

NATIONAL GREEN BUILDING STANDARDS

Comparison of specific water use efficiency provisions – maximum water use

PLUMBING	ASHRAE SS189.1, Section 6 (v.2-2011)	ASHRAE S191P (unreleased draft)
Residential toilets OR “private” setting in commercial - flushometer type (gals per flush)	HET: 1.28g	HET: 1.28g
Residential toilets or “private” setting in commercial – tank-type (gallons per flush)	HET: 1.28g + WaterSense	HET: 1.28g (tank-type to comply with WaterSense)
Commercial toilets – “public” setting (gals/flush)	HET: 1.28g (tank-type to comply with WaterSense)	HET: 1.28g (tank-type to comply with WaterSense)
Dual Flush Commercial	Based on 2:1 partial/full flush average	Based on 2:1 partial/full flush average
Flushing urinals (gallons per flush)	HEU: 0.5g	HEU: 0.5g + WaterSense
Non-water urinals	Permitted	Permitted
Upstream fixture requirements for non-water urinals	none	
Residential & commercial “private” lavatory faucets (gallons/minute)	1.5 gpm + WaterSense ¹	
Commercial & non-residential “public” lavatory faucets (gals/min.)	0.5 gpm	
Commercial kitchen & bar sink faucets (gallons per minute)	Hands-free in food prep area & in dish room of commercial kitchen	Hands-free in food prep area & in dish room of commercial kitchen
Commercial metering faucets (gallons per cycle ²)	0.25 gpc	0.25 gpc
Residential kitchen faucets (gallons per minute)	2.2 gpm	2.2 gpm
Residential showerheads (gallons per minute)	2.0 gpm	2.0 gpm
Non-residential showerheads (gallons per minute)		
Residential showering compartment – size increment for second showerhead	2,600 sq. in.	2,600 sq. in.
Residential shower valve (automatic compensating valve)		
Tub spout diverter leakage (gallons per minute)		
Commercial pre-rinse spray valve (gallons per minute)	1.3 gpm ³	1.3 gpm + WaterSense

NOTE: AREAS SHADED IN PINK ARE NOT INCLUDED WITHIN THE LISTED STANDARD AT THIS TIME.

¹ WaterSense also provides for minimum flow rate of 0.8 gpm at 20 psi

² Metering faucets have **no flow rate maximum**

³ Also requires compliance with ASTM F2324 at 26 seconds

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PLUMBING (cont'd)	ASHRAE SS189.1, Section 6 (v.2-2011)	ASHRAE S191P (unreleased draft)
Drinking fountain – manual (gallons per minute)		
Drinking fountain – metered (gallons per cycle)		
Drinking Fountain – bottle filler		
Domestic Hot Water – Max volume from source to use		
Domestic Hot Water – Pipe Insulation		

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Metering and Sub-metering	ASHRAE SS189.1, Section 6 (v.2-2011)	ASHRAE S191P (unreleased draft)
Metering source water for the project (gallons per day)	Meter all potable and municipally reclaimed water entering the site -1000g Meter other sources (alternate on-site sources) – 500g	
Tenant water use (usage in gallons per day)	Meter all tenants within buildings of 50,000 sf or greater. Meter all tenants consuming >1,000 g per day. Submeter all tenants or operations in the following categories: car wash and aquarium	Meter all tenants within buildings of 50,000 sf or greater. Meter all tenants consuming >1,000 g per day. Submeter all tenants in the following categories: laundry/cleaners, restaurant/food service, medical/dental, laboratory, beauty salon/barbershop.
Process water use – industrial/commercial (usage in gals per day)	Where usage >1,000 gal/day	Where usage >1,000 gal/day
Ornamental water features, swimming pools, in-ground spas	Make-up water supply to all ornamental water features	Make-up water supply lines
Sub-metering cooling towers	Towers of >500 gpm flow (through-put): make-up and blow-down water supply lines	Towers of >500 gpm flow (through-put)
Evaporative coolers	Where use in excess of 0.6 gpm: meter make-up water supply	
Evaporative condensers		
Fluid coolers		
Boilers	Steam & hot water boilers rated at 500K Btu/hr or more	Steam & hot water boilers rated at 500K Btu/hr or more
Irrigation	Where total irrigated landscape >25,000 sq.ft.	Where total irrigated landscape >5,000 sq.ft.
Campus buildings	Where usage >1,000 g	
Building Meter Data Management System	Require remote data communication to central data mgt system, recording hourly consumption data. Capable of creating user reports and provide alarm notification capabilities.	

