

WATER-EFFICIENT INDOOR PRODUCTS & SYSTEMS - GREEN STANDARDS, CODES, & VOLUNTARY INITIATIVES

Standard/Guideline	ANSI Apprvd	Application	Maximum Water Pressure (PSI)	Plumbing Fixtures and Fittings					Residential Fixtures, Fittings, & Appliances					Comm'l Pre-Rinse Spray Valve (Max flow rate gpm)	Graywater System	Comments	
				Water Closets - Toilets (Maximum gpf)	Urinals (Maximum gpf)	Private Lavatory Faucet (Maximum flow rate-gpm) See definition below	Public Lavatory Faucet (Maximum flow rate-gpm) See definition below	Metering Faucet (Gallons per cycle)	Residential Kitchen Faucet (Maximum flow rate-gpm)	Residential Showerhead (Maximum flow rate-gpm)	Residential Dish-washer (Gallons Per Full Wash & Rinse Cycle)	Residential Clothes Washer (Water Factor - WF = gal per cu.ft. of capacity)	Residential Showering Compartment (Maximum flow rate-gpm)				
Organization Authoring National Standard (if any) >>>>			None	ASME/CSA	ASME/CSA (vitreous china) and IAPMO (plastic)	ASME/CSA	ASME /CSA	ASME /CSA	ASME /CSA	ASME /CSA	ASME /CSA	None	Energy Star (U.S. DOE)	Energy Star (U.S. DOE)	ASME /CSA	Standards being developed	
U.S. National Standard	Voluntary until enacted into law, code, or other regulation		NR	1.6	1.0	2.2	0.5	0.25 (no flow rate maximum)	2.2	2.5	NR	NR	NR	1.6	NR		
U.S. Energy Policy Act(s) (EPAct - various dates) AND Energy Independence and Security Act of 2007	Mandatory - all installations		NR	1.6	1.0	2.2 @ 60 psi	2.2 @ 60 psi; superseded by nat'l std & plumbing codes at 0.5-gpm maximum	0.25 (no flow rate maximum)	2.2	2.5	NR	6.5	9.5 in 2011	1.6	NR - Various state and local regulations govern these systems		
Green Globes - Green Building Initiative (GBI) -	YES	Voluntary - Covers all but residential (1 to 3 stories)	NR	WaterSense HET (≤1.28 avg)	WaterSense HEU (≤0.5)	WaterSense Faucet: 1.5-gpm max; 0.8-gpm minimum	0.5-gpm, which is the current mandated maximum flow rate in the national standard and adopting plumbing codes.	0.25 (no flow rate maximum)	2.2 or WaterSense, when available	WaterSense Showerhead: ≤2.0	NR	5.8 and Energy Star labeled	6.0 and Energy Star labeled	1.6	Encouraged through use of alternate on-site sources of water	A point-based ANSI standard. Standard finalized and ANSI approved.	
ASHRAE Standard 189.1	YES	Voluntary - Covers all but residential (1 to 3 stories)	NR	Tank-type: WaterSense HET (≤1.28 avg) Flushometer valve-type: HET (1.28-gpf or dual flush)	≤ 0.5			0.25 (no flow rate maximum)	2.2	2.0	Total of 2.0-gpm per compartment of ≤2,600 sq. in. Addit 2.0-gpm allowed for each addit space increment of 2,600 sq in.; potable and non-potable water included in the limitation.			1.3 and comply with ASTM at 26 sec			Standard finalized, approved by ANSI, and published in January 2010. Standard now in continuous maintenance.
USGBC - LEED 2009 New Construction Rating System	NO	Voluntary - (single family residences covered in another LEED product)	NR	LEED 2009 Water Efficiency Pre-Requisite: "Employ strategies that in aggregate use 20% less water than the water use baseline calculated for the building (not including irrigation)."					NR	NR	NR	NR	NR	Not specifically addressed but does encourage wastewater reduction measures	LEED 2009 mandates a 20% water use reduction threshold (from a calculated baseline). Points may be earned for reductions in excess of 20%. LEED 2012 (in development) expected to incorporate major changes in the area of water use efficiency.		
NAHB Model Green Home Building Guidelines	NO	Voluntary - new homes	NR	≤1.6 Press Assist or ≤ 1.6 Dual-flush or Waterless	NR	<2.2 w/shut-off valve, motion sensor, pedal activated	NA	NR	NR	≤2.5 (2 pts per fixture)	NR	Energy Star	NA	Separation and reuse of graywater			

