- gal: gallons  
- gpm: gallons per minute  
- gpf: gallons per flush  
- kWh: kilowatt hour  
- MEF: modified energy factor  
- MaP: maximum performance  
- NAECV: National Appliance Energy Conservation Act  
- psi: pounds per square inch  
- WF: water factor  

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

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<tbody>
<tr>
<td>Commercial Clothes Washers (Family-sized)</td>
<td>0.5 gpm at 60 psi⁵ Metering (auto shut off) faucets: 0.25 gallons per cycle⁶</td>
<td>New standards under development: DOE scheduled final action: January 2010; Rulemaking process postponed by DOE in 2008; began again in Dec. 2009.</td>
<td>Energy Star (DOE) MEF ≥ 1.72 ft³/kWh/cycle; WF ≤ 8.0 gal/cycle/ft³</td>
</tr>
</tbody>
</table>

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⁵ Metering faucets not subject to flow rate maximum

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DOE: Department of Energy
EPA: Environmental Protection Agency

EF: energy factor
ft³: cubic feet
gal: gallons
gpm: gallons per minute
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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# 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, the Alliance for Water Efficiency, Energy Star, CEE, and other sources)*

<table>
<thead>
<tr>
<th>Fixtures and Appliances</th>
<th>EPA 1992, EPAct 2005 (or backlog NAECA updates)</th>
<th>WaterSense* or Energy Star*</th>
<th>Consortium for Energy Efficiency</th>
</tr>
</thead>
</table>
| Commercial Dishwashers  | No standard      |                           | Energy Star (EPA) using NSF/ANSI standards for water use and ASTM standards for energy use | Effective 10/11/2007 | Under counter:  
Hi Temp: 1.0 gal/rack; <= 0.90 kW; Lo Temp 1.70 gal/rack <= 0.5 kW  
Stationary Single Tank Door:  
Hi Temp: 0.95 gal/rack; <= 1.0 kW  
Lo Temp: 1.18 gal/rack; <= 0.6 kW  
Single Tank Conveyor:  
Hi Temp: 0.70 gal/rack; <= 2.0 kW;  
Lo Temp: 0.79 gal/rack; <= 1.6 kW  
Multiple Tank Conveyor:  
Hi Temp: 0.54 gal/rack; <= 2.6 kW  
Lo Temp: 0.54 gal/rack; <= 2.0 kW | No specification |

### DOE: Department of Energy
### EPA: Environmental Protection Agency

**Notes:**
- 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
- psi: pounds per square inch
- WF: water factor
- Lpf: Litres per flush

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

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<tbody>
<tr>
<td>Automatic Commercial Ice Makers⁷</td>
<td>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)</td>
<td>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). Water cooled machines excluded from Energy Star</td>
<td>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).</td>
</tr>
<tr>
<td>Commercial Pre-rinse Spray Valves (for food service applications)</td>
<td>Flow rate ≤ 1.6 gpm (no pressure specified; no performance requirement)</td>
<td>No specification</td>
<td>Proposed Energy Star specification abandoned after standard established in EPAct 2005; WaterSense specification in development in conjunction with Energy Star</td>
</tr>
</tbody>
</table>

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

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DOE: Department of Energy
EPA: Environmental Protection Agency

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

kWh: kilowatt hour
MEF: modified energy factor
MaP: maximum performance

psi: pounds per square inch
WF: water factor

Lpf: Litres per flush

NAECA: National Appliance Energy Conservation Act

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<tbody>
<tr>
<td>Commercial Steam Cookers</td>
<td>No standard</td>
<td>Energy Star (EPA)</td>
<td>Electric: 50% cooking energy efficiency; idle rate 400–800 Watts</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Gas: 38% cooking energy efficiency; idle rate 6,250–12,500 British thermal units/hour</td>
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<tr>
<td></td>
<td></td>
<td>*No specified water use factor</td>
<td></td>
</tr>
</tbody>
</table>

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

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**DOE:** Department of Energy

**EPA:** Environmental Protection Agency


**EPAct 2005:** Energy Policy Act of 2005

**EF:** energy factor

**ft**: cubic feet

**gal:** gallons

**gpm:** gallons per minute

**gpf:** gallons per flush

**kWh:** kilowatt hour

**MEF:** modified energy factor

**MaP:** maximum performance

**psi:** pounds per square inch

**WF:** water factor

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Information/materials on EPAct 2005/NAECA standards:

Schedule for development of appliance and commercial equipment efficiency standards:

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

Automatic Commercial Ice Maker Standards:

Pre-rinse Spray Valves

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

Information/materials on CEE specifications:
Residential Clothes Washers

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

Pre-rinse Spray Valves

Commercial Steam Cookers