

## 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 retrofit<sup>1</sup>

⚙ = New construction and retrofit<sup>1</sup>

		Atrium	Classroom, Lecture Hall, Training Room	Conference, Break Room	Corridor <sup>2</sup>	Guestroom <sup>3</sup>	Lobby	Open Office (>250 sq. ft.)	Parking Garage	Private Office (<250 sq. ft.)	Restaurant/Cafeteria, Retail	Restroom	Stairwell <sup>2</sup>	Storage Room	Warehouse and Library Stacks	Facade/Landscape	Other Exterior <sup>4</sup>	
<b>Manual Control</b>	Switch	⚙	⚙	⚙	⚙	⚙	⚙	⚙		⚙	⚙	⚙	⚙	⚙	⚙			
	Dimmer or scene control																	
<b>Automatic ON/OFF Control</b>	Timeclock	●					●		●		●					●	●	
	Occupancy sensor		●	●	●			●		●		●	●	●	●			
	Settings	Full ON	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		Partial ON																
		Manual ON																
		Full OFF	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Partial OFF																		
<b>Other</b>	Daylight responsive control																	
	Receptacle control																	
	Demand response																	

1 Retrofit requirements indicated are only required when replacing lighting controls during lighting alterations which replace greater than 50% of the connected load in a space.

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 Manual device by the entry must control all permanently installed luminaires and switched receptacles.

4 Occupancy sensing is required for exterior grounds luminaires greater than 100 watts having an efficacy less than 60 lumens per watt.

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## Code requirement summary

	Minimum control type	Description	Code provision	
<b>Manual Control</b>	Switch	Lighting shall be capable of turning ON and OFF. There shall be at least one manual or automatic device for control of the lighting within a space. See code for spaces that allow remote location of control.	9.4.1.2 (b)	
	Dimmer or scene control	Lighting shall be capable of providing at least one level between 30% and 70% of full power, in addition to 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. Multi-level control is not a code requirement.	9.4.1.2 (b)	
<b>Automatic ON/OFF Control</b>	Timeclock	<b>Interior:</b> 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. <b>Exterior:</b> Scheduled control, based on time-of-day and sunrise/sunset, turns lighting ON or OFF based on typical occupancy and daylight (requires astronomical timeclock).	9.4.1.1 (a) 9.4.1.3	
	Occupancy sensor	Automatic control turns lighting ON upon occupancy or OFF after a vacancy of 30 minutes or less.	9.4.1.2 (a)	
	Settings	Full ON	When initiated by a timeclock or occupancy sensor, lighting is automatically turned ON to maximum lighting power.	9.4.1.2
		Partial ON	Partial ON is not required by this energy code.	N/A
		Manual ON	Manual ON is not required by this energy code.	N/A
		Full OFF	When initiated by a timeclock or occupancy sensor, lighting is automatically turned OFF.	9.4.1.1
		Partial OFF	Partial OFF is not required by this energy code.	N/A
<b>Other</b>	Daylight responsive control	Daylight responsive control is not required by this energy code.	N/A	
	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.

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. The recommendations presented in this guide are based on the originally published code prior to addenda. 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.