TABLE 2: CONTROL REQUIREMENTS	2021 IECC
General Lighting Control Remarks	**C405.2** Lighting control system or luminaire level lighting controls: ▪ Brighten or dim lighting based on occupancy ▪ Brighten or dim artificial lighting based on daylight ○ *Exceptions include:* - *Security or emergency areas requiring continuous lighting* - *Interior exit stairways, exit ramps and passageways* - *Emergency egress lighting that is normally OFF*
Manual Controls	**C405.2.6** ▪ Manual controls must be readily accessible to occupants ▪ Controlled lighting must be visible from the manual control device **C405.2.3.1** - Manually reduce lighting load by ≤ 50% in a reasonably uniform illumination pattern using one of the following methods: ▪ Continuous dimming of all luminaires from full output to ≤ 20% ▪ Switching all luminaires to between 30% and 70% power ▪ Switching alternate luminaires or rows to achieve between 30% and 70% power

Table 2. Codes and their approaches to lighting controls

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Table 9.6.1 Control function requirements for each space in the building **9.4.1.1** If the space-by-space method is used, space type for control requirements must match that used for LPD allowance	**130.1(f)** Control Interactions ▪ Manual control allows occupant to adjust lighting level ▪ Manual control allows occupant to turn lights OFF ▪ Manual switch allows for temporary override of time switch control ▪ Daylighting control allow for multilevel lighting control to adjust light power based on available sunlight ▪ Where auto-ON function is allowed, lights come ON at between 50% to 70% of the controlled lighting power ▪ *Exceptions - There are numerous exceptions for health care facilities*
9.4.1.1(a) ▪ Manual controls must be located in the controlled space and be readily accessible to occupants ▪ Controlled lighting must be visible from the manual control device ▪ If space is ≤ 10,000ft^2, then control area must be ≤ 2,500ft^2 ▪ If space is > 10,000ft^2, then control area must be ≤ 10,000ft^2 ○ *Exception - Remote switch location permitted for reasons of safety or security (must have status pilot light and be labeled)* **9.4.1.1(b)** ▪ Unless specifically allowed in other sections, no lighting may be automatically turned ON ○ *Exceptions – Manual ON is not required where manual ON operation of the general lighting would endanger the safety or security of the room or building occupants*	**130.1(a)** Each area enclosed by ceiling-height partitions shall have manual ON/OFF controls ○ *Exceptions – Egress lighting ≤ ft21% of lighting power may be continuously lit if:* - *The area is designated for means of egress AND* - *Egress lighting controls are not accessible to unauthorized personnel* ▪ Readily accessible to occupants ○ *Exceptions – Manual control not accessible to unauthorized personnel in:* - *Public restrooms with ≥ 2 stalls* - *Parking areas* - *Stairwells* - *Corridors* ▪ Located in the same enclosed area with the lighting it controls ○ *Exceptions – Where controlled lighting is visible from the manual control device in:* - *Malls and atria* - *Auditorium areas* - *Retail merchandise sales areas* - *Wholesale showroom areas* - *Commercial/industrial storage areas* - *General commercial & industrial work areas* - *Convention centers* - *Arenas* - *Psychiatric and secure areas in health care facilities* - *Where a manual area control poses a health and safety hazard*

TABLE 2: CONTROL REQUIREMENTS 2021 IECC

Manual Controls (continued)

Lighting Reduction Controls

C405.2.3.1 - Manually reduce lighting load by ≤ 50% in a reasonably uniform illumination pattern using one of the following methods:

- Continuous dimming of all luminaires from full output to ≤ 20%
- Switching all luminaires to between 30% and 70% power
- Switching alternate luminaires or rows to achieve between 30% and 70% power

Occupant Sensor Controls

C405.2.1 Occupancy sensors for these space types:

- Class/lecture/training rooms
- Conference/meeting/multipurpose rooms
- Copy/print rooms
- Lounges/break rooms
- Enclosed offices
- Open plan office areas
- Restrooms
- Storage rooms
- Locker rooms
- Corridors
- Warehouse storage areas
- Other spaces ≤ 300ft²

