

ANSI/ASHRAE/IESNA Addendum *ag* to
ANSI/ASHRAE/IESNA Standard 90.1-2001



ASHRAE[®] STANDARD

Energy Standard for Buildings Except Low-Rise Residential Buildings

Approved by the ASHRAE Standards Committee on April 28, 2004; by the ASHRAE Board of Directors on July 1, 2004; and by the American National Standards Institute on July 1, 2004.

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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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- b. participation in the next review of the Standard,
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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.

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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.)

FOREWORD

This addendum corrects the “retail sales area” LPD value that was published in the previously approved Addendum g to the 90.1-2001 standard. When the initial table of

space-by-space method LPDs was prepared for Addendum g public review, the “Retail Sales area” was inadvertently left at the previous 90.1-2001 value of 2.1 W/ft² (23 W/m²). The correct value produced by the applicable space type models is 1.7 W/ft² (18 W/m²), which should have been included in Addendum g. This addendum corrects this oversight.

Addendum ag to 90.1-2001 (I-P and SI editions)

Revise retail sales area space type LPD to reflect the correct value. Replace the incorrect value with the correct value of 1.7 W/ft² (18 W/m²) in Table 9.3.1.2 as follows:

TABLE 9.3.1.2
Lighting Power Densities Using the Space-by-Space Method

Space-By-Space Method Lighting Power Density (LPD)			
Common Space Types^a	LPD (W/ft²)	Building Specific Space Types	LPD (W/ft²)
Office-enclosed	1.1	Gymnasium/ Exercise Center	
Office-open plan	1.1	Playing Area	1.4
Conference/ Meeting/ Multipurpose	1.3	Exercise Area	0.9
Classroom/ Lecture/ Training	1.4	Courthouse/ Police Station/ Penitentiary	
For Penitentiary	1.3	Courtroom	1.9
Lobby	1.3	Confinement Cells	0.9
For Hotel	1.1	Judges Chambers	1.3
For Performing Arts Theater	3.3	Fire Stations	
For Motion Picture Theatre	1.1	Fire Station Engine room	0.8
Audience/ Seating Area	0.9	Sleeping Quarters	0.3
For Gymnasium	0.4	Post Office—Sorting Area	1.2
For Exercise Center	0.3	Convention Center—Exhibit Space	1.3
For Convention Center	0.7	Library	
For Penitentiary	0.7	Card File & Cataloguing	1.1
For Religious Buildings	1.7	Stacks	1.7
For Sports Arena	0.4	Reading Area	1.2
For Performing Arts Theatre	2.6	Hospital	
For Motion Picture theatre	1.2	Emergency	2.7
For Transportation	0.5	Recovery	0.8
Atrium-first three floors	0.6	Nurse station	1.0
Atrium-each additional floor	0.2	Exam/Treatment	1.5
Lounge/Recreation	1.2	Pharmacy	1.2
For Hospital	0.8	Patient Room	0.7
Dining area	0.9	Operating Room	2.2
For Penitentiary	1.3	Nursery	0.6
For Hotel	1.3	Medical Supply	1.4
For Motel	1.2	Physical Therapy	0.9
For Bar Lounge/Leisure Dining	1.4	Radiology	0.4
For Family Dining	2.1	Laundry—Washing	0.6
Food Preparation	1.2	Automotive—Service/Repair	0.7
Laboratory	1.4	Manufacturing	
Restrooms	0.9	Low Bay (<25 ft Floor to Ceiling Height)	1.2
Dressing/Locker/Fitting Room	0.6	High Bay (>25 ft Floor to Ceiling Height)	1.7
Corridor/Transition	0.5	Detailed Manufacturing	2.1
For Hospital	1.0	Equipment room	1.2
For Manufacturing Facility	0.5	Control room	0.5
Stairs – active	0.6	Hotel/ Motel Guest Rooms	1.1
Active Storage	0.8	Dormitory—Living Quarters	1.1
For Hospital	0.9	Museum	

