ADDENDA

ANSI/ASHRAE/IES Addendum di to
ANSI/ASHRAE/IES Standard 90.1-2013

Energy Standard for Buildings Except Low-Rise Residential Buildings

Approved by the ASHRAE Standards Committee on June 25, 2016; by the ASHRAE Technology Council on June 29, 2016; by the IES Board of Directors on June 27, 2016; and by the American National Standards Institute on June 30, 2016.

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. The change submittal form, instructions, and deadlines may be obtained in electronic form from the ASHRAE website (www.ashrae.org) or in paper form from the Senior Manager of Standards.

The latest edition of an ASHRAE Standard may be purchased on the ASHRAE website (www.ashrae.org) or from ASHRAE Customer Service, 1791 Tullie Circle, NE, Atlanta, GA 30329-2305. E-mail: orders@ashrae.org. Fax: 678-539-2129. Telephone: 404-636-8400 (worldwide), or toll free 1-800-527-4723 (for orders in US and Canada). For reprint permission, go to www.ashrae.org/permissions.

© 2016 ASHRAE ISSN 1041-2336

ASHRAE

IES Illuminating ENGINEERING SOCIETY

Approved American National Standard ANSI www.ansi.org

ASHRAE Standing Standard Project Committee 90.1
Cognizant TC: 7.6, Systems Energy Utilization
SPLS Liaison: Roger Hedrick
ASHRAE Staff Liaison: Steven C. Ferguson
IES Liaison: Rita M. Harrold

Drake Erbe*, *Chair*	Harry Misuriello*	John Dunlap
Thomas Culp*, *Vice-Chair*	Frank Morrison*	Chuck Foster
Richard, Lord*, *Vice-Chair*	Frank Myers*	Sam Francis
Peter Baselici *	Ron Nickson*	John Green
Sean Beilman*	Tim Peglow*	Chad Groshart
Jeff Boldt*	Eric Richman*	David Handwork
Ernie Conrad*	Steve Rosenstock*	Stan Harbuck
Charles Cottrell*	Bob Ross*	Mike Houston
Jay Crandall*	Marty Salzburg*	Richard Hermans
Craig Drumheller*	Leonard Sciarra*	Michael Ivanovich
Jim Garrigus*	Frank Stanonik*	Hy Kaplan
Jason Glazer*	Wayne Stoppelmoor*	Neil Leslie
Krishnan Gowri*	Christian Taber*	Merle McBride
Pekka Hakkarainen*	William Talbert*	Benjamin Meyer
Susanna Hanson*	Steven Taylor*	Keith Nelson
Richard Heinisch*	Martha VanGeem*	Steve Orlowski
Ned Heminger*	McHenry Wallace*	Amy Schmidt
Dave Herron*	Jerry White*	David Shepherd
Scott Hintz*	Jeremy Williams*	Don Surrena
John Hogan*	Karim Amrane	Stephen Szoke
Jonathan Humble*	Gary Ash	Mike Tillou
Itzhak Maor*	Joseph Brooks	Doug Tucker
Chris Mathis*	Don Brundage	Richard Watson
Michael Mehl*	Brandon Damas	Jason Wilen

** Denotes voting member at time of publication.*

ASHRAE STANDARDS COMMITTEE 2015–2016

Douglass T. Reindl, *Chair*
Rita M. Harrold, *Vice-Chair*
James D. Aswegan
Niels Bidstrup
Donald M. Brundage
John A. Clark
Waller S. Clements
John F. Dunlap
James W. Earley, Jr.
Keith I. Emerson
Steven J. Emmerich
Julie M. Ferguson
Walter T. Grondzik
Roger L. Hedrick
Srinivas Katipamula
Rick A. Larson
Lawrence C. Markel
Arsen K. Melikov
Mark P. Modera
Cyrus H. Nasseri
Heather L. Platt
David Robin
Peter Simmonds
Dennis A. Stanke
Wayne H. Stoppelmoor, Jr.
Jack H. Zarour
Julia A. Keen, *BOD ExO*
James K. Vallort, *CO*

Stephanie C. Reiniche, *Senior Manager of Standards*

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 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.

DISCLAIMER

ASHRAE uses its best efforts to promulgate Standards and Guidelines for the benefit of the public in light of available information and accepted industry practices. However, ASHRAE does not guarantee, certify, or assure the safety or performance of any products, components, or systems tested, installed, or operated in accordance with ASHRAE's Standards or Guidelines or that any tests conducted under its Standards or Guidelines will be nonhazardous or free from risk.