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	○ *Exceptions – Where outside the enclosed area directly adjacent to the door* - *Health care facilities* - *Rest/bating rooms for single occupant* ▪ Separate ON/OFF control for each type of lighting without turning ON/OFF other types of lighting/ equipment - General lighting - Floor display lighting - Wall display lighting - Window display lighting - Case display lighting - Ornamental lighting - Special effects lighting
9.4.1.1(d) ▪ In additional to full ON and full OFF, controlled lighting shall have at least one control step ≥ 30% and ≤ 70%, or continuous dimming ○ *Exceptions (from Table 9.6.1):* - *Atriums < 20ft tall* - *Corridors* - *Elect/mech rooms* - *Storerooms* - *Loading docks* - *Restrooms* - *Lobbies*	**130.1(b)** ▪ General lighting of any enclosed area ≥ 100ft² with > 0.5W/ft² load shall have multilevel lighting controls to allow up and down adjustment ▪ Table 130.1-A Defines where continuous dimming versus step controls are required based on luminaire types ▪ Control steps shall maintain uniformity requirements ○ *Exceptions include:* - *Areas enclosed by ceiling height partitions with only one luminaire having ≤ 2 lamps* - *Restrooms* - *Health care facilities*
Table 9.6.1 Occupancy sensors for these space types: ▪ Class/lecture/training rooms ▪ Conference/meeting/multipurpose rooms ▪ Lounges/break rooms ▪ Copy/print rooms ▪ Multipurpose rooms ▪ Lecture halls ▪ Restrooms ▪ Fitting/dressing rooms ▪ Storage rooms ≥ 50ft² and ≤ 1,000ft² ▪ Locker rooms ▪ Offices ≤ 250ft²	**130.1(c)** Shutoff controls – Automatic reduction of lighting power when space is typically unoccupied ○ *Exceptions:* - *Health care facilities* - *Egress lighting ≤ 0.1W/ft²* ▪ Separate controls for: - General Lighting - Display lighting - Ornamental - Display case lighting ▪ Occupant sensing controls required - Offices ≤ 250ft² - Multipurpose rooms < 1,000ft² - Classrooms - Conference rooms - Restrooms - Open offices - control zone ≤ 600ft²

TABLE 2: CONTROL REQUIREMENTS 2021 IECC

Occupant Sensor Controls (continued)

C405.2.1.1 Standard function

- Automatically turn OFF lights within 20 minutes after all occupants have left the space
- Manual ON or controlled to automatically turn on the lighting to ≤ 50% power
    - *Exceptions - Full automatic-ON controls with no manual control permitted in:*
        - *Corridors*
        - *Interior parking areas*
        - *Stairways*
        - *Restrooms*
        - *Locker rooms*
        - *Lobbies*
        - *Library stacks*
        - *Areas where manual operation would endanger occupant safety or security*
- Include manual control to allow occupants to turn OFF lights

C405.2.1.2 Warehouse storage areas

- Each aisleway controlled independently of other aisleways and open areas
- Occupant sensors automatically reduce lighting to ≤ 50% within 20 minutes of occupants leaving area
- Automatic OFF by sensor or time-switch
- Manual OFF power switch within each controlled area

C405.2.1.3 Open Office (≥ 300ft^2)

- Control zones are ≤ 600ft^2
- Auto ON permitted in occupied zone, unoccupied zones auto ON to ≤ 20% lighting power or remain OFF
- Auto OFF, or reduced general lighting in control zone to ≤ 20% lighting power (where time-switch is used), within 20 minutes of occupants leaving control zone
- Auto OFF all control zones within 20 minutes of all occupants leaving the open plan office

C405.2.1.4 Corridors

- Uniformly reduce lighting to not more than 50% lighting power within 20 minutes of occupants leaving
    - Exception: Where lighting at the floor is < 2 foot-candles

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9.4.1.1(b) & 9.4.1.1(c)

