Public Review Draft

Proposed Addendum f to Standard 189.1-2023

Standard for the Design of High-Performance Green Buildings

Except Low-Rise Residential Buildings

First Public Review (July, 2024)
(Draft Shows Proposed Changes to Current Standard)

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(This foreword is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

Foreword

Mercury is a powerful neurotoxin and bioaccumulates though the food chain. The World Health Organization https://www.who.int/news-room/fact-sheets/detail/mercury-and-health has recommended that to reduce mercury exposure 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 non-essential mercury-containing products. Up to recently mercury was a required ingredient of high efficacy lighting (fluorescent, induction, and HID light sourced). In the last 10 years all of these sources have been supplanted by a more efficient light source LEDs. All the LPDs in ASHRAE 90.1 and 189.1 are based on LED light sources as they cost-effectively reduce amount of power required to provide the same amount of light delivered to the task. There are a few exceptions 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, search lights. [1, 2] 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 have dropped off rapidly. This proposal seeks to accelerate the retirement of legacy uses of mercury containing light sources.

[1]Interstate Mercury Education and Reduction Clearinghouse (IMERC) Fact Sheet
Mercury Use in Lighting Dec 2015. https://semspub.epa.gov/work/05/936142.pdf
[2]Light-Emitting Diodes in Airfield Lighting Applications: A Review and Annotated Bibliography. September 2022.
https://www.faa.gov/data_research/research/med_humanfacs/oamtechreports/media/Light-Emitting%20Diodes%20in%20Airfield%20Lighting%20Applications.pdf

[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 f to 189.1-2023

Delete Section 9.7.3 and renumber Section 9.7.4 Electronics and Batteries to 9.7.3

~~**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

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 ~~S~~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.

Delete Table 9.9

~~**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.~~