LIGHTING AND LIGHTING CONTROLS
TITLE 24 2025 REFERENCE GUIDE

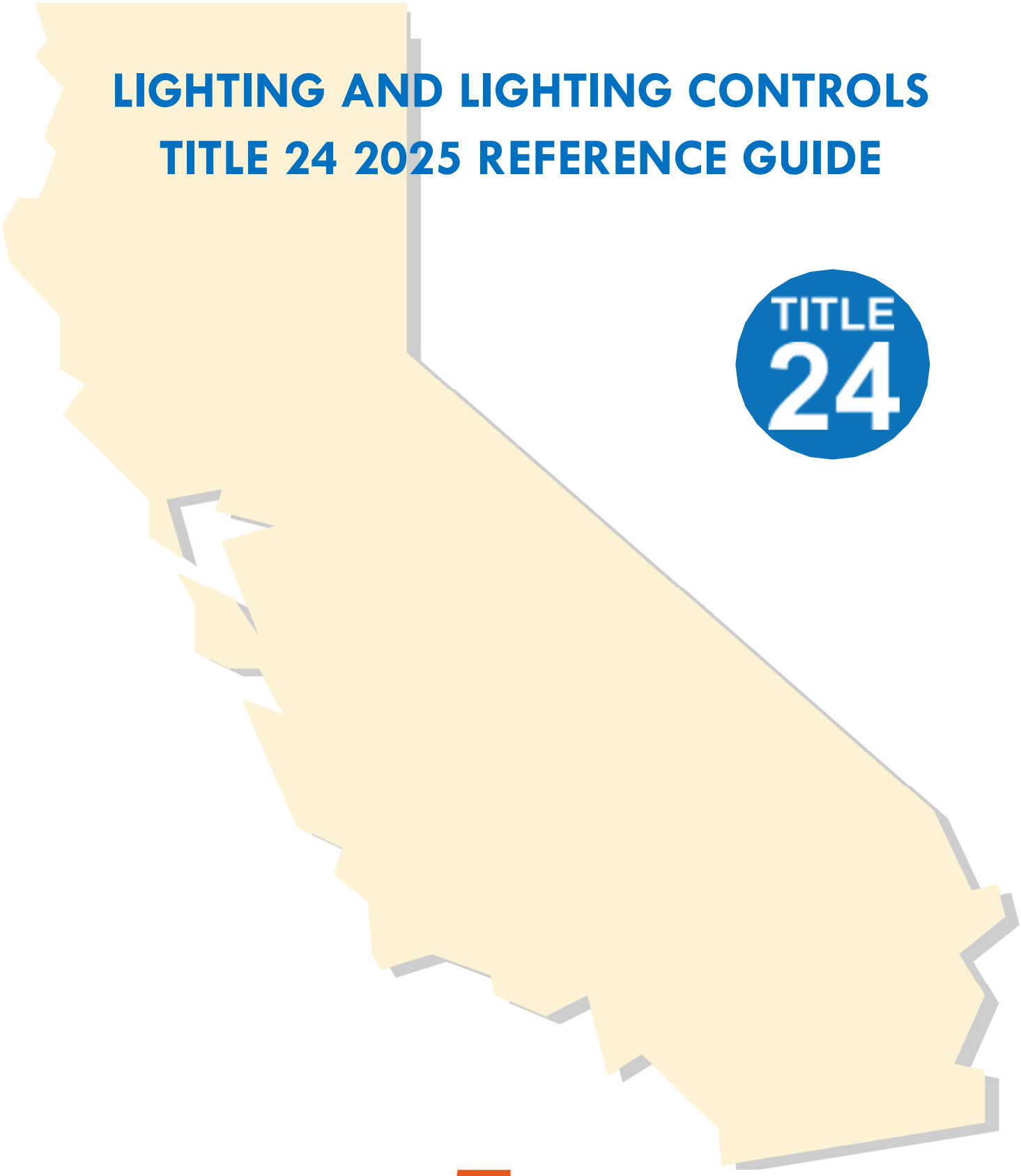

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TABLE 140.6-C AREA CATEGORY METHOD — LIGHTING POWER DENSITY VALUES (WATTS/SQ FT) Quick Reference Guide *			
Primary Function Area	**Allowed Watts/sqft**	**Primary Function Area**	**Allowed Watts/sqft**
Auditorium	0.70	Parking Garage—Decks	0.10
Auto Repair/Maintenance	0.55	Parking Garage Daylight Adaptation (Auto Entries)	1.00
Audience Seating Area	0.50	Pharmacy	1.00
Beauty Salon	0.70	Retail Sales—Grocery	1.00
Civic Meeting Place	0.90	Retail Merchandise	0.95
Classroom, Lecture, Training, Vocational Area	0.60	Retail—Fitting Rooms	0.60
Commercial/Industrial Storage—Warehouse	0.40	Museum—Exhibition/Display	0.60
Commercial/Industrial Storage– Shipping & Handling	0.60	Theater—Motion	0.50
Convention, Conference, Multipurpose/Meeting	0.75	Theater—Performance	0.80
Copy Room	0.50	Labs	0.90
Corridor Area	0.40	Healthcare Facility & Hospitals—Exam/Treatment	1.15
Dining Area—Bar/Lounge & Fine Dining	0.45	Healthcare Facility & Hospitals—Imaging Room	0.60
Dining Area—Cafeteria/Fast Food	0.45	Healthcare Facility & Hospitals—Medical Supply	0.55
Dining Area— Family and Leisure	0.40	Healthcare Facility & Hospitals—Nursery	0.80
Electrical, Mechanical, Telephone Rooms	0.40	Healthcare Facility & Hospitals—Nurse Station	0.85
Exercise/Fitness Center and Gyms	0.50	Healthcare Facility & Hospitals—Operating Room	1.90
Hotel Function	0.85	Healthcare Facility & Hospitals—Patient Room	0.70
Kitchen	0.95	Healthcare Facility & Hospitals—Physical Therapy	0.75
Museum—Exhibition/Display	0.60	Healthcare Facility & Hospitals—Recovery Room	0.90
Financial Transaction Area	0.70	Laundry Area	0.45
General/Commercial & Industrial Work—Low Bay	0.60	Religious Worship	0.95
General/Commercial & Industrial Work—High Bay	0.65	Restrooms	0.65
General/Commercial & Industrial Work—Precision	0.85	Transportation—Baggage Area	0.40
Library—Reading Area	0.80	Transportation—Ticketing Area	0.45