- Lighting shall either be manual on, OR Automatically turn ON the lighting to ≤ 50% power
  - *Exceptions (from Table 9.6.1) - Full automatic-ON controls with no manual control permitted in:*
    - *Lobbies*
    - *Corridors*
    - *Restrooms*
    - *Stairwells*
    - *Health care facilities*
    - *Storage rooms < 50ft2*
    - *Elect/mech rooms*
    - *Areas where manual operation would endanger occupant safety or security*
- In open plan office areas where control zone is ≤ 600 ft^2, lighting can be automatically turned ON to < 50% power

9.4.1.1(h)

- Automatically turn OFF lights (including luminaires on emergency circuits) ≤ 20 minutes after all occupants have left the space
- Control device controls ≤ 5,000ft^2

9.4.1.1(g) General lighting power shall be automatically reduced to ≤ 50% power within 20 minutes after all occupants have left the space in:

- Lobbies
- Corridors
- Stairwells
- Warehouse storage areas
  - Exception – Automatic power reduction not required where all these conditions apply:
    - *LPD* ≤ 0.8W/ft^2
    - *Space limited to luminaires with HID lamps*
    - *General lighting power reduced by* ≥ 30% in ≤ 20 minutes after all occupants have left the space
    - *Lighting multiplied by the gross floor area of the building is* ≤ 0.02W/ft^2

- Areas with multilevel lighting controls per 130.1(b)
  - Partial -ON to between 50% to 70% power
  - Vacancy sensor – manual ON with automatic OFF
- Areas exempted from multilevel controls per 130.1(b)
  - Occupancy sensor full on
  - Occupancy sensor partial on
  - Vacancy sensor – manual on
- Areas where full or partial OFF are required
  - Aisle ways and open areas of warehouses
    - Automatically reduce power ≥ 50%
      - *Exception – HID lighting to reduce ≥ 40%*
  - Library book stack aisles ≥ 10ft accessible from one end or ≥ 20ft accessible from both ends
    - Automatically reduce power ≥ 50%
  - Corridors and stairwells - reduce power ≥ 50%
- Areas where partial OFF control is required
  - Stairwells and common area corridors - reduce power ≥ 50%
    - Guest rooms
    - Dwelling units of high-rise residential buildings
    - Hotels/motels
  - Parking garages, parking areas, loading and unloading areas
    - At least one control step ≥ 20% and ≤ 50% of lighting power
    - Single zone ≤ 500W
- Hotel/motel guest rooms – lights shut OFF ≤ 20 minutes after vacated
  - Captive card key controls
  - Occupancy sensor controls
  - Other automatic controls
  - *Exception - High efficiency luminaire with switch ≤ 6ft of entry door*

TABLE 2: CONTROL REQUIREMENTS	2021 IECC
Time-switch Controls	**C405.2.2** - Areas not provided with occupant sensor controls ○ *Exceptions* - *Where patient care is directly provided* - *Where auto OFF endangers occupant safety or security* - *Areas with 24/7 operations* - *Shop and laboratory classrooms* - *Luminaires for specific applications (C405.2.5)* ▪ Auto OFF when scheduled unoccupied. ▪ Minimum 7-day clock capable of being set for seven different day types per week ▪ Automatic holiday “shutoff” feature for ≥ 24 hours ▪ 10-hour power backup ▪ Manual override for ≤ 2 hours, and control area ≤ 5,000ft² ○ *Exceptions - Manual override (captive key device) for > 2 hours, and control area ≤ 20,000ft² in:* - *Mall concourses* - *Auditoriums* - *Sales areas* - *Manufacturing facilities* - *Sports arenas*
Demand Responsive Controls	

