STANDARD

ANSI/ASHRAE/IES Addendum s to
ANSI/ASHRAE/IES Standard 90.1-2022

Energy Standard for Sites and Buildings Except Low-Rise Residential Buildings

Approved by ASHRAE Standards Committee on June 22, 2024; by the Illuminating Engineering Society on July 8, 2024; and by the American National Standards Institute on July 23, 2024.

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. Instructions for how to submit a change can be found on the ASHRAE® website (https://www.ashrae.org/continuous-maintenance).

The latest edition of an ASHRAE Standard may be purchased from the ASHRAE website (www.ashrae.org) or from ASHRAE Customer Service, 180 Technology Parkway, Peachtree Corners, GA 30092. 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.

 ISSN 1041-2336

Approved American National Standard
www.ansi.org

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 Senior 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.

(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

Addendum s contains an editorial/format change and revised values.

Editorial/Format Changes

Addendum s splits the lighting power density (LPD) values and lighting control requirements from Table 9.5.1.2-1 into two new tables. The first table lists spaces with lighting controls and is placed in section 9.4. A second table lists LPD values for spaces and remain in section 9.5.2. This change makes clear that the lighting control requirements apply when using both *the Building Area Method and the Space-by-Space Method.*

LPD Values

In the new LPD table, values are revised. The modified LPD values result from refining the Standard 90.1 lighting model and collaboration with IALD and IES. Since 2019, all fixture types in the model use LED sources.

Revised values result from three major changes: updated lamp lumen deprecation values, revised process for determining luminaire dirt depreciation, and updated luminaire efficacy values. Beyond these changes, room reflectance values were also reviewed and resulted in the following changes.

a. The 90.1-2022 lighting model used a static lamp lumen depreciation (LLD) of 0.85 for all LED fixtures. These revised values are based on shifting the LLD to 0.90 for all LED fixtures. This changed by a review of design practices by lighting practitioners within the lighting industry.

b. The 2022 model used luminaire dirt depreciation (LDD) values preselected by fixture type. The average LDD value in the 2022 model was 0.82. These revised values are based on using the IES RP-36 methodology for determining LDD. RP-36 values are based on times between cleaning; the model assumes 60 months/5 years between cleanings. The LDD values changed for individual spaces, but the average LDD in the 2025 model shifts to 0.79.

c. The luminaire efficacy dataset of the 2022 model was updated. Efficacy of some luminaires in the dataset increased from the 2022 values, but the average increase in luminaire efficacy was only a 2% increase.

These combined changes result in a 6.5% average reduction in space-by-space LPD values. The space-by-space values are used to generate both the Building Area Method and Simplified Building Method LPD values. The changes are based on changes in efficiency improvements by industry, design practices, and revisions to lighting science, therefore there is no increase in cost.

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 s to Standard 90.1-2022

Modify the control requirements for interior exit stairway in Table 9.5.3.1 as shown (I-P and SI).

9.4 Mandatory Provisions

9.4.1 Lighting Control. Lighting controls shall be installed to meet the provisions of Section 9.4.1.1, 9.4.1.2, 9.4.1.3, and 9.4.1.4.

9.4.1.1 Interior Lighting Controls. For each *space* in the *building*, all of the lighting control functions indicated in Tables ~~9.5.2.1-1~~ 9.4.1-1 and ~~9.5.2.1-2~~ 9.4.1-2, for the appropriate *space* type in the first column, and as described below, shall be implemented. All control functions indicated as "REQ" are mandatory and shall be implemented. If a *space* type has control functions indicated as "ADD1," then at least one of those functions shall be implemented. If a *space* type has control functions indicated as "ADD2," then at least one of those functions shall be implemented. For *space* types not listed, select a reasonably equivalent type.

If using the Space-by-Space Method, the *space* type used for determining control requirements shall be the same *space* type that is used for determining the *LPD* allowance.

a. Local control: There shall be one or more *manual* lighting *control device* that provides ON and OFF control of all lighting in the *space*. Each *control device* shall control an area (1) no larger than 2500 ft^2 if the *space* is [. . .]

9.5 Prescriptive Compliance Path. Interior lighting power shall comply with either Section 9.5.1 or 9.5.2. Lighting control requirements shall comply with Section 9.4.1 and Tables 9.4.1-1 ~~9.5.2.1-1~~ and 9.4.1-2 ~~9.5.2.1-2~~.

Exterior lighting power shall comply with Section 9.5.3. Trade-offs between the *installed interior lighting power* and *installed exterior lighting power* are not allowed.

[. . .]

9.5.2 Space-by-Space Method Compliance Path

9.5.2.1 Space-by-Space Method of Calculating Interior Lighting Power Allowance. Use the following steps to determine the *interior lighting power allowance* by the Space-by-Space Method:

a. For each *space* enclosed by partitions that are 80% of the ceiling height or taller, determine the appropriate *space* type and the corresponding *LPD* value from Tables 9.5.2.1-1 and 9.5.2.1-2. If a *space* has multiple functions, where more than one *space* type is applicable, that *space* shall be broken up into smaller subspaces, each using its own *space* type from Tables 9.5.2.1-1 and 9.5.2.1-2. Any of these sub- spaces that are smaller in *floor* area than 20% of the original *space* and less than 1000 ft^2 need not be broken out. Include the *floor* area of balconies and other projections in this calculation.
b. In calculating the area of each *space* and subspace, the limits of the area are defined by the centerline of interior walls, the dividing line between subspaces, and the outside surface of *exterior walls* or *semiexterior walls*. For the purposes of this section, *semiexterior walls* that separate *semiheated space* from *conditioned space* shall be considered interior walls.
c. Based on the *space* type selected for each *space* or subspace, determine the *lighting power allowance* of each *space* or subspace by multiplying the calculated area of the *space* or subspace by the appropriate *LPD* value determined in Section 9.5.2.1(a). For *space* types not listed, selection of a reasonable equivalent category shall be permitted.
d. The *interior lighting power allowance* is the sum of *lighting power allowances* of all *spaces* and subspaces. Trade-offs among *spaces* and subspaces are permitted, provided that the total *installed interior lighting power* does not exceed the *interior lighting power allowance*.

Add new Tables 9.4.1-1 and 9.4.1-2 and replace current tables 9.5.2.1-1 and 9.5.2.1-2 as shown (I-P and SI).

Table 9.4.1-1 Minimum Control Requirements Using Either Section 9.5.1 Building Area Method or Section 9.5.2 Space-by-Space Method (common spaces) (I-P)

Informative Note: This table covers common *space* types typically found in multiple *building* types. Table 9.4.1-2 covers *building*-specific *space* types typically found in a single *building* type.

The control functions below shall be implemented in accordance with the descriptions found within Section 9.4.1.1. For each *space* type:
(1) All REQs shall be implemented.
(2) At least one ADD1 (when present) shall be implemented.
(3) At least one ADD2 (when present) shall be implemented.

