

# ANSI/ASHRAE/ICC/USGBC/IES Addendum bg to ANSI/ASHRAE/ICC/USGBC/IES Standard 189.1-2017

# 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 and the American National Standards Institute on August 18, 2020; by the International Code Council on July 24, 2020; and by the U.S. Green Building Council and Illuminating Engineering Society on July 23, 2020.

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## FOREWORD

*Addendum bg reflects changes to Sections 7 and 8 necessary to align Standard 189.1 with updates to ASHRAE Standard 62.1-2019. Specific changes include additional clarity regarding spaces covered by both Standards 62.1 and 170, the addition of ISO filter standards as an alternative to MERV ratings, and added clarification of the outdoor ozone air-cleaning requirements.*

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

### Addendum bg to Standard 189.1-2017

#### Modify Section 7.4.3.2 as shown.

**7.4.3.2 Ventilation Controls for Densely Occupied Spaces.** The requirements in this section supersede those in ANSI/ASHRAE/IES Standard 90.1, Section 6.4.3.8. *Demand control ventilation (DCV)* shall be provided for *densely occupied spaces* served by systems with one or more of the following:

[ . . . ]

The *DCV* system shall be designed to ~~be in compliance~~ comply with ASHRAE Standard 62.1, Section 6.2.7.1. Occupancy assumptions shall be shown in the design documents for *spaces* provided with *DCV*. All CO<sub>2</sub> sensors used as part of a *DCV* system or any other system that dynamically controls *outdoor air* shall meet the following requirements:

- a. *Spaces* with CO<sub>2</sub> sensors or air-sampling probes leading to a central CO<sub>2</sub> monitoring station shall be provided with at least one sensor or probe for each 10,000 ft<sup>2</sup> (1000 m<sup>2</sup>) of floor *space*. Sensors or probes shall be installed between 3 and 6 ft (1 and 2 m) above the floor.
- b. CO<sub>2</sub> sensors shall have a rated accuracy of ±50 ppm at 1000 ppm.

[ . . . ]

#### Modify Section 8 as shown.

**8.3.1 Indoor Air Quality.** Buildings shall comply with the design requirements of ANSI/ASHRAE Standard 62.1, Sections 4 through 6, including applicable normative appendices, with the modifications and additions indicated herein. Health care facilities shall comply with the design requirements of ANSI/ASHRAE/ASHE Standard 170, including applicable normative appendices, with the modifications and additions indicated herein. *Residential dwelling units* shall comply with the design requirements of ANSI/ASHRAE Standard 62.2, Sections 4 through 8, with the modifications and additions indicated herein.

Requirements provided in Sections 8.3.1.1 through 8.3.1.7 supersede such requirements in ASHRAE Standard 62.1, ASHRAE Standard 62.2, and ASHRAE/ASHE Standard 170. Where a *space type* in a health care facility is listed in both Standard 62.1 and Standard 170, the requirement in Standard 170 shall be used.

[ . . . ]

#### 8.3.1.3 Filtration and Air Cleaner Requirements

- a. **Particulate Matter.** The following requirements shall apply in all buildings.
  1. **Wetted Surfaces.** Particulate matter filters or air cleaners having a minimum efficiency reporting value (MERV) of not less than 8 ~~when~~ where rated in accordance with ANSI/ASHRAE Standard 52.2, or not less than Coarse-90% where rated in accordance with ISO 16890, shall be provided upstream of all cooling coils or other devices with wetted

surfaces through which air is supplied to an *occupiable space*. These requirements supersede the requirements in ASHRAE Standard 62.1, Section 5.8.9.

