

Public Review Draft

Proposed Addendum bg to Standard 189.1-2017

Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings

First Public Review (March 2020)
(Draft Shows Proposed Changes to Current Standard)

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Foreword

This addendum reflects changes to Chapters 7 and 8 necessary to align with updates that occurred in the referenced standard ASHRAE 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 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 bg to 189.1-2017

Revise Section 7.4.3.2 as follows:

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 6.2.7.6.1. Occupancy assumptions shall be shown in the design documents for *spaces* provided with *DCV*. All CO₂ 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 CO₂ sensors or air-sampling probes leading to a central CO₂ monitoring station shall be provided with at least one sensor or probe for each 10,000 ft² (1000 m²) of floor *space*. Sensors or probes shall be installed between 3 and 6 ft (1 and 2 m) above the floor.
- b. ~~CO₂ sensors shall have a rated accuracy of ±50 ppm at 1000 ppm.~~

Revise Section 8 and Table 4.2 as follows:

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.

8.3.1.1 Minimum Ventilation Rates. In health care facilities, the ventilation requirements of ASHRAE/ASHE Standard 170 shall apply. In *residential dwelling units*, the *dwelling unit* ventilation rates and local exhaust airflow rates as required by ASHRAE Standard 62.2 shall apply. ASHRAE Standard 62.2, Section 4.1.2, shall not apply. In all other cases, ASHRAE Standard 62.1, Sections 6.1.1 and 6.2, shall be used to determine minimum zone and intake outdoor airflow rates. ASHRAE Standard 62.1, Sections 6.1.2 and 6.1.3, shall not apply.

Informative Note: ASHRAE Standard 62.1, Sections 6.1.1 and 6.2, define the Ventilation Rate Procedure for determining ventilation rates.

8.3.1.2 Outdoor Air Delivery Monitoring

This section is unchanged.

8.3.1.3 Filtration and Air Cleaner Requirements

a. **Particulate Matter.** The following requirements shall apply in all buildings.

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

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 5.89.
 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.
- b. **[JO] Ozone Outdoor air ozone removal.** Air cleaning devices for ozone shall be provided for buildings located in an area that is designated “non-attainment” ~~in an area that exceeds the National Ambient Air Quality Standards (NAAQS) for ozone by the US EPA, 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 be installed in all *outdoor air* intakes. 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.
- c. **Exceptions to 8.3.1.3b:**
1. The system design *outdoor air* intake flow is 1.5 air changes per hour or less.
 2. Controls are provided that sense outdoor ozone level and reduce intake airflow to 1.5 air changes per hour or less while complying with the outdoor airflow requirements of Section 8.3.1.1.

3. Outdoor air is brought into the building and heated by direct-fired makeup air units.

c. Sealing.

This section is unchanged.

Revise Table 4.2 as follows:

SECTION	SECTION TITLE OR DESCRIPTION AND DIRECTIVES	Jurisdictional Requirement
8.3.1.3.(b)	Ozone <u>Outdoor Air Ozone Removal</u>	No

Revise Section 8.3.1.4 and 8.3.1.5 as follows:

8.3.1.4 Building Pressure. The requirements in Section 8.3.1.4 supersede the requirements in ASHRAE Standard 62.1, Section ~~5.9.4~~5.11. *Building projects* shall be designed in accordance with the following subsections.

No changes to sections 8.3.1.4.1 or 8.3.1.4.2

8.3.1.5 Humidity Control. The requirements in this section supersede the requirements in ASHRAE Standard 62.1, Section ~~5.9.4~~5.10. 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 10.3.2.1.4.5 as follows:

Note to reviewers, addendum 189.1ax will reorganize Section 10, but has not yet been published. If it is published, then this new section will become 10.9.4.5.

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

Modify Section 11 by inserting the following references under ISO and UL, respectively:

ISO 16890 (2016) Air Filters for General Ventilation Section 8.3.1.3