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				Water Closets - Toilets (Maximum gpf)	Urinals (Maximum gpf)	Private Lavatory Faucet (Maximum flow rate-gpm) See definition below	Public Lavatory Faucet (Maximum flow rate-gpm) See definition below	Metering Faucet (Gallons per cycle)	Residential Kitchen Faucet (Maximum flow rate-gpm)	Residential Showerhead (Maximum flow rate-gpm)	Residential Showering Compartment (Maximum flow rate-gpm)	Residential Dish-washer (Gallons Per Full Wash & Rinse Cycle)	Residential Clothes Washer (Water Factor - WF = gal per cu.ft. of capacity)			
NAHB National Green Building Standard™ (NGBS) ICC 700-2008	YES	Voluntary - Residential: new homes, renovations, and additions	NR	WaterSense HET (≤1.28 avg) OR waterless toilet	≤ 0.5	≤ 1.5; Self-closing, motion sensor, metering, pedal-activated	NA	NR	NR	2.0 to ≤ 2.5 (1.0 pt per head) 1.6 to ≤ 2.0 (2.0 pts per head) Provides for matching automatic compensating valve.	NR	Energy Star	(a) Energy Star OR (b) Energy Star AND WF ≤ 6.0 (varying points)	NA	Points for separation and reuse of gray-water or other on-site water and for use of municipally reclaimed water.	Standard finalized, approved by ANSI, and published in January 2009.
USGBC - LEED for Homes	NO	Voluntary - new homes	NR	≤1.3 or ≤ 1.1 (varying points awarded)	NR	≤ 2.0 or ≤ 1.5 (varying points awarded)	NA	NR	NR	≤ 2.0 (1 pt) ≤ 1.75 (2 pts)	NR	Energy Star + GPC of ≤6.0	Energy Star + MEF of ≤ 2.0 AND WF of ≤5.5	NA	Greywater reuse for landscape irrigation OR indoor use	LEED for Homes - Draft of Sept 26, 2007. Update and revision in process by USGBC.
US EPA WaterSense Single-Family New Home Specification	NO	Voluntary - new homes	60	WaterSense HET (≤ 1.28 avg)	WaterSense HEU (≤ 0.5)	WaterSense Faucet (≤1.5; lower limit of 0.8)	NA	NR	≤ 2.2	≤ 2.5 now; to be revised to require WaterSense at ≤2.0 (2010)	Maximum of 2.5-gpm (to be revised to 2.0-gpm) per compartment of ≤2,160 sq. in. Addit 2.5-gpm (to be revised to 2.0-gpm) allowed for each addit space increment of 2,160 sq in. NOTE: max flow provisions include both potable and recirculated water. Additional space increments must be served by separate controls.	Energy Star (U.S. DOE)	Energy Star + WF of ≤ 6.0	NA	NR	Final specification released December 2009.
IAPMO Green Plumbing & Mechanical Code Supplement - 2010	NO	Voluntary until enacted into law by local or state jurisdiction	65	Tank-type: WaterSense HET (≤1.28 avg). Flushometer Valve/Bowl Combination: 1.6-gpf	Flushing: WaterSense HEU (≤ 0.5). Non-water: Requires upstream water-supplied fixture.	WaterSense Faucet (≤1.5; lower limit of 0.8)	0.5-gpm, which is the current mandated maximum flow rate in the national std., incorporated by reference in the Uniform Plumbing Code.	0.25 (no flow rate maximum)	NR	2.0	Total of 2.0-gpm per compartment of ≤1,800 sq. in. Addit 2.0-gpm allowed for each addit space increment of 1,800 sq in. NOTE: potable and non-potable water included in the limitation. Exception for "access-ible" compartment with a hand shower.	Energy Star (U.S. DOE)	Energy Star (U.S. DOE)	1.6	Graywater and other alternate water sources are encouraged. Contains specific provisions for such collection & treatment systems.	Final code supplement published February 2010. In continuous maintenance.
ICC International Green Construction Code (IgCC)	NO	Covers all construction EXCEPT that covered by the NGBS (ICC 700-2008 - see above). Code is voluntary until enacted into law by local or state jurisdiction	NR	1.6	Flushing: WaterSense HEU (≤ 0.5). Non-water is permitted.	WaterSense Faucet (≤1.5; lower limit of 0.8)	0.5-gpm, which is the current mandated maximum flow rate in the national std., incorporated by ref. in the Int'l Plumbing Code.	0.25 (no flow rate maximum)	IgCC defers to the NGBS (ICC 700) for most residential construction; high-rise residential covered by the IgCC.					1.3	Graywater and other alternate water sources are encouraged. Contains specific provisions for such collection & treatment systems.	Public comment period concluded; comments being addressed; next (2nd) draft to be released in 2010.

gpf	Gallons per flush	ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers		
gpm	Gallons per minute	NAHB	National Association of Home Builders		
gpc	Gallons per cycle	USGBC - LEED	United States Green Building Council - Leadership in Energy & Environmental Design		
psi	Water pressure in pounds per square inch	IAPMO	International Association of Plumbing & Mechanical Officials		
ASME	American Society of Mechanical Engineers	ICC	International Code Council		
CSA	Canadian Standards Association	WF	Water Factor - gallons per cycle per cubic foot of washer capacity		
DOE	U.S. Department of Energy	NA	Not applicable	NR	Not Required or Not Recognized

Lavatory faucet in "private" installation "Private" is defined by the Uniform Plumbing Code, the International Plumbing Code, and the National Standard Plumbing Code as inclusive of residences, hotel guest rooms, and hospital patient rooms.

Lavatory faucet in "public" installation "Public": All installations not otherwise defined as "private"