Common Space Types[a]	Local Control 9.4.1.1(a)	Manual ON 9.4.1.1(b)	Partial Auto ON 9.4.1.1(c)	Multilevel Lighting Control 9.4.1.1(d)	Daylight Response Sidelight 9.4.1.1(e)[b]	Daylight Response Toplight 9.4.1.1(f)[b]	Auto Reduction (Full OFF complies) 9.4.1.1(g)	Auto Full OFF 9.4.1.1(h)	Scheduled Shutoff 9.4.1.1(i)
Atrium									
<20 ft in height	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
≥20 ft and ≤40 ft in height	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
>40 ft in height	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Audience Seating Area									
Auditorium	REQ	ADD1	ADD1	REQ	REQ			ADD2	ADD2
Gymnasium	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Motion picture theater	REQ	ADD1	ADD1	REQ				ADD2	ADD2
Performing arts theater	REQ	ADD1	ADD1	REQ				ADD2	ADD2
Sports arena	REQ	ADD1	ADD1	REQ		REQ		ADD2	ADD2
All other audience seating areas	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Banking Activity Area	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Classroom/Lecture Hall/Training Room									
Shop classroom	REQ	ADD1	ADD1		REQ	REQ			REQ
All other classrooms/lecture halls/training rooms	REQ	ADD1	ADD1	REQ	REQ	REQ		REQ	
Computer Room	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Conference/Meeting/Multipurpose Rooms	REQ	ADD1	ADD1	REQ	REQ	REQ		REQ	
Control/Editing Room or Booth	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Copy/Print Room	REQ	ADD1	ADD1		REQ	REQ		REQ	
Corridor	REQ				REQ	REQ	REQ	ADD2	ADD2
Courtroom	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Dining Areas									
Bar/lounge or leisure dining	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2

a. Where both a common *space* type and a *building*-specific *space* type are listed, the *building* specific *space* type shall apply (see Table 9.4.1-2 for *building*-specific *space* types).
b. *Automatic* daylight responsive controls are mandatory only if the *space* meets the requirements of the specified sections.

Table 9.4.1-1 Minimum Control Requirements Using Either Section 9.5.1 Building Area Method or Section 9.5.2 Space-by-Space Method (common spaces) (I-P) *(Continued)*

Informative Note: This table covers common *space* types typically found in multiple *building* types. Table 9.4.1-2 covers *building*-specific *space* types typically found in a single *building* type.

The control functions below shall be implemented in accordance with the descriptions found within Section 9.4.1.1. For each *space* type:
(1) All REQs shall be implemented.
(2) At least one ADD1 (when present) shall be implemented.
(3) At least one ADD2 (when present) shall be implemented.

Common Space Types[a]	Local Control 9.4.1.1(a)	Manual ON 9.4.1.1(b)	Partial Auto ON 9.4.1.1(c)	Multilevel Lighting Control 9.4.1.1(d)	Daylight Response Sidelight 9.4.1.1(e)[b]	Daylight Response Toplight 9.4.1.1(f)[b]	Auto Reduction (Full OFF complies) 9.4.1.1(g)	Auto Full OFF 9.4.1.1(h)	Scheduled Shutoff 9.4.1.1(i)
Cafeteria or fast-food dining	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Family dining	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
All other dining areas	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Electrical/Mechanical Room	REQ								
Emergency Vehicle Garage	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Equipment Room	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Food Preparation Area	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Guest Room	See Section 9.4.1.3(b).								
Laboratory									
In or as a classroom	REQ	ADD1	ADD1	REQ	REQ	REQ	REQ	ADD2	ADD2
All other laboratories	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Laundry/Washing Area	REQ	ADD1	ADD1	REQ	REQ	REQ		REQ	
Loading Dock, Interior	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Lobby									
Elevator	REQ				REQ	REQ		ADD2	ADD2
Hotel	REQ				REQ	REQ		ADD2	ADD2
Motion picture theater	REQ				REQ	REQ		ADD2	ADD2
Performing arts theater	REQ				REQ	REQ		ADD2	ADD2
All other lobbies	REQ				REQ	REQ	REQ	ADD2	ADD2
Locker Room	REQ	ADD1	ADD1	REQ	REQ	REQ		REQ	
Lounge/Breakroom									
Mother's/wellness room	REQ	ADD1	ADD1	REQ				REQ	
All other lounges/breakrooms	REQ	ADD1	ADD1	REQ	REQ	REQ		REQ	

a. Where both a common *space* type and a *building*-specific *space* type are listed, the *building* specific *space* type shall apply (see Table 9.4.1-2 for *building*-specific *space* types).
b. *Automatic* daylight responsive controls are mandatory only if the *space* meets the requirements of the specified sections.

Table 9.4.1-1 Minimum Control Requirements Using Either Section 9.5.1 Building Area Method or Section 9.5.2 Space-by-Space Method (common spaces) (I-P) *(Continued)*

Informative Note: This table covers common *space* types typically found in multiple *building* types. Table 9.4.1-2 covers *building*-specific *space* types typically found in a single *building* type.

The control functions below shall be implemented in accordance with the descriptions found within Section 9.4.1.1. For each *space* type:
(1) All REQs shall be implemented.
(2) At least one ADD1 (when present) shall be implemented.
(3) At least one ADD2 (when present) shall be implemented.

Common Space Types[a]	Local Control 9.4.1.1(a)	Manual ON 9.4.1.1(b)	Partial Auto ON 9.4.1.1(c)	Multilevel Lighting Control 9.4.1.1(d)	Daylight Response Sidelight 9.4.1.1(e)[b]	Daylight Response Toplight 9.4.1.1(f)[b]	Auto Reduction (Full OFF complies) 9.4.1.1(g)	Auto Full OFF 9.4.1.1(h)	Scheduled Shutoff 9.4.1.1(i)
Office									
Office ≤150 ft^2	REQ	ADD1	ADD1	REQ				REQ	
Office >150 and ≤300 ft^2	REQ	ADD1	ADD1	REQ				REQ	
Offices >300 ft^2	REQ	ADD1	ADD1	REQ	REQ	REQ	REQ	REQ	
Parking Garage									
Daylight transition zone					See Section 9.4.1.2.				
All other parking and drive areas					See Section 9.4.1.2.				
Pharmacy Area	REQ	ADD1	ADD1	REQ				ADD2	ADD2
Restroom								REQ	
Sales Area (For accent lighting, see Section 9.5.2.2[b].)	REQ	ADD1	ADD1	REQ		REQ		ADD2	ADD2
Seating Area, General	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Security Screening									
Airport/bus/ship/train/transportation screening	REQ				REQ	REQ		ADD2	ADD2
Airport/bus/ship/train/transportation screening queue	REQ				REQ	REQ		ADD2	ADD2
General security screening	REQ				REQ	REQ		ADD2	ADD2
Stairway	The *space* containing the stairway shall determine the *LPD* and control requirements for the stairway.								
Stairwell					REQ	REQ	REQ	ADD2	ADD2
Storage Room									
<50 ft^2	REQ	REQ						REQ	
≥50 ft^2	REQ							REQ	
Vehicular Maintenance Area	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Workshop (including workshop classrooms)	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2

a. Where both a common *space* type and a *building*-specific *space* type are listed, the *building* specific *space* type shall apply (see Table 9.4.1-2 for *building*-specific *space* types).
b. *Automatic* daylight responsive controls are mandatory only if the *space* meets the requirements of the specified sections.

Table 9.4.1-2 Minimum Control Requirements Using Either Section 9.5.1 Building Area Method or Section 9.5.2 Space-by-Space Method (building-specific spaces) (I-P)

Informative Note: This table covers *building*-specific *space* types typically found in a single *building* type. Table 9.4.1-1 covers common *space* types typically found in multiple *building* types.

The control functions below shall be implemented in accordance with the descriptions found within Section 9.4.1.1. For each *space* type:
(1) All REQs shall be implemented.
(2) At least one ADD1 (when present) shall be implemented.
(3) At least one ADD2 (when present) shall be implemented.

