

# ANSI/ASHRAE/ICC/USGBC/IES Addendum v 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 Standards Committee on February 4, 2023; by the ASHRAE Board of Directors on February 8, 2023; by the International Code Council on January 27, 2023; by U.S. Green Building Council on February 7, 2023; by the Illuminating Engineering Society on February 15, 2023; and by the American National Standards Institute on March 8, 2023, 2023.

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 ([www.ashrae.org/continuous-maintenance](http://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.

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## FOREWORD

*Addendum v makes changes to clarify how  $L_{max}$  is measured and how  $cSTC$  should be calculated, in addition to several editorial changes. These changes do not add cost or scope to the existing language of the standard.*

*Specifically, Addendum v clarifies how  $L_{max}$  is measured for use in Section 8.3.3.2 tables. In the sections referring to  $L_{max}$  in Table 8.3.3.2,  $L_{max}$  is measured or calculated based on a slow time rating (1 second interval). However, a new Section 8.3.3.2.2 uses the values of maximum sound pressure level ( $L_{max}$ ) in Table 8.3.3.2 but measured or calculated using a fast-rating (125 msec interval). As a result, the notation to slow time rating in the heading of Table 8.3.3.2 is deleted editorially, and language is added to the body of the text in Section 8.3.3.2.*

*This addendum moves the requirement in footnote "a" of Table 8.3.3.3 to a new Section 8.3.3.2.2 that requires vibration-related noise from fitness activities not exceed the average and maximum sound levels associated with normal building operations and exterior noise (Table 8.3.3.2). In addition, footnote "a" in Table 8.3.3.3 is revised and applied to the full range of potential sources of concern. The original language cited the whole Section 8.3.3.2, which does not reference noise sources other than exterior noise and building systems, which created some confusion for users.*

*This addendum adds language to Section 8.3.3.2.3.1 to clarify that the composite sound transmission class ( $cSTC$ ) is calculated based on accepted engineering standards.*

*Lastly, this addendum editorially adds parentheses to " $L_{eq}$ " and " $L_{max}$ " throughout the standard to match the definition.*

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

## Addendum v to Standard 189.1-2020

### *Revise Section 8.3.3.2 as shown.*

**8.3.3.2 Interior Background Noise Requirements.** *The building envelope, interior spaces within the building, and building systems, including mechanical, electrical, and plumbing systems, shall be designed and constructed such that the interior sound pressure levels created by the combination of building systems noise and exterior sound sources, under normal operation with windows closed and no active sound masking systems, do not exceed the values specified in Table 8.3.3.2. The hourly average sound pressure level  $L_{eq}$  and maximum sound pressure level  $L_{max}$  shall not exceed the values listed in Table 8.3.3.2. Outdoor noise levels used in the design shall be provided in the construction documents. The maximum sound pressure levels ( $L_{max}$ ) shall be measured using slow-weighting except as required in Section 8.3.3.2.2.*

**Revise Table 8.3.3.2 as shown.**

**Table 8.3.3.2 Maximum Interior Background Sound Pressure Levels from Building Systems and Exterior Sound Sources<sup>a</sup>**

Room Type	Hourly Average Sound Pressure Level ( $L_{eq}$ )		Maximum Sound Pressure Level ( $L_{max}$ [slow time weighting])	
	dBA	dB(C)	dBA	dB(C)
<i>Residential</i> sleeping areas (nighttime <sup>b</sup> between 10 p.m. and 7 a.m.)	35	60	45	70
<i>Residential</i> living and sleeping areas (daytime)	40	60	50	70
Hotel and motel guest rooms or suites and dormitories	40	60	50	70
Meeting and banquet rooms	35	60	45	70
Corridors and lobbies	45	65	60	75
Service and support areas	45	65	60	75
Enclosed offices	35	60	45	70
Conference rooms	35	60	45	70
Teleconference rooms	30	55	40	65
Open-plan offices	45	65	55	75
Courtrooms—unamplified speech	35	60	45	70
Courtrooms—amplified speech	40	60	50	70
Laboratories—minimal speech communication	55	75	65	85
Laboratories—extensive phone use and speech communication	50	70	60	80
Laboratories—group teaching	40	60	50	70
Religious—general assembly with music program	30	55	40	65
Library study and reading areas	35	60	45	70
Gymnasiums and natatoriums without speech amplification	50	70	60	80
Gymnasiums and natatoriums with speech amplification	55	75	65	85

a. For high-noise exterior events, refer to Section 8.3.3.2.1.

b. "Nighttime" is defined as the time between 10 p.m. and 7 a.m.

**Add new Section 8.3.3.2.2, and renumber all subsequent sections accordingly.**

**8.3.3.2.2 Interior Noise Impact Events.** Airborne and structure-borne noise impacts from tenants and activities within the building shall not exceed the values specified in Table 8.3.3.2. The *maximum sound pressure levels* ( $L_{max}$ ) shall be measured using fast-weighting for structure-borne events, such as fitness activities and dancing, and for airborne events such as amplified music or speech.

**8.3.3.2.23 Conformance.** Conformance to the requirements in Section 8.3.3.2 shall be demonstrated either through the design requirements of Section 8.3.3.2.34 or the testing requirements of Section 8.3.3.2.4 8.3.3.2.5.

**Revise Section 8.3.3.2.3.1 as shown.**

**8.3.3.2.3 Interior Background Noise—Design.** Conformance with the provisions of this section shall be demonstrated.

**8.3.3.2.3.1 Building Envelope.** The composite sound transmission class (cSTC) for the *building envelope* shall be calculated using *generally accepted engineering standards*. The cSTC shall be ~~and~~ used in determining the maximum interior background sound pressure levels for room types listed in Table 8.3.3.2.

**Revise Table 8.3.3. as shown.**

**Table 8.3.3.3 Minimum Sound and Impact Sound Ratings**

Room Type	cSTC <sup>c,d</sup>	IIC
<i>Dwelling and sleeping units (apartment, condominium, duplex, hotel guest room, etc.)</i>	55	55
Retail or restaurant	50 <sup>a</sup>	45 <sup>a</sup>
<del>Exercise</del> Fitness space, gym or pool <sup>b</sup>	55 <sup>a</sup>	50 <sup>a</sup>
Mechanical, electrical, and elevator machinery rooms <sup>b</sup>	60	N/A <sup>e</sup>
Conference and teleconference rooms	50	50
Enclosed offices	45	45
Open-plan offices	N/A <sup>e</sup>	45

- a. ~~The IIC value listed addresses footfall noise but not exercise-related vibration-borne sound. Exercise-related vibration-borne sound shall comply with the requirements of Section 8.3.3.2. The values noted do not account for high-noise and structure-borne noise impacts. These room types must also meet the interior noise impact events requirements in Section 8.3.3.2.2 when applicable.~~
- b. Minimum cSTC and IIC values are not required between adjacent rooms of the same room type.
- c. For operable partitions and walls containing doors, windows, or both, the minimum cSTC ratings shall be 5 less than the values listed in Table 8.3.3.3.
- d. The minimum cSTC values shall be 5 less than the cSTC values in Table 8.3.3.3 for walls between spaces and corridors and between spaces and open offices. The minimum cSTC values shall be 15 less than the cSTC values specified in Table 8.3.3.3 for walls having doors that open to corridors or open offices.
- e. Not applicable.

**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<sup>®</sup> (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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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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