ANSI/ASHRAE/ICC/USGBC/IES Addendum ag to
ANSI/ASHRAE/ICC/USGBC/IES Standard 189.1-2017

Standard for the Design of High-Performance Green Buildings

Except Low-Rise Residential Buildings

A Compliance Option of the International Green Construction Code®

Approved by the ASHRAE Standards Committee on October 16, 2019; by the ASHRAE Board of Directors on November 1, 2019; by the International Code Council on October 10, 2019; by the U.S. Green Building Council and the Illuminating Engineering Society on November 5, 2019; and by the American National Standards Institute on November 4, 2019.

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 (www.ashrae.org/continuous-maintenance).

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SPECIAL NOTE

This American National Standard (ANS) is a national voluntary consensus Standard developed under the auspices of ASHRAE. *Consensus* is defined by the American National Standards Institute (ANSI), of which ASHRAE is a member and which has approved this Standard as an ANS, as "substantial agreement reached by directly and materially affected interest categories. This signifies the concurrence of more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that an effort be made toward their resolution." Compliance with this Standard is voluntary until and unless a legal jurisdiction makes compliance mandatory through legislation.

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.

The Senior Manager of Standards of ASHRAE should be contacted for

a. interpretation of the contents of this Standard,
b. participation in the next review of the Standard,
c. offering constructive criticism for improving the Standard, or
d. permission to reprint portions of the Standard.

(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

A Fan Efficiency Grade (FEG) requirement for fans that are used in building HVAC systems has existed since the 2013 edition of Standard 90.1 and 2014 edition of Standard 189.1. FEG is a metric for bare-shaft fans as products by themselves, is based on peak total efficiency, and is defined in the rating standard ANSI/AMCA 205, Energy Efficiency Classification for Fans*. During a recent collaboration with the U.S. Department of Energy on new rulemaking for commercial fans and blowers, industry stakeholders recommended a new fan efficiency metric called Fan Energy Index (FEI), which was developed by AMCA International in their calculation standard ANSI/AMCA 208-2018.*

FEI is a ratio of the electrical input power of a reference fan to the subject fan. The lower the subject fan's electrical input power, the higher the FEI rating. FEI is a wire-to-air metric that considers losses of motors, variable speed drives, belts, etc. FEI is a simple metric for designers, contractors, manufacturers, and code officials to apply and enforce because it does not have a sizing/selection window.

Energy savings will primarily result from better fan selections out of existing product portfolios rather than marginal improvements from costly fan redesigns. FEI incentivizes designers to consider whether a fan is compatible with its mechanical drive and the electric motor at all load points.

Addendum ao to Standard 90.1, which contains FEI requirements proposed for Standard 90.1, is scheduled for publication in Standard 90.1-2019. Under the proposed FEI-based provisions, Standard 189.1 would require an FEI of 1.10 as compared to the Standard 90.1 value of 1.00.

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 ag to Standard 189.1-2017

Add new definition to Chapter 3 as shown.

fan energy index (FEI): the ratio of the electric input power of a reference fan to the electric input power of the actual fan as calculated per AMCA 208.

Revise Section 7.4.3.6.2 as shown.

7.4.3.6.2 Fan Efficiency. The fan efficiency requirements defined in ANSI/ASHRAE/IES Standard 90.1, Section 6.5.3.1.3, shall be used, except that the *fan energy index (FEI)* ~~total efficiency of the fan~~ at the design point of operation shall be 1.10 or greater ~~within ten percentage points of the maximum total efficiency of the fan~~. All exceptions in ANSI/ASHRAE/IES Standard 90.1, Section 6.5.3.1.3, shall apply.

Add new reference to AMCA to Section 11.

Reference	Title	Section
Air Movement and Control Association International, Inc. 30 West University Drive Arlington Heights, IL 60004-1893, United States 1-847-394-0150; www.amca.org		
AMCA 208-18	Calculation of the Fan Energy Index	7.4.3.6.2

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.

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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.

About ASHRAE

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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