Building-Specific Space Types[a]	Local Control 9.4.1.1(a)	Manual ON 9.4.1.1(b)	Partial Auto ON 9.4.1.1(c)	Multilevel Lighting Control 9.4.1.1(d)	Daylight Response Sidelight 9.4.1.1(e)[b]	Daylight Response Toplight 9.4.1.1(f)[b]	Auto Reduction (Full OFF complies) 9.4.1.1(g)	Auto Full OFF 9.4.1.1(h)	Scheduled Shutoff 9.4.1.1(i)
Casino—Gaming Area									
Betting/sportsbook/keno/bingo area				REQ				ADD2	ADD2
High-limit game area				REQ				ADD2	ADD2
Slot machine/digital gaming area				REQ				ADD2	ADD2
Table games area				REQ				ADD2	ADD2
Convention Center—Exhibit Space	REQ	ADD1	ADD1	REQ	REQ	REQ			REQ
Correctional Facilities									
Audience seating area	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Classroom/lecture hall/training room	REQ	ADD1	ADD1	REQ	REQ	REQ			
Confinement cells	REQ								REQ
Dining area	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Dormitory—Living Quarters	REQ								
Facility for the Visually Impaired[c]									
Chapel (used primarily by residents)	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Corridor (used primarily by residents)	REQ				REQ	REQ	REQ	ADD2	ADD2
Dining (used primarily by residents)	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Lobby	REQ				REQ	REQ	REQ	ADD2	ADD2
Recreation room/common living room (used primarily by residents)	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Restroom (used primarily by residents)					REQ	REQ		REQ	
Fire Station—Sleeping Quarters	REQ								

a. Where both a common *space* type and a *building* specific *space* type are listed, the *building* specific *space* type shall apply (see Table 9.4.1-1 for common *space* types).
b. *Automatic* daylight responsive controls are mandatory only if the *space* meets the requirements of the specified sections.
c. A facility for the visually impaired is a facility that can be documented as being designed to comply with the light levels in ANSI/IES RP-28 and that is or will be licensed by local/state authorities for senior long-term care, adult daycare, senior support, and/or people with special visual needs.

Table 9.4.1-2 Minimum Control Requirements Using Either Section 9.5.1 Building Area Method or Section 9.5.2 Space-by-Space Method (building-specific spaces) (I-P)

Informative Note: This table covers *building*-specific *space* types typically found in a single *building* type. Table 9.4.1-1 covers common *space* types typically found in multiple *building* types.

The control functions below shall be implemented in accordance with the descriptions found within Section 9.4.1.1. For each *space* type:
(1) All REQs shall be implemented.
(2) At least one ADD1 (when present) shall be implemented.
(3) At least one ADD2 (when present) shall be implemented.

Building-Specific Space Types[a]	Local Control 9.4.1.1(a)	Manual ON 9.4.1.1(b)	Partial Auto ON 9.4.1.1(c)	Multilevel Lighting Control 9.4.1.1(d)	Daylight Response Sidelight 9.4.1.1(e)[b]	Daylight Response Toplight 9.4.1.1(f)[b]	Auto Reduction (Full OFF complies) 9.4.1.1(g)	Auto Full OFF 9.4.1.1(h)	Scheduled Shutoff 9.4.1.1(i)
Gymnasium/Fitness Center									
Exercise area	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Playing area	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Health Care Facility									
Control room (MRI/CT/radiology/PET)	REQ	REQ		REQ				REQ	
Exam/treatment room	REQ			REQ	REQ	REQ		ADD2	ADD2
Hospital corridor	REQ				REQ	REQ	ADD2	ADD2	ADD2
Imaging room	REQ			REQ				ADD2	ADD2
Lounge	REQ	ADD1	ADD1	REQ	REQ	REQ		REQ	
Medical supply room	REQ	ADD1	ADD1					REQ	
Nursery	REQ			REQ	REQ	REQ		ADD2	ADD2
Nurse's station	REQ			REQ	REQ	REQ		ADD2	ADD2
Operating room	REQ			REQ					
Patient room	REQ			REQ					
Physical therapy room	REQ			REQ	REQ	REQ		ADD2	ADD2
Recovery room	REQ			REQ				ADD2	ADD2
Telemedicine	REQ	ADD1	ADD1	REQ	REQ	REQ		REQ	
Library									
Reading area	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Stacks	REQ	ADD1	ADD1				REQ	ADD2	ADD2

a. Where both a common *space* type and a *building* specific *space* type are listed, the *building* specific *space* type shall apply (see Table 9.4.1-1 for common *space* types).
b. *Automatic* daylight responsive controls are mandatory only if the *space* meets the requirements of the specified sections.
c. A facility for the visually impaired is a facility that can be documented as being designed to comply with the light levels in ANSI/IES RP-28 and that is or will be licensed by local/state authorities for senior long-term care, adult daycare, senior support, and/or people with special visual needs.

Table 9.4.1-2 Minimum Control Requirements Using Either Section 9.5.1 Building Area Method or Section 9.5.2 Space-by-Space Method (building-specific spaces) (I-P)

Informative Note: This table covers *building*-specific *space* types typically found in a single *building* type. Table 9.4.1-1 covers common *space* types typically found in multiple *building* types.

The control functions below shall be implemented in accordance with the descriptions found within Section 9.4.1.1. For each *space* type:
(1) All REQs shall be implemented.
(2) At least one ADD1 (when present) shall be implemented.
(3) At least one ADD2 (when present) shall be implemented.

Building-Specific Space Types[a]	Local Control 9.4.1.1(a)	Manual ON 9.4.1.1(b)	Partial Auto ON 9.4.1.1(c)	Multilevel Lighting Control 9.4.1.1(d)	Daylight Response Sidelight 9.4.1.1(e)[b]	Daylight Response Toplight 9.4.1.1(f)[b]	Auto Reduction (Full OFF complies) 9.4.1.1(g)	Auto Full OFF 9.4.1.1(h)	Scheduled Shutoff 9.4.1.1(i)
Manufacturing Facility									
Detailed manufacturing area	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Extra-high bay area (>50 ft *floor*-to-ceiling height)	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
High bay area (25 to 50 ft *floor*-to-ceiling height)	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Low bay area (<25 ft *floor*-to-ceiling height)	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Museum									
General exhibition area	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Restoration area	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Performing Arts Theater—Dressing Room	REQ	ADD1	ADD1	REQ				REQ	
Post Office—Sorting Area	REQ	ADD1	ADD1		REQ	REQ	REQ	ADD2	ADD2
Religious Facility									
Audience seating area	REQ			REQ	REQ	REQ		ADD2	ADD2
Fellowship hall	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Worship/pulpit/choir area	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Retail Facilities									
Dressing/fitting room								ADD2	ADD2
Hair care	REQ	ADD1	ADD1					ADD2	ADD2
Mall concourse	REQ	ADD1	ADD1	REQ		REQ		ADD2	ADD2
Massage	REQ	ADD1	ADD1	REQ				ADD2	ADD2
Nail care	REQ	ADD1	ADD1					ADD2	ADD2

a. Where both a common *space* type and a *building* specific *space* type are listed, the *building* specific *space* type shall apply (see Table 9.4.1-1 for common *space* types).
b. *Automatic* daylight responsive controls are mandatory only if the *space* meets the requirements of the specified sections.
c. A facility for the visually impaired is a facility that can be documented as being designed to comply with the light levels in ANSI/IES RP-28 and that is or will be licensed by local/state authorities for senior long-term care, adult daycare, senior support, and/or people with special visual needs.

Table 9.4.1-2 Minimum Control Requirements Using Either Section 9.5.1 Building Area Method or Section 9.5.2 Space-by-Space Method (building-specific spaces) (I-P)

Informative Note: This table covers *building*-specific *space* types typically found in a single *building* type. Table 9.4.1-1 covers common *space* types typically found in multiple *building* types.

The control functions below shall be implemented in accordance with the descriptions found within Section 9.4.1.1. For each *space* type:
(1) All REQs shall be implemented.
(2) At least one ADD1 (when present) shall be implemented.
(3) At least one ADD2 (when present) shall be implemented.