Library—Stacks Area	1.00	Sports Arena Playing Area—Class I	2.25
Lobby—Main Entry	0.70	Sports Arena Playing Area—Class II	1.45
Locker Room	0.45	Sports Arena Playing Area—Class III	1.10
Lounge, Breakroom/Waiting Area	0.55	Sports Arena Playing Area—Class IV	0.75
Concourse & Atria Area	0.60	Stairwell	0.60
Office >250 sf	0.60	Video Conferencing	0.90
Office <250sf	0.65	All Other	0.40

*** Refer to the 2025 Title 24 Standards Section 140.6-C for further wattage allowances**

NON-RESIDENTIAL INDOOR AREAS (SECTION 130.1a-e, 130.5d, 110.12)		MINIMUM REQUIRED CONTROL TYPE						
		A	B	C		D	R	E
		Manual Control		Auto-Shut-Off		Automatic Daylighting Control	120V Outlet Control	Demand Response
AREA TYPE*	Size (Sqft)	On/Off	Multi-Level	Occupant Sensor	Auto Time Switch			
Offices	≤250	A1	B1	C1		D1	R1	E1
	>250	A1	B1	C2		D1	R1	E1
Offices—Open	≤250	A1	B1	C1		D1	R1	E1
	>250	A1	B1	C9		D1	R1	E1
Conference Room	ALL	A1	B1	C1		D1	R1	E1
Multi-Purpose Room	<1000	A1	B1	C1		D1	R2	E1
	≥1000	A1	B1	C2		D1	R2	E1
Copy Room	≤250	A1	B1	C1		D1	R1	E1
	>250	A1	B1	C2		D1	R1	E1
Office Kitchen Area	ALL	A1	B1	C2		D1	R1	E1
Corridor	ALL	A2	B1	C3		D1		E1
Common Area Corridor (Resi)**	ALL	A2	B1	C4		D1		E1
Stairwell	ALL	A2	B1	C3		D1		E1
Stairwell (Resi)**	ALL	A2	B1	C4		D1		E1
Lobby	ALL	A1	B1	C3		D1	R1	E1
Bathroom—Single Stall	<70	A1		C1		D1		E1
Restroom—Public Single Stall	ALL	A1		C1		D1		E1
Restroom—Public 2+ Stalls	ALL	A2		C1		D1		E1
Closet (Resi)**	<70	A1		C5		D1		E1
Warehouse—Open Area	ALL	A1	B1	C6		D1		E1
Warehouse—Aisle	ALL	A3	B1	C6		D1		E1
Server Room—Aisle	ALL	A3	B1	C5		D1		E1
Electrical Rm. Subj. CEC 110.26(D)	ALL	A1	B1			D1		E1
Classroom	ALL	A1	B1	C1		D1		E1
Library Stack Aisle***	ALL	A3	B1	C7		D1		E1
Loading and/or Unloading	ALL	A1	B1	C8		D1		E1
Parking Garage (Interior Areas)	ALL	A2	B1	C8		D2		E1
Parking Garage Roof/Outdoor	**SEE OUTDOOR LIGHTING CONTROLS**							
Dwelling Units	**SEE INDOOR RESIDENTIAL AREAS**							
Hotel/Motel Guest Rooms								
Dwelling Accommodations for Dormitories, Senior Housing, and Fire Stations								
INDOOR AREAS NOT LISTED	**ALL**	A1	B1	C2		D1		E1

