



**BSR/ASHRAE/IES Addendum bd  
to ANSI/ASHRAE/IES Standard 90.1-2022**

**Public Review Draft**

# **Proposed Addendum bd to Standard 90.1-2022, Energy Standard for Sites and Buildings Except Low- Rise Residential Buildings**

**First Public Review (December 2024)  
(Draft Shows Proposed Changes to Current Standard)**

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## FOREWORD

*This addendum revises the interior lighting control requirements in various sections, mainly section 9.4.1.1 and Table 9.4.1.1-1 and 9.4.1.1-2 with the following:*

- *Various editorial changes and revisions to correct errors, such as aligning the table with section 9.4.1.1 specific to indoor lighting controls requirements.*
- *Change in nomenclature to "occupancy sensor reduction control" and "occupancy sensor shutoff control" in 9.4.1.1(g) and 9.4.1.1(h) to be more specific about application of controls which accomplish the action and to be more consistent in the standard with the use of "occupancy sensor" as a defined term.*
- *Changes to various control requirements in Table 9.4.1-1 and 9.4.1-2 to match typical design and application use, such as eliminating local controls and multilevel controls in spaces due to safety or where use is not common.*
- *The addition of Auto Reduction Control in added to space types to increase energy efficiency by reducing lighting energy use and reducing ventilation where ventilation rates are permitted to go to zero in occupied standby mode.*
- *A new lighting control methodology for some health care facility spaces where lighting can be reduced during night hours to coincide with human lighting adaptation.*
- *Control of lighting in office areas larger than 300 square feet (open offices) to be more clearly described in its own section.*
- *Change of the occupancy sensor time delay from 20 minutes to 15 minutes in base prescriptive requirements utilizing occupancy sensor technologies to regulate lighting. This provides an additional 2-5% lighting energy savings for spaces required to use occupancy sensor control without any additional costs.*
- *Various changes to resolve efficiency loopholes and inconsistencies with design practice and lighting control common use.*

*The proposed measures prove to be cost effective utilizing the scaler ratio method for the life of the measures utilizing both electricity cost without consideration of carbon and considering the social cost of carbon.*

***[Note to Reviewers: This addendum makes proposed changes to the current standard. These changes are indicated in the text by underlining (for additions) and ~~striketrough~~ (for deletions) except where the reviewer instructions specifically describe some other means of showing the changes. Only these changes to the current standard 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 changes.]***

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## Addendum bd to 90.1-2022

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[...]

**6.5.3.9 Occupied-Standby Zone Controls.** Zones serving only rooms that are required to ~~have automatic partial OFF or automatic full OFF lighting controls per meet~~ Section 9.4.1.1(g) or (h), where the ASHRAE Standard 62.1 occupancy category permits *ventilation* air to be reduced to zero when the *space* is in *occupied-standby* mode and when using the Ventilation Rate Procedure, shall meet the following within five minutes of all rooms in that zone entering *occupied-standby mode*.

[...]

**9.1.1.3.1 Lighting Alterations for Interior Building Spaces.** The *alteration* of a *lighting system* in an interior *space* shall meet one of the following requirements:

- a. The *alteration* shall comply with Section 9.2 when the total wattage of all new and retrofitted *luminaires* is greater than 2000 W.
- b. When the total wattage of all new and retrofitted *luminaires* is 2000 W or less, each altered *space* shall comply with the *LPA* determined by the *LPD* values in Tables 9.5.2.1-1 and 9.5.2.1-2 and Section 9.5.2.2, or the *alteration* shall result in a new wattage at least 50% below the original wattage of each altered *lighting system*. Additionally, the new and retrofitted lighting shall comply with the control requirements of Sections 9.4.1.1(a), 9.4.1.1(h), 9.4.1.1(i), 9.4.1.2, and 9.4.1.3 as applicable to each altered *space* as shown in Tables 9.5.2.1-1 and 9.5.2.1-2 and Sections 9.4.1.4, and 9.5.2.2.