Building-Specific Space Types[a]	Local Control 9.4.1.1(a)	Manual ON 9.4.1.1(b)	Partial Auto ON 9.4.1.1(c)	Multilevel Lighting Control 9.4.1.1(d)	Daylight Response Sidelight 9.4.1.1(e)[b]	Daylight Response Toplight 9.4.1.1(f)[b]	Auto Reduction (Full OFF complies) 9.4.1.1(g)	Auto Full OFF 9.4.1.1(h)	Scheduled Shutoff 9.4.1.1(i)
Sports Arena—Playing Area (Class of play as defined by ANSI/IES RP-6)									
Class I facility	REQ	REQ			REQ	REQ			REQ
Class II facility	REQ	REQ			REQ	REQ			REQ
Class III facility	REQ	REQ			REQ	REQ			REQ
Class IV facility	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Natatorium (Class of play as defined by IES RP-6)									
Class I facility	REQ	REQ			REQ	REQ			REQ
Class II facility	REQ	REQ			REQ	REQ			REQ
Class III facility	REQ	REQ			REQ	REQ			REQ
Class IV facility	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Transportation Facility									
Airport hanger	REQ	REQ			REQ	REQ			REQ
Baggage/carousel area					REQ	REQ		ADD2	ADD2
Concourse					REQ	REQ		ADD2	ADD2
Passenger loading area	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Ticket counter	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Warehouse—Storage Area									
Medium-to-bulky, palletized items	REQ	ADD1	ADD1		REQ	REQ	REQ	ADD2	ADD2
Smaller items, picking areas	REQ	ADD1	ADD1		REQ	REQ	REQ	ADD2	ADD2

a. Where both a common *space* type and a *building* specific *space* type are listed, the *building* specific *space* type shall apply (see Table 9.4.1-1 for common *space* types).
b. *Automatic* daylight responsive controls are mandatory only if the *space* meets the requirements of the specified sections.
c. A facility for the visually impaired is a facility that can be documented as being designed to comply with the light levels in ANSI/IES RP-28 and that is or will be licensed by local/state authorities for senior long-term care, adult daycare, senior support, and/or people with special visual needs.

Table 9.4.1-1 Minimum Control Requirements Using Either Section 9.5.1 Building Area Method or Section 9.5.2 Space-by-Space Method (common spaces) (SI)

Informative Note: This table covers common *space* types typically found in multiple *building* types. Table 9.4.1-2 covers *building*-specific *space* types typically found in a single *building* type.

The control functions below shall be implemented in accordance with the descriptions found within Section 9.4.1.1. For each *space* type:
(1) All REQs shall be implemented.
(2) At least one ADD1 (when present) shall be implemented.
(3) At least one ADD2 (when present) shall be implemented.

Common Space Types[a]	Local Control 9.4.1.1(a)	Manual ON 9.4.1.1(b)	Partial Auto ON 9.4.1.1(c)	Multilevel Lighting Control 9.4.1.1(d)	Daylight Response Sidelight 9.4.1.1(e)[b]	Daylight Response Toplight 9.4.1.1(f)[b]	Auto Reduction (Full OFF complies) 9.4.1.1(g)	Auto Full OFF 9.4.1.1(h)	Scheduled Shutoff 9.4.1.1(i)
Atrium									
<6.1 m in height	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
≥6.1 m and ≤12.2 m in height	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
>12.2 m in height	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Audience Seating Area									
Auditorium	REQ	ADD1	ADD1	REQ	REQ			ADD2	ADD2
Gymnasium	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Motion picture theater	REQ	ADD1	ADD1	REQ				ADD2	ADD2
Performing arts theater	REQ	ADD1	ADD1	REQ				ADD2	ADD2
Sports arena	REQ	ADD1	ADD1	REQ		REQ		ADD2	ADD2
All other audience seating areas	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Banking Activity Area	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Classroom/Lecture Hall/Training Room									
Shop classroom	REQ	ADD1	ADD1		REQ	REQ			REQ
All other classrooms/lecture halls/training rooms	REQ	ADD1	ADD1	REQ	REQ	REQ		REQ	
Computer Room	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Conference/Meeting/Multipurpose Rooms	REQ	ADD1	ADD1	REQ	REQ	REQ		REQ	
Control/Editing Room or Booth	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Copy/Print Room	REQ	ADD1	ADD1		REQ	REQ		REQ	
Corridor	REQ				REQ	REQ	REQ	ADD2	ADD2
Courtroom	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Dining Areas									
Bar/lounge or leisure dining	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2

a. Where both a common *space* type and a *building*-specific *space* type are listed, the *building* specific *space* type shall apply (see Table 9.4.1-2 for *building*-specific *space* types).
b. Automatic daylight responsive controls are mandatory only if the *space* meets the requirements of the specified sections.

Table 9.4.1-1 Minimum Control Requirements Using Either Section 9.5.1 Building Area Method or Section 9.5.2 Space-by-Space Method (common spaces) (SI) *(Continued)*

Informative Note: This table covers common *space* types typically found in multiple *building* types. Table 9.4.1-2 covers *building*-specific *space* types typically found in a single *building* type.

The control functions below shall be implemented in accordance with the descriptions found within Section 9.4.1.1. For each *space* type:
(1) All REQs shall be implemented.
(2) At least one ADD1 (when present) shall be implemented.
(3) At least one ADD2 (when present) shall be implemented.

Common Space Types[a]	Local Control 9.4.1.1(a)	Manual ON 9.4.1.1(b)	Partial Auto ON 9.4.1.1(c)	Multilevel Lighting Control 9.4.1.1(d)	Daylight Response Sidelight 9.4.1.1(e)[b]	Daylight Response Toplight 9.4.1.1(f)[b]	Auto Reduction (Full OFF complies) 9.4.1.1(g)	Auto Full OFF 9.4.1.1(h)	Scheduled Shutoff 9.4.1.1(i)
Cafeteria or fast-food dining	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Family dining	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
All other dining areas	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Electrical/Mechanical Room	REQ								
Emergency Vehicle Garage	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Equipment Room	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Food Preparation Area	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Guest Room	See Section 9.4.1.3(b).								
Laboratory									
In or as a classroom	REQ	ADD1	ADD1	REQ	REQ	REQ	REQ	ADD2	ADD2
All other laboratories	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Laundry/Washing Area	REQ	ADD1	ADD1	REQ	REQ	REQ		REQ	
Loading Dock, Interior	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Lobby									
Elevator	REQ				REQ	REQ		ADD2	ADD2
Hotel	REQ				REQ	REQ		ADD2	ADD2
Motion picture theater	REQ				REQ	REQ		ADD2	ADD2
Performing arts theater	REQ				REQ	REQ		ADD2	ADD2
All other lobbies	REQ				REQ	REQ	REQ	ADD2	ADD2
Locker Room	REQ	ADD1	ADD1	REQ	REQ	REQ		REQ	
Lounge/Breakroom									
Mother's/wellness room	REQ	ADD1	ADD1	REQ				REQ	
All other lounges/breakrooms	REQ	ADD1	ADD1	REQ	REQ	REQ		REQ	

a. Where both a common *space* type and a *building*-specific *space* type are listed, the *building* specific *space* type shall apply (see Table 9.4.1-2 for *building*-specific *space* types).
b. Automatic daylight responsive controls are mandatory only if the *space* meets the requirements of the specified sections.

