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

Standard/Guideline	ANSI Apprvd	Application	Maxi-mum Water Pressure (PSI)	Water Closets - Toilets (Maximum gpf)	Urinals (Maxi-mum 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)	Residen-tial Kitchen Faucet (Maxi-mum flow rate-gpm)	Residential Showerhead (Maximum flow rate-gpm)	Residential Showering Compartment (Maximum flow rate-gpm)	Residen-tial Dish-washer (Gallons Per Full Wash & Rinse Cycle)	Residential Clothes Washer (Water Factor - WF = gal per cu.ft. of capacity)	Comm'l Pre-Rinse Spray Valve (Max flow rate-gpm)	Graywater System	Comments
				Plumbing Fixtures and Fittings					Residential-type Fixtures, Fittings, & Appliances							
Organization Authoring U.S. National Standards (if any) >>>>			None	ASME/CSA	ASME/CSA (vitreous china) and IAPMO (plastic)	ASME/CSA	ASME/CSA	ASME/CSA	ASME /CSA	ASME/CSA	None	U.S. DOE	U.S. DOE	ASME /CSA	NSF & IAPMO	
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	4.25 (std size)	9.5	1.6	Varies	
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; National std & model plumbing codes set at 0.5-gpm maximum	0.25 (no flow rate maximum)	≤ 2.2	≤ 2.5	NR	4.25 (std size)	9.5	1.6	NR - Various state and local regulations govern these systems	
Green Globes - Green Building Initiative (GBI) -	**YES**	**Voluntary points-based system - Covers all but low-rise 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 (the current mandated maximum flow rate in the national standard and model plumbing codes)	0.25 (no flow rate maximum)	≤2.2 or Water-Sense, when available	WaterSense Showerhead: ≤2.0	NR	5.8 and Energy Star labeled	6.0 and Energy Star labeled (excludes washers in public spaces or common areas, which shall have a maximum WF of 7.5)	1.5	Encour- aged through use of alternate on-site sources of water	A point-based ANSI standard. Standard finalized and ANSI approved; continuous maintenance status approved by ANSI.
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 3,000 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 2012 New Construction Rating System (Points-based system)	**NO**	**Voluntary - (single family residences covered in another LEED product)**	NR	Water Efficiency Pre-Requisite: "Employ strategies that in aggregate use 20% less water than the water use fixtures and fittings baseline calculated for the building (not including irrigation or process water)."							NR	Energy Star or equiv-alent	Energy Star or equiv-alent	1.6	Encourages measures that could result in graywater treatment and reuse.	LEED mandates a 20% water use reduction threshold (from a calculated baseline). Points may be earned for reductions in excess of 20%.

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				Plumbing Fixtures and Fittings					Residential-type Fixtures, Fittings, & Appliances							
NAHB National Green Building Standard™ (NGBS) ICC 700-2012 (Points-based system)	**YES**	**Voluntary - Residential: new homes, renovations, and additions**	NR	WaterSense HET (≤1.28 avg) OR waterless toilet	≤ 0.5, including waterless	≤ 1.5; Self-closing, motion sensor, metering, or pedal-activated	NA	Included as part of private lavatory faucet provisions	NR	1.6 to ≤ 2.5 with varying points depending upon flow rate. Provides for matching auto-matic compen-sating valve.	Maximum of 2.5-gpm	Energy Star	Energy Star AND WF threshold of 6.0 (varying points for WF above or below the threshold)	NA	Points for separation and reuse of gray-water or other on-site water and for use of municipally re-claimed water.	Standard finalized, approved by ANSI, and published in 2013.
USGBC - LEED for Homes V.4	**NO**	**Voluntary - new homes**	60	WaterSense HET - average flush volume of all toilets ≤ 1.1	NR	WaterSense Faucet ≤ 1.5	NA	NR	NR	WaterSense and ≤ 1.75	Maximum of 2.5-gpm	Energy Star	Energy Star	NA	Greywater reuse for landscape irrigation OR indoor use	LEED for Homes - V.4
US EPA WaterSense Single-Family New Home Specification V.1.1	**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	WaterSense showerhead ≤ 2.0	Maximum of 2.0-gpm per compartment 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	Energy Star + WF of ≤ 6.0	NA	NR	V.1.1 specification released August 2012.
IAPMO Green Plumbing & Mechanical Code Supplement - 2012	**NO**	**Voluntary until enacted into law by local or state jurisdiction**	65	Tank-type: WaterSense HET (≤1.28 avg). Flushometer Valve/Bowl Combination: Non-remote: ≤ 1.28 avg - Remote: ≤ 1.6-gpf	Flushing: WaterSense HEU (≤ 0.5). Non-water: Requires upstream drainage discharges.	WaterSense Faucet (≤ 1.5; lower limit of 0.8)	≤ 0.5	0.25 (no flow rate maximum)	≤ 1.8	≤ 2.0	Total of 2.0-gpm per compartment of ≤1,800 sq. in. Additional 2.0-gpm allowed for each addit space increment of 1,800 sq in. Exception for "accessible" compartment with a hand shower.	Energy Star	Energy Star	≤ 1.3 with auto-matic shut-off	Graywater and other alternate water sources are encouraged. Contains specific provi-sions for such collection & treatment systems.	Final code supplement (second edition) published April 2012. In continuous maintenance.
ICC International Green Construction Code (IgCC) - 2012	**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	Tank-type: WaterSense HET (≤1.28 avg). Flushometer Valve/Bowl Combination: Non-remote: ≤ 1.28 avg - Remote: ≤ 1.6-gpf	Flushing: WaterSense HEU (≤ 0.5). Non-water: Requires upstream drainage discharges.	WaterSense Faucet (≤1.5; lower limit of 0.8)	≤ 0.5	0.25 (no flow rate maximum)	≤ 2.2	≤ 2.0	Total of 2.0-gpm per compartment of ≤2,600 sq. in. Additional 2.0-gpm allowed for each addit space increment of 2,600 sq in. Exception for "accessible" compartment in accordance with the IPC.	Energy Star	Energy Star + WF of ≤ 6.0	≤ 1.3 with auto-matic shut-off	Graywater and other alternate water sources are encouraged. Contains specific provi-sions for such collection & treatment systems.	Final IgCC published March 2012.

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"