**TABLE 9.3.1.2
Lighting Power Densities Using the Space-by-Space Method (Continued)**

Common Space Types^a	LPD (W/ft²)	Building Specific Space Types	LPD (W/ft²)
Inactive storage	0.3	General Exhibition	1.0
For Museum	0.8	Restoration	1.7
Electrical/ mechanical	1.5	Bank/Office—Banking Activity Area	1.5
Workshop	1.9	Religious Buildings	
		Worship-pulpit, choir	2.4
		Fellowship Hall	0.9
		Retail [For accent lighting see 9.3.1.2.1.(c)]	
		Sales area	2.4 1.7
		Mall Concourse	1.7
		Sports Arena	
		Ring Sports Area	2.7
		Court Sports Area	2.3
		Indoor Playing Field Area	1.4
		Warehouse	
		Fine Material Storage	1.4
		Medium/Bulky Material Storage	0.9
		Parking Garage—Garage Area	0.2
		Transportation	
		Airport—Concourse	0.6
		Air/Train/Bus—Baggage Area	1.0
		Terminal—Ticket counter	1.5

^a In cases where both a common space type and a building specific space type are listed, the building specific space type shall apply.

**TABLE 9.3.1.2
Lighting Power Densities Using the Space-by-Space Method**

Space-By-Space Method Lighting Power Density (LPD)			
Common Space Types^a	LPD (W/m²)	Building Specific Space Types	LPD (W/m²)
Office-enclosed	12	Gymnasium/ Exercise Center	
Office-open plan	12	Playing Area	15
Conference/ Meeting/ Multipurpose	14	Exercise Area	10
Classroom/ Lecture/ Training	15	Courthouse/ Police Station/ Penitentiary	
For Penitentiary	14	Courtroom	20
Lobby	14	Confinement Cells	10
For Hotel	12	Judges Chambers	14
For Performing Arts Theater	36	Fire Stations	
For Motion Picture Theatre	12	Fire Station Engine room	9
Audience/ Seating Area	10	Sleeping Quarters	3
For Gymnasium	4	Post Office—Sorting Area	13
For Exercise Center	3	Convention Center—Exhibit Space	14
For Convention Center	8	Library	
For Penitentiary	8	Card File & Cataloguing	12
For Religious Buildings	18	Stacks	18
For Sports Arena	4	Reading Area	13
For Performing Arts Theatre	28	Hospital	
For Motion Picture theatre	13	Emergency	29
For Transportation	5	Recovery	9
Atrium-first three floors	6	Nurse station	11
Atrium-each additional floor	2	Exam/Treatment	16
Lounge/Recreation	13	Pharmacy	13
For Hospital	9	Patient Room	8
Dining area	10	Operating Room	24
For Penitentiary	14	Nursery	6
For Hotel	14	Medical Supply	15
For Motel	13	Physical Therapy	10
For Bar Lounge/Leisure Dining	15	Radiology	4
For Family Dining	23	Laundry—Washing	6
Food Preparation	13	Automotive—Service/Repair	8
Laboratory	15	Manufacturing	
Restrooms	10	Low Bay (<25 ft Floor to Ceiling Height)	13
Dressing/Locker/Fitting Room	6	High Bay (>25 ft Floor to Ceiling Height)	18
Corridor/Transition	5	Detailed Manufacturing	23
For Hospital	11	Equipment room	13
For Manufacturing Facility	5	Control room	5
Stairs—active	6	Hotel/ Motel Guest Rooms	12

**TABLE 9.3.1.2
Lighting Power Densities Using the Space-by-Space Method (Continued)**

Common Space Types^a	LPD (W/m²)	Building Specific Space Types	LPD (W/m²)
Active Storage	9	Dormitory—Living Quarters	12
For Hospital	10	Museum	
Inactive storage	3	General Exhibition	11
For Museum	9	Restoration	18
Electrical/ mechanical	16	Bank/Office—Banking Activity Area	16
Workshop	20	Religious Buildings	
		Worship-pulpit, choir	26
		Fellowship Hall	10
		Retail [For accent lighting see 9.3.1.2.1.(c)]	
		Sales area	23 18
		Mall Concourse	18
		Sports Arena	
		Ring Sports Area	29
		Court Sports Area	25
		Indoor Playing Field Area	15
		Warehouse	
		Fine Material Storage	15
		Medium/Bulky Material Storage	10
		Parking Garage—Garage Area	2
		Transportation	
		Airport—Concourse	6
		Air/Train/Bus—Baggage Area	11
		Terminal—Ticket counter	16

^a In cases where both a common space type and a building specific space type are listed, the building specific space type shall apply.

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.