ANSI/ASHRAE/ICC/USGBC/IES Addendum o 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 the ASHRAE Board of Directors on June 25, 2022; by the ASHRAE Standards Committee on June 29, 2022; by the International Code Council on May 20, 2022; by the U.S. Green Building Council on May 23, 2022; and by the Illuminating Engineering Society on June 10, 2022; and by the American National Standards Institute on July 29, 2022.

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.

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FOREWORD

Addendum o makes the following changes to the standard:

a. *Moves specific requirements for view fenestration out of Section 3.1 and more clearly defines them as qualifying criteria.*
b. *Removes healthcare from the list of space types required to have exterior views, as these are now covered in ASHRAE Standard 189.3.*
c. *Changes the status of exterior views for classrooms from a jurisdictional option to a mandatory requirement (50% of the combined total area of all classrooms is required to have a view). Office spaces exterior views are still a jurisdictional option. Along with offices, affiliated regularly occupied spaces in office buildings, such as conference rooms and breakrooms, are added to exterior views as a jurisdictional option provision. Additionally, spaces where circadian entrainment is desirable, such as guest rooms and dorms, are also included as a jurisdictional option.*
d. *Increases the ratio of glazing area to floor area from 7% to 8% to harmonize with the 2018 IBC section 1204.2.*
e. *Moves the requirements for operable glare control from Section 8.3, "Mandatory Provisions" to Section 8.4, Prescriptive Option."*

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 o to Standard 189.1-2020

Revise Section 3.1 as shown.

view fenestration: *fenestration* that ~~complies with all of the following:~~

- ~~a.~~ ~~It~~ provides building occupants with a view to the outdoors or to an interior daylit atrium.
- ~~b. It has undiffused glazing with a haze value less than 3%, as determined in accordance with ASTM D1003.~~
- ~~c. It has a center-of-glass visible transmittance (VT) of not less than 20.~~
- ~~d. The product of the center-of-glass VT and the openness factor of screens, patterned films, and ceramic frits is not less than 20%.~~
- ~~e. Where *dynamic glazing* is provided, such glazing has a center-of-glass VT of not less than 20% at the highest end of its range.~~
- ~~f. Where nonoperable opaque window treatments are provided, such as blinds, shades, and louvers, such treatments do not obstruct more than 40% of the *fenestration* glazing area.~~

Revise Table 4.2 as shown.

Table 4.2 Requirements Determined by the Jurisdiction (Normative in the IgCC)

Section	Section Title, Description and Directives ~~&#x25A1~~	Jurisdictional Requirement
5.3.5.2	Mitigation of Heat Island Effect, Walls	❑ No
5.3.6	Reduction of Light Pollution	❑ No
5.3.7.2.2	Bicycle Parking, Location	❑ No
5.3.7.2.3	Bicycle Parking, Horizontal Parking Racks	❑ No
5.3.7.2.5	Bicycle Parking, Security and Visibility	❑ No
5.3.8.1	Building Site Waste Management, Diversion Percentage	❑ 75% ❑ 50%
6.3.1.2.1(a)(3)	Irrigation System Design, Master Valve	❑ No
6.3.1.2.1(a)(4)	Irrigation System Design, Flow Sensors	❑ No
6.3.4	Special Water Features	❑ No
6.3.5.2	Consumption Data Collection	❑ No
6.3.5.3	Data Storage and Retrieval	❑ No
6.3.9	Dual Water Supply Plumbing	❑ No
7.4.2.1	Building Envelope Requirements	❑ No
7.4.2.3	Single-Rafter Roof Insulation	❑ No
7.4.2.4	High-Speed Doors	❑ No
7.4.2.7	Permanent Projections	❑ No
7.4.2.10	Orientation	❑ No
7.4.3.2	Ventilation Controls for Densely Occupied Spaces	❑ No
7.4.3.4	Economizers	❑ No
7.4.3.5	Zone Controls	❑ No
7.4.3.7	Exhaust Air Energy Recovery	❑ No
7.4.3.8	Kitchen Exhaust Systems	❑ No
7.4.4.3	Insulation for Spa Pools	❑ No
7.4.6.3.1	Occupancy Sensor Controls in Commercial and Industrial Storage Stacks	❑ No
7.4.6.3.2	Automatic Controls for Egress and Security Lighting	❑ No
7.4.7.2	Supermarket Heat Recovery	❑ No
7.4.7.4	Programmable Thermostats	❑ No
7.4.7.5	Refrigerated Display Cases	❑ No
7.5.4	Energy Simulation Aided Design	❑ No
8.3.1.3(b)	Outdoor Air Ozone Removal	❑ No
8.3.1.4.2	Exfiltration	❑ No
8.3.3.4	Interior Sound Reverberation	❑ No
Table 8.3.~~9~~8	Exterior ~~Views~~ View Space Types (2 through 5) 2. Enclosed offices and open-plan offices 3. Conference, meeting, and multipurpose rooms except in convention centers 4. Lounge or breakrooms 5. Sleeping rooms in multifamily buildings and dorms not considered healthcare facilities	~~❑ No~~ ❑ No ❑ No ❑ No ❑ No
8.4.1.3	Shading for Offices	❑ No
9.3.1.2	Total Waste	❑ No
10.4.4	Construction Activity Pollution Prevention—Protection of Occupied Areas	❑ No
10.7	Postconstruction Building Flush-Out and Air Monitoring	❑ No
10.10	Service Life Plan	❑ No
10.11.2	Transportation Management Plan, Owner Occupied Building Projects or Portions of Building Projects	❑ No
10.11.3	Transportation Management Plan, Building Tenant	❑ No

Renumber Section 8.3.7 to 8.4.1.3 as shown. Renumber subsequent sections as required.