NOTES:

*Area Types in this table are as defined in T24 Parts 1 and 6 and apply to areas/rooms based on the activities or use in the room/area or space and not necessarily on the name of the room/area shown on the plans.

**These areas apply to common areas of Multi-family and Hotel/Motel only.

***Applies only to library book stack aisles that are 10' or longer (if dead-ended), and 20' or longer (if accessible from both ends).

KEY DEFINITIONS:

OFFICE AREA: any room or area in a building of CBC Group B Occupancy in which business, clerical, or professional activities are conducted, regardless of its assigned room name.

BATHROOM: A residential room or area containing a sink use for personal hygiene, toilet, shower, or tub.

RESTROOM: A non-residential room or area providing personal facilities such as toilets and washbasins.

DAYLIGHT TRANSISTION ZONE (Parking Garage): the interior path of travel needed to transition from exterior daylighting levels to interior light levels. Excludes adjacent parking areas.

DEDICATED RAMPS: parking garage ramps that do not have adjacent parking.

	KEYED NOTES FOR EACH SPACE/AREA TYPE	GENERAL NOTES FOR EACH CONTROL TYPE
A	**A1** REQUIRED. Must be accessible to users. Located in the same space or be located such that the controlled lighting or status of the controlled lighting can be seen. EXCEPT, Healthcare facilities; Single stall restrooms and bathrooms, may be located outside the enclosed area but directly adjacent to the door.	MULTI-LEVEL: Must provide the required steps required under column B. SEPARATE CONTROL: General, floor & wall display, window display, case display, ornamental, and special effects lighting must each have independent manual control. Track heads NOT EXEMPT. Scene controllers are allowed provided at least 1 scene controls the general lighting only AND is able to turn OFF all lighting. MEANS OF EGRESS LIGHTING: Qualifying* egress lighting must be controlled separately; control accessible only to authorized personnel. *To qualify, egress lighting may be up to 0.1W/sqft of lighting in areas properly designated on the submissions under Part 1/Section 10-103(a)2 may be continuously illuminated.
	A2 REQUIRED. May be inaccessible to unauthorized personnel.	
	A3 Same as A1, and independent MANUAL control not required for each aisle.	
B	**B1** REQUIRED. 100 sqft or larger space with general lighting load greater than 0.5W/sqft. Continuous dimming from 100%-10% or lower. EXCEPT, Room with only 1 luminaire; Restrooms; Healthcare Facilities; General lighting with HID & induction source shall have minimum of one control step between 30%-70% of full rated power.	APPLICATION: These requirements apply only to general lighting. OTHER PROVISIONS: exception from this requirement does not except multi-level operation/control required by other provisions, such as Partial-ON, Partial-OFF, Auto-Daylighting-Control, and/or Demand Responsive Control requirements.
C	**C1** REQUIRED. Auto/Vacancy/Partial ON between 50-70% power if multi-level control is required.	EXCEPTIONS FOR AUTO SHUT-OFF: Healthcare Facilities; 24/365 day areas; Electrical equipment rooms OVERRIDE: Auto-Time-Switch OFF function may be overridden for up to 2-hours during typically unoccupied times. EXCEPTION: malls, auditoriums, single-tenant retail, industrial, and arenas, provided a captive-key override is used. SEPARATE CONTROL: For lighting on each floor, other than stairwells and enclosed space by ceiling height partition not exceeding 5,000 sqft (20,000 sqft in Malls, Auditoriums, Single-Tenant Retail, Industrial, Convention Centers, and Arenas)
	C2 REQUIRED. Auto-Shut-Off by occupancy sensor, **or** Auto-Time-Switch.	
	C3 REQUIRED. Auto-ON operation (to 100%) by occupancy sensor required. Partial-OFF by occupancy sensor required (to 50% power or lower after vacancy). Full Auto-Shut-Off required—by occupancy sensor (max. 20-min. time delay) **or** by Auto-Time-Switch (during typically unoccupied times).	
	C4 REQUIRED. Auto-ON operation (to 100%) by occupancy sensor required. Partial-OFF by occupancy sensor required (to 50% power or lower after vacancy). Full Auto-Shut-Off required by occupancy sensor (max. 20-min. time delay).	
	C5 REQUIRED. Auto-Shut-Off by occupant sensing device, **or** Auto-Time-Switch, **or** Countdown-Timer-Switch. Countdown timer switch max setting 10 minutes for closets, 30 minutes for Server Aisles.	
