nLight® Quick Reference Guide for IECC 2018
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 >=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*	Space Type: Enclosed Office	Open Plan Office	Conference, Meeting, Multipurpose Room	Classroom, Lecture Hall, Training Room	Lobby	Corridor	Public Restroom	Private Restroom	Non-Exit Stairwell	Gymasium	Warehouse	Parking Garage	Site Lighting
On-Off Control	Manual-On or AutoOn ≤ 50%	C405.2.1.1.1	Automatically controlled spaces must be controlled to automatically turn the lighting on to not more than 50% power.	✓	✓	✓	✓									
	Full Automatic-On	C405.2.1.1.2	Automatically controlled spaces are allowed to turn on to full.					✓	✓	✓	✓	✓		✓		
	Auto-Off ≤ 50%	C405.2.1.2	Occupancy sensors shall automatically reduce lighting in ware-house storage aisle-ways and open areas by ≤ 50%											✓ (or)		
	Full Auto-Off via Occupancy Sensor	C405.2.1.1.1 & C405.2.1.1.3	Fixtures must automatically turn off within 20 minutes of all occupants leaving the space.	✓	✓	✓	✓	✓ (or)	✓ (or)	✓	✓	✓ (or)	✓ (or)	✓		
	Time-Switch Controls (via System Controller)	C405.2.2.1	Each area of the building not provided with occupant sensor controls shall be provided with time switch controls. These areas must also be provided with a manual override switch.					✓	✓			✓	✓			
	Light Reduction Controls	C405.2.2.2	Spaces shall have a manual control that allows the occupant to reduce the connected lighting load uniformly by not less than 50%.		✓ (or)							✓ (or)	✓ (or)			
	Manual Control (Local Switch)	C405.2.5	Areas shall incorporate a manual control to allow occupants to turn fixtures off.	✓	✓	✓	✓	✓	✓	✓**	✓**	✓**	✓**			
Daylight Control	Daylight-Responsive Controls	C405.2.3.1 & C405.2.3.2	Daylight-responsive controls shall be provided within each space with sidelight and toplight daylight zones totaling > 150W.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Exterior Control	Exterior Lighting Controls	C405.2.6	C405.2.6.1 Daylight shutoff C405.2.6.2 Decorative lighting shutoff C405.2.6.3 Lighting setback C405.2.6.4 Exterior time-switch control function												✓	✓

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.*
*** While energy code is required, safety may preclude the use of a manual controls in these spaces.*

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.

C405.2.4.2

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

C405.2.6

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 ≥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.