ASHRAE INDUSTRIAL ADVERTISING POLICY ON STANDARDS

ASHRAE Standards and Guidelines are established to assist industry and the public by offering a uniform method of testing for rating purposes, by suggesting safe practices in designing and installing equipment, by providing proper definitions of this equipment, and by providing other information that may serve to guide the industry. The creation of ASHRAE Standards and Guidelines is determined by the need for them, and conformance to them is completely voluntary.

In referring to this Standard or Guideline and in marking of equipment and in advertising, no claim shall be made, either stated or implied, that the product has been approved by ASHRAE.

© ASHRAE (www.ashrae.org). For personal use only. Additional reproduction, distribution,
or transmission in either print or digital form is not permitted without ASHRAE's prior written permission.

(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

The motor efficiencies for Standard 90.1-2004 were reproduced for Appendix G and use the totally enclosed, four pole, 1800 rpm motors. The language was updated to reference this table. Since this was the last reference to efficiency requirements from other sections, the sentence referring to the other sections was removed.

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. Only these changes are open for review and comment at this time.

Addendum di to 90.1-2013

Modify Table G3.1 as follows (I-P and SI):

Proposed Building Performance	Baseline Building Performance
12. Receptacle and Other Loads	
Receptacle and process loads, such as those for office and other equipment, shall be estimated based on the building type or space type category and shall be assumed to be identical in the proposed and *baseline building designs*, except as specifically authorized by the *rating authority* only when quantifying performance that exceeds the requirements of Standard 90.1 but not when the *performance rating method* is used as an alternative path for minimum standard compliance per Section 4.2.1.1. These loads shall always be included in simulations of the building. These loads shall be included when calculating the *baseline building performance* and *proposed building performance* as required by Section G1.2.1. a. Where power and other systems covered by Sections 8 and 10 have been designed and submitted with design documents, those systems shall be determined in accordance with Chapters 8 and 10. b. Where power and other systems covered by Chapters 8 and 10 have not been submitted with design documents, those systems shall comply with but not exceed the requirements of those sections.	Motors shall have the efficiency ratings found in Table G3.9. Other systems, ~~such as motors~~ covered by Section 10, and miscellaneous loads shall be modeled as identical to those in the proposed design including schedules of operation and control of the equipment. ~~Where there are specific efficiency requirements listed in Sections 5 through 10, these systems or components shall be modeled as having the lowest efficiency allowed by those requirements. Where no efficiency requirements exist, such e~~ Energy used for cooking equipment, receptacle loads, computers, medical or laboratory equipment, and manufacturing and industrial process equipment not specifically identified in the standard power and energy rating or capacity of the equipment shall be identical between the baseline building and the proposed design with the following exception: Exception: When quantifying performance that exceeds the requirements of Standard 90.1 (but not when using the Performance Rating Method as an alternative path for minimum standard compliance per Section 4.2.1.1), variations of the power requirements, schedules, or control sequences of the equipment modeled in the baseline building from those in the proposed design shall be allowed by the rating authority based upon documentation that the equipment installed in the proposed design represents a significant verifiable departure from documented current conventional practice. The burden of this documentation is to demonstrate that accepted conventional practice would result in baseline building equipment different from that installed in the proposed design. Occupancy and occupancy schedules shall not be changed.

Modify Section G3.1.2.9 as follows (I-P and SI):
G3.1.2.9 System Fan Power.

fan motor efficiency = the *efficiency* from Table ~~10.8-2~~ G3.9 for the next motor size greater than the bhp using a totally enclosed fan cooled motor at 1800 rpm.

Table G3.9 Performance Rating Method Motor Efficiency Requirements

Motor Horsepower	Minimum Nominal Full-Load Efficiency (%)
1.0 (0.8 kW)	82.5
1.5 (1.1 kW)	84.0
2.0 (1.5 kW)	84.0

© ASHRAE (www.ashrae.org). For personal use only. Additional reproduction, distribution,
or transmission in either print or digital form is not permitted without ASHRAE's prior written permission.

3.0 (2.2 kW)	87.5
5.0 (3.7 kW)	87.5
7.5 (5.6 kW)	89.5
10.0 (7.5 kW)	89.5
15.0 (11.1 kW)	91.0
20.0 (14.9 kW)	91.0
25.0 (18.7 kW)	92.4
30.0 (22.4 kW)	92.4
40.0 (29.8 kW)	93.0
50.0 (37.3 kW)	93.0
60.0 (44.8 kW)	93.6
75.0 (56.0 kW)	94.1
100.0 (74.6 kW)	94.5
125.0 (93.3 kW)	94.5
150.0 (111.9 kW)	95.0
200.0 (149.2 kW)	95.0

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.

ASHRAE · 1791 Tullie Circle NE · Atlanta, GA 30329 · www.ashrae.org

8/16