	C6 REQUIRED. Partial-OFF to 50% power or lower by occupancy sensor required (60% or lower for Metal Halide or High Pressure Sodium lighting). Full Auto Shut Off required may be by occupancy sensor (max. 20 min. time delay) or by Auto-Time-Switch (during typically unoccupied times). Each open area and aisle way must be controlled separately.	
	C7 REQUIRED. Partial-OFF to 50% power or lower by occupancy sensor required. Full Auto-Shut-Off required may be by occupancy sensor (max. 20-min. delay) or by Auto-Time-Switch (during typically unoccupied times). Each open area and aisle way must be controlled separately.	
	C8 REQUIRED. Auto-ON operation (to 100%) by occupancy sensor required. Partial-OFF by occupancy sensor required after vacancy (to 20%-50% of design power) by occupancy sensor required. Control Granularity: No more than 500 watts of rated lighting power shall be controlled together as a single zone.	
	C9 REQUIRED: Occupancy sensor controlled zone no greater than 600 sqft must be separately controlled. Reduce by at least 80% or OFF when occupancy control zone is unoccupied. Turn off lighting when entire open office is unoccupied. Each control zone allowed to turn on at any level but when unoccupied light level must be below 80% power. EXCEPTIONS: Under-shelf or furniture-mounted task lighting controlled by a local switch and either a time switch or an occupancy sensor.	
D	**D1** REQUIRED if the total glazing in the room/area is 24sqft or greater, **and** the total wattage of installed lighting in the Primary, Secondary Sidelit and Skylit Zones is 75Watts or more. When daylight provides greater than 150% of the illuminance of controlled lighting alone lighting power in the daylight zone must be reduced by at least 90%. Separate control for luminaires in each type of daylit zone (primary, secondary, skylit). Applies only to general lighting. Overlapping general lighting in skylit and sidelit zone will be part of skylit zone. Overlapping general lighting in primary and secondary zone will be part of primary daylit zone. Linear fixtures longer than 8ft may be controlled as segments 8ft or less. Each segment is separately controlled based on daylit zone location. EXCEPTION: Skylight with structure/object blocking direct sunlight for 1,500 daytime hours per year. Area adjacent to vertical glazing below overhang where it covers the glazing. If primary daylight zone is not required and secondary daylit zone is less than 85 Watts, daylighting controls for secondary zone is not required. Luminaires in sidelit daylit zones in retail merchandise sales and wholesale showroom areas.	
	D2 REQUIRED if the total glazing/opening in the area is 36sqft or greater, **and** the total wattage of installed lighting in the Sidelit Zones is 60 Watts or more. In a combined Primary/Secondary Zone, when daylight provides greater than 150% of the illuminance of controlled lighting alone (at the point of lowest illuminance in the Secondary Zone), lighting in that Zone shall be OFF/consume zero power. Applies only to general lighting. EXCEPTION: For luminaires located in daylight adaption zone.	
R	**R1** REQUIRED. Each area must have at least 1 controlled receptacle within 6 feet of any controlled receptacle; or all half-controlled split-wired receptacles. Controlled receptacles must be permanently marked. Control may be by local occupancy sensor or auto time-switch.	OTHER PROVISION: Controlled receptacles must be tied into demand response if the building is required to have automatic demand response and controlled receptacle. Exception: Spaces where a health or life safety statute, ordinance, or regulation does not
	R2 REQUIRED (as required in R1) if the Multi-Purpose room can be classified as an "Office Area" (see "Important Definitions" in this guide).	
E	**E1** REQUIRED if the installed total lighting is over 4,000 Watts. Must be capable of reducing power by at least 15% during the Demand Response Period. The controls must be capable of receiving and responding to at least one standards-based messaging protocol. EXCEPTIONS: Spaces where health or life safety statute, ordinance, or regulation does not permit lighting to be reduced. These do not count toward the 4,000 Watts threshold	