Table 9.4.1-1 Minimum Control Requirements Using Either Section 9.5.1 Building Area Method or Section 9.5.2 Space-by-Space Method (common spaces) (SI) *(Continued)*

Informative Note: This table covers common *space* types typically found in multiple *building* types. Table 9.4.1-2 covers *building*-specific *space* types typically found in a single *building* type.	The control functions below shall be implemented in accordance with the descriptions found within Section 9.4.1.1. For each *space* type: (1) All REQs shall be implemented. (2) At least one ADD1 (when present) shall be implemented. (3) At least one ADD2 (when present) shall be implemented.

Common Space Types[a]	Local Control 9.4.1.1(a)	Manual ON 9.4.1.1(b)	Partial Auto ON 9.4.1.1(c)	Multilevel Lighting Control 9.4.1.1(d)	Daylight Response Sidelight 9.4.1.1(e)[b]	Daylight Response Toplight 9.4.1.1(f)[b]	Auto Reduction (Full OFF complies) 9.4.1.1(g)	Auto Full OFF 9.4.1.1(h)	Scheduled Shutoff 9.4.1.1(i)
Office									
Office ≤13.9 m^2	REQ	ADD1	ADD1	REQ				REQ	
Office >13.9 and ≤27.9 m^2	REQ	ADD1	ADD1	REQ				REQ	
Offices >27.9 m^2	REQ	ADD1	ADD1	REQ	REQ	REQ	REQ	REQ	
Parking Garage									
Daylight transition zone					See Section 9.4.1.2.				
All other parking and drive areas					See Section 9.4.1.2.				
Pharmacy Area	REQ	ADD1	ADD1	REQ				ADD2	ADD2
Restroom								REQ	
Sales Area (For accent lighting, see Section 9.5.2.2[b].)	REQ	ADD1	ADD1	REQ		REQ		ADD2	ADD2
Seating Area, General	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Security Screening									
Airport/bus/ship/train/transportation screening	REQ				REQ	REQ		ADD2	ADD2
Airport/bus/ship/train/transportation screening queue	REQ				REQ	REQ		ADD2	ADD2
General security screening	REQ				REQ	REQ		ADD2	ADD2
Stairway									
Stairwell					REQ	REQ	REQ	ADD2	ADD2
Storage Room									
≤4.6 m^2	REQ	REQ						REQ	
≥4.6 m^2	REQ							REQ	
Vehicular Maintenance Area	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Workshop (including workshop classrooms)	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2

a. Where both a common *space* type and a *building*-specific *space* type are listed, the *building* specific *space* type shall apply (see Table 9.4.1-2 for *building*-specific *space* types).
b. Automatic daylight responsive controls are mandatory only if the *space* meets the requirements of the specified sections.

Table 9.4.1-2 Minimum Control Requirements Using Either Section 9.5.1 Building Area Method or Section 9.5.2 Space-by-Space Method (building-specific spaces) (SI)

Informative Note: This table covers *building*-specific *space* types typically found in a single *building* type. Table 9.4.1-1 covers common *space* types typically found in multiple *building* types.

The control functions below shall be implemented in accordance with the descriptions found within Section 9.4.1.1. For each *space* type:
(1) All REQs shall be implemented.
(2) At least one ADD1 (when present) shall be implemented.
(3) At least one ADD2 (when present) shall be implemented.

Building-Specific Space Types[a]	Local Control	Manual ON	Partial Auto ON	Multilevel Lighting Control	Daylight Response Sidelight	Daylight Response Toplight	Auto Reduction (Full OFF complies)	Auto Full OFF	Scheduled Shutoff
	9.4.1.1(a)	9.4.1.1(b)	9.4.1.1(c)	9.4.1.1(d)	9.4.1.1(e)[b]	9.4.1.1(f)[b]	9.4.1.1(g)	9.4.1.1(h)	9.4.1.1(i)
Casino—Gaming Area									
Betting/sportsbook/keno/bingo area				REQ				ADD2	ADD2
High-limit game area				REQ				ADD2	ADD2
Slot machine/digital gaming area				REQ				ADD2	ADD2
Table games area				REQ				ADD2	ADD2
Convention Center—Exhibit Space	REQ	ADD1	ADD1	REQ	REQ	REQ			REQ
Correctional Facilities									
Audience seating area	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Classroom/lecture hall/training room	REQ	ADD1	ADD1	REQ	REQ	REQ			
Confinement cells	REQ								REQ
Dining area	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Dormitory—Living Quarters	REQ								
Facility for the Visually Impaired[c]									
Chapel (used primarily by residents)	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Corridor (used primarily by residents)	REQ				REQ	REQ	REQ	ADD2	ADD2
Dining (used primarily by residents)	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Lobby	REQ				REQ	REQ	REQ	ADD2	ADD2
Recreation room/common living room (used primarily by residents)	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Restroom (used primarily by residents)					REQ	REQ		REQ	
Fire Station—Sleeping Quarters	REQ								

a. Where both a common *space* type and a *building* specific *space* type are listed, the *building* specific *space* type shall apply (see Table 9.4.1-1 for common *space* types).
b. Automatic daylight responsive controls are mandatory only if the *space* meets the requirements of the specified sections.
c. A facility for the visually impaired is a facility that can be documented as being designed to comply with the light levels in ANSI/IES RP-28 and is or will be licensed by local/state authorities for senior long-term care, adult daycare, senior support, and/or people with special visual needs.

Table 9.4.1-2 Minimum Control Requirements Using Either Section 9.5.1 Building Area Method or Section 9.5.2 Space-by-Space Method (building-specific spaces) (SI)

Informative Note: This table covers *building*-specific *space* types typically found in a single *building* type. Table 9.4.1-1 covers common *space* types typically found in multiple *building* types.

The control functions below shall be implemented in accordance with the descriptions found within Section 9.4.1.1. For each *space* type:
(1) All REQs shall be implemented.
(2) At least one ADD1 (when present) shall be implemented.
(3) At least one ADD2 (when present) shall be implemented.

Building-Specific Space Types[a]	Local Control 9.4.1.1(a)	Manual ON 9.4.1.1(b)	Partial Auto ON 9.4.1.1(c)	Multilevel Lighting Control 9.4.1.1(d)	Daylight Response Sidelight 9.4.1.1(e)[b]	Daylight Response Toplight 9.4.1.1(f)[b]	Auto Reduction (Full OFF complies) 9.4.1.1(g)	Auto Full OFF 9.4.1.1(h)	Scheduled Shutoff 9.4.1.1(i)
Gymnasium/Fitness Center									
Exercise area	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Playing area	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Health Care Facility									
Control room (MRI/CT/radiology/PET)	REQ	REQ		REQ				REQ	
Exam/treatment room	REQ			REQ	REQ	REQ		ADD2	ADD2
Hospital corridor	REQ				REQ	REQ	ADD2	ADD2	ADD2
Imaging room	REQ			REQ				ADD2	ADD2
Lounge	REQ	ADD1	ADD1	REQ	REQ	REQ		REQ	
Medical supply room	REQ	ADD1	ADD1					REQ	
Nursery	REQ			REQ	REQ	REQ		ADD2	ADD2
Nurse's station	REQ			REQ	REQ	REQ		ADD2	ADD2
Operating room	REQ			REQ					
Patient room	REQ			REQ					
Physical therapy room	REQ			REQ	REQ	REQ		ADD2	ADD2
Recovery room	REQ			REQ				ADD2	ADD2
Telemedicine	REQ	ADD1	ADD1	REQ	REQ	REQ		REQ	
Library									
Reading area	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Stacks	REQ	ADD1	ADD1				REQ	ADD2	ADD2

a. Where both a common *space* type and a *building* specific *space* type are listed, the *building* specific *space* type shall apply (see Table 9.4.1-1 for common *space* types).
b. Automatic daylight responsive controls are mandatory only if the *space* meets the requirements of the specified sections.
c. A facility for the visually impaired is a facility that can be documented as being designed to comply with the light levels in ANSI/IES RP-28 and is or will be licensed by local/state authorities for senior long-term care, adult daycare, senior support, and/or people with special visual needs.

