

ANSI/ASHRAE/IES Addenda ar, av, and bp to
ANSI/ASHRAE/IESNA Standard 90.1-2007



ASHRAE STANDARD

Energy Standard for Buildings Except Low-Rise Residential Buildings

Approved by the ASHRAE Standards Committee on January 23, 2010; by the ASHRAE Board of Directors on January 27, 2010; by the Illuminating Engineering Society of North America on January 20, 2010; and by the American National Standards Institute on February 24, 2010.

This standard is under continuous maintenance 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 Web site, <http://www.ashrae.org>, or in paper form from the Manager of Standards. The latest edition of an ASHRAE Standard may be purchased from ASHRAE Customer Service, 1791 Tullie Circle, NE, Atlanta, GA 30329-2305. E-mail: orders@ashrae.org. Fax: 404-321-5478. Telephone: 404-636-8400 (world-wide), or toll free 1-800-527-4723 (for orders in US and Canada).

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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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- 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.

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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 change to the standard corrects an oversight in previous versions where expanded exterior lighting power limits were put in place but the details of how to calculate the installed power and compare it to the limits was not included. This language revision puts the needed details in the standard.

Addendum ar to 90.1-2007

Modify the standard as follows (I-P and SI units)

3.2 Definitions

installed exterior lighting power: the power in watts of all site, landscape, and building lighting systems for exterior luminaires.

installed interior lighting power: the power in watts of all permanently installed general, task, and furniture lighting systems and for interior luminaires.

9.1.3 Installed Interior Lighting Power. The ~~installed interior lighting power~~ luminaire wattage for all interior and exterior applications shall include all power used by the luminaires, including lamps, ballasts, transformers, and control devices except as specifically exempted in Section 9.1.1, 9.2.2.3, or 9.4.5.

Exception: If two or more independently operating lighting systems in a space are capable of being controlled to prevent simultaneous user operation, the *installed interior lighting power* or the *installed exterior lighting power* shall be based solely on the lighting system with the highest wattage.

9.1.4 Interior and Exterior Luminaire Wattage. Luminaire wattage, when used to calculate either *installed interior lighting power* or *installed exterior lighting power*, incorporated into the installed interior lighting power shall be determined in accordance with the following criteria:

- a. The wattage of ~~line-voltage incandescent or tungsten halogen~~ luminaires with medium screw base sockets and not containing permanently installed *ballasts, transformers or similar devices* shall be the *manufacturers' maximum* labeled ~~maximum~~ wattage of the luminaire.
- b. The wattage of luminaires with permanently installed or remote ~~ballasts or transformers or similar devices~~ shall be the operating input wattage of the maximum lamp/auxiliary combination based on values from the auxiliary *manufacturers' literature* or recognized testing laboratories or shall be the maximum labeled wattage of the luminaire.
- c. For line-voltage lighting track and plug-in busway, designed to allow the addition and/or relocation of luminaires without altering the wiring of the system, the wattage shall be
 1. the specified wattage of the luminaires included in the system with a minimum of 30 W/lin ft (98 W/lin m)
 2. the wattage limit of the system's circuit breaker or
 3. the wattage limit of other permanent current-limiting device(s) on the system.
- d. The wattage of low-voltage lighting track, cable conductor, rail conductor, and other flexible lighting systems that allow the addition and/or relocation of luminaires without altering the wiring of the system shall be the specified wattage of the transformer supplying the system.
- e. The wattage of all other miscellaneous lighting equipment shall be the specified wattage of the lighting equipment.

9.4.5 Exterior Building Lighting Power. The total *exterior lighting power allowance* for all exterior building applications is the sum of the base site allowance plus the individual allowances for areas that are designed to be illuminated and are permitted in Table 9.4.6 for the applicable lighting zone. The installed exterior lighting power identified in accordance with Section 9.1.3 shall not exceed the exterior lighting power allowance developed in accordance with this section. Trade-offs are allowed only among exterior lighting applications listed in the Table 9.4.6 "Tradable Surfaces" section. The lighting zone for the building exterior is determined from table 9.4.5 unless otherwise specified by the local jurisdiction.

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FOREWORD

This proposed addendum modifies the requirements of section 9.1.2 Lighting Alterations.

*The requirements are changed to require that in all spaces that alterations take place that **all** requirements of section 9 are met not just the LPD requirements.*

The exception has been changed so that the LPD requirements of the Standard are met in the altered space if less than 10% of luminaires replaced.

All new controls must meet the specific control of the section.

Addendum av to 90.1-2007

Modify the Standard as follows (IP and SI Units)

9.1.2 Lighting Alterations.

9.1.2.1 ~~The replacement~~ *alteration* of lighting systems in any building space or exterior area shall comply with the LPD lighting power density (LPD) requirements of Section 9 applicable to that space or area and the automatic shutoff requirements of 9.4.1.1. Such *alterations* shall include all *luminaires* that are added, replaced or removed. This requirement shall also be met for *alterations* that involve only the replacement of lamps plus ballasts. *Alterations do not include routine maintenance or repair situations.* ~~New lighting systems shall comply with the applicable LPD requirements of Section 9. Any new control devices as a direct replacement of existing control devices shall comply with the specific requirements of Section 9.4.1.2(b).~~

Exception to 9.1.2.1: ~~Alterations that replace less than 50% of the luminaires that involve less than 10% of the connected lighting load in a space or area need not comply with these requirements provided that such alterations do not increase the installed interior lighting power LPD.~~

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FOREWORD

This change allows the use of control that provides automatic 50% auto on with the capability to manually activate the remaining 50% and has full auto-off. This type of control was excluded from use in the existing language and only full manual on was allowed. Recent provided test case data shows that this control can save approximately 6% more of the lighting that is required to be occupancy sensor controlled.

Note: *In this addendum, changes to the current standard are indicated in the text by underlining (for additions) and ~~striketrough~~ (for deletions) unless the instructions specifically mention some other means of indicating the changes. Only these changes are open for review and com-*

ment 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 bp to 90.1-2007

Modify 9.4 as follows (IP and SI units)

9.4 Mandatory Provisions

9.4.1 Lighting Control. Building controls shall meet the provisions of 9.4.1.1, 9.4.1.2, 9.4.1.3, and 9.4.1.4.

Any automatic control device required in sections 9.4.1.1, 9.4.1.2, and 9.4.1.4 shall either be manual on or shall not be set controlled to automatically turn the lighting on to not more than 50% power, except in the following spaces where full automatic-on is allowed:

- a. public corridors and stairwells,
- b. restrooms,
- c. primary building entrance areas and lobbies,
- d. areas where manual-on operation would endanger the safety or security of the room or building occupant(s).

**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.