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Commercial Food Service	ASHRAE SS189.1, Section 6 (v.2-2011)	ASHRAE S191P (unreleased draft)
Commercial food service – cubed ice makers	Energy Star (air cooled)	Energy Star (air cooled)
Commercial food service – all other ice makers not covered by Energy Star		
Commercial food service – connectionless steam cooker (gal per hour or pan)	2.0 g per hour	2.0 g per pan per hour
Commercial food service – connected steam cooker (gals per hour)		2.0 gal/hr
Commercial food service – rack-based dishwashers	Energy Star	Energy Star
Commercial food service – rackless flight-type dishwashers (maximum gallons per hour)		160 gal/hr
Commercial food service – combination ovens (maximum gallons per hour or pan)	10 g per hour	3.5 gal/pan per hour
Commercial food service – dipper wells (gallons per minute)		Supply with shut-off and flow control. Flow to DW not to exceed capacity of DW in 1 minute and 1.0 gpm, whichever is less.
Commercial food waste disposers (gals per minute)		
Commercial pre-rinse spray valve (gallons per minute)	1.3 gpm ⁴	1.3 gpm
Commercial kitchen faucets	Hands-free in food prep area & in dish room of commercial kitchen	

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HVAC	ASHRAE SS189.1, Section 6 (v.2-2011)	ASHRAE S191P (unreleased draft)
Once Through Cooling	Potable water use prohibited	Potable water use prohibited
Cooling Towers - required equipment	Conductivity controllers, overflow alarms,	Conductivity controllers, make-up water meters
Cooling Towers – drift eliminators	Counterflow max. = 0.002% Crossflow max. = 0.005%	
Cooling Tower – Minimum TDS before blow-down		
AC Condensate Collection requirement	Unit greater than 65,000 Btu/hr <u>AND</u> ambient mean coincident wb temperature at 1% design greater than or equal to 72F	
Vegetative Roofs (“Green Roofs”)	Prohibits use of potable water for thermal conditioning (except for plant establishment period, after which temporary irrigation systems they must be removed or permanently disabled).	Prohibits spraying of potable water for thermal conditioning (except for plant establishment period, after which temporary irrigation systems they must be removed or permanently disabled); irrigation only from alternative water sources. Irrigated vegetative roof considered part of site landscaped area.
Evaporative Cooler – Maximum Water Use (gal/tonhour)		
Required use of non-potables where available		

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Medical, Health Care Systems, & Laboratories	ASHRAE SS189.1, Section 6 (v.2-2011)	ASHRAE S191P (unreleased draft)
Steam sterilizers	Water tempering devices & mechanical vacuum equipment in place of venturi-type vacuum systems	Water tempering devices & mechanical vacuum equipment (prohibits venturi-type vacuum systems)
Film processor water recycling units	Water recycling units required for processing large-frame x-ray films of more than 6-inches in length or width	
Digital imaging and radiography	Digital imaging shall be used in place of film processing where digital networks are installed	
Hood scrubber systems	Dry-hood scrubber installed or, if wet-hood scrubber is required, it shall be equipped with water recirculation syst. Where hood wash-down is needed, hood shall be equipped w/self-closing valve.	
Vacuum pumps	Dry vacuum pump, unless fire & safety code explicitly requires liquid ring.	
Water treatment systems	Pressure gauges reqd for initiating backwash on filtration processes. Ion exchange and other softening processes to be demand-based. RO and nanofiltration, reject water shall not exceed 60% and shall be considered an alternate water source. Water purification by simple distillation prohibited.	Pressure gauges reqd for initiating backwash on filtration processes. Ion exchange and other softening processes to be demand-based. RO and nanofiltration, reject water shall not exceed 60% and shall be considered an alternate water source.
Vivariums	Cage and rack washers shall recycle water through a counter-current rinsing process. Animal watering systems shall incorporate recycled and sterilized water. Shall use tunnel washers for small cage washing.	

