



nLight® Quick Reference Guide for IECC 2021

Commercial Lighting and Electrical Control Requirements

About this guide: The scope of this guide includes lighting controls for interior and exterior applications, as required for new construction, additions, and alterations that replace $\geq 10\%$ of the luminaires in a space.
Exceptions: Continuously lit security or emergency areas; interior exit stairways and ramps, and exit passageways; emergency egress lighting that is normally off.

	Control Requirement*	Code Provision	Code Summary*	Indoor Space Type										Outdoor Space Type			
				Enclosed Office, Copy / Print, Open Office <300ft	Conference, Meeting, Multipurpose Room	Classroom, Lecture Hall, Training Room	Gymnasium	Non-Exit Stairwell	Open Plan Office	Lobby	Corridor	Restroom	Warehouse	Parking Garage	Site, Parking Area	Facade and Landscape	
On-Off Control	Manual-On or AutoOn $\leq 50\%$	C405.2.1.1.2	Automatically controlled spaces must be controlled to automatically turn the lighting on to not more than 50% power.	✓	✓	✓	✓										
	Full Automatic-On	C405.2.1.1, exception	Automatically controlled spaces are allowed to turn on to full.					✓	✓	✓		✓	✓				
	Manual Control (Local Switch)	C405.2.1.1.3	Areas with occupant sensors shall incorporate a manual control to allow occupants to turn fixtures off.	✓	✓	✓	✓						✓				
	Auto Reduce Light Level via Occupancy	C405.2.1.2.2 C405.2.1.3.4 C405.2.1.4 C405.2.7.3.2 C405.2.8.1	Occupancy sensors shall automatically reduce lighting.							✓		✓	✓	✓	✓		
	Time-Switch Controls (via System Controller)	C405.2.2.1 C405.2.7.2 C405.2.7.3.1.1 C405.2.7.3.1.2	Each area not provided with occupant sensor controls shall be provided with time switch controls.					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Full Auto-Off via Occupancy Sensor	C405.2.1.1.1 C405.2.7.3.1.3	Fixtures must automatically turn off within 20 minutes of all occupants leaving the space.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Light Reduction Controls	C405.2.3.1	Spaces shall have a manual control that allows the occupant to reduce the connected lighting load uniformly by not less than 50%.					✓**			✓**						
	Automatic Receptacle Control	C405.11.1	50% of all receptacles, and 25% of branch circuit feeders installed for modular furniture, shall be automatically turned off by an occupant sensor within 20 minutes of all occupants leaving the space.	✓	✓	✓				✓							
Daylight Control	Daylight-Responsive Controls	C405.2.4.1 C405.2.4.2 C405.2.7.1 C405.2.8.2 C405.2.8.3	Daylight-responsive controls shall be provided.	✓	✓	✓	✓			✓	✓		✓	✓	✓	✓	

Notes:
 *This summary is for general information purposes only and is provided without any warranty as to accuracy, completeness, or otherwise. The user should read the applicable code sections for more complete and detailed descriptions of code requirements and exceptions and should consult with a professional engineer or other competent advisor before making any decision or taking any action based on this summary.
 **Light-reduction control required in conjunction with time-switch control where occupancy sensors are not provided.

Other Lighting Control Requirements

C405.2.1.3

Open Plan Office Areas:

- The controls shall be configured so that general lighting can be controlled separately in control zones with floor areas not greater than 600sqft within the open plan office space.
- The controls shall automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the open plan office space.
- The controls shall be configured so that general lighting power in each control zone is reduced by not less than 80 percent of the full zone general lighting power in a reasonably uniform illumination pattern within 20 minutes of all occupants leaving that control zone. Control functions that switch control zone lights completely off when the zone is vacant meet this requirement.

C405.2.5.2

Hotel/Motel Sleeping Units and Guest Suites:

Master control device turns off all installed luminaires and switched receptacles within 20 minutes of occupants leaving.

Exceptions:

Lighting and switched receptacles controlled by a captive key system.

C408.3

Lighting System Functional Testing:

Prior to passing the final inspection, the registered design professional shall provide evidence that the lighting control systems have been tested to ensure that control hardware and software are calibrated, adjusted, programmed, and in proper working condition in accordance with the construction documents and manufacturer's instructions.

C408.3.1.1: Test occupancy sensors

C408.3.1.2: Test auto time switch

C408.3.1.3: Test daylight responsive

C405.2.7

Exterior Lighting Controls:

- Automatically turn lights off with daylight
- Facade, landscape lights automatically turn off as a function of dusk/dawn and open/close time
- Reduce all other lighting by $\geq 30\%$ from no later than midnight to 6AM, one hour after closing to one hour before opening, or when no activity is detected for > 15 minutes

Exceptions:

- Auto off emergency lighting
- Lighting for health and safety
- Covered vehicle entrances/exits for eye adaptation
- Lighting controlled from within dwelling units

C406

Additional Efficiency Package:

Note: Lighting options listed below, other options include: HVAC, renewable energy, outdoor air, service water heating.

C406.3: Reduced lighting power density:

Use 90% of total interior lighting power as identified in Table C405.3.2(1) or by using Space-by-Space method from C405.3.2(2).

C406.4: Enhanced digital lighting controls:

Continuous dimming, individually addressable luminaires, daylight zones, digitally reconfigurable, load shedding, individual user control, digitally reconfigurable occupancy sensor.