Public Review Draft

Proposed Addendum aa to Standard 189.1-2023

Standard for the Design of High-Performance Green Buildings

Except Low-Rise Residential Buildings

First Public Review (January, 2026)
(Draft Shows Proposed Changes to Current Standard)

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Foreword

This addendum is based on a change proposal and updates requirements for many water using devices to use EPA Watersense specifications. Water consumption limits are also revised for a number of devices. Specifically, clothes washers will use integrated water factor (IWF), and irrigation sprinkler bodies, irrigation controllers, and flushometer valve type water closets will have to comply with new Watersense requirements. Water consumption limits for dishwashers will be reduced.

[Note to Reviewers: This addendum makes proposed changes to the current standard. These changes are indicated in the text by underlining (for additions) and ~~strikethrough~~ (for deletions) except where the reviewer instructions specifically describe some other means of showing the changes. Only these changes to the current standard are open for review and comment at this time. Additional material is provided for context only and is not open for comment except as it relates to the proposed changes.]

Addendum aa to 189.1-2023

Modify Sections 3, 6 and 11

Make the following changes to definitions in Section 3:

***integrated water factor (IWF)*:** for clothes washers (residential and commercial), the quantity of per-cycle water consumption for all wash cycles divided by the volumetric capacity of the clothes washer.

~~***irrigation adequacy*: a representation of how well irrigation meets the needs of the plant material. This reflects the percentage of required water for turf or plant material supplied by rainfall and controller-scheduled irrigations.~~

~~***irrigation excess*: a representation of the amount of irrigation water applied beyond the needs of the plant material. This reflects the percentage of water applied in excess of 100% of required water.~~

water factor (WF):

- ~~**a. clothes washer (residential and commercial):** the quantity of water in gallons (litres) used to wash each cubic foot (cubic metre) of machine capacity.~~
- ~~**b.** **for** **residential dishwasher****s:** the quantity of water use in gallons (~~litres~~liters) per full machine wash and rinse cycle.

Revise Section 6.3.1.2 as follows:

6.3.1.2 Irrigation System Design. The design of the irrigation system shall be performed by an accredited or certified irrigation professional and shall be in accordance with the following:

a. Irrigation systems

1. Shall be based on *hydrozones. Turfgrass* areas shall be on their own *irrigation stations.*

2. Shall have backflow prevention in accordance with the plumbing code.
3. [JO] Shall have a master valve on municipally supplied water sources that allows pressurization of the irrigation mainline only when irrigation is scheduled.
4. [JO] Shall have a flow sensor and monitoring equipment that will shut off the control valve if the flow exceeds normal flow from an *irrigation station.*
5. Shall prevent piping from draining between irrigation events.

b. Irrigation emission devices shall comply with ASABE/ICC 802.

c. Irrigation sprinklers
1. Shall not spray water directly on buildings or *hardscape* area
2. Shall have matched precipitation rate nozzles within an *irrigation station*
3. Shall be prohibited on landscape areas having any dimension less than 4 ft (1.2 m)
4. Shall have an application rate less than or equal to 0.75 in. (19 mm) per hour on slopes greater than 1 unit vertical in 4 units horizontal
5. Shall be limited to use with *turfgrass* or *ground cover* areas with vegetation maintained at 8 in. (200 mm) or less in height
6. ~~Where of the pop-up~~ Pop-up configuration~~,~~ sprinklers shall have a pop-up height of not less than 4 in (100 mm)
7. Sprinkler bodies shall meet the requirements of the US EPA WaterSense Specification for Spray Sprinkler Bodies.

d. Microirrigation zones
1. Shall be equipped with pressure regulators, filters, and flush assemblies
2. Shall have indicators that allow confirmation of operation by visual inspection
3. Drip emitters shall be of pressure-compensating type

Revise Section 6.3.1.3 as follows:

6.3.1.3. Irrigation System Controls. Where any irrigation system for the project site uses an *automatic* controller, the system shall be controlled by a qualifying *smart controller* that uses *evapotranspiration* (*ET*) and weather data to adjust irrigation schedules and complies with the minimum requirements. Alternatively, the system shall be controlled by an on-site rain or moisture sensor that automatically shuts off the system after a predetermined amount of rainfall or sensed moisture in the soil. Qualifying *smart controllers* shall be *labeled* according to USEPA *WaterSense Specification for Weather-Based Irrigation Controllers* or US EPA WaterSense Specification for Soil Moisture-Based Irrigation Controllers. ~~tested in accordance with Irrigation Association *SWAT* Climatologically Based Controllers, 8th Testing Protocol. *Smart controllers* that use *ET* data shall provide the following irrigation amounts:~~

~~a. *Irrigation adequacy* 80% minimum ET_c~~
~~b. *Irrigation excess* not to exceed 10% of ET_c~~

THE REMAINDER OF SECTION 6.3.1.3 REMAINS UNCHANGED

Revise Section 6.3.2.1 as follows:

6.3.2.1 Plumbing Fixtures and Fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following requirements, as shown in Table 6.3.2.1:

a. Water Closets (toilets) – Flushometer Valve Type: Flushometer valve type water closets shall be certified to the performance criteria of the USEPA WaterSense Specification for Flushometer-Valve Water Closets. For single-flush, maximum flush volume shall be determined in accordance with ASME A112.19.2/CSA B45.1 and shall not exceed 1.28 gal (4.8 L). For dual-flush, the full-flush volume shall not exceed 1.28 gal (4.8 L) per flush. ~~Dual-flush fixtures shall also comply with the provisions of ASME A112.19.14.~~

b. Water Closets (toilets) – Tank-Type: Tank-type water closets shall be certified to the performance criteria of the USEPA WaterSense Tank-Type Toilet Specification and shall have a maximum full-flush volume of 1.28

gal (4.8 L). ~~Dual-flush fixtures shall also comply with the provisions of ASME A112.19.14.~~

THE REMAINDER OF SECTION 6.3.2.1 REMAINS UNCHANGED

Revise Section 6.3.2.2 as follows:

6.3.2.2 Appliances

a. Clothes washers and dishwashers installed within dwelling units shall comply with the ENERGY STAR® Program Requirements for Clothes Washers and ENERGY STAR Program Requirements Product Specification for Residential Dishwashers. Maximum water use shall be as follows:
   1. Clothes washers (residential) – Maximum *integrated water factor* (~~WF~~*IWF*) of ~~5.4~~ 4.3 gal/ft³ of drum capacity (~~0.72~~ 0.57 L/L of drum capacity).
   2. Dishwashers—Standard-size dishwashers shall have a maximum *WF* of ~~3.8~~ 3.2 gal/full operating cycle (~~14.3~~ 12.1 L/full operating cycle). Compact sizes shall have a maximum *WF* of ~~3.5~~ 2.0 gal/full operating cycle (~~13.2~~ 7.0 L/full operating cycle). Standard and compact size shall be defined by ENERGY STAR criteria.
b. Clothes washers installed in publicly accessible *spaces* (***Informative Note:*** e.g., multifamily and hotel common areas), and coin- and card-operated clothes washers of any size used in laundromats, shall have a maximum *IWF* of 4.0 gal/ft³ of drum capacity normal cycle (0.53 L/L of drum capacity normal cycle).
c. Commercial dishwashers in commercial food-service facilities shall ~~meet all ENERGY STAR requirements as listed in~~ comply with the ENERGY STAR Program Requirements for Commercial Dishwashers.

Revise Section 6.3.2.5 as follows:

6.3.2.5 Commercial Food Service Operations. (***Informative Note:*** e.g., restaurants, cafeterias, food preparation kitchens, caterers, etc.). Commercial food service operations

a. Shall use high-efficiency prerinse spray valves (i.e., valves that function at 1.3 gpm [4.9 L/min] or less and comply with a 26 second performance requirement when tested in accordance with ASTM F2324).
b. Shall use dishwashers that comply with the requirements of the ENERGY STAR Program for Commercial Dishwashers.
c. Shall use boilerless/connectionless food steamers that consume no more than 2.0 gal/h (7.5 L/h) in the full operational mode.
d. Shall use combination ovens that comply with the requirements of the ENERGY STAR Program Requirements for Commercial Ovens ~~consume not more than 10 gal/h (38 L/h) in the full operational mode~~.
e. Shall use air-cooled ice machines that comply with the requirements of the ENERGY STAR Program for Commercial Ice Makers.
f. Shall be equipped with hands-free faucet controllers (foot controllers, sensor activated, or other) for all faucet fittings within the food preparation area of the kitchen and the dish room, including pot sinks and washing sinks.

Revise references in Section 11 as follows:

Reference	Title	Section
American Society of Mechanical Engineers (ASME) **Three Park Avenue** **New York, NY 10016-5990, United States** **1-800-843-2763 and 1-973-882-1170; www.asme.org**		
ASME A112.19.2-~~2018~~-2024/CSA B45.1-~~18~~-24	Ceramic Plumbing Fixtures	6.3.2.1
~~ASME A112.19.14-2013 (R2018)~~	~~Six-Liter Water Closets Equipped with a Dual Flushing Device~~	~~6.3.2.1~~
United States Environmental Protection Agency (USEPA) **1200 Pennsylvania Avenue, NW** **Washington, DC 20460, United States** **www.epa.gov** **ENERGY STAR® (www.energystar.gov)** **WaterSense (www.epa.gov/watersense)**		
Version 1.0, February 2021	WaterSense Specification for Soil Moisture-Based Irrigation Controllers	6.3.1.3
Version 1.0, September 21, 2017	WaterSense Specification for Spray Sprinkler Bodies	6.3.1.2
Version 1.0, December 17, 2015	WaterSense Specification for Flushometer-Valve Water Closets	6.3.2.1
Version 1.1, September 2, 2021	WaterSense Specification for Weather-Based Irrigation Controllers	6.3.1.3
Version ~~1.2~~ 2.0, ~~June 2, 2014~~ May 2024	WaterSense Specification for Tank-Type Toilets ~~Specification~~	6.3.2.1
Version 3.0, April 12, 2022	ENERGY STAR Program Requirements for Commercial Ovens	6.3.2.5, 7.4.7.2