ADDENDA

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

Energy Standard for Buildings Except Low-Rise Residential Buildings

Approved by the ASHRAE Standards Committee on January 23, 2016; by the ASHRAE Board of Directors on January 27, 2016; by the IES Board of Directors on December 31, 2015; and by the American National Standards Institute on January 28, 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.

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FOREWORD

This proposed addendum adjusts the equations for fenestration orientation in Section 5.5.4.5. Equation (a) is not changed, allowing a building to continue to comply based on properly distributed fenestration area. Equation (b) is adjusted in northern climate zones to require a lower SHGC for west- and east-facing fenestration following a cost-effectiveness analysis with the reference medium office building. Equation (b) also allows the flexibility to use combinations of fenestration area, exterior shading, and SHGC to demonstrate compliance. At the end of this addendum, there is text that shows how the exceptions to this section will appear when this addendum is merged with addendum v.

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 ci to 90.1-2013

Modify the standard as follows (IP and SI Units).

5.5.4.5 Fenestration Orientation. The vertical fenestration shall comply with either (a) or (b):

a. For Climate Zones 0 through 8:

$$A_W \leq (A_T)/4 \text{ and } A_E \leq (A_T)/4$$

b. For Climate Zones 0 through 3:

$$A_W \times \text{SHGC}_W \leq (A_T \times \text{SHGC}_C)/4 \text{ and } A_E \times \text{SHGC}_E \leq (A_T \times \text{SHGC}_C)/4$$

For Climate Zones 4 through 8:

$$\underline{A_W \times \text{SHGC}_W \leq (A_T \times \text{SHGC}_C)/5 \text{ and } A_E \times \text{SHGC}_E \leq (A_T \times \text{SHGC}_C)/5}$$

where

A_w	=	west-oriented vertical fenestration area (oriented within 45 degrees of true west to the south and within 22.5 degrees of true west to the north in the northern hemisphere; oriented within 45 degrees of true west to the north and within 22.5 degrees of true west to the south in the southern hemisphere)
A_e	=	east-oriented vertical fenestration area (oriented within 45 degrees of true east to the south and within 22.5 degrees of true east to the north in the northern hemisphere; oriented within 45 degrees of true east to the north and within 22.5 degrees of true east to the south in the southern hemisphere)
A_T	=	total vertical fenestration area
SHGC_C	=	SHGC criteria in Tables 5.5-1 through 5.5-8 for each climate zone
SHGC_E	=	SHGC for east-oriented fenestration that complies with Section 5.5.4.4.1
SHGC_W	=	SHGC for west-oriented fenestration that complies with Section 5.5.4.4.1

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(Informative Note: Addendum v to 90.1-2013 modified the exceptions to this section, and the following shows how the exception list would look if this addendum and addendum v are both published.)

Exceptions:

1. Vertical fenestration that complies with Exception (3) Section 5.5.4.4.1.
2. Buildings with shade on 75% of the east- and west-oriented vertical fenestration areas from permanent projections, existing buildings, existing permanent infrastructure, or topography at 9 a.m. and 3 p.m., respectively, on the summer solstice (June 21 in the northern hemisphere).
3. Alterations and additions with no increase in vertical fenestration area.
4. Buildings where the west-oriented and east-oriented vertical fenestration area (as defined in Section 5.5.4.5) does not exceed 20% of the gross wall area for each of those façades, and SHGC on those facades is no greater than 90% of the criteria in Tables 5.5-1 through 5.5-8.
5. Buildings in Climate Zone 8.

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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