Table 9.4.1-2 Minimum Control Requirements Using Either Section 9.5.1 Building Area Method or Section 9.5.2 Space-by-Space Method (building-specific spaces) (SI)

Informative Note: This table covers *building*-specific *space* types typically found in a single *building* type. Table 9.4.1-1 covers common *space* types typically found in multiple *building* types.

The control functions below shall be implemented in accordance with the descriptions found within Section 9.4.1.1. For each *space* type:
(1) All REQs shall be implemented.
(2) At least one ADD1 (when present) shall be implemented.
(3) At least one ADD2 (when present) shall be implemented.

Building-Specific Space Types[a]	Local Control 9.4.1.1(a)	Manual ON 9.4.1.1(b)	Partial Auto ON 9.4.1.1(c)	Multilevel Lighting Control 9.4.1.1(d)	Daylight Response Sidelight 9.4.1.1(e)[b]	Daylight Response Toplight 9.4.1.1(f)[b]	Auto Reduction (Full OFF complies) 9.4.1.1(g)	Auto Full OFF 9.4.1.1(h)	Scheduled Shutoff 9.4.1.1(i)
Manufacturing Facility									
Detailed manufacturing area	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Extra-high bay area (>15.2 m *floor*-to-ceiling height)	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
High bay area (7.6 to 15.2 m *floor*-to-ceiling height)	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Low bay area (<7.6 m *floor*-to-ceiling height)	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Museum									
General exhibition area	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Restoration area	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Performing Arts Theater—Dressing Room	REQ	ADD1	ADD1	REQ				REQ	
Post Office—Sorting Area	REQ	ADD1	ADD1		REQ	REQ	REQ	ADD2	ADD2
Religious Facility									
Audience seating area	REQ			REQ	REQ	REQ		ADD2	ADD2
Fellowship hall	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Worship/pulpit/choir area	REQ	ADD1	ADD1	REQ	REQ	REQ		ADD2	ADD2
Retail Facilities									
Dressing/fitting room								ADD2	ADD2
Hair care	REQ	ADD1	ADD1					ADD2	ADD2
Nail care	REQ	ADD1	ADD1					ADD2	ADD2
Mall concourse	REQ	ADD1	ADD1	REQ		REQ		ADD2	ADD2
Massage	REQ	ADD1	ADD1	REQ				ADD2	ADD2

a. Where both a common *space* type and a *building* specific *space* type are listed, the *building* specific *space* type shall apply (see Table 9.4.1-1 for common *space* types).
b. Automatic daylight responsive controls are mandatory only if the *space* meets the requirements of the specified sections.
c. A facility for the visually impaired is a facility that can be documented as being designed to comply with the light levels in ANSI/IES RP-28 and is or will be licensed by local/state authorities for senior long-term care, adult daycare, senior support, and/or people with special visual needs.

Table 9.4.1-2 Minimum Control Requirements Using Either Section 9.5.1 Building Area Method or Section 9.5.2 Space-by-Space Method (building-specific spaces) (SI)

Informative Note: This table covers *building*-specific *space* types typically found in a single *building* type. Table 9.4.1-1 covers common *space* types typically found in multiple *building* types.

The control functions below shall be implemented in accordance with the descriptions found within Section 9.4.1.1. For each *space* type:
(1) All REQs shall be implemented.
(2) At least one ADD1 (when present) shall be implemented.
(3) At least one ADD2 (when present) shall be implemented.

Building-Specific Space Types[a]	Local Control 9.4.1.1(a)	Manual ON 9.4.1.1(b)	Partial Auto ON 9.4.1.1(c)	Multilevel Lighting Control 9.4.1.1(d)	Daylight Response Sidelight 9.4.1.1(e)[b]	Daylight Response Toplight 9.4.1.1(f)[b]	Auto Reduction (Full OFF complies) 9.4.1.1(g)	Auto Full OFF 9.4.1.1(h)	Scheduled Shutoff 9.4.1.1(i)
Sports Arena—Playing Area (Class of play as defined by ANSI/IES RP-6)									
Class I facility	REQ	REQ			REQ	REQ			REQ
Class II facility	REQ	REQ			REQ	REQ			REQ
Class III facility	REQ	REQ			REQ	REQ			REQ
Class IV facility	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Natatorium (Class of play as defined by IES RP-6)									
Class I facility	REQ	REQ			REQ	REQ			REQ
Class II facility	REQ	REQ			REQ	REQ			REQ
Class III facility	REQ	REQ			REQ	REQ			REQ
Class IV facility	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Transportation Facility									
Airport hanger	REQ	REQ			REQ	REQ			REQ
Baggage/carousel area					REQ	REQ		ADD2	ADD2
Concourse					REQ	REQ		ADD2	ADD2
Passenger loading area	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Ticket counter	REQ	ADD1	ADD1		REQ	REQ		ADD2	ADD2
Warehouse—Storage Area									
Medium-to-bulky, palletized items	REQ	ADD1	ADD1		REQ	REQ	REQ	ADD2	ADD2
Smaller items, picking areas	REQ	ADD1	ADD1		REQ	REQ	REQ	ADD2	ADD2

a. Where both a common *space* type and a *building* specific *space* type are listed, the *building* specific *space* type shall apply (see Table 9.4.1-1 for common *space* types).
b. Automatic daylight responsive controls are mandatory only if the *space* meets the requirements of the specified sections.
c. A facility for the visually impaired is a facility that can be documented as being designed to comply with the light levels in ANSI/IES RP-28 and is or will be licensed by local/state authorities for senior long-term care, adult daycare, senior support, and/or people with special visual needs.

Table 9.5.2.1-1 Maximum Lighting Power Density Using the Space-by-Space Method (common space types) (I-P)

Informative Note: This table covers common *space* types typically found in multiple *building* types. Table 9.5.2.1-2 covers *building*-specific *space* types typically found in a single *building* type.

Common Space Types[a]	LPD, W/ft^2	RCR
Atrium		
<20 ft in height	0.29	NA
≥20 ft and ≤40 ft in height	0.37	NA
>40 ft in height	0.49	11
Audience Seating Area		
Auditorium	0.56	6
Gymnasium	0.19	6
Motion picture theater	0.20	4
Performing arts theater	0.97	8
Sports arena	0.27	4
All other audience seating areas	0.23	4
Banking Activity Area	0.53	6
Classroom/Lecture Hall/Training Room		
Shop classroom	1.10	6
All other classrooms/lecture halls/training rooms	0.68	4
Computer Room	0.70	4
Conference/Meeting/Multipurpose Rooms	0.83	6
Control/Editing Room or Booth	0.65	6
Copy/Print Room	0.52	6
Corridor	0.43	width <8 ft
Courtroom	0.96	6
Dining Areas		
Bar/lounge or fine dining	0.69	4
Fast-food or cafeteria dining	0.35	4
Casual dining	0.50	4
All other dining areas	0.40	4
Electrical/Mechanical Room	0.67	6
Emergency Vehicle Garage	0.49	4
Equipment Room	0.69	6
Food Preparation Area	0.93	6
Guest Room	0.35	6
Laboratory		
In or as a classroom	1.00	6
All other laboratories	1.18	6
Laundry/Washing Area	0.48	4
Loading Dock, Interior	0.82	6
Lobby		
Elevator	0.56	6
Motion picture theater	0.18	4
Performing arts theater	1.13	6
All other lobbies	0.74	4
Locker Room	0.40	6
Lounge/Breakroom		
Wellness room	0.58	6
All other lounges/breakrooms	0.50	4
Office		
Office ≤150 ft^2	0.69	8
Office >150 and ≤300 ft^2	0.62	8
Offices >300 ft^2	0.52	4
Parking Garage		
Daylight transition zone	0.79	4
All other parking and drive areas	0.08	4
Pharmacy Area	1.49	6
Restroom	0.73	8
Sales Area (For accent lighting, see Section 9.5.2.2[b].)	0.79	6
Seating Area, General	0.19	4
Security Screening		
Airport/bus/ship/train/transportation screening	0.88	6
Airport/bus/ship/train/transportation screening queue	0.53	6
General security screening	0.60	6
Stairway[b]		
Stairwell	0.44	10
Storage Room		
<50 ft^2	0.46	9
≥50 ft^2	0.33	6
Vehicular Maintenance Area	0.56	4
Workshop (including workshop classrooms)	1.10	6

