IECC 2024: Lighting Controls

Code Application Summary

LEGEND • = REQUIRED •• = OPTIONAL	Manual Control		Automatic ON/OFF Control							Other	
	Switch	Dimming or Scene Control	Timeclock	Occupancy Sensor	Full ON	Partial ON	Manual ON	Full OFF [8]	Partial OFF	Daylight Responsive Controls	Receptacle Control
Atrium		•	•			•		•		• 7	
Classroom, Lecture Hall, Training Room	•			•		••	••	•		• 7	•
Conference, Break Room		•		•		••	••	•		• 7	•
Corridor		•	••	•	•			•• 1	•	• 7	
Guestroom [2]	•			•			•	•			
Lobby		•		•	•			•		• 7	
Open Office		•		•	•			•	• 5	• 7	•
Parking Garage [3]			••	•	•				•	•	
Private Office (<250 sq. ft)		•		•		••	••	•			•
Restaurant, Cafeteria, Retail		•	•		•			•		• 7	
Restroom	•			•	•			•		• 7	
Stairwell [1]		•		•	•				• 6	• 7	
Storage Room	•			•		••	••	•		• 7	
Warehouse, Aisles, Library Stacks	•			•	•				•	• 7	
Facade/Landscape			•		•			••	•	•	
Parking Lot/Other Exterior [4]			•		•			••	•	•	

1 Timeclock ensures the lights are on during business hours. Occupancy sensor controls lights after business hours.

2 Automatic shutoff is required for all installed luminaires and switched receptacles.

3 Timeclock ensures the lights are on when typically occupied. Occupancy sensor controls lights when typically unoccupied.

4 Astronomical timeclock shall ensure all lights are off during daylight hours. Lights should be scheduled to Partial OFF during night hours. See section C405.2.7 for scheduling times.

5 Control zones are limited to 600 sq. ft. or less. Once a zone is vacant for 20 minutes, the occupancy sensor automatically reduces lighting in the zone by 80% of full light output or turns lighting OFF in the vacant zone.

6 Not a code requirement. Recommended solution for spaces designated as a path of egress.

7 These spaces require continuous daylight dimming to OFF for the lighting near windows and skylights unless exceptions are met.

8 Sensor(s) automatically turns lighting OFF in the entire space within 20 minutes of vacancy in the whole space.

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Code Requirement Summary

Control Type		Requirement	Section
Manual Control	Switch	At least one manual device is required to turn the lighting ON and OFF within a space.	C405.2.6
	Dimming or Scene Control	General lighting must be manually dimmable from full output down to 10% or less as well as turning off lights.	C405.2.3
Automatic ON/OFF Control	Timeclock	**Interior:** Lighting is scheduled to turn ON or OFF based on time-of-day using operating schedule. Alternatively, occupancy sensors may be used in place of a timeclock to control lighting based on room usage. **Exterior:** Lighting is scheduled to turn ON or OFF based on time-of-day and sunrise/sunset.	C405.2.2, C405.2.7
	Occupancy Sensor	Lighting automatically turns ON upon occupancy detections and turns OFF after 20 minutes or less of vacancy.	C405.2.1
	Full ON	Lighting is automatically turn ON to full lighting output.	C405.2.1.1
	Partial ON	Lighting is automatically turn ON to 50% of lighting output.	C405.2.1.1
	Manual ON	Lighting is manually turned ON by occupant.	C405.2.1.1
	Full OFF	Lighting is automatically turned OFF.	C405.2.1
	Partial OFF	Lighting is automatically reduced by at least 50% of full output.	C405.2.1.2, C405.2.1.3, C405.2.1.4, C405.2.9
Other	Daylight Responsive Control	**Interior:** Spaces with more than 75W of general lighting within primary sidelit or toplit daylight zones or more than 150W of general lighting within secondary sidelit daylight zones shall continuously dim down to at least 15% in response to available daylight. **Exterior:** Lighting shall be automatically turned OFF when available daylight is present.	C405.2.4, C405.2.7.1
	Receptacle Control	At least 50% of the receptacles in designated areas must automatically turn OFF based on either an operating schedule or within 20 minutes or less of vacancy.	C405.12

Additional Efficiency Credit Requirements

A significant update to IECC 2024 introduced the requirement of additional efficiency credits. Projects must now earn credits based on select additional energy efficiency measures. For lighting, the following 6 strageties can contribute to the overall number of required credits:

- **Lighting system performance (reserved):** Reserved for future use.
- **Lighting dimming & tuning:** At least 50% of project interior floor area has a high-end trim of 85% or lower of full light output.
- **Increased occupancy sensor:** Use occupancy sensors in additional spaces beyond where required with timeout set to 10 minutes.
- **Increase daylight area:** Increase daylight areas in primary, secondary, and toplit daylight zones by at least 5%.
- **Residential light control:** Switch provided at main entrance to control all lighting and switched receptacles not controlled by occupancy sensors.
- **Light power reduction:** Connected interior lighting power shall be 95% or less than interior power allowance.
- **Lighting load management:** 75% of project interior floor to reduce lighting output by at least 80%.
- **Automated shading:** Use of automated shades to reduce heat gain and use of cooling energy.

	Section	Energy Credit Requirement
L01	C406.2.5.1	Lighting system performance (reserved)
L02	C406.2.5.2	Lighting dimming & tuning
L03	C406.2.5.3	Increased occupancy sensor
L04	C406.2.5.4	Increase daylight area
L05	C406.2.5.5	Residential light control
L06	C406.2.5.6	Light power reduction
G01	C406.3.2	Lighting load management
G03	C406.3.4	Automated shading