

Nonresidential Cooling and Heating Load Calculations

18.5

Table 2 Lighting Power Densities Using Space-by-Space Method

Common Space Types*	LPD, W/m ²	Common Space Types ^a	LPD, W/m ²	Building-Specific Space Types*	LPD, W/m ²
Atrium		Loading Dock, Interior	5.1	Health Care Facility	
≤12.2 m high	1.1/m total height	Lobby		In exam/treatment room	18.0
>12.2 m high	4.3 + 0.7/m total height	In facility for the visually impaired (and not used primarily by staff) ^c	19.4	In imaging room	16.3
Audience Seating Area		For elevator	7.0	In medical supply room	
In auditorium	6.8	In hotel	11.5	In nursery	9.5
In convention center	8.9	In motion picture theater	6.4	In nurses' station	7.6
In gymnasium	7.1	In performing arts theater	21.6	In operating room	26.8
In motion picture theater	12.3	All other lobbies	9.7	In patient room	6.7
In penitentiary	3.1	Locker Room	8.1	In physical therapy room	9.9
In performing arts theater	26.2	Lounge/Breakroom		In recovery room	12.4
In religious building	16.5	In health care facility	10.0	Library	
In sports arena	4.7	All other lounges/breakrooms	7.9	In reading area	11.5
All other audience seating areas	4.7	Office		In stacks	18.4
Banking Activity Area	11.9	Enclosed	12.0	Manufacturing Facility	
Breakroom (See Lounge/Breakroom)		Open plan	10.6	In detailed manufacturing area	13.9
Classroom/Lecture Hall/Training Room		Parking Area, Interior	2.1	In equipment room	8.0
In penitentiary	14.5	Pharmacy Area	18.1	In extra-high-bay area (15.2 m floor-to-ceiling height)	11.3
All other classrooms/lecture halls/training rooms	13.4	Restroom		In high-bay area (7.6 to 15.2 m floor-to-ceiling height)	13.3
Conference/Meeting/Multipurpose Room	13.3	In facility for the visually impaired (and not used primarily by staff) ^c	13.1	In low-bay area (<7.6 m floor-to-ceiling height)	12.9
Confinement Cells	8.8	All other restrooms	10.6	Museum	
Copy/Print Room	7.8	Sales Area^d	15.5	In general exhibition area	11.4
Corridor^b		Seating Area, General	5.9	In restoration room	11.0
In facility for visually impaired (and not used primarily by staff) ^c	9.9	Stairway		Performing Arts Theater, Dressing Room	6.6
In hospital	10.7	Space containing stairway determines LPD and control requirements for stairway.		Post Office, Sorting Area	10.2
In manufacturing facility	4.4	Stairwell	7.4	Religious Buildings	
All other corridors	7.1	Storage Room		In fellowship hall	6.9
Courtroom	18.6	<4.65 m ²	13.3	In worship/pulpit/choir area	16.5
Computer Room	18.4	All other storage rooms	6.8	Retail Facilities	
Dining Area		Vehicular Maintenance Area	7.3	In dressing/fitting room	7.7
In penitentiary	10.4	Workshop	17.2	In mall concourse	11.9
In facility for visually impaired (and not used primarily by staff) ^c	28.5 W/m ²	Building-Specific Space Types* LPD, W/m²		Sports Arena, Playing Area	
In bar/lounge or leisure dining	11.6	Facility for Visually Impaired^c		For Class I facility	39.7
In cafeteria or fast food dining	7.0	In chapel (used primarily by residents)	23.8	For Class II facility	25.9
In family dining	9.6	In recreation room/common living room (and not used primarily by staff)	26.0	For Class III facility	19.4
All other dining areas	7.0	Automotive (See Vehicular Maintenance Area)		For Class IV facility	13.0
Electrical/Mechanical Room^f	4.6	Convention Center: Exhibit Space	15.7	Transportation Facility	
Emergency Vehicle Garage	6.1	Dormitory/Living Quarters	4.2	In baggage/carousel area	5.7
Food Preparation Area	13.1	Fire Station: Sleeping Quarters	0.22	In an airport concourse	3.9
Guest Room	9.8	Gymnasium/Fitness Center		At a terminal ticket counter	8.7
Laboratory		In exercise area	7.8	Warehouse—Storage Area	
In or as classroom	15.5	In playing area	13.0	For medium to bulky, palletized items	6.2
All other laboratories	19.5			For smaller, hand-carried items ^e	10.2
Laundry/Washing Area	6.5				

Source: ASHRAE Standard 90.1-2013.

^aIn cases where both a common space type and a building-specific type are listed, the building-specific space type applies.^bIn corridors, extra lighting power density allowance is granted when corridor width is <2.4 m and is not based on room/corridor ratio (RCR).^cA facility for the visually impaired one that can be documented as being designed to comply with light levels in ANSI/IES RP-28 and is (or will be) licensed by local/state authorities for either senior long-term care, adult day care, senior support, and/or people with special visual needs.^dFor accent lighting, see section 9.6.2(b) of ASHRAE Standard 90.1-2013.^eSometimes called a picking area.^fAn additional 5.7 W/m² is allowed *only* if this additional lighting is controlled separately from the base allowance of 4.5 W/m².

is likely to go directly to the ceiling plenum, resulting in zero convective fraction and a much lower space fraction. Therefore, the design data should only be used for a configuration where conditioned air is returned through the ceiling grille or luminaire side slots.

For other luminaire types, it may be necessary to estimate the heat gain for each component as a fraction of the total lighting heat gain by using judgment to estimate heat-to-space and heat-to-return percentages.