a. Where both a common *space* type and a *building*-specific *space* type are listed, the *building* specific *space* type shall apply (see Table 9.5.2.1-2 for *building*-specific *space* types).
b. The *space* containing the stairway shall determine the *LPD* and control requirements for the stairway.

Table 9.5.2.1-2 Maximum Lighting Power Density Using the Space-by-Space Method (building-specific spaces) (I-P)

Informative Note: This table covers *building*-specific *space* types typically found in a single *building* type. Table 9.5.2.1-1 covers common *space* types typically found in multiple *building* types.

Building-Specific Space Types[a]	LPD, W/ft^2	RCR
Casino—Gaming Area		
Betting/sportsbook/keno/bingo area	0.79	5
High-limit game area	1.62	4
Slot machine/digital gaming area	0.53	5
Table games area	1.06	5
Convention Center—Exhibit Space	0.46	4
Correctional Facilities		
Audience seating area	0.53	4
Classroom/lecture hall/training room	0.71	4
Confinement cells	0.59	6
Dining area	0.33	6
Dormitory—Living Quarters	0.43	8
Facility for the Visually Impaired		
Chapel (used primarily by residents)	0.62	4
Corridor (used primarily by residents)	0.60	width <8 ft
Dining (used primarily by residents)	1.08	4
Lobby	1.27	4
Recreation room/common living room (used primarily by residents)	1.06	6
Restroom (used primarily by residents)	0.90	8
Fire Station—Sleeping Quarters	0.19	6
Gymnasium/Fitness Center		
Exercise area	0.78	4
Playing area	0.78	4
Health Care Facility		
Control room (MRI/CT/radiology/PET)	0.73	8
Exam/treatment room	1.26	8
Hospital corridor	0.60	width <8 ft
Imaging room	0.88	6
Lounge	0.75	6
Medical supply room	0.52	6
Nursery	0.84	6
Nurse's station	0.93	6
Operating room	1.99	6
Patient room	0.73	6
Physical therapy room	0.86	6
Recovery room	1.13	6
Telemedicine	1.11	8
Library		
Reading area	0.80	4
Stacks	1.15	4
Manufacturing Facility		
Detailed manufacturing area	0.71	4
Extra-high bay area (>50 ft *floor*-to-ceiling height)	1.27	8
High bay area (25 to 50 ft *floor*-to-ceiling height)	1.15	6
Low bay area (<25 ft *floor*-to-ceiling height)	0.81	3
Museum		
General exhibition area	0.27	6
Restoration area	1.17	4
Performing Arts Theater—Dressing Room	0.37	6
Post Office—Sorting Area	0.67	4
Religious Facility		
Audience seating area	0.61	4
Fellowship hall	0.44	4
Worship/pulpit/choir area	0.64	4
Retail Facilities		
Dressing/fitting room	0.42	8
Hair care	0.61	6
Mall concourse	0.51	4
Massage	0.71	8
Nail care	0.72	6
Sports Arena[c]		
Class I facility	2.65	4
Class II facility	1.87	4
Class III facility	1.21	4
Class IV facility	0.81	4
Natatorium[c]		
Class I facility	2.09	4
Class II facility	1.39	4
Class III facility	0.93	4
Class IV facility	0.56	4
Transportation Facility		
Airport hanger	1.27	4
Baggage/carousel area	0.29	4
Concourse	0.46	4
Passenger loading area	0.71	6
Ticket counter	0.37	4
Warehouse—Storage Area		
Medium-to-bulky, palletized items	0.41	4
Smaller items, picking areas	0.83	6

a. Where both a common *space* type and a *building* specific *space* type are listed, the *building* specific *space* type shall apply (see Table 9.5.2.1-1 for common *space* types).
b. *Automatic* daylight responsive controls are mandatory only if the *space* meets the requirements of the specified sections.
c. Class of play as defined by ANSI/IES RP-6.

Table 9.5.2.1-1 Space-by-Space Lighting Power Density Allowances and Minimum Control Requirements Using Either Method (SI)

Informative Note: This table covers common *space* types typically found in multiple *building* types. Table 9.5.2.1-2 covers *building*-specific *space* types typically found in a single *building* type.

Common Space Types[a]	LPD, W/m^2	RCR
Atrium		
<6.1 m in height	3.1	NA
≥6.1 m and ≤12.2 m in height	4.0	NA
>12.2 m in height	5.3	11
Audience Seating Area		
Auditorium	6.0	6
Gymnasium	2.0	6
Motion picture theater	2.2	4
Performing arts theater	10.4	8
Sports arena	2.9	4
All other audience seating areas	2.5	4
Banking Activity Area	5.7	6
Classroom/Lecture Hall/Training Room		
Shop classroom	11.8	6
All other classrooms/lecture halls/training rooms	7.3	4
Computer Room	7.5	4
Conference/Meeting/Multipurpose Rooms	8.9	6
Control/Editing Room or Booth	7.0	6
Copy/Print Room	5.6	6
Corridor	4.6	width <2.4 m
Courtroom	10.3	6
Dining Areas		
Bar/lounge or fine dining	7.4	4
Fast-food or cafeteria dining	3.8	4
Casual dining	5.4	4
All other dining areas	4.3	4
Electrical/Mechanical Room	7.2	6
Emergency Vehicle Garage	5.3	4
Equipment Room	0.69	6
Food Preparation Area	10.0	6
Guest Room	3.8	6
Laboratory		
In or as a classroom	10.8	6
All other laboratories	12.7	6
Laundry/Washing Area	5.2	4
Loading Dock, Interior	8.8	6
Lobby		
Elevator	6.0	6
Motion picture theater	1.9	4
Performing arts theater	12.2	6
All other lobbies	8.0	4
Locker Room	4.3	6
Lounge/Breakroom		
Wellness room	6.2	6
All other lounges/breakrooms	5.4	4
Office		
Office ≤13.9 m^2	7.4	8
Office >13.9 and ≤27.9 m^2	6.7	8
Offices >27.9 m^2	5.6	4
Parking Garage		
Daylight transition zone	8.5	4
All other parking and drive areas	0.9	4
Pharmacy Area	16.0	6
Restroom	7.9	8
Sales Area (For accent lighting, see Section 9.5.2.2[b].)	8.5	6
Seating Area, General	2.0	4
Security Screening		
Airport/bus/ship/train/transportation screening	9.5	6
Airport/bus/ship/train/transportation screening queue	5.7	6
General security screening	6.5	6
Stairway[b]		
Stairwell	4.7	10
Storage Room		
<4.6 m^2	4.9	9
≥4.6 m^2	3.6	6
Vehicular Maintenance Area	6.0	4
Workshop (including workshop classrooms)	11.8	6

a. Where both a common *space* type and a *building*-specific *space* type are listed, the *building* specific *space* type shall apply (see Table 9.5.2.1-2 for *building*-specific *space* types).
b. The *space* containing the stairway shall determine the *LPD* and control requirements for the stairway.