INDOOR LIGHTING SYSTEM ALTERATIONS (SECTION 141.0(b)2I)	MINIMUM REQUIRED CONTROL TYPE						
	A	B	C		D	R	E
10% or more luminaires in space*	Manual Control		Auto-Shut-Off		Automatic Daylighting Control	120V Outlet Control	Demand Response
	On/Off	Multi-Level	Occupant Sensor	Auto Time Switch			
OPTION i - comply with lighting power allowance (Section 140.6) - and meet control requirements Table 141.0F	A	B	C		D	R	E
OPTION ii - not exceed 80% of lighting power allowance (Section 140.6) - and meet control requirements Table 141.0F	A		C			R	
OPTION iii - one for one luminaire alteration (more than 50 luminaires) within space of 5,000 sqft or less; - lower total altered luminaire wattage by at least 40% compared to total pre-altered wattage - and meet control requirements Table 141.0F	A		C			R	

NOTES:

1) **Alteration to indoor lighting system does not prevent the operation of existing, unaltered controls and not alter controls to remove functions in Section 130.1**

2) **Alterations to lighting wiring are considered alterations to the lighting system.**

***EXCEPTIONS TO INDOOR LIGHTING SYSTEM ALTERATIONS:**

1) **Alteration with less than 10% of luminaires on enclosed space**

2) **Alteration of portable luminaires, luminaires affixed to moveable partitions or lighting excluded per Section 140.6(a)3**

3) **Any enclosed space with 1 luminaire**

4) **Any alteration that would cause the disturbance of asbestos, unless it is made in conjunction with asbestos abatement**

5) **Acceptance testing requirements are not required for alteration where lighting controls are added to control 20 luminaires or less.**

6) **Any alteration limited to adding lighting controls or replacing lamps, ballast or drivers**

7) **One for one luminaire of up to 50 luminaires either per complete floor of the building or per complete tenant space, per annum**

KEYED NOTES FOR EACH TYPE	
A	Reference Non-Residential Indoor Areas Control Matrix. Indoor lighting system alteration are not required to separate EXISTING general, floor, wall or ornamental lighting on shared circuits or controls. Separate controls ONLY required for new or completely replaced lighting circuits.
B	Applicable ONLY for alterations to general lighting of enclosed spaces 100 sqft or larger and lighting load exceeds 0.5W/sqft. Reference Non-Residential & High-Rise Residential Indoor Areas Control Matrix.
C	Reference Non-Residential Residential Indoor Areas Control Matrix.
D	Reference Non-Residential Indoor Areas Control Matrix.
R	Applicable ONLY when electrical power distribution systems is entirely new or a complete replacement. Reference Non-Residential Indoor Areas Control Matrix.
E	Applicable ONLY for alterations where the installed total lighting is over 4,000 Watts. Must be capable of reducing power by at least 15% during the Demand Response Period. The controls must be capable of receiving and responding to at least one standards-based messaging

NON-RESIDENTIAL OUTDOOR APPLICATIONS (SECTION 130.2)	MINIMUM REQUIRED CONTROL TYPE			
	A	B	C	D
	Daylight Ability	Automatic Scheduling	Motion Sensor	Demand Response
OUTDOOR LIGHTING				
Outdoor lighting for Health / Life Safety Regualtion	excepted			
Tunnel Lighting Required ON 24hrs/365days	excepted			
Outdoor Lighting per Special Applications listed on Section 140.7a[1]	A1	B1		
LUMINAIRES MOUNTED AT OR BELOW 24 FT				
Outdoor luminaire at 40 Watts or lower	A1	B1		
Outdoor luminaire more than 40 Watts	A1	B1	C1	
LUMINAIRES MOUNTED ABOVE 24 FT				
Outdoor luminaire at 40 Watts or lower	A1	B1		
Outdoor luminaire more than 40 Watts	A1	B1		
SIGN LIGHTING				
Indoor Sign	A2			
Outdoor Sign in tunnels/large covered areas required to be ON 24hrs/365days	A3			
Outdoor Sign that are ON both day & night	A4			
All other Outdoor Sign	A3			
Electronic Message Centers (EMC) over 15kW				D1

NOTES:

Luminaire Cut Off Requirements:

1. All outdoor luminaire of 6,200 initial luminaire lumens or greater shall comply with BUG requirements. Maximum zonal lumens for BUG in accordance with Title 24, Part 11 Section 5.106.8.
2. Except signs; lighting for building façade, public monuments, statues, vertical surface of bridge; lighting not permitted to be shut off for health and life safety regulations; temporary outdoor lighting; lighting for public roadways, sidewalks;

