

Suggested energy code solutions for commercial buildings

The compliant solutions listed below are suggested based on total installed cost, simplicity of design, and basic functional needs for the space. These solutions represent one of multiple compliant options to meet lighting and receptacle control requirements.

Diagram key:

● = New construction

⚙ = Lighting retrofit¹

⚙ = New construction and retrofit¹

		Atrium	Classroom, Lecture Hall, Training Room	Conference, Break Room	Corridor ²	Guestroom ³	Lobby	Open Office (>300 sq. ft.)	Parking Garage ⁴	Private Office (<300 sq. ft.)	Restaurant/Cafeteria, Dining areas	Restroom	Stairwell ²	Storage Room	Warehouse and Library Stacks ⁵	Facade/Landscape	Other Exterior ⁶	
Manual Control	Switch		⚙	⚙		⚙				⚙		⚙		⚙				
	Dimmer or scene control	⚙			⚙		⚙	⚙			⚙		⚙		⚙			
Automatic ON/OFF Control	Timeclock	⚙							⚙						⚙	⚙	⚙	
	Occupancy sensor		⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙			
	Settings	Full ON				⚙		⚙	⚙	⚙		⚙	⚙	⚙		⚙	⚙	⚙
		Partial ON	⚙							⚙								
		Manual ON		⚙	⚙		⚙				⚙				⚙			
		Full OFF ¹¹	⚙	⚙	⚙		⚙	⚙	⚙	⚙	⚙	⚙	⚙		⚙	⚙	⚙	⚙
Partial OFF					⚙ ⁷			⚙ ¹⁰	⚙		⚙ ¹⁰		⚙ ⁷		⚙		⚙	
Other	Daylight responsive control	⚙	⚙ ⁸	⚙	⚙		⚙ ⁸			⚙ ⁸	⚙ ⁹	⚙	⚙	⚙	⚙	⚙	⚙	
	Receptacle control																	
	Demand response																	

1 All retrofits altering more than 10% of the luminaires in a space must comply with the code.

2 To comply with some life safety code requirements for egress illumination, automatic full OFF is not suggested. For non-egress areas, the occupancy sensor should turn the lights to full OFF and a switching control may be used.

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

4 Timeclock ensures the lights are ON when typically occupied. Occupancy sensor controls lights when typically unoccupied.

5 When occupied, the occupancy sensor provides partial on functionality. When unoccupied, the sensor provides partial OFF functionality. The timeclock turns lights off during non-operating hours.

6 Astronomical timeclock shall ensure all lights are OFF during daylight hours. Lights should be scheduled to partial OFF during night hours. See section C405.2.5 for scheduling times.

7 Up to 0.02 watts per square foot of lighting in the exit access may remain on.

8 These spaces require continuous daylight dimming to OFF.

9 Not required for sidelight daylight zones in ground-level occupancies.

10 Control zones are limited to 600 sq. ft. or less. Once a zone is vacant for 15 minutes, the occupancy sensor automatically reduces lighting in the zone by 80% of full light output or turns lighting OFF in the vacant zone.

11 Sensor(s) automatically turns lighting OFF in the entire space within 15 minutes of vacancy in the whole space.

Go to lutron.com/energycodes for complete details

Energy Code Lookup Tool lutron.com/energycodes

Energy Code Application Guides lutron.com/appguides

Rebate Lookup Tool lutron.com/rebates

24/7 Energy Code Hotline 1THINKCODE0 (1.844.652.6330)

Energy Codes Email energycodes@lutron.com

NYCECC 2020: Application Summary

IECC 2018 Compliance Path

Code requirement summary

	Minimum control type	Description	Code provision	
Manual Control	Switch	Lighting shall be capable of turning ON and OFF. There shall be at least one manual device for control of the lighting within a space. See code for spaces that allow remote location of control.	C405.2.1.1 C405.2.2 C405.2.5	
	Dimmer or scene control	Lighting shall be capable of being reduced by at least 50% of maximum lighting power. There shall be a manual device allowing an occupant to reduce lighting by at least 50% of maximum lighting power within a space. See code for spaces that allow remote location of control. Automatic daylight control may be used instead of manual control.	C405.2.2.2	
Automatic ON/OFF Control	Timeclock	Interior: Scheduled control, based on time-of-day, turns lighting ON or OFF based on typical occupancy. Occupancy sensors also comply as an alternate to using a timeclock. Exterior: Scheduled control, based on time-of-day and sunrise/sunset (requires astronomical timeclock), turns lighting ON or OFF based on typical occupancy and daylight.	C405.2.2 C405.2.6	
	Occupancy sensor	Automatic control turns lighting ON upon occupancy or OFF after a vacancy of 15 minutes or less.	C405.2.1	
	Settings	Full ON	When initiated by a timeclock or occupancy sensor, lighting is automatically turned ON to maximum lighting power.	C405.2.1.1 Exception
		Partial ON	When initiated by a timeclock or occupancy sensor, lighting is automatically turned ON to 50% or less of maximum lighting power.	C405.2.1
		Manual ON	Lighting is turned ON manually by an occupant.	C405.2.1.1
		Full OFF	When initiated by a timeclock or occupancy sensor, lighting is automatically turned OFF.	C405.2.1
Partial OFF	When initiated by an occupancy sensor, lighting is automatically reduced by at least 80% of maximum lighting power in open offices, cafeteria and fast food dining areas (50% for warehouse aisles and warehouse open areas). Automatic full OFF also complies. Exterior: Lighting setback of at least 50% is required for non-decorative lights afterhours or when no activity is detected for 15 minutes.	C405.2.1.3 C405.2.6.3		
Other	Daylight responsive control	Interior: A sensor which adjusts lighting in response to available daylight is required for sidelight and skylight zones. Some spaces, including offices and classrooms require dimming. See the "Daylight Zone Requirements" diagrams for more information. Exterior: A photosensor can be used as an alternate to the dawn/dusk operation of an astronomical timeclock.	C405.2.3 C405.2.6.1	
	Receptacle control	Receptacle control is not required by this energy code.	N/A	
	Demand response	Demand response is not required by this energy code.	N/A	