Table 9.5.2.1-2 Space-by-Space Lighting Power Density Allowances and Minimum Control Requirements Using Either Method (SI)

Informative Note: This table covers *building*-specific *space* types typically found in a single *building* type. Table 9.5.2.1-1 covers common *space* types typically found in multiple *building* types.

Building-Specific Space Types[a]	LPD, W/m²	RCR
Casino—Gaming Area		
Betting/sportsbook/keno/bingo area	8.6	5
High-limit game area	17.4	4
Slot machine/digital gaming area	5.7	5
Table games area	7.6	5
Convention Center—Exhibit Space	5.0	4
Correctional Facilities		
Audience seating area	5.7	4
Classroom/lecture hall/training room	7.6	4
Confinement cells	6.3	6
Dining area	3.6	6
Dormitory—Living Quarters	4.7	8
Facility for the Visually Impaired		
Chapel (used primarily by residents)	6.7	4
Corridor (used primarily by residents)	6.4	width <2.4 m
Dining (used primarily by residents)	11.6	4
Lobby	13.7	4
Recreation room/common living room (used primarily by residents)	11.5	6
Restroom (used primarily by residents)	9.7	8
Fire Station—Sleeping Quarters	2.1	6
Gymnasium/Fitness Center		
Exercise area	8.4	4
Playing area	8.4	4
Health Care Facility		
Control room (MRI/CT/radiology/PET)	7.8	10
Exam/treatment room	13.5	8
Hospital corridor	6.4	width <2.4 m
Imaging room	9.5	6
Lounge	8.1	6
Medical supply room	5.6	6
Nursery	9.1	6
Nurse's station	10.0	6
Operating room	21.4	6
Patient room	7.8	6
Physical therapy room	8.8	6
Recovery room	12.1	6
Telemedicine	12.0	8
Library		
Reading area	8.6	4
Stacks	12.4	4
Manufacturing Facility		
Detailed manufacturing area	7.7	4
Extra-high bay area (>15.2 m *floor*-to-ceiling height)	13.7	8
High bay area (7.6 to 15.2 m *floor*-to-ceiling height)	12.4	6
Low bay area (<7.6 m *floor*-to-ceiling height)	8.7	3
Museum		
General exhibition area	2.9	6
Restoration area	12.6	4
Performing Arts Theater—Dressing Room	4.0	6
Post Office—Sorting Area	7.2	4
Religious Facility		
Audience seating area	6.5	4
Fellowship hall	4.7	4
Worship/pulpit/choir area	6.9	4
Retail Facilities		
Dressing/fitting room	4.5	8
Hair care	6.6	6
Mall concourse	5.5	4
Massage	7.6	8
Nail care	7.7	6
Sports Arena—Playing Area[c]		
Class I facility	28.5	4
Class II facility	20.1	4
Class III facility	13.1	4
Class IV facility	8.7	4
Natatorium[c]		
Class I facility	22.5	4
Class II facility	15.0	4
Class III facility	10.0	4
Class IV facility	6.0	4
Transportation Facility		
Airport hanger	13.7	4
Baggage/carousel area	3.1	4
Concourse	4.9	4
Passenger loading area	7.7	6
Ticket counter	3.9	4
Warehouse—Storage Area		
Medium-to-bulky, palletized items	4.4	4
Smaller items, picking areas	8.9	6

a. Where both a common *space* type and a *building* specific *space* type are listed, the *building* specific *space* type shall apply (see Table 9.5.2.1-1 for common *space* types).
b. Automatic daylight responsive controls are mandatory only if the *space* meets the requirements of the specified sections.
c. Class of play as defined by ANSI/IES RP-6.

Modify Table 9.5.2.2 as shown (I-P and SI).

Table 9.5.2.2 Additional Lighting Power (I-P)

Section	Description	Additional Lighting Power	Required Controls
9.5.2.2(a)	Decorative	0.70 W/ft^2	Section 9.4.1.1(j)
9.5.2.2(b)	Retail sales	750 W + (Retail Area 1 × 0.40 W/ft^2) + (Retail Area 2 × 0.40 W/ft^2) + (Retail Area 3 × 0.70 W/ft^2) + (Retail Area 4 × 1.00 W/ft^2)	Section 9.4.1.1(j)
9.5.2.2(c)	Video conferencing	0.50 W/ft^2	See Tables ~~9.5.2.1-1~~ 9.4.1-1 and ~~9.5.2.1-2~~ 9.4.1-1 space types for required controls.

Notes:
Retail Area 1 = the *floor* area for all products not listed in Retail Areas 2, 3, or 4
Retail Area 2 = the *floor* area used for the sale of vehicles, sporting goods, and small electronics
Retail Area 3 = the *floor* area used for the sale of furniture, clothing, cosmetics, and artwork
Retail Area 4 = the *floor* area used for the sale of jewelry, crystal, and china

Table 9.5.2.2 Additional Lighting Power (SI)

Section	Description	Additional Lighting Power	Required Controls
9.5.2.2(a)	Decorative	7.53 W/m^2	Section 9.4.1.1(j)
9.5.2.2(b)	Retail sales	750 W + (Retail Area 1 × 4.30 W/ m^2) + (Retail Area 2 × 4.30 W/m^2) + (Retail Area 3 × 7.53 W/m^2) + (Retail Area 4 × 10.76 W/m^2)	Section 9.4.1.1(j)
9.5.2.2(c)	Video conferencing	5.38 W/m^2	See Tables ~~9.5.2.1-1~~ 9.4.1-1 and ~~9.5.2.1-2~~ 9.4.1-1 space types for required controls.

Notes:
Retail Area 1 = the *floor* area for all products not listed in Retail Areas 2, 3, or 4
Retail Area 2 = the *floor* area used for the sale of vehicles, sporting goods, and small electronics
Retail Area 3 = the *floor* area used for the sale of furniture, clothing, cosmetics, and artwork
Retail Area 4 = the *floor* area used for the sale of jewelry, crystal, and china

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 · 180 Technology Parkway · Peachtree Corners, GA 30092 · www.ashrae.org

About ASHRAE

Founded in 1894, ASHRAE is a global professional society committed to serve humanity by advancing the arts and sciences of heating, ventilation, air conditioning, refrigeration, and their allied fields.

As an industry leader in research, standards writing, publishing, certification, and continuing education, ASHRAE and its members are dedicated to promoting a healthy and sustainable built environment for all, through strategic partnerships with organizations in the HVAC&R community and across related industries.

To stay current with this and other ASHRAE Standards and Guidelines, visit www.ashrae.org/standards, and connect on LinkedIn, Facebook, Twitter, and YouTube.

Visit the ASHRAE Bookstore

ASHRAE offers its Standards and Guidelines in print, as immediately downloadable PDFs, and via ASHRAE Digital Collections, which provides online access with automatic updates as well as historical versions of publications. Selected Standards and Guidelines are also offered in redline versions that indicate the changes made between the active Standard or Guideline and its previous edition. For more information, visit the Standards and Guidelines section of the ASHRAE Bookstore at www.ashrae.org/bookstore.

IMPORTANT NOTICES ABOUT THIS STANDARD

To ensure that you have all of the approved addenda, errata, and interpretations for this Standard, visit www.ashrae.org/standards to download them free of charge.

Addenda, errata, and interpretations for ASHRAE Standards and Guidelines are no longer distributed with copies of the Standards and Guidelines. ASHRAE provides these addenda, errata, and interpretations only in electronic form to promote more sustainable use of resources.

7/24