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9.4.1.1(i) & 9.4.1.1(j) ▪ Lighting, including emergency circuits, not already shut OFF by occupancy sensor controls shall shut OFF when scheduled unoccupied ▪ Lighting scheduled OFF during nonbusiness hours ○ *Exceptions* - *Spaces where lighting is required for 24/7 operation* - *Where patient care is rendered* - *Where auto OFF endangers safety or security* - *Where lighting load is ≤ 0.02 w/ft²* ▪ A signal from another automatic control device or alarm/ security system complies ▪ Control zone ≤ 25,000 ft² ▪ No more than one floor ▪ Account for weekends and holidays ▪ Manual override for ≤ 2 hours, and control area ≤ 5,000ft²	**130.1(c)** Shutoff controls – Automatic shutoff or reduction of lighting power when space is typically unoccupied ○ *Exceptions:* - *Health care facilities* - *Continuous use areas (24 hours/day, 365 days/year)* - *Egress lighting with ≤ 0.1W/ft² of lighting area* - *Electrical equipment rooms [Article 110.26(D)]* - *Emergency light that functions only when normal power is absent* ▪ Separate control for each floor ○ Exception – Stairwells ▪ Separate controls for each space ≤ 5,000ft² ○ *Exceptions – Spaces ≤≥ 5,000ft² in:* - *Malls* - *Auditoriums* - *Single tenant retail* - *Industrial* - *Convention centers* - *Arenas* ▪ Separate controls for: - General Lighting - Display lighting - Ornamental - Display case lighting ▪ Account for weekends and holidays ▪ Auto time-switch controls may include manual-ON mode ▪ Countdown timers may be used in: - Closets < 70ft² set at ≤ 10 minutes - Aisles in server rooms set at ≤ 30 minutes ▪ Manual override - Comply with requirements of 130.1(a) - Lighting to stay ON for ≤ 2 hours ○ *Exceptions – Manual override (captive key device) for > 2 hours in:* - *Malls* - *Auditoriums* - *Single tenant retail* - *Industrial* - *Arenas*
	130.1(e) & 110.12 Demand response controls – Power consumption in lighting and controlled receptacles is adjusted during periods of high peak demand and when requested by the utility due to stress on the grid • Control system/devices must respond to signals from specified virtual end node via prescribed communication protocols • Lighting in nonresidential buildings ≥ 10,000ft² reduced in uniform manner

TABLE 2: CONTROL REQUIREMENTS 2021 IECC

Demand Responsive Controls	
Daylight-responsive Controls	**C405.2.4** ▪ Spaces with a total ≥ 150W of general lighting within primary sidelit daylight zones ▪ Spaces with a total ≥ 300W of general lighting within sidelit daylight zones ▪ Spaces with a total ≥ 150W of general lighting within toplit daylight zones ○ *Exceptions* - *Direct patient care areas health care facilities* - *Groups A-2 and M (retail) sidelit zones on the first floor* - *Where LPD is reduced by equation* - *Where sidelight fenestration is < 24ft²* - *Where daylight is blocked by obstructions* - *Where visible transmittance is 0.20* - *Where calculated overhang projection factor is too large* ▪ Control sidelit independent of toplit zone ▪ Control primary/secondary sidelit zones separately ▪ Authorized calibration in space with ready access ▪ Automatic continuous dimming of general lighting to ≤ 15% full power ▪ Configure to completely turn lighting OFF ▪ Configure to not increase light power above specified unoccupied setpoint ▪ Separate sidelit zones for north, east, south, west **C405.2.4.2** Primary & secondary sidelit daylight zones with guidelines for calculating the area of those zones based on the fenestration size, height and configuration **C405.2.4.3** Single primary daylight zone with guidelines for calculating the area of the zone based on the roof fenestration size and configuration **C405.2.4.4** Daylight zones at the top floor surrounding the atrium and at the floor of the atrium space, but not on intermediate floors

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	• Reduce lighting power ≥ 15% of total lighting power
	  • *Exceptions - Spaces that do not count toward the 10,000ft²*
	  - *Spaces with ≤ 0.5W/ft²*
	  - *Spaces where a health or life safety statute, ordinance, or regulation does not permit the lighting to be reduced*
	• Electronic message centers > 15kW must reduce power ≥ 30% of lighting power
	  • *Exception – Electronic message centers where a health or life safety statute, ordinance, or regulation does not permit the lighting to be reduced*
	• Controlled receptacles must be disconnected from power in buildings requiring demand response control

9.4.1.1(e) & 9.4.1.1(f)
 	