2. **Particulate Matter Smaller than 10 Micrometers (PM10).** Particulate matter filters or air cleaners shall be provided in accordance with Standard 62.1, Section ~~6.2.1.1~~ 6.1.4.1, with the following modification. Such filters or air cleaners shall have a MERV of not less than ~~8~~ 11 ~~where when~~ rated in accordance with ASHRAE Standard 52.2, or not less than ePM2.5-50% where rated in accordance with ISO 16890.
3. **Particulate Matter Smaller than 2.5 Micrometers (PM2.5).** Particulate matter filters or air cleaners shall be provided in accordance with Standard 62.1, Section ~~6.2.1.2~~ 6.1.4.2, with the following modification. Such filters or air cleaners shall have a MERV of not less than 13 ~~when where~~ rated in accordance with ASHRAE Standard 52.2, or not less than ePM1-50% where rated in accordance with ISO 16890.

**Exception to 8.3.1.3(a):** In health care facilities, the particulate filter requirements of ASHRAE/ASHE Standard 170 shall apply.

- b. **[JO] Ozone Outdoor Air Ozone Removal.** Air cleaning devices for ozone shall be provided for buildings located in an area that is designated “nonattainment” ~~in an area that exceeds the National Ambient Air Quality Standards (NAAQS) for ozone by USEPA, or located in an area that does not comply with applicable ambient air quality standards for ozone~~ as determined by the *authority having jurisdiction (AHJ)*. Such air cleaning devices shall have an ozone removal efficiency of not less than 40% where installed, operated, and maintained in accordance with the manufacturer’s recommendations, and shall treat all outdoor air intake flow. This requirement supersedes the requirements of ASHRAE Standard 62.1, Section ~~6.2.1.3~~ 6.1.4.3. This requirement applies to all buildings, including health care facilities covered by ASHRAE/ASHE Standard 170.

**Exceptions to 8.3.1.3(b):**

1. Systems designed with an outdoor air intake flow of 1.5 ach or less.
2. Where controls are provided that sense outdoor ozone level and reduce intake airflow to 1.5 ach or less while complying with the outdoor airflow requirements of Section 8.3.1.1.
3. Outdoor air brought into the building and heated by direct-fired makeup-air units.

[ ... ]

**Modify Table 4.2 as shown. (Note: Table 4.2 was previously added to the standard by Addendum p and further modified by Addenda bp, o, q, r, s, t, and ab.)**

**Table 4.2 Requirements Determined by the Jurisdiction**

Section	Section Title or Description and Directives	Jurisdictional Requirement
5.3.5.2	Mitigation of Heat Island Effect, Walls	<input type="checkbox"/> No
5.3.6	Reduction of Light Pollution	<input type="checkbox"/> No
5.3.7.2.2	Bicycle Parking, Location	<input type="checkbox"/> No
5.3.7.2.3	Bicycle Parking, Horizontal Parking Racks	<input type="checkbox"/> No
5.3.7.2.5	Bicycle Parking, Security and Visibility	<input type="checkbox"/> No
5.3.8.1	Building Site Waste Management – Diversion Percentage	<input type="checkbox"/> 75% <input type="checkbox"/> 50%
6.3.1.2.1(a)(3)	Irrigation System Design, Master Valve	<input type="checkbox"/> No
6.3.1.2.1(a)(4)	Irrigation System Design, Flow Sensors	<input type="checkbox"/> No
6.3.3	Special Water Features	<input type="checkbox"/> No
6.3.4.2	Consumption Data Collection	<input type="checkbox"/> No
6.3.4.3	Data Storage and Retrieval	<input type="checkbox"/> No
6.3.8	Dual Water Supply Plumbing	<input type="checkbox"/> No
7.4.2.1	Building Envelope Requirements	<input type="checkbox"/> No

