ANSI/ASHRAE/ICC/USGBC/IES Addendum e 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®

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These addenda were 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 (https://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.

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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FOREWORD

Addendum e corrects an error in Section 7.5, "Performance Option," related to the target for CO_2e emissions by replacing the current wording in the standard with that intended by the project committee.

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

Addendum e to Standard 189.1-2017

Modify Section 7.5 as shown.

7.5 Performance Option

7.5.1 Annual Energy Cost. The *proposed building performance* cost index (PCI) with consideration of renewables shall be calculated in accordance with ANSI/ASHRAE/IES Standard 90.1, Normative Appendix G, and be equal to or less than the Performance Cost Index Target, as determined from the following equation:

$$PCI_{target} = \frac{BBUEC + (BBREC \times BPF) - REC}{BBUEC + BBREC}$$

where

PCI_{target} = target PCI required for achieving compliance with the standard, unitless

BBUEC = the component of *baseline building performance* that is due to *unregulated energy use*, $

BBREC = the component of *baseline building performance* that is due to *regulated energy use*, or *baseline building performance* minus BBUEC, $

BPF = building performance factor taken from Table 7.5.2A, unitless

REC = renewable energy production determined from Section 7.4.1.1.1 and converted to cost, $

The proposed building PCI, without consideration of renewables, shall comply with the requirements of ANSI/ASHRAE/IES Standard 90.1, Section 4.2.1.1.

On-site renewable energy systems in the *proposed design* shall be calculated using the procedures in Normative Appendix C. For mixed-use buildings, the building performance factor (BPF) shall be determined by weighting each building type by floor area.

Table 7.5.2A Energy Cost and CO_2e Building Performance Factors (BPF)

Building Type	Building Performance Factor (BPF)
Multifamily	0.71
Healthcare/hospital	0.56
Hotel/motel	0.58
Office	0.54
Restaurant	0.59
Retail	0.50
School	0.37
Semiheated warehouse[a]	0.44
All others	0.54

a. Conditioned warehouses shall use the "All others" category.

Table 7.5.2B CO_2e Emission Factors

Building Project Energy Source	CO_2e, lb/MWh	CO_2e, kg/MWh
Grid-delivered electricity and other fuels not specified in this table	1348	612
LPG or propane	601	273
Fuel oil (residual)	685	311
Fuel oil (distillate)	663	301
Coal	820	372
Gasoline	681	309
Natural gas	509	231
District chilled water	323	146
District steam	855	388
District hot water	807	366

The values in this table represent national averages for the United States and include both direct and indirect emissions.

7.5.2 Annual Carbon Dioxide Equivalent (CO_2e). The *proposed design* shall have an annual CO_2e equal to or less than the annual CO_2e of the *baseline building design* multiplied by the ~~building performance factor (BPF) target determined from Table 7.5.2A using the Performance Rating Method in ANSIASHRAE/IES Standard 90.1, Normative Appendix G~~ PCI target determined in accordance with Section 7.5.1. To determine the annual CO_2e for each energy source in the *baseline building design* and *proposed design*, the energy consumption shall be multiplied by the CO_2e emission factors from Table 7.5.2B.

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.

7/19