**9.1.1.3.2 Lighting Alterations for Exterior Building Areas.** The *alteration* of a *lighting system* for an exterior area shall use only the area-specific *LPD* values in Table 9.5.3-2 and shall not use the base *site* allowances to determine the *LPA*. Additionally, the exterior *alteration* shall meet one of the following:

- a. The *alteration* shall comply with Section 9.2 when the total number of new and retrofitted *luminaires* is greater than 10 or where the combined length of new and retrofitted linear *luminaires* is greater than 20 linear feet.
- b. Where the total number of new and retrofitted *luminaires* is not greater than 10, or where the combined length of new and retrofitted linear *luminaires* is not greater than 20 linear feet of linear *luminaires*, the total wattage of the *alteration* shall be no greater than the *LPA* determined by multiplying the area by the *LPD* values in Table 9.5.3-2, or the total new wattage shall be at least 50% below the total original wattage of that *lighting system*. Additionally, the new and retrofitted lighting shall comply with the control requirements of Section 9.4.1.45(ab).

[...]

**Table 9.2.2-2 Exceptions to Exterior Lighting Power and Minimum Control Zones**

| Item # | Equipment/Application   | Controlled Separately from General Lighting | Required Controls         |
|--------|---|---|---------------------------|
| 1      | Specialized signal, directional, and marker lighting associated with transportation   | Yes   | 9.4.1.45(a)               |
| 2      | Lighting integral to <i>equipment</i> or instrumentation and installed by its <i>manufacturer</i>   | Yes   | 9.4.1.45 (a)              |
| 3      | Temporary lighting  | Yes   | 9.4.1.45 (a)              |
| 4      | Searchlights  | Yes   | 9.4.1.45 (a)              |
| 5      | Lighting for hazardous locations  | Yes   | 9.4.1.45 (a)              |
| 6      | Lighting integral to public art <sup>a</sup>  | Yes   | 9.4.1.45 (a)              |
| 7      | Lighting used to highlight features of public monuments, public art <sup>a</sup> displays, and registered <i>historic landmark structure or buildings</i> . | Yes   | 9.4.1.45 b)               |
| 8      | Lighting for theatrical purposes, including performance, stage, film production, and video production   | Yes   | 9.4.1.45 (a)              |
| 9      | Lighting for athletic playing areas for colleges and professional sports venues   | Yes   | 9.4.1.45 (a)              |
| 10     | Lighting for athletic playing areas   | Yes   | 9.4.1.45 (a), (b), or (c) |
| 11     | Lighting for swimming <i>pools</i>  | Yes   | 9.4.1.45 (a)              |
| 12     | Lighting for water features   | Yes   | 9.4.1.45 (b) or (c)       |
| 13     | Theme elements in theme/amusement parks   | Yes   | 9.4.1.45 c)               |
| 14     | Lighting that is integral to signage and installed in the signage by the <i>manufacturer</i>  | Yes   | 9.4.1.45 (d)              |
| 15     | Lighting for industrial production, material handling, transportation sites, and associated storage areas   | Yes   | 9.4.1.45 (b), (d), or (e) |

a. **Informative Note:** “Public art” means art funded either with public or private funds but intended and accessible for the general public.

[...]

**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,~~ and 9.4.1.5.

**9.4.1.1 Interior Lighting Controls.** For each *space* in the *building*, all of the lighting control functions indicated in Tables 9.4.1.1-1 and 9.4.1.1-2, 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.

[...]

**9.4.1.1 Interior Lighting Controls.**

c. Restricted to partial automatic ON: No more than 50% of the lighting power for the general lighting shall be allowed to be automatically turned on, and none of the remaining lighting shall be automatically turned on.

~~Offices greater than 300 ft<sup>2</sup>, shall have the following requirements:~~

- ~~1. Control zones for general lighting shall be limited to 600 ft<sup>2</sup>.~~
- ~~2. Control zones for general lighting shall be permitted to automatically turn on, up to full power upon occupancy.~~
- ~~3. General lighting in other unoccupied control zones shall be permitted to automatically turn on to no more than 20% of full power.~~

[...]

#### **9.4.1.1 Interior Lighting Controls.**

- g. ~~Occupancy sensor~~~~Automatic~~ reduction control (~~occupancy sensor shutoff~~ ~~full OFF~~ complies): The *general lighting* power in the *space* shall be *automatically* reduced by at least 50% within ~~1520~~ minutes of all occupants leaving the *space*.