▪ Spaces with a total ≥ 150 watts of general lighting within primary sidelit daylight zones
▪ Spaces with a total ≥ 300 watts of general lighting within primary and secondary sidelit daylight zones
▪ Spaces with a total ≥ 150W of general lighting within toplit daylight zones
▪ General lighting controlled by multi-step or continuous dimming photocontrols
▪ No calibration at the sensor. Calibration control located ≤ 11ft above floor
▪ Continuous dimming to ≤ 20% and OFF based on available daylight
▪ When lighting power is at unoccupied set point, daylight responsive control will not allow lighting power above that unoccupied set point
○ *Exceptions*
  - *Where obstructions block daylight*
  - *Where sidelight fenestration is < 20ft²*
  - *Retail spaces*
  - *Areas where vertical glazing has an overhang projection to rise ratio > 1.5 for south, east and west orientations, or > 1 for north orientation*
  - *Where toplight is blocked > 1,550 hours/year*
  - *Where the skylight effective aperture is < 0.006*
  - *Buildings with Climate Zone 8 and lighting is < 200W*
9.4.1.1(e) Primary & secondary sidelit daylight zones with guidelines for calculating the area of those zones based on the fenestration size, height and configuration
 	
9.4.1.1(f) Single primary daylight zone with guidelines for calculating the area of the zone based on the roof fenestration size and configuration
 	
▪ Luminaires in overlapping skylit and sidelit zones are controlled by skylit zone control
	130.1(d) Automatically adjust lighting power based on incoming daylight changes
	
	▪ Both skylit and sidelit zones must be clearly shown on design drawings
	▪ Separate control for each type pf daylight zone (skylit zone, primary and secondary sidelit zones)
	▪ Luminaires in overlapping skylit and sidelit zones are controlled by skylit zone control
	▪ Lighting adjusted via continuous dimming or control steps
	▪ Combined illuminance from luminaires and daylight is not less than controlled lighting when not daylight is available
	▪ When daylight illuminance is > 150% of designed illuminance, general lighting is reduced ≥ 65%
	▪ When daylight illuminance is > 150% of designed illuminance for parking garage, general lighting is reduced to 0
	▪ Authorized calibration in space with ready access
	○ *Exceptions*
	  - *Areas under skylights where direct sunlight is blocked > 1,5000 daytime hours between 8AM and 4PM*
	  - *Areas where vertical glazing has an overhang projection to rise ratio > 1.5 for south, east and west orientations, or > 1 for north orientation*
	  - *Rooms where total general lighting power in daylit zone is < 120W*
	  - *Rooms where total glazing is < 24ft²*
	  - *Parking garage where total general lighting power in daylit zone is < 60W*
	  - *Parking garage where total glazing and openings is < 36ft²*
	  - *Daylight adaptation zones and dedicated ramps in parking areas*
	  - *Sidelit daylight zones in retail merchandise sales and wholesale showroom areas*

TABLE 2: CONTROL REQUIREMENTS — 2021 IECC

Special Application Controls

C405.2.5.1 In addition to occupant sensor control or time-switch control, provide manual control the following separate from general lighting in the space:

- Special luminaires for which additional lighting power is claimed per C405.3.2.2.1
- Display and accent lighting
- Lighting in display cases
- Supplemental task lighting, including permanently installed under-shelf/cabinet lighting
- Lighting equipment that is for sale or demonstration in lighting education
- Display lighting for exhibits in galleries, museums and monuments that is in addition to general lighting

C405.2.5.2 - Provide control devices of systems in sleeping units to automatically turn OFF all permanently installed luminaires and switched receptacles within 20 minutes after all occupants have left the unit.

- *Exceptions:*
  - *Lighting that is controlled by card key*
  - *Lighting where patient care is directly provided*

C405.2.5.3 – Dwelling unit requirements

C405.2.5.4 – Provide time-switch control for plant growth and food warming luminaires

C405.2.5.5 – Separate manual control for medical and dental task lighting

Exterior Lighting Controls

C405.2.7

- Auto OFF when daylight is available
  - *Exceptions:*
    - *Lighting for covered vehicle entrance/exit where required for eye adaptation*
    - *Lighting controlled from within dwelling units*
- Façade and landscape lighting OFF at ≤ 1 hour after business and ON at ≤ 1 hour before business
- All other outdoor lighting wattage automatically reduces ≥ 50% either:
  - From midnight to 6:00AM
  - From ≤ 1 hour after business close until ≤ 1 hour before business start
  - When no activity is detected for ≥ 15 minutes
- Parking area lighting > 78W with mounting height ≤ 24ft automatically reduces ≥ 50% when no activity is detected for ≥ 15 minutes with control zone ≤ 1,500W