[1] Listed Special Applications Section 140.7a:

1. Temporary outdoor lighting.
2. Lighting required and regulated by the Federal Aviation Administration, and the Coast Guard.
3. Lighting for public streets, roadways, highways, and traffic signage lighting, including lighting for driveway entrances occurring in the public right-of-way.
4. Lighting for sports and athletic fields, and children's playgrounds.
5. Lighting for industrial sites, including but not limited to, rail yards, maritime shipyards and docks, piers and marinas, chemical and petroleum processing plants, and aviation facilities.
6. Lighting of public monuments.
7. Lighting of signs complying with the requirements of Sections 130.3 and 140.8
8. Lighting of stairs, wheelchair elevator lifts for American with Disabilities Act (ADA) compliance, and ramps that are other than parking garage ramps.
9. Landscape lighting.
10. In theme parks: outdoor lighting only for themes and special effects.
11. Lighting for outdoor theatrical and other outdoor live performances, provided that these lighting systems are additions to area lighting systems and are controlled by a multi-scene or theatrical cross-fade control station accessible only to authorized operators.
12. Outdoor lighting systems for qualified historic buildings, as defined in the California Historic Building Code (Title 24, Part 8), if they consist solely of historic lighting components or replicas of historic lighting components. If lighting systems for qualified historic buildings contain some historic lighting components or replicas of historic components, combined with other lighting components, only those historic or historic replica components are exempt. All other outdoor lighting systems for qualified historic buildings shall comply with Section 140.7.

KEYED NOTES FOR EACH SPACE/AREA TYPE	
A	A1 REQUIRED. All outdoor lighting shall be controlled by a photocell, astronomical time-switch or other control capable of automatically shutting OFF outdoor lighting when daylight is available.
	A2 REQUIRED: Indoor Sign shall be controlled by Automatic time switch OR astronomical time switch control.
	A3 REQUIRED: Outdoor Sign shall be controlled by Automatic time switch with photocell OR astronomical time switch control.
	A4 REQUIRED. In addition to Automatic time switch with photocell OR astronomical time switch control. Outdoor sign lighting that is ON both day and night shall be controlled with a dimmer that provides the ability to automatically reduce sign lighting power by a minimum of 65% during nighttime hours. Signs that are illuminated at night and for more than 1-hour during daylight hours shall be considered ON both day and night. EXCEPTION: Outdoor signs in tunnels and large covered areas that are intended to be illuminated both day and night.
B	B1 REQUIRED. Automatic schedule that reduce lighting by 50% to 90% and separately turn OFF during scheduled unoccupied period. Allow minimum of two nighttime periods with independent lighting levels. May include override function that turns ON during its scheduled dim or OFF state for no more than 2-hours when an override is initiated.
C	C1 REQUIRED. Motion sensing controls capable of reducing lighting by at least 50% but no more than 90% and separately turn OFF during unoccupied period. (max. 15-min. time delay). Single sensor cannot control more than 1,500 watts of lighting.
D	D1 REQUIRED An Electronic Message Center (EMC) having a new connected lighting power load greater than 15 kW shall have a control installed that is capable of reducing the lighting power by a minimum of 30% when receiving a demand response signal. EXCEPTION: Lighting for EMCs that is not permitted by a health or life safety statute, ordinance, or regulation to be reduced by 30%

OUTDOOR LIGHTING QUICK TIPS

OPTION	APPROACH	MANUFACTURER & SERIES
Avoid **Motion Sensor** Requirement	**< 40 Watts**	**LITHONIA POLE HEADS** **RADEAN - Post Top P1, P2** **RADEAN - Arm Mount P1, P2** **D SERIES - DSX0 – Arm Mount P1** **MOST BOLLARDS** **MOST WALL PACKS**
Avoid **BUG** Rating Requirement	**< 6200 Lumens**	

RADEAN

LIGMAN MACARON 1

LIGMAN SATANDER

D SERIES (DSX0)

D SERIES

LIGMAN ARIZONA

LIGMAN CINATI

D SERIES (DSXW)