~~8.3.7~~ 8.4.1.3 Operable Glare Control. *View fenestration* within 7 ft (21 m) of the finished floor ~~for~~ in the *spaces* listed in Table 8.4.1.2A shall comply with this section.

View fenestration shall have one or more operable glare control devices capable of reducing the *specular visible transmittance* of the *fenestration* assembly to 3% or less. Such glare control devices shall allow an occupant or control system to change the device's position or light transmission level in order to address glare in the *space*. Operable glare control devices include movable interior window blinds, curtains, and shades; movable exterior louvers, screens, awnings, shades, and blinds; and *dynamic glazing*. Where fabric shades are used, the openness factor, also known as direct-direct transmittance, shall be tested according to Standard EN14500.

Exceptions to ~~8.3.7~~ 8.4.1.3:

1. *Spaces* compliant with Section 8.5.1.3.
2. ~~1~~For buildings located greater than 20 degrees latitude north or south of the equator, *view fenestration* oriented within 10 degrees of true north in northern hemisphere locations or within 10 degrees of true south in southern hemisphere location.
3. ~~2~~Where permanent interior or exterior obstructions, such as buildings, structures, overhangs, and fins, have a *specular visible transmittance* of not greater than 3% and block a direct beam of sunlight from passing through the *view fenestration* at a point in the middle of the *view fenestration* both horizontally and vertically, at the peak solar altitude and four hours before and after the peak solar altitude on the summer solstice and the spring equinox as determined by sun-angle studies.
4. ~~*Spaces* that have an *annual sunlight exposure* of not more than 93 fc (1000 lux) of direct sunlight illumination for more than 250 hours per year for less than 3% of the floor area.~~

Revise Section 8.5.1 and add new Section 8.5.1.3 as shown.

8.5.1 Daylight Simulation. For the *spaces* listed in Table 8.4.1.2A, and any *spaces* required to have daylighting in accordance with Section 8.4.1.1, the total floor area shall be calculated, and computer modeling shall be used to determine that the requirements specified in Sections 8.5.1.1 ~~and~~ through ~~8.5.1.2~~ 8.5.1.3 are met. Computer models shall use an hourly simulation and shall adhere to the modeling protocols described in IES LM 83 for *spatial daylight autonomy* (*sDA*) calculations in Section 8.5.1.1 and *annual sunlight exposure* (*ASE*) calculations in Section 8.5.1.2 and 8.5.1.3.

[. . .]

8.5.1.3 Glare Control. The *ASE,* as calculated for *vertical fenestration* with a threshold of 93 fc (1000 lux) and 250 hours, shall not exceed 3% of the floor area for the *spaces* listed in Table 8.4.1.2A.

Exception to 8.5.1.3: *View fenestration* with operable glare control in compliance with Section 8.4.1.3.

Renumber and revise Section 8.3.9 and Table 8.3.9 as shown.

~~8.3.9~~ ~~[JO]~~ 8.3.8 Exterior Views. Not less than 50% of the total combined floor area of each of the *spaces* types listed in Table ~~8.3.9~~ 8.3.8 shall have a direct line-of-sight, originating at a height of not more than 42 in. (1.1 m) above the floor, to *view fenestration* meeting the criteria of this section. The ~~line of sight~~ line-of- sight distance to *view fenestration* shall not exceed 40 ft (12.2 m). The glazing area shall not be less than 8~~7~~% of the floor area required to have exterior views. Qualifying *view fenestration* shall meet the following criteria.

a. Glazing shall have a haze value less than 3%, as determined in accordance with ASTM D1003.
b. Center-of-glass visible transmittance (VT) shall be not less than 20%.
c. The product of the center-of-glass VT and the openness factor of screens, patterned films, and ceramic frits shall be not less than 20%.
d. Where *dynamic glazing* is provided, glazing shall have a center-of-glass VT of not less than 20% at the highest setting of its VT range.
e. Where stationary opaque window treatments are provided, such as nonoperable blinds, shades, and louvers, such treatments shall not obstruct more than 40% of the *fenestration* glazing area.

Table ~~8.3.9~~8.3.8Exterior View ~~Spaces~~ Space Types

1. *Classrooms*
[JO] 2. Enclosed offices and open-plan offices
~~Patient and resident rooms within health care, nursing homes, and assisted living facilities~~
[JO] 3. Conference, meeting, and multipurpose rooms except in convention centers
[JO] 4. Lounge or breakrooms
[JO] 5. Sleeping rooms in multifamily buildings and dorms not considered healthcare facilities

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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