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9.4.1.3 Lighting controls noted here are the only required controls for this equipment and applications ▪ Refer to Table 9.2.3.1 and Section 9.6.2 ▪ Specialty lighting shall have local control independent of general lighting per Section 9.4.1.1(a) ▪ Specialty lighting shall be controlled per Sections 9.4.1.1(h) and 9.4.1.1(i) - Display or accent lighting - Lighting in display cases ▪ Guestrooms - Lighting and switched receptacles are automatically turned OFF in ≤ 20 minutes of occupants leaving ○ *Exceptions* - *Where controlled by card keys* - *Bathrooms* - Bathrooms shall have a separate control device to automatically turn OFF bathroom lighting ≤ 30 minutes of occupants leaving the room ○ *Exception – Bathroom night light ≤ 5W* ▪ Task lighting including undershelf/undercabinet - Control device integral to luminaire - Local control independent of general lighting	**130.3** Sign lighting controls for all nonresidential buildings ○ *Exceptions* - *Health care facilities* - *High-rise residential buildings* - *Hotel/motel buildings* ▪ Indoor signs to be controlled with automatic time-switch ▪ Outdoor signs - Photo control in addition to automatic time-switch or astronomical time-switch ○ *Exceptions* - *Outdoor signs in tunnels* - *Large permanently covered areas intended to be lit 24 hours/day and 365 days/year* - Outdoor sign light ON both day & night (illuminated at night and > 1 hour during daylight hours) controlled with dimmer to automatically reduce lighting ≥ 65% during nighttime hours ○ *Exceptions* - *Outdoor signs in tunnels* - *Large covered areas intended to be lit day and night*
9.4.1.4 ▪ Auto OFF when daylight is available ▪ Façade and landscape lighting is automatically shut OFF between mid-night or business closing (whichever is later) and 6:00 AM or business opening (whichever is first), or between times established by the AHJ ▪ All other outdoor lighting (including signage lighting) wattage automatically reduces ≥ 50% either - Between mid-night or ≤ 1 hour of business closing (whichever is later) and 6:00 AM or business opening (whichever is first) - When no activity is detected for ≥ 15 minutes ▪ Parking area lighting > 78W with mounting height ≤ 24ft automatically reduces ≥ 50% when no activity is detected for ≥ 15 minutes with control zone ≤ 1,500W ▪ Exterior time-switch controls shall have battery back-up for ≥ 10 hours	**130.2(c)** Outdoor lighting controlled independent of other electrical loads ○ *Exceptions* - *Outdoor lighting not permitted to be turned OFF by health or life safety statute, ordinance, or regulation* - *Lighting in tunnels illuminated 24 hours/day and 365 days/year* ▪ Auto OFF when daylight is available ▪ Automatic scheduling controls - Lighting reduced ≥ 50%, but ≤ 90% during scheduled unoccupied periods - Allow ≥ 2 nighttime periods with independent lighting levels with ≤ 2 hour override function - Automatic scheduling may be in combination with motion sensing controls ▪ Motion sensing controls - Lighting reduced ≥ 50%, but ≤ 90% during

TABLE 2: CONTROL REQUIREMENTS	2021 IECC
Exterior Lighting Controls (continued)	▪ Exterior time-switch controls - Programmed for ≥ 7 days - Seven different day types per week - Automatic holiday setback feature - Battery back-up for ≥ 10 hours
Parking Garage Lighting Controls	**C405.2.8** ▪ Controlled by occupancy sensor(s) or time-switch ▪ Automatically reduce lighting power ≥ 30% when no activity is detected for ≥ 20 minutes with control zone ≤ 3,600ft^2 ▪ Automatically reduce lighting ≥ 50% at covered parking entry area from sunset to sunrise ▪ Reduce lighting ≥ 50% based on daylighting in all areas ≤ 20ft of perimeter wall openings