**Table 4.2 Requirements Determined by the Jurisdiction**

Section	Section Title or Description and Directives	Jurisdictional Requirement
7.4.2.2	Single-Rafter Roof Insulation	<input type="checkbox"/> No
7.4.2.3	High Speed Doors	<input type="checkbox"/> No
7.4.2.6	Permanent Projections	<input type="checkbox"/> No
7.4.2.9	Orientation	<input type="checkbox"/> No
7.4.3.2	Ventilation Controls for Densely Occupied Spaces	<input type="checkbox"/> No
7.4.3.4	Economizers	<input type="checkbox"/> No
7.4.3.5	Zone Controls	<input type="checkbox"/> No
7.4.3.7	Exhaust Air Energy Recovery	<input type="checkbox"/> No
7.4.3.8	Kitchen Exhaust Systems	<input type="checkbox"/> No
7.4.4.2	Insulation for Spa Pools	<input type="checkbox"/> No
7.4.6.2	Occupancy Sensor Controls with Multilevel Switching or Dimming	<input type="checkbox"/> No
7.4.6.3	Automatic Controls for Egress and Security Lighting	<input type="checkbox"/> No
7.4.7.2	Supermarket Heat Recovery	<input type="checkbox"/> No
7.4.7.4	Programmable Thermostats	<input type="checkbox"/> No
7.4.7.5	Refrigerated Display Cases	<input type="checkbox"/> No
8.3.1.3(b)	<del>Ozone</del> <u>Outdoor Air Ozone Removal</u>	<input type="checkbox"/> No
8.3.1.4.2	Exfiltration	<input type="checkbox"/> No
8.3.3.4	Interior Sound Reverberation	<input type="checkbox"/> No
8.3.9	Exterior Views	<input type="checkbox"/> No
8.4.1.3	Shading for Offices	<input type="checkbox"/> No
9.3.1.2	Total Waste	<input type="checkbox"/> No
10.3.1.5.b	IAQ Construction Management b. (flush-out)	<input type="checkbox"/> No
10.3.1.8	Construction Activity Pollution Prevention: Protection of Occupied Areas	<input type="checkbox"/> No
10.3.2.3	Service Life Plan	<input type="checkbox"/> No
10.3.2.4.2	Transportation Management Plan: Owner Occupied Building Projects or Portions of Building Projects	<input type="checkbox"/> No
10.3.2.4.3	Transportation Management Plan: Building Tenant	<input type="checkbox"/> No

***Modify Section 8.3.1.4 and 8.3.1.5 as shown.***

**8.3.1.4 Building Pressure.** The requirements in Section 8.3.1.4 supersede the requirements in ASHRAE Standard 62.1, Section 5.9-~~11~~. *Building projects* shall be designed in accordance with the following subsections.

[ . . . ]

**8.3.1.5 Humidity Control.** The requirements in this section supersede the requirements in ASHRAE Standard 62.1, Section 5.9-~~10~~. Mechanical air-conditioning and evaporative cooling systems shall be designed in accordance with Sections 8.3.1.4.1 and 8.3.1.4.2, as applicable.

***Add a new Section 10.9.4.5 as shown.***

**10.9.4.5 Outdoor Air Ozone Air Cleaners.** Ozone air cleaning devices required under Section 8.3.1.3 shall be operated whenever outdoor ozone concentrations are forecast to exceed applicable regulatory limits.

***Modify Section 11 as shown.***

Reference	Title	Section
[...]		
<b>International Organization for Standardization (ISO)</b>		
<b>ISO Central Secretariat</b>		
<b>Chemin de Blandonnet 8</b>		
<b>CP 401 - 1214 Vernier, Geneva, Switzerland</b>		
<b>+41-22-749-01-11; <a href="http://www.iso.org">www.iso.org</a></b>		
[...]		
ISO 14044:2006	Environmental Management—Life Cycle Assessment— Requirements and Guidelines	9.5.1, 9.5.1.2
<u>ISO 16890:2016</u>	<u>Air Filters for General Ventilation</u>	<u>8.3.1.3</u>
ISO 21930:2017	Sustainability in Buildings and Civil Engineering Works— Core Rules for Environmental Product Declarations of Construction Products and Services	9.4.1.4
[...]		

**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.

### **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](http://www.iccsafe.org).

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