



**BSR/ASHRAE/IES Addendum cf  
to ANSI/ASHRAE/IES Standard 90.1-2016**

**Public Review Draft**

# **Proposed Addendum cf to Standard 90.1-2016, Energy Standard for Buildings Except Low-Rise Residential Buildings**

**Second Public Review Draft (May 2019)  
(Draft Shows Proposed Independent Substantive  
Changes to Previous Public Review Draft)**

This draft has been recommended for public review by the responsible project committee. To submit a comment on this proposed standard, go to the ASHRAE website at [www.ashrae.org/standards-research--technology/public-review-drafts](http://www.ashrae.org/standards-research--technology/public-review-drafts) and access the online comment database. The draft is subject to modification until it is approved for publication by the Board of Directors and ANSI. Until this time, the current edition of the standard (as modified by any published addenda on the ASHRAE website) remains in effect. The current edition of any standard may be purchased from the ASHRAE Online Store at [www.ashrae.org/bookstore](http://www.ashrae.org/bookstore) or by calling 404-636-8400 or 1-800-727-4723 (for orders in the U.S. or Canada).

This standard is under continuous maintenance. To propose a change to the current standard, use the change submittal form available on the ASHRAE website, [www.ashrae.org](http://www.ashrae.org).

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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

This proposed addendum adds vacuum insulating glazing to the list of options for reach-in doors in walk-in coolers and freezers. Vacuum insulating glazing products have been recently commercialized by multiple manufacturers and are already being used in display doors for walk-in coolers, walk-in freezers, and standalone refrigerated display cases. The thermal resistance of vacuum insulating glazing is at least twice that of other options (e.g. R10 for vacuum insulating glazing vs. R3-5 for the other options). Items g and h of Section 6.4.5 have specific limited options for reach-in doors which could be misinterpreted as not including vacuum insulating glazing, so vacuum insulated glazing is specifically added.

This addendum does not affect the energy use of the standard and has no economic impact. While vacuum insulating glazing is more expensive than tradition glazing options for display doors, this is not a requirement to use vacuum insulating glazing. This proposal simply removes a barrier so that vacuum insulating glazing may be considered as an option.

### **2<sup>nd</sup> ISC Public Review:**

The Department of Energy commented that for products in US applications, manufacturers must obtain a waiver from the department to be allowed to sell Walk-in Coolers and Walk-in Freezers that employ vacuum-insulated glazing. They asked that this information be included in the standard. This information has been included as an informative note. This is the only change in the scope of this public review.

*[Note to Reviewers: This public review draft makes proposed independent substantive changes to the previous public review draft. 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 previous draft 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 substantive changes.]*

## **Addendum cf to 90.1-2016**

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*Modify the standard as follows (IP and SI Versions)*

### **6.4.5 Walk-In Coolers and Walk-In Freezers**

Site-assembled or site-constructed walk-in coolers and walk-in freezers shall conform to the following requirements:

...

g. Transparent reach-in doors for walk-in freezers, and windows in walk-in freezer doors, shall be of triple-pane glass, either filled with inert gas or with heat-reflective treated glass, or vacuum insulating glazing.

**Informative note:**

For applications in the US, alternate innovative component technologies (e.g., vacuum insulating glazing for transparent reach-in doors) are allowable only if the manufacturer has obtained a waiver from the US DOE.

h. Transparent reach-in doors for walk-in coolers, and windows in walk-in cooler doors, shall be double-pane glass with heat-reflective treated glass and gas filled, or they shall be triple pane glass, either filled with inert gas or with heat-reflective treated glass, or vacuum insulating glazing.

**Informative note:**

For applications in the US, alternate innovative component technologies (e.g., vacuum insulating glazing for transparent reach-in doors) are allowable only if the manufacturer has obtained a waiver from the US DOE.

...

(other portions of section not shown are unchanged)