~~In offices greater than 300 ft<sup>2</sup>, control zones for general lighting shall~~

- ~~1. be limited to 600 ft<sup>2</sup> and~~
- ~~2. automatically reduce general lighting by at least 80% of full power within 20 minutes of all occupants leaving a control zone.~~

#### **Exceptions to 9.4.1.1 (g):**

1. In healthcare facilities spaces adjacent to patient care areas *general lighting* power shall be *automatically* reduced by at least 40% of full power during periods of night operation using an *automatic* time-of-day operated *control device* at specific programmed times.
2. In transportation facility baggage/carousel areas and concourses with ceiling heights greater than 15 feet (4.6 m), *general lighting* power shall be *automatically* reduced by at least 50% of full power using either *occupancy sensor control* or an *automatic* time-of-day operated *control device* at specific programmed times of space inactivity.

[...]

#### **9.4.1.1 Interior Lighting Controls.**

- h. ~~Occupancy sensor~~~~Automatic~~ ~~full OFF~~ shutoff control: All lighting in the *space*, including lighting connected to emergency circuits, shall be *automatically* shut off within ~~1520~~ minutes of all occupants leaving the *space*. ~~An *occupancy sensor control device* meeting this requirement shall control no more than 5000 ft<sup>2</sup>.~~

**Exceptions to 9.4.1.1(h):** The following lighting is not required to be *automatically* shut off:

1. Lighting required for 24/7 continuous operation.
2. Lighting in *spaces* where patient care is rendered.
3. *General lighting* and *task lighting* in *spaces* where *automatic* shut off would endanger the safety or security of the room or *building* occupants.

Lighting load not exceeding 0.02 W/ft<sup>2</sup> multiplied by the *gross lighted floor area* of the *building*

[...]

**[Add new large office controls requirements in section 9.4.1.2]**

**9.4.1.2 Lighting Controls in Large Office Spaces.** *General lighting* in office *spaces* greater than 300 ft<sup>2</sup> (28 m<sup>2</sup>) shall have lighting controls that comply with all of the following:

- a. Local controls shall be *manual* and shall provide ON and OFF *control* of all lighting in an area (1) no larger than 2500 ft<sup>2</sup> (230 m<sup>2</sup>) if the *space* is no greater than 10,000 ft<sup>2</sup> (930 m<sup>2</sup>) and (2) no larger than 10,000 ft<sup>2</sup> (930 m<sup>2</sup>) otherwise. The *control device* installed to comply with this provision shall be *readily accessible* and located so that the occupants can see the controlled lighting when using the *control device*. The local *control devices* shall reduce lighting power with *continuous dimming* to 10% or less of full lighting power in addition to full ON and full OFF.

**Exception to 9.4.1.2(a):** Remote location of this local *control device* or devices shall be permitted for reasons of safety or security when each remote *control device* has an indicator pilot light as part of or next to the *control device* and the *control device* is clearly *labeled* to identify the controlled lighting.

- b. The *occupancy sensor* controls shall be configured so that *general lighting* is controlled separately in control zones with floor areas on average no greater than 600 ft<sup>2</sup> (56 m<sup>2</sup>) and no single zone greater than 900 ft<sup>2</sup> (84 m<sup>2</sup>).
- c. Within 15 minutes of a control zone being unoccupied, the *occupancy sensor* controls shall turn off or uniformly reduce lighting power in the zone to no more than 20% of full power.
- d. Within 15 minutes of the entire office *space* being unoccupied, the *occupancy sensor* controls shall automatically turn off *general lighting* in all control zones in the *space*.

**Exceptions to 9.4.1.2(d):** The following lighting is not required to be *automatically* shut off:

1. Lighting required for 24/7 continuous operation.
  2. Lighting in *spaces* where *automatic* shutoff would endanger the safety or security of the room or *building* occupants.
  3. Lighting load not exceeding 0.02 W/ft<sup>2</sup> multiplied by the *gross lighted floor area* of the *building*.
- e. *General lighting* in each control zone shall be allowed to *automatically* turn on to full power upon occupancy within the control zone. When occupancy is detected in any control zone in the *space*, the *general lighting* in other control zones that are unoccupied shall operate at no more than 20% of full power.
  - f. *General lighting* completely or partially within *daylight areas under skylights* and *daylight areas under roof monitors* shall be controlled by automatic daylight responsive controls for toplighting in accordance with Section 9.4.1.1(f). *General lighting* in *primary sidelighted areas* and *secondary sidelighted areas* shall be controlled by automatic daylight responsive controls for sidelighting in accordance with Section 9.4.1.1(e).

