

**ANSI/ASHRAE/ICC/USGBC/IES Addendum f to
ANSI/ASHRAE/ICC/USGBC/IES Standard 189.1-2023**

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 Standards Committee on October 11, 2024; by the International Code Council, the Illuminating Engineering Society, and the U.S. Green Building Council on September 18, 2024; and by the American National Standards Institute on November 5, 2024.

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).

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Cognizant TC: 2.8 Building Environmental Impacts and Sustainability

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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.

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- participation in the next review of the Standard,
- offering constructive criticism for improving the Standard, or
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FOREWORD

Mercury is a powerful neurotoxin and bioaccumulates through the food chain. The World Health Organization (WHO)¹ recommends that, to reduce mercury, exposure to the following activities should be pursued: promoting clean energy, stopping the use of mercury in gold mining, eliminating the mining of mercury and phasing out nonessential mercury-containing products. Until recently, mercury was a required ingredient of high-efficacy lighting (fluorescent, induction, and HID light sourced). In the past ten years, all of these sources have been supplanted by a more efficient light source—LEDs. All of the lighting power densities (LPDs) in ASHRAE Standards 90.1 and 189.1 are based on LED light sources, as they cost-effectively reduce the amount of power required to provide the same amount of light delivered for a task. A few exceptions are proposed: discharge light sources using mercury gas are still the most energy efficient way of providing ultraviolet lighting used for disinfection, medical treatment, and industrial processes, as well as for a few applications without current LED replacement, including neon decorative lighting, lighting within equipment, and search lights.^{2,3} These exempted uses are a small fraction of the amount of mercury currently found in lighting systems. Since the widespread adoption of LED lighting, the market share of HID and fluorescent lighting has dropped rapidly. Addendum f seeks to accelerate the retirement of legacy uses of mercury-containing light sources.

Informative 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 f to Standard 189.1-2023

Delete Section 9.7.3 and renumber Section 9.7.4 accordingly.

~~**9.7.3 Fluorescent and High-Intensity Discharge (HID) Lamps and Ballasts.** An area shall be provided that serves the entire building, is designed for the collection and storage of fluorescent and HID lamps and ballasts, and facilitates proper disposal and/or recycling according to jurisdictional hazardous waste requirements.~~

Revise Section 9.9 as shown.

9.9 Mercury Content Levels of Lamps Containing Mercury. Electric lamps containing mercury are prohibited, used in the building project shall not contain mercury in an amount exceeding, per lamp, the maximum mercury content levels of Table 9.9.

Exceptions to 9.9:

- ~~1. Eight-foot models of straight fluorescent T8 lamps.~~
- ~~2. High-output and very high-output, straight fluorescent lamps greater than 1.25 in. (32 mm) in diameter.~~
- ~~3. Mogul bi-pin-based lamps.~~
- ~~4. Preheat straight fluorescent lamps of any size.~~
- ~~5. U-bend and circline fluorescent lamps.~~
- ~~6. HID lamps.~~
- ~~7. Induction lamps.~~
- 8.1. The following special-purpose lamps: lamps integral to equipment or instrumentation, appliance, black light, germicidal, insect trap bug, colored, grow, straight fluorescent reflector, reprographic, lighting for the care of animals, ultraviolet lighting, and lamps used in medical, research, or industrial processes shatter resistant, cold temperature, and three-way lamps.
2. Lamps used for navigational lighting, including search lights.

1. <https://www.who.int/news-room/fact-sheets/detail/mercury-and-health>

2. Interstate Mercury Education and Reduction Clearinghouse (IMERC) Fact Sheet Mercury Use in Lighting Dec 2015. <https://sems-public.epa.gov/work/05/936142.pdf>

3. Light-Emitting Diodes in Airfield Lighting Applications: A Review and Annotated Bibliography. September 2022. https://www.faa.gov/data_research/research/med_humanfac/oamtechreports/media/Light-Emitting%20Diodes%20in%20Airfield%20Lighting%20Applications.pdf

Delete Table 9.9 as shown.

Table 9.9 Maximum Mercury Content for Electric Lamps

| Lamp | Maximum Mercury Content |
|---|--------------------------------|
| Screw-base compact fluorescent lamps <25 W | 4 mg |
| Screw-base compact fluorescent lamps ≥25 W and <40 W | 5 mg |
| Pin-base compact fluorescent lamps, all wattages | 5 mg |
| Straight fluorescent T5 normal lifetime lamps ^a | 3 mg |
| Straight fluorescent T8 normal lifetime lamps ^a | 4 mg |
| Straight fluorescent T5 and T8 long lifetime lamps ^b | 5 mg |
| T12 eight-foot straight fluorescent lamps | 15 mg |

a. Electric lamps with a rated lifetime less than 25,000 h when tested on an electronic fluorescent ballast, including T8 instant-start ballasts and T5 programmed-start ballasts, and turned OFF and ON every three hours.

b. Electric lamps with a rated lifetime equal to or greater than 25,000 hours when tested on an electronic fluorescent ballast, including T8 instant-start ballasts and T5 programmed-start ballasts, and turned OFF and ON every three hours.

**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.

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Founded in 1894, ASHRAE is a global professional society committed to serve humanity by advancing the arts and sciences of heating, ventilation, air conditioning, refrigeration, and their allied fields.

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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