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○ *Exceptions* - *Lighting for covered vehicle entrances/exits or parking structures where required for safety, security, or eye adaptation* - *Lighting that is integral to signage and installed in the signage by the manufacturer*	*scheduled unoccupied periods* - *Dim or turn OFF after ≤ 15 minutes after area is vacated and turn ON when the area is occupied* - *Control zone ≤ 1,500W* - *Motion sensing controls installed for:* • Luminaires where the bottom is ≤ 24 feet above grade ○ *Exceptions* - *Building façade lighting* - *Ornamental landscape lighting* - *Outdoor dining lighting* - *Outdoor sales frontage* • Wall mounted luminaires (wall packs) mounted ≥ 24 above grade including: - Building façade lighting - Ornamental landscape lighting - Outdoor dining lighting ○ *Exceptions* - *Luminaires with ≤ 40W* - *Lighting subject to health or life safety statute, ordinance, or regulation may dim > 15 minutes after area is vacated at level > 50% to comply with applicable law*
9.4.1.2 ▪ Automatic scheduled shutoff per Section 9.4.1.1(i) ▪ Automatically reduce ≥ 50% when no activity is detected for ≥ 10 minutes with lighting zone ≤ 3,600ft^2 ▪ Separately controlled daylight transition lighting to automatically reduce lighting ≤ general lighting level at night from sunset to sunrise ▪ Reduce lighting based on daylighting in all areas ≤ 20ft of perimeter wall openings ≥ 24ft^2 ○ *Exceptions* - *Daylight transition lighting per Section 9.2.3.1* - *Where ≥ 50% of daylighting is obstructed*	

TABLE 2: CONTROL REQUIREMENTS 2021 IECC

	C405.11.1
Automatic Receptacle Controls	▪ Automatically control ≥ 50% of all 125V, 15A & 20A receptacles in all: - Enclosed offices - Conference rooms - Copy/print rooms - Breakrooms - Classrooms - Individual workstations ▪ Automatically control at least 25% of modular furniture branch circuit feeders ▪ Provide either split controlled receptacles (with top controlled) or locate a controlled receptacle within 12 inches of each uncontrolled receptacle ▪ Control receptacles with: - Time-switch for controlled areas ≤ 5000ft² on a single floor, with 2-hour manual override - Occupancy sensor or other alarm system signal, for shutoff within 20 minutes of occupants leaving control zone ▪ Permanently mark all controlled receptacles ▪ Plug-in devices do not comply ○ *Exceptions – Automatic receptacle control not required for:* - *Receptacles for designated equipment requiring 24 hours/day, 365 days/year operation* - *Spaces where automatic control would endanger the safety or security of room or building occupants*

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8.4.2	**130.5(d)**
▪ Automatically control ≥ 50% of all 125V, 15A & 20A receptacles in all: - Private offices - Conference rooms - Copy/print rooms - Break rooms - Classrooms - Individual workstations ▪ Automatically control at least 25% of modular furniture branch circuit feeders ▪ Control receptacles with: - Time-switch for controlled areas ≤ 5000ft² on a single floor, with 2-hour manual override - Occupancy sensor or other alarm system signal, for shutoff within 20 minutes of occupants leaving control zone ▪ Permanently mark all controlled receptacles ▪ Uniformly distribute controlled receptacles throughout the space ▪ Plug-in devices do not comply	▪ Install both controlled and uncontrolled 120V receptacles in: - Office areas - Lobbies - Conference rooms - Kitchen areas in office spaces - Copy rooms ▪ Install splitwired receptacles or one controlled receptacle within 6 ft of each uncontrolled receptacle ▪ Control shuts OFF controlled receptacles when area is typically unoccupied ▪ In open office modular furniture, at least one controlled receptacle shall be installed at each workstation ▪ Time-switch controlled areas, shall have 2-hour manual override and 24-hour holiday shutoff ▪ Hardwired power strip controlled by an occupant sensing control may be used ▪ Plug-in strips and other plug-in devices shall not comply ▪ At least 50% of 120V receptacles in hotel and motel guest rooms shall be controlled - Controlled receptacle circuits shall have captive card key controls, occupancy sensing controls, or automatic controls so the power is switched OFF ≤ 30 minutes after guest room is vacated • Control shuts OFF controlled receptacles when demand response signal is received from the utility
○ *Exceptions – Automatic receptacle control not required for:* - *Receptacles for designated equipment requiring 24 hours/day, 365 days/year operation* - *Spaces where automatic control would endanger the safety or security of room or building occupants*	○ *Exceptions – Automatic receptacle control not required for:* - *Receptacles for refrigerators and water dispensers in kitchen areas* - *Clock receptacles located ≥ 6 ft above floor* - *Receptacles for network copiers, fax machines, A/V and data equipment other than personal computers in copy rooms* - *Receptacles on circuits rated more than 20A* - *Specially marked receptacles connected to UPS and intended for 24-hour, 365-day continuous use* - *Receptacles in health care facilities*