[...]

#### 9.4.1.23 Parking Garage Lighting Control.

[...]

#### Exceptions to 9.4.1.23(d):

[...]

**9.4.1.34 Special Applications.** Lighting controls noted in this section are the only required controls for this *equipment* and these applications. Lighting exempt from interior lighting power shall be controlled in accordance with Table 9.2.2.1. Lighting using additional interior lighting power applications shall be controlled in accordance with Section 9.5.2.2.

- a. Lighting used for the following applications shall be equipped with a local control independent of the control of the *general lighting* in accordance with Section 9.4.1.1(a). In addition, such lighting shall be controlled in accordance with Section 9.4.1.1(h) or Section 9.4.1.1(i).
  1. Display or accent lighting
  2. Lighting in display cases
- b. Guestrooms
  1. All lighting and switched receptacles in guestrooms and suites in hotels, motels, boarding houses, or similar *buildings* shall be *automatically* controlled such that the power to the lighting and switched receptacles in each *enclosed space* will be turned off within ~~1520~~ minutes after all occupants leave that *space*. Card key controls shall not be used to comply with this provision.
  2. Bathrooms shall have a separate *control device* installed to *automatically* turn off the bathroom lighting within 30 minutes after all occupants have left the bathroom.

**Exception to 9.4.1.34(b)(2):** Night lighting of up to 5 W per bathroom is exempt.

[...]

### 9.4.1.45 Exterior Lighting Control.

[...]

[EDITORIAL NOTE: Table 9.4.2.-2 shown here because this addendum creates a section that requires new numbering of 9.4.1.5. This table reflects this new section number. No other changes to the table are considered in this addendum]

**Table 9.4.2-2 Individual Lighting Power Allowances for Building Exterior Applications**

|       |  |  |  |  |  |  | Section<br>9.4.1.45<br>Required<br>Controls |
|-------|--|--|--|--|--|--|---|
| [...] |  |  |  |  |  |  |   |

**Table 9.4.2-2 Individual Lighting Power Allowances for Building Exteriors Applications (Continued)**

|       |  |  |  |  |  |  | Section<br>9.4.1.45<br>Required<br>Controls |
|-------|--|--|--|--|--|--|---|
| [...] |  |  |  |  |  |  |   |

### 9.4.3 Dwelling Units.

**9.4.3.2 Interior Lighting Controls.** Fifty percent (50%) of permanently installed interior luminaires shall be controlled with dimmers or shall automatically be shut off within ~~1520~~ minutes of all occupants leaving a space.

[...]

**Table 9.4.1.1-1 Minimum Interior Lighting Control Requirements for Common Space Types Using Either 9.5.1 Building Area Method or 9.5.2 Space-by-Space Method ~~(Common spaces)~~**

*Informative Note:* This table covers common *space* types typically found in multiple *building* types. Table 9.4.1.1-2 covers *building*-specific *space* types typically found in a single *building* type.

| Common Space Types <sup>a</sup>         | Local Control | Manual ON  | Partial Auto ON | Multilevel Lighting Control | Daylight Response Sidelight | Daylight Response Toplight | <del>Occupancy Sensor</del> <del>Auto Reduction (Full shutoff complies)</del> | <del>Occupancy Sensor</del> <del>Shutoff Auto Full-Off</del> | 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) <sup>b</sup>     | 9.4.1.1(f) <sup>b</sup>    | 9.4.1.1(g)  | 9.4.1.1(h)   | 9.4.1.1(i)        |
| <b>Atrium</b>                           |               |            |                 |                             |                             |                            |   |  |                   |
| <20 ft in height                        | REQ           | ADD1       | ADD1            |                             | REQ                         | 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              |
| [...]                                   |               |            |                 |                             |                             |                            |   |  |                   |
| <b><u>Computer Room/Data Center</u></b> | REQ           | ADD1       | ADD1            | REQ                         | REQ                         | REQ                        |   | ADD2   | ADD2              |
| <b><u>IT Equipment Room</u></b>         |               |            |                 |                             |                             |                            |   | REQ  |                   |
| [...]                                   |               |            |                 |                             |                             |                            |   |  |                   |
| <b>Corridor</b>                         | REQ           |            |                 |                             | 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 9.4.1.1-2 for *building*-specific *space* types).  
 b. *Automatic* daylight responsive controls are mandatory only if the *space* meets the requirements of the specified sections.



