ANSI/ASHRAE/ICC/USGBC/IES Addendum c to ANSI/ASHRAE/ICC/USGBC/IES Standard 189.1-2020

Standard for the Design of High-Performance Green Buildings

Except Low-Rise Residential Buildings

The Complete Technical Content of the International Green Construction Code®

Approved by ASHRAE staff and the American National Standards Institute on April 30, 2021; by the International Code Council and the Illuminating Engineering Society on April 23, 2021; and by the U.S. Green Building Council on April 13, 2021.

This addendum was approved by a Standing Standard Project Committee (SSPC) for which the Standards Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely, documented, consensus action on requests for change to any part of the standard. Instructions for how to submit a change can be found on the ASHRAE® website (https://www.ashrae.org/continuous-maintenance).

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ASHRAE obtains consensus through participation of its national and international members, associated societies, and public review.

ASHRAE Standards are prepared by a Project Committee appointed specifically for the purpose of writing the Standard. The Project Committee Chair and Vice-Chair must be members of ASHRAE; while other committee members may or may not be ASHRAE members, all must be technically qualified in the subject area of the Standard. Every effort is made to balance the concerned interests on all Project Committees.

The Senior Manager of Standards of ASHRAE should be contacted for

a. interpretation of the contents of this Standard,
b. participation in the next review of the Standard,
c. offering constructive criticism for improving the Standard, or
d. permission to reprint portions of the Standard.

(This foreword is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

FOREWORD

Addendum c simplifies the requirements for hot-water distribution by eliminating specific instructions for calculating pipe volume. The SSPC believes that the detailed material currently included in the standard, especially Table 6.3.3.1, is more appropriate for reference material such as a user's manual. The requirements addressed by this addendum are expected to be enforced through plan review processes.

The addendum is not expected to increase the cost of compliance and may reduce it through simplification of the requirements. The existing exception is clarified by using the term "metering lavatory faucets" that more precisely identifies what is being excepted. Commercial kitchens have been added to the exception due to their highly dense and frequently used collection of fixtures.

The International Plumbing Code and multiple IAPMO codes have similar requirements.

Note: In this addendum, changes to the current standard are indicated in the text by underlining (for additions) and ~~strikethrough~~ (for deletions) unless the instructions specifically mention some other means of indicating the changes.

Addendum c to Standard 189.1-2020

Revise Section 6.3.2.1(e) as shown.

6.3.2.1 Plumbing Fixtures and Fittings.

[. . .]

e. **Public metering ~~self-closing~~ faucet.** Maximum water use shall not exceed 0.25 gal (1.0 L) per metering cycle when tested in accordance with ASME A112.18.1/CSA B125.1.

Revise Table 6.3.2.1 as shown.

Table 6.3.2.1 Plumbing Fixtures and Fittings Requirements

Plumbing Fixture	Maximum
Water closets (toilets)—flushometer single-flush valve type	Single-flush volume of 1.28 gal (4.8 L)
Water closets (toilets)—flushometer dual-flush valve type	Full-flush volume of 1.28 gal (4.8 L)
Water closets (toilets)—single-flush tank-type	Single-flush volume of 1.28 gal (4.8 L)
Water closets (toilets)—dual-flush tank-type	Full-flush volume of 1.28 gal (4.8 L)
Urinals	Flush volume 0.5 gal (1.9 L)
Public lavatory faucets	Flow rate—0.5 gpm (1.9 L/min)
Public metering ~~self-closing~~ faucet	0.25 gal (1.0 L) per metering cycle
Residential bathroom lavatory sink faucets	Flow rate—1.5 gpm (5.7 L/min)
Residential kitchen faucets	Flow rate—1.8 gpm (6.8 L/min) [a]
Residential showerheads	Flow rate—2.0 gpm (7.6 L/min)
Residential shower compartment (stall) in *dwelling units* and guest rooms	Flow rate from all shower outlets total of 2.0 gpm (7.6 L/min)

a. With provision for a temporary override to 2.2 gpm (8.3 L/min) as specified in Section 6.3.2.1(g).

Revise section 6.3.3 as shown.

6.3.3 Hot-Water Distribution. Hot-water distribution ~~pipes~~ piping shall be in accordance with Section 6.3.3.1 and Section 6.3.3.2.

6.3.3.1 Maximum Allowable Pipe Volume. The maximum volume of water in the ~~pipes~~ piping between the source of hot or tempered water and the fixtures shall be 64 oz (1.9 L) where the source of hot or tempered water is a water heater, and shall be 24 oz (0.71 L) where the source of hot or tempered water is a circulation loop pipe or an electrically heat-traced pipe. For the purpose of Section 6.3.3, the source of hot or tempered water shall be the point of connection to a water heater, heat-traced pipe, or a circulation loop.