TABLE 2: CONTROL REQUIREMENTS	2021 IECC
Lighting Control System Testing/Commissioning	**C408.3** General ▪ Testing/commissioning by a registered design professional or approved agency ▪ All hardware and software calibrated, adjusted, programmed and working in accordance with construction documents and manufacturer's recommendations **C408.3.1.1** Occupancy Sensor Controls ▪ Sensors properly located and aimed ▪ Status indicators verify correct operation ▪ Proper function and time delays ▪ Manual-ON is only manual-on ▪ No false ONs from movement in adjacent areas or HVAC operation **C408.3.1.2** Time-switch Controls ▪ Programmed with accurate weekday, weekend and holiday schedules ▪ Documentation of functions for the owner ▪ Correct time and date in the time switch ▪ Battery back-up installed and energized ▪ Override time ≤ 2 hours ▪ Simulate occupied condition: - Manual OFF - Appropriate zones ▪ Simulate unoccupied condition: - All nonexempt lighting OFF - Appropriate manual override zones **C408.3.1.3** - Daylight-responsive Controls ▪ Control devices properly located, field calibrated and set for accurate setpoints and threshold levels ▪ Lighting hitting appropriate set points based on available daylight ▪ Ready access to calibration adjustment equipment, but only available to authorized personnel

Table 2. Codes and their approaches to lighting controls

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9.9.1 All hardware and software calibrated, adjusted, programmed and working in accordance with construction documents and manufacturer's recommendations

9.9.1a Occupancy Sensor Controls

- Sensors properly located and aimed
- Status indicators verify correct operation
- Proper function and time delays
- Auto-ON turns ON to the proper level
- Manual-ON is only manual-on
- No false ONs from movement in adjacent areas or HVAC operation

9.9.1b Automatic Time-Switches

- Programmed with accurate weekday, weekend and holiday schedules
- Documentation of functions for the owner
- Correct time and date in the time switch
- Battery back-up installed and energized
- Override time limit ≤ 2 hours
- Simulate occupied condition:
  - Manual OFF
  - Appropriate zones
- Simulate unoccupied condition:
  - All nonexempt lighting OFF
  - Appropriate manual override zones

9.9.1c Daylight Controls

- Control devices properly located, field calibrated and set for accurate setpoints and threshold levels
- Lighting hitting appropriate set points based on available daylight
- Calibration adjustment equipment readily accessible, but only available to authorized personnel

130.4(a) Control acceptance

- Lighting acceptance testing is completed
- Applicable procedures have been followed
- Automatic daylight controls comply
- Lighting shutoff controls comply
- Demand responsive controls comply
- Outdoor lighting controls comply
- Acceptance testing performed by a Certified Lighting Controls Acceptance Test Technician (CLCATT)

130.4(b) Control installation acceptance

- Installation complies
- Functions meet requirements
- Interlocked lighting systems comply
- Lighting controls installed to earn Power Adjustment Factor (PAF) comply
- Additional lighting wattage for videoconference studio complies

130.4(c) Acceptance testing performed by a Certified Lighting Controls Acceptance Test Technician (CLCATT)