**Table 9.4.1.1-1 Minimum Interior Lighting Control Requirements for Common Space Types** Using Either 9.5.1 Building Area Method or 9.5.2 Space-by-Space Method ~~(common spaces)~~ (Continued)

*Informative Note:* This table covers common *space* types typically found in multiple *building* types. Table 9.4.1.1-2 covers *building*-specific *space* types typically found in a single *building* type.

| Common Space Types <sup>a</sup>      | Local Control            | Manual ON       | Partial Auto ON | Multilevel Lighting Control | Daylight Response Sidelight | Daylight Response Toplight | Occupancy Sensor <del>Auto</del> Reduction (Full shutoff <del>OFF</del> complies) | Occupancy Sensor <del>Auto</del> Shutoff <del>Auto</del> Full <del>OFF</del> | 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) <sup>b</sup>     | 9.4.1.1(f) <sup>b</sup>    | 9.4.1.1(g)  | 9.4.1.1(h)   | 9.4.1.1(i)        |
| <b>Guestroom</b>                     | See Section 9.4.1.34(b). |                 |                 |                             |                             |                            |   |  |                   |
| [...]                                |                          |                 |                 |                             |                             |                            |   |  |                   |
| <b>Laundry / Washing Area</b>        | REQ                      | ADD1            | ADD1            | <del>REQ</del>              | REQ                         | REQ                        |   | REQ  |                   |
| [...]                                |                          |                 |                 |                             |                             |                            |   |  |                   |
| <b>Locker Room</b>                   | <del>REQ</del>           | <del>ADD1</del> | <del>ADD1</del> | <del>REQ</del>              | REQ                         | REQ                        |   | REQ  |                   |
| [...]                                |                          |                 |                 |                             |                             |                            |   |  |                   |
| <b>Office</b>                        |                          |                 |                 |                             |                             |                            |   |  |                   |
| Office ≤150 ft <sup>2</sup>          | REQ                      | ADD1            | ADD1            | REQ                         |                             |                            |   | REQ  |                   |
| Office >150 and ≤300 ft <sup>2</sup> | REQ                      | ADD1            | ADD1            | REQ                         |                             |                            |   | REQ  |                   |
| Offices >300 ft <sup>2</sup>         | <del>REQ</del>           | <del>ADD1</del> | <del>ADD1</del> | <del>REQ</del>              | <del>REQ</del>              | <del>REQ</del>             | <del>REQ</del>  | <del>REQ</del>   |                   |
|                                      | See Section 9.4.1.2.     |                 |                 |                             |                             |                            |   |  |                   |
| <b>Parking Garage</b>                |                          |                 |                 |                             |                             |                            |   |  |                   |
| Daylight transition zone             | See Section 9.4.1.23.    |                 |                 |                             |                             |                            |   |  |                   |
| All other parking and drive areas    | See Section 9.4.1.23.    |                 |                 |                             |                             |                            |   |  |                   |
| <b>Pharmacy Area</b>                 | REQ                      | ADD1            | ADD1            | <del>REQ</del>              |                             |                            |   | 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 9.4.1.1-2 for *building*-specific *space* types).

b. Automatic daylight responsive controls are mandatory only if the *space* meets the requirements of the specified sections.

[...]

**Table 9.4.1.1-1 Minimum Interior Lighting Control Requirements for Common Space Types** Using Either 9.5.1 Building Area Method or 9.5.2 Space-by-Space Method ~~(common spaces)~~ (Continued)

*Informative Note:* This table covers common *space* types typically found in multiple *building* types. Table 9.4.1.1-2 covers *building*-specific *space* types typically found in a single *building* type.

| Common Space Types <sup>a</sup> | Local Control | Manual ON  | Partial Auto ON | Multilevel Lighting Control | Daylight Response Sidelight | Daylight Response Toplight | <del>Occupancy Sensor Auto Reduction (Full shutoff complies)</del> | <del>Occupancy Sensor Shutoff Auto Full-Off</del> | 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) <sup>b</sup>     | 9.4.1.1(f) <sup>b</sup>    | 9.4.1.1(g)   | 9.4.1.1(h)  | 9.4.1.1(i)        |
| <b>Security Screening Area</b>  |               |            |                 |                             |                             |                            |  |   |                   |
| [...]                           |               |            |                 |                             |                             |                            |  |   |                   |
| <b>Storage Room</b>             |               |            |                 |                             |                             |                            |  |   |                   |
| <50 ft <sup>2</sup>             | REQ           | REQ        |                 |                             |                             |                            |  | REQ   |                   |
| ≥50 ft <sup>2</sup>             | REQ           | 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 9.4.1.1-2 for *building*-specific *space* types).

b. *Automatic* daylight responsive controls are mandatory only if the *space* meets the requirements of the specified sections.