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Appliances, Landscape, Irrigation, Water Treatment, Alternate Water	ASHRAE SS189.1, Section 6 (v.2-2011)	ASHRAE S191P (unreleased draft)
Residential dishwashers (total water per full cycle)	Energy Star & max 5.8 gal/cycle	
Residential clothes washers (water factor maximum)	Energy Star & WF of 6.0 gal	Energy Star & WF of 4.5 gal
On-site alternate water (incl. graywater, condensate, rainwater, foundation drain water, RO reject water, pool drain water, filter backwash water, stormwater, cooling tower blowdown) – recovery and treatment systems	Encouraged through the treatment and use of alternate (non-potable) sources of water	Encouraged through the treatment and use of alternate (non-potable) sources of water. Treated water must meet ANSI/NSF 350 or 350-1
Landscape design	60% of improved landscape shall consist of biodiverse native plantings. Prohibits invasive exotic species. NOTE: Exceptions provided for schools, common areas, recreation areas.	
Landscape irrigation	Hydrozoning, ET-based controls or rain or moisture sensors; if smart controllers, must meet SWAT; temporary irrigation systems exempt for the landscape establishment period, after which they must be removed or permanently disabled. Alternate water sources must be used for golf courses. Maximum of one-third of improved landscape may be irrigated with potable water. Exceptions provided for schools, common areas, recreation areas.	Reduce supplemental irrigation by 40% from baseline as calculated in WaterSense budget tool. NOTE: Exceptions provided for schools, common areas, recreation areas. Irrigation systems must meet IA's BMPs. WaterSense controller reqd, including rain or moisture sensor. If municipally reclaimed water w/in 1,000 ft of site, it must be used for irrigation (exceptions provided).
Landscape Equipment and Plantings Restrictions– spray head, low flow emitters, sloped areas, small strip areas, etc.		
Vegetative Roofs ("Green Roofs")	Prohibits use of potable water for thermal conditioning (except for plant establishment period, after which temporary irrigation systems they must be removed or permanently disabled).	Prohibits spraying of potable water for thermal conditioning (except for plant establishment period, after which temporary irrigation systems they must be removed or permanently disabled); irrigation only from alternative water sources. Irrigated vegetative roof considered part of site landscaped area.

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Appliances, Water Features, Water Treatment, Equipment, Vehicle Washes	ASHRAE SS189.1, Section 6 (v.2-2011)	ASHRAE S191P (unreleased draft)
Decorative water features (fountains, etc.)	Use alternate water sources (non-potable); recirculation required. NOTE: Exception where alternate sources not avail within 500 ft of the site, potable water OK for features of less than 10,000 gal capacity. Make-up water meters and leak detection devices required.	Use alternate water sources (non-potable) where available. Water recirculation, filtration and treatment required for reuse. Make-up water meters and leak detection devices required.
Pools and spas	Recover filter backwash for reuse. Filter requirements. Pool splash troughs/grates drain into pool system.	
Commercial clothes washers - public access: common area laundry rooms, hotels, laundromats (water factor max.)	WF of 7.5 gal	Energy Star & WF of 7.5 gal
Commercial clothes washers – all others (water factor maximum)	WF of 8.0 gal	
Water softeners	Demand-based operation	
Reverse osmosis water treatment system (other than medical and laboratory)		
Water-powered pumps		
Automated vehicle wash facilities	Separately metered	
Self-service vehicle wash facilities	Separately metered	

Performance Compliance Option	ASHRAE SS189.1, Section 6 (v.2-2011)	ASHRAE S191P (unreleased draft)
Site Water Use	Potable water irrigation limit 35% of total landscape demand	
Building Water Use	Water use to be less than or equal to achievements of 6.3,2 (Plumbing Fixtures, Appliances, HVAC, Roofs) 6.4.2 (Cooling Towers, Food Service, Medical and Labs) and 6.4.3 (Pools and Water Features)	A separate performance option available only for Alternate Water Sources, Hot Water Distribution, and HVAC.

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