WST

TABLE 140.7-A CEC 2025 TITLE 24 - OUTDOOR WATTAGE ALLOWANCES					
POWER ALLOWANCES	**Lighting Zone 0**	**Lighting Zone 1**	**Lighting Zone 2**	**Lighting Zone 3**	**Lighting Zone 4**
Area Wattage Allowance (AWA)	No Allowance	0.016 W/sf	0.019 W/sf	0.021 W/sf	0.024 W/ sf
Linear Wattage Allowance (LWA)		0.13 W/Lf	0.15 W/Lf	0.20 W/Lf	0.29 W/Lf
Initial Wattage Allowance (IWA)		150 W	200 W	250 W	320 W

RESIDENTIAL INDOOR DWELLING UNITS		MINIMUM CONTROL REQUIREMENTS PER AREA						
LIGHTING TYPE	**JA8 * Required**	**Bathroom**	**Garage**	**Laundry Room**	**Utility Room**	**Walk-in Closet**	**Habitable Space**	**All Other**
HIGH-EFFICACY:								
All Ceiling Recessed Downlights	**YES**	A1	A1	A1	A1	A1	A2	A3
Screw-Base Lamps/Sources	**YES**	A1	A1	A1	A1	A1	A2	A3
Fluorescent—Pin-Based Linear or CFL Using Electronic Ballasts	**NO**	A1	A1	A1	A1	A1	A2	A3
Pulse-Start Metal Halide	**NO**	A1	A1	A1	A1	A1	A2	A3
High-Pressure Sodium	**NO**	A1	A1	A1	A1	A1	A2	A3
GU-24 Sockets (Non-LED)	**NO**	A1	A1	A1	A1	A1	A2	A3
GU-24 Sockets (LED)	**YES**	A1	A1	A1	A1	A1	A2	A3
Induction Lamps w/ High Frequency Generator	**NO**	A1	A1	A1	A1	A1	A2	A3
Inseparable SSL (e.g. LED) Luminaires w/ Colored Light Sources	**NO**	A1	A1	A1	A1	A1	A2	A3
Inseparable SLL (e.g. LED) Luminaires Installed Outdoors	**NO**	A1	A1	A1	A1	A1	A2	A3
Other Lighting Not Listed Above	**YES**	A1	A1	A1	A1	A1	A2	A3
NON-HIGH-EFFICACY: NOT PERMITTED ANYWHERE								

NOTES:

*JOINT APPENDIX (JA8): https://cacertappliances.energy.ca.gov/Pages/ApplianceSearch.aspx

KEYED NOTES FOR EACH SPACE/AREA TYPE		GENERAL NOTES FOR EACH CONTROL TYPE
A	A1 REQUIRED. Controlled by an occupancy or vacancy sensor for auto shut-off. Lighting in opaque-fronted drawers and cabinetry must be controlled with auto shut-off when a drawer or door is closed.	SEPARATE CONTROL: 1. Integrated lighting of exhaust fans shall be controlled independently from the fans. 2. The following (undercabinet, undershelf, interior lighting of display cabinets, switched outlets) shall be controlled separately from ceiling-installed lighting OTHER PROVISION: For hotel and motel guest room, install controlled receptacles for at least one-half of the 120V receptacles in each guestroom. Electrical circuits serving controlled receptacles to have captive card key controls, occupancy sensing control or automatic controls so the power is switched OFF (20 min max) after the guestroom has been vacated.
	A2 REQUIRED. Dimmers that are required for lighting in habitable spaces (e.g., living rooms, dining rooms, kitchens and bedrooms) must have readily accessible dimming controls. Forward phase-cut dimmers controlling LED light sources in these spaces must comply with NEMA SSL 7A. EXCEPTIONS: 1. Ceiling fans with integrated lighting may use remote control. Lighting integral to kitchen range hood and bathroom exhaust fans. 2. Controlled lighting with less than 20 watts OR controlled by an occupancy/vacancy sensor providing automatic-off functionality. 3. Navigation lighting less than 5 watts (e.g., night lights, step lights and path lights), or lighting is internal to opaque-fronted drawers and cabinetry (which may alternatively use automatic-off controls).	
	A3 REQUIRED: Lighting is switched with readily accessible controls for manual ON/OFF	

RESIDENTIAL OUTDOOR AREAS

SINGLE FAMILY

Lighting attached to residence or other buildings on the same lot must be high efficacy and one of these controls.

Manual ON/OFF Switch WITH:

a. PHOTOCELL AND MOTION SENSOR or
b. PHOTOCELL AND AUTO TIME SWITCH or
c. ASTRONOMICAL TIME CLOCK

MULTI FAMILY

Refer to Non-Residential Outdoor Lighting Controls Matrix

Have the option of complying with either the residential or non-residential lighting standards for the following:

A) Private patios B) Entrances C) Balconies D) Porches

MANDATORY REQUIREMENTS
(T24 PART 6 SECTION 130

This guide is intended to assist in your selection of lighting control products and equipment for commercial type projects based on the mandatory requirements set forth in California's Title 24 2025 Section 130.