**Table 9.4.1.1-2 Minimum Interior Lighting Control Requirements for Building-Specific Space Types Using Either 9.5.1 Building Area Method or 9.5.2 Space-by-Space Method (building-specific spaces)**

*Informative* This table covers *building-specific space* types typically found in a single *building* type. Table 9.4.1.1-1 covers common *space* types typically found in multiple *building* types.

| Building-Specific Space Types <sup>a</sup> | Local Control<br>9.4.1.1(a) | Manual ON<br>9.4.1.1(b) | Partial Auto ON<br>9.4.1.1(c) | Multilevel Lighting Control<br>9.4.1.1(d) | Daylight Response Sidelight<br>9.4.1.1(e) <sup>b</sup> | Daylight Response Toplight<br>9.4.1.1(f) <sup>b</sup> | Occupancy Sensor Auto Reduction<br>(Full shutoff complies)<br>9.4.1.1(g) | Occupancy Sensor Shutoff Auto Full Off<br>9.4.1.1(h) | Scheduled Shutoff<br>9.4.1.1(i) |
|--|-----------------------------|-------------------------|-------------------------------|---|--|---|--|--|---------------------------------|
|  |                             |                         |                               |   |  |   |  |  |                                 |

[...]

**Facility for the Visually Impaired**

(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.)

[...]

Restroom

REQ

REQ

REQ

(used primarily by residents)

[...]

a. Where both a common *space* type and a *building-specific space* type are listed, the *building specific space* type shall apply (see Table 9.4.1.1-1 for common *space* types).

b. *Automatic* daylight responsive controls are mandatory only if the *space* meets the requirements of the specified sections.

**Table 9.4.1.1-2 Minimum Interior Lighting Control Requirements for Building-Specific Space Types Using Either 9.5.1 Building Area Method or 9.5.2 Space-by-Space Method (building-specific spaces) (Continued)**

*Informative Note:* This table covers *building-specific space* types typically found in a single *building* type. Table 9.4.1.1-1 covers common *space* types typically found in multiple *building* types.

| Building-Specific Space Types <sup>a</sup>     | Local Control<br>9.4.1.1(a) | Manual ON<br>9.4.1.1(b) | Partial Auto ON<br>9.4.1.1(c) | Multilevel Lighting Control<br>9.4.1.1(d) | Daylight Response Sidelight <sup>b</sup><br>9.4.1.1(e) | Daylight Response Toplight <sup>b</sup><br>9.4.1.1(f) | Occupancy Sensor <del>Auto</del> Reduction (Full shutoff <del>or</del> complies)<br>9.4.1.1(g) | Occupancy Sensor Shutoff <del>Auto</del> Full-Off<br>9.4.1.1(h) | Scheduled Shutoff<br>9.4.1.1(i) |
|--|-----------------------------|-------------------------|-------------------------------|---|--|---|--|---|---------------------------------|
| <b>Health Care Facility</b>                    |                             |                         |                               |   |  |   |  |   |                                 |
| Control room (MRI/CT/radiology/PET)            | REQ                         | REQ                     |                               | REQ                                       |  |   |  | REQ   |                                 |
| Exam/treatment room                            | REQ                         |                         |                               | REQ                                       | REQ  | REQ   |  | ADD2  | ADD2                            |
| <del>Hospital</del> Corridor - public or staff | <del>REQ</del>              |                         |                               |   | REQ  | REQ   | <del>ADD2</del>  | ADD2  | ADD2                            |
| Corridor – adjacent to patient care spaces     |                             |                         |                               |   | REQ  | REQ   | REQ <sup>c</sup>   | 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   | REQ <sup>c</sup>   | ADD2  | ADD2                            |
| Nurse’s station                                | REQ                         |                         |                               | REQ                                       | REQ  | REQ   | REQ <sup>c</sup>   | ADD2  | ADD2                            |
| Operating room                                 | REQ                         |                         |                               | REQ                                       |  |   |  |   |                                 |
| Patient room                                   | REQ                         |                         |                               | REQ                                       |  |   |  |   |                                 |
| Physical therapy room                          | REQ                         |                         |                               | REQ                                       | REQ  | REQ   |  | ADD2  | ADD2                            |
| Recovery room                                  | REQ                         |                         |                               | REQ                                       |  |   | REQ <sup>c</sup>   | ADD2  | ADD2                            |
| Telemedicine                                   | 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 9.4.1.1-1 for common *space* types).

