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Wattstopper® Quick Guide to

IECC (2018)

Commercial Lighting Control Requirements

Scope: Lighting system controls for interior and exterior applications
Exceptions: Multifamily dwelling units; continuously lit security and emergency areas; exit stairs, ramps, and passageways; emergency egress lighting normally off
Alterations: Code applies when ≥ 10% of the lighting system is replaced, or when the alteration increases the lighting power

LUMINAIRE LEVEL LIGHTING CONTROLS

INTERIOR LIGHTING CONTROLS

OCCUPANCY SENSOR REQUIREMENTS

Occupancy Sensor Controls C405.2.1
- Lights auto off within 20 minutes of occupants leaving
- Manual off control

Required for the Following Space Types
- Class/lecture/training
- Conference/meeting
- Copy/print rooms
- Lounges/break rooms
- Enclosed offices
- Open plan offices
- Restrooms
- Storage rooms
- Locker rooms
- Spaces ≤ 300ft²
- Warehouse

Key Exceptions
- None

Manual On or Partial Auto On C405.2.1.1.2
- Manual on or partial auto on to ≤ 50% power

Lighting Full Auto On Only Permitted for
- Public corridors
- Stairways
- Primary entrances
- Lobbies
- Restrooms
- Areas where manual on would endanger safety and security

Key Exceptions
- Where full auto on is permitted, Manual On or Partial Auto On control is not required

Warehouse Aisle & Open Areas C405.2.1.2
- Automatically reduce lighting ≥ 50% when unoccupied (Auto off by timeswitch or occupancy sensor required)

Each aisle independently controlled, cannot control lighting beyond aisles

Key Exceptions
- Need not comply with auto off, manual or partial on or manual off provisions of C405.2.1.1

Occupancy Sensors in Open Office C405.2.1.3
- Control zone limited to no more than 600ft²
- Auto off or reduce lights ≥ 80% light power
- Auto off all zones within 20 minutes

Key Exceptions
- Where open offices are < 300ft² comply with section C405.2.1.1

TIMESWITCH REQUIREMENTS (where occupancy sensors not used)

Time Switch Controls C405.2.2
- Scheduled lighting shut off
- Provide manual override & light reduction control
- Override for ≤ 2 hours, control area ≤ 5,000ft²

In Mall Concourses, Auditoriums, Sales Areas, Manufacturing Facilities, Sports Arenas
Override permitted > 2 hours with captive key switch
Control area ≥ 20,000ft²

Key Exceptions
- Where patient care is directly provided
- Where auto off endangers safety or security
- 24/7 operations
- Shop and laboratory classrooms

Light Reduction Control C405.2.2.2
- Manual controls that uniformly dim or switch off ≥ 50% of lighting

Choose between bilevel switching or dimming light reduction controls in the space

Key Exceptions
- One luminaire < 100W or LPD < 0.6W/ft²
- Daylight-responsive control zones
- The following space types:
- Corridors
- Public lobbies
- Equipment rooms
- Elect/mech rooms

ADDITIONAL LIGHTING CONTROL REQUIREMENTS

Manual Controls C405.2.5
- Readily accessible to occupants
- Controlled lighting is visible from manual control device

Choose between switching or dimming manual controls

Key Exceptions
- When installed remotely, identify the area controlled and indicate the