~~The volume shall be the sum of the internal volumes of pipe, fittings, valves, meters, and manifolds between the source of hot or tempered water and the termination of the fixture supply pipe. The volume shall be determined using Table 6.3.3.1. The volume contained within fixture shutoff valves, flexible water supply connectors to a fixture fitting, or within a fixture fitting shall not be included in the water volume determination. Where the source of hot or tempered water is a circulation loop pipe or an electrically heat-traced pipe, the volume shall include the portion of the fitting on the source pipe that supplies water to the fixture. Where the type of pipe is unknown or not specifically included in the table, the generic pipe column shall be used to determine the volume.~~

Exceptions to 6.3.3.1:

1. Public metering lavatory faucets. ~~lavatory fixtures~~
2. Plumbing fixtures in commercial kitchens.

6.3.3.2 Maximum Length. The maximum ~~pipe~~ piping length from the source of hot or tempered water to the termination of the fixture supply pipe serving any plumbing fixture or appliance shall not exceed 50 ft (15 m) of developed length.

~~**Table 6.3.3.1 Internal Volume of Pipe or Tube in I-P (SI)**~~

~~**Ounces (Litres) of Water per Foot (Metre) of Pipe**~~				
~~**Nominal Size, in. (Dimension Nominal [DN], mm)**~~	~~**Generic Pipe**~~	~~**Copper Type L**~~	~~**CPVC CTS SDR 11**~~	~~**PEX CTS SDR 9**~~
~~1/4 (8)~~	~~0.33 (0.03)~~	~~0.52 (0.05)~~	~~0.37 (0.04)~~	~~0.33 (0.03)~~
~~5/16 (9)~~	~~0.5 (0.05)~~	~~NA (NA)~~	~~NA (NA)~~	~~0.48 (0.05)~~
~~3/8 (10)~~	~~0.75 (0.07)~~	~~0.97 (0.09)~~	~~0.75 (0.07)~~	~~0.68 (0.07)~~
~~1/2 (15)~~	~~1.5 (0.15)~~	~~1.55 (0.15)~~	~~1.25 (0.12)~~	~~1.18 (0.11)~~
~~5/8 (18)~~	~~2 (0.19)~~	~~2.23 (0.22)~~	~~NA (NA)~~	~~1.78 (0.17)~~
~~3/4 (20)~~	~~3 (0.29)~~	~~3.22 (0.31)~~	~~2.67 (0.26)~~	~~2.35 (0.23)~~
~~1 (25)~~	~~5 (0.49)~~	~~5.47 (0.53)~~	~~4.43 (0.43)~~	~~3.91 (0.38)~~
~~1 1/4 (32)~~	~~8 (0.78)~~	~~8.36 (0.81)~~	~~6.61 (0.64)~~	~~5.81 (0.56)~~
~~1 1/2 (40)~~	~~11 (1.07)~~	~~11.83 (1.15)~~	~~9.22 (0.89)~~	~~8.09 (0.78)~~
~~2 (50)~~	~~18 (1.75)~~	~~20.58 (2.00)~~	~~15.79 (1.53)~~	~~13.86 (1.34)~~

~~NA = No value provided based on lack of availability of pipe in this size.~~

POLICY STATEMENT DEFINING ASHRAE'S CONCERN FOR THE ENVIRONMENTAL IMPACT OF ITS ACTIVITIES

ASHRAE is concerned with the impact of its members' activities on both the indoor and outdoor environment. ASHRAE's members will strive to minimize any possible deleterious effect on the indoor and outdoor environment of the systems and components in their responsibility while maximizing the beneficial effects these systems provide, consistent with accepted Standards and the practical state of the art.

ASHRAE's short-range goal is to ensure that the systems and components within its scope do not impact the indoor and outdoor environment to a greater extent than specified by the Standards and Guidelines as established by itself and other responsible bodies.

As an ongoing goal, ASHRAE will, through its Standards Committee and extensive Technical Committee structure, continue to generate up-to-date Standards and Guidelines where appropriate and adopt, recommend, and promote those new and revised Standards developed by other responsible organizations.

Through its *Handbook*, appropriate chapters will contain up-to-date Standards and design considerations as the material is systematically revised.

ASHRAE will take the lead with respect to dissemination of environmental information of its primary interest and will seek out and disseminate information from other responsible organizations that is pertinent, as guides to updating Standards and Guidelines.

The effects of the design and selection of equipment and systems will be considered within the scope of the system's intended use and expected misuse. The disposal of hazardous materials, if any, will also be considered.

ASHRAE's primary concern for environmental impact will be at the site where equipment within ASHRAE's scope operates. However, energy source selection and the possible environmental impact due to the energy source and energy transportation will be considered where possible. Recommendations concerning energy source selection should be made by its members.

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Standard 189.1 and the International Green Construction Code

Standard 189.1 serves as the complete technical content of the International Green Construction Code® (IgCC). The IgCC creates a regulatory framework for new and existing buildings, establishing minimum green requirements for buildings and complementing voluntary rating systems. For more information, visit www.iccsafe.org.

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As an industry leader in research, standards writing, publishing, certification, and continuing education, ASHRAE and its members are dedicated to promoting a healthy and sustainable built environment for all, through strategic partnerships with organizations in the HVAC&R community and across related industries.

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