b. Automatic daylight responsive controls are mandatory only if the *space* meets the requirements of the specified sections.

c. See 9.4.1.1(g), exception #1

**Table 9.4.1.1-2 Minimum Interior Lighting Control Requirements for Building-Specific Space Types Using Either 9.5.1 Building Area Method or 9.5.2 Space-by-Space Method (building-specific spaces) (Continued)**

**Informative Note:** This table covers *building-specific space* types typically found in a single *building* type. Table 9.4.1.1-1 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 <sup>a</sup> | Local Control<br>9.4.1.1(a) | Manual ON<br>9.4.1.1(b) | Partial Auto ON<br>9.4.1.1(c) | Multilevel Lighting Control<br>9.4.1.1(d) | Daylight Response Sidelight<br>9.4.1.1(e) <sup>b</sup> | Daylight Response Toplight<br>9.4.1.1(f) <sup>b</sup> | Occupancy Sensor Auto Reduction<br>(Full shutoff complies)<br>9.4.1.1(g) | Occupancy Sensor Shutoff Auto Full Off<br>9.4.1.1(h) | Scheduled Shutoff<br>9.4.1.1(i) |
|--|-----------------------------|-------------------------|-------------------------------|---|--|---|--|--|---------------------------------|
|  |                             |                         |                               |   |  |   |  |  |                                 |
| [...]                                      |                             |                         |                               |   |  |   |  |  |                                 |
| <b>Transportation Facility</b>             |                             |                         |                               |   |  |   |  |  |                                 |
| Airport hanger                             | REQ                         | REQ                     |                               |   | REQ  | REQ   |  |  | REQ                             |
| Baggage/carousel area                      |                             |                         |                               |   | REQ  | REQ   | REQ <sup>d</sup>   | ADD2   | ADD2                            |
| Concourse                                  |                             |                         |                               |   | REQ  | REQ   | REQ <sup>d</sup>   | ADD2   | ADD2                            |
| Passenger boarding area                    | REQ                         | ADD1                    | ADD1                          |   | REQ  | REQ   |  | ADD2   | ADD2                            |
| Ticket counter                             | 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 9.4.1.1-1 for common space types).

b. *Automatic* daylight responsive controls are mandatory only if the *space* meets the requirements of the specified sections.

d. See 9.4.1.1(g), exception #2

[...]

**Table 9.5.2.2 Additional Lighting Power**

| Section    | Description | Additional Lighting Power | Required Controls                                   |
|------------|-------------|---------------------------|---|
| 9.5.2.2(a) | Decorative  | 0.70 W/ft <sup>2</sup>    | Section <a href="#">9.4.1.1(h)</a> or<br>9.4.1.1(j) |

[...]

**Table H-3 Standard 90.1 Items to Verify (Continued)**

| Subsection           | Subsection Title                | Standard 90.1 Items to Verify for Proper Operation or Inclusion  | Status |
|----------------------|---------------------------------|--|--------|
| 9.4.1. <del>23</del> | Parking Garage Lighting Control | Proper operation of parking lot lighting controls, including <i>occupancy sensor</i> , time switch, and daylighting control.   |        |
| 9.4.1. <del>34</del> | Special Applications            | Proper operation of lighting controls, including separate control of display, accent, display case, hotel guest room, nonvisual, and demonstration lighting.   |        |
| 9.4.1. <del>45</del> | Exterior Lighting Control       | Proper operation of exterior lighting controls, including parking area proximity sensors, time switch, and photocell or astronomical time control.   |        |
| 9.9.1                | Verification and Testing        | Required functional testing is completed for occupant sensors, <i>automatic</i> time switches, and daylight responsive control. Include control items in Sections 9.4.1.1 through <a href="#">9.4.1.45</a> . |        |