PERFORMANCE APPROACH
(T24 PART 6 SECTION 140.1)

OR

PRESCRIPTIVE APPROACH
(T24 PART 6 SECTION 140.2)

In addition to the mandatory requirements, either a Performance or Prescriptive approach must be used to determine full compliance for lighting and control systems. Using either approach may result in changes to the required control products and equipment based on project specific lighting selections and

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Let us support YOU! **16500** SUPPORTS YOUR LIGHTING AND LIGHTING CONTROL NEEDS:

Lighting Control Applications Engineering:

- ⇒ Product/system selection
- ⇒ Wiring diagrams
- ⇒ CAD Assistance
- ⇒ System Layouts
- ⇒ Quotations
- ⇒ Submittals
- ⇒ Fixture-integrated controls coordination
- ⇒ CALCTP-AT Certified Employer, Field Services, Programming/Product Technical Support

Lighting Applications Engineering:

- ⇒ Product selection and technical support
- ⇒ Product specific lighting illuminance & power density calculations
- ⇒ Lighting layouts
- ⇒ Quotations
- ⇒ Submittals

16500 offers this guide in a partnership effort with you, our clients and customers who participate in our electrical lighting and controls specifications, construction, and property ownership/management communities. We invite you to use the lighting control application guide as a tool that will assist with product and equipment selection.

NEW

California's 2025 Title 24 energy code introduces **new prescriptive requirements for Battery Energy Storage Systems (BESS)** in commercial and industrial (C&I) buildings.

If your building is required to include solar per **Section 140.10(a),** it must now also include battery storage that meets the standards outlined in **Joint Appendix JA12.**

We're Here to Help!

At **16500**, our dedicated Battery Team can help you navigate these BESS changes with confidence.

⇒ **Title 24 compliance**

⇒ **Maximize your return on investment (ROI)**

⇒ **Supports long-term energy resilience and cost savings**

EQUATION 140.10-B - BATTERY STORAGE RATED ENERGY CAPACITY

$$\mathbf{kWhbatt = kWPVdc \times B / D^{0.5}}$$

kWhbatt = Rated Useable Energy Capacity of the battery storage system in kWh
kWPVdc = PV system capacity required by section 140.10(a) in kWdc
B = Battery energy capacity factor specified in Table 140.10-B for the building type
D = Rated single charge-discharge cycle AC to AC (round-trip) efficiency of the battery storage system

TITLE 24 2025 NOTABLE CHANGES*

Indoor Lighting:

⇒ Changes to Indoor Lighting Power Allowances and Power adjustment factor (PAF) - Section 140.6

⇒ Tailor Method removed as a compliance method. Wattage flexibility that the Tailored Method supported is now offered in additional allowances added to the Area Category Method.

Sign Lighting:

⇒ Lighting source limited to LED or neon. Removed high pressure sodium, metal halide, fluorescent, CFL as a lighting source.

Indoor Lighting Controls:

⇒ Manual Area Control Section 130.1(a)2 simplified. Manual controls to be located in same space, or be located such that the status of the controlled lighting can be seen when operating the controls. Except in healthcare facilities for single occupant restrooms and bathrooms, the manual control may be located outside the room but directly adjacent to the door.

⇒ Removed Table 130.1A - Multi-level lighting controls and uniformity requirements. Multi-level controls to be continuous dimming (100%-10% or lower) except for HID/induction source. HID/induction source could have minimum of 1 control step between 30 and 70%. (Section 130.1b)

⇒ Removed Exception for Section130.(c)6 - Warehouse aisle/open area where installed lighting power is 80 percent or less of the value allowed under the area category method, occupant sensing controls shall reduce lighting power by at least 40 percent.

⇒ Primary, secondary and skylit indoor daylit zone wattage changed from 120 watts to 75 watts. (Section 130.1d)

⇒ Linear lighting longer than 8ft could be controlled in 8ft segment or less except when fixture longer than 8ft is an integral unit. (Section 130.1d)

⇒ New daylit exception added. If primary daylit zone is not required and secondary daylit zone is less than 85 watts, daylighting for secondary zone is exempted. (Section 130.1d)

* **Refer to the 2025 Title 24 Standards for further information on the Sections listed.**

This Guide is for informational purposes only. Please refer to the 2025 Building Energy Standards website for more information.
https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2025-building-energy-efficiency