For areas being used as a path of egress or fixtures being used for emergency, verify compliance with your local authority having jurisdiction. Acceptance (functional) testing is required for all new construction applications to ensure that control hardware and software are calibrated, programmed and functioning properly (Code provision 130.4).

Daylight zone requirements

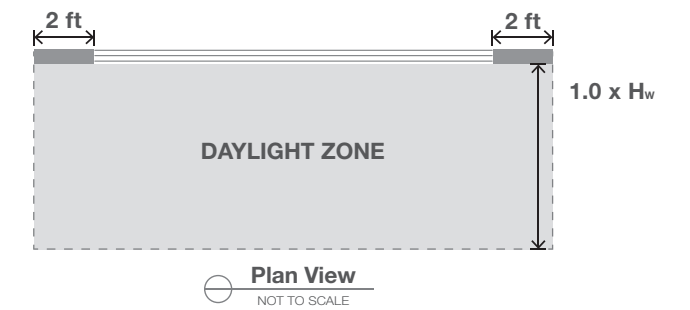
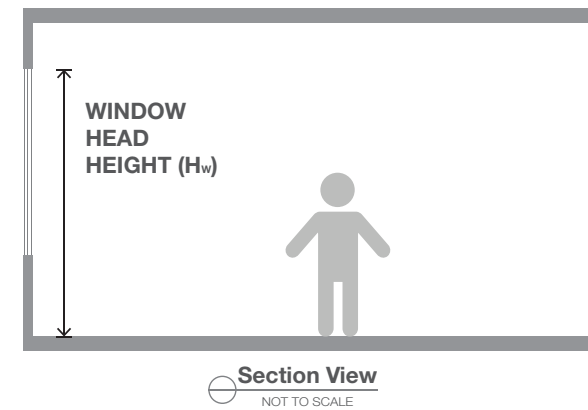
Daylight zone requirements:

Sidelighted daylight zones must be controlled separately from toplighted zones. North, South, East, and West zones must also be controlled separately.

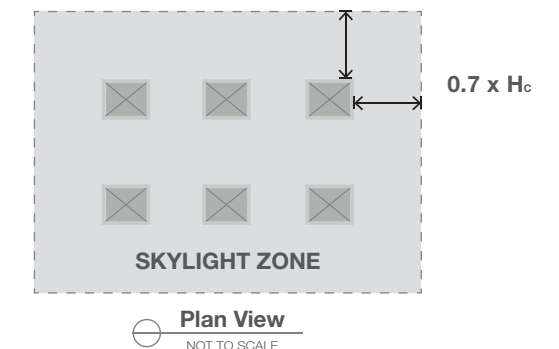
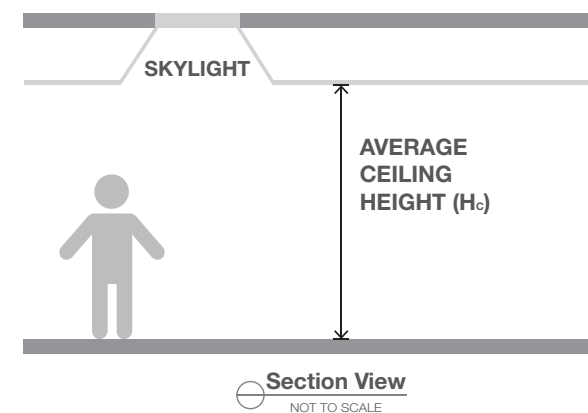
Daylight exceptions:

Daylight control is not required when the total lighting power of a daylight zone is 100W or less, or when the total glazing area is 24 sq. ft. or less. Other exceptions exist, based on space type, neighboring obstructions, and glass transmittance.

Sidelighting (Window)



Toplighting (Skylight)



This document summarizes the lighting and receptacle control requirements for commercial buildings. It is for information purposes only. It is not meant to replace your state's or local jurisdiction's official energy code. Please refer to your local building energy code or authority having jurisdiction for your precise requirements. Only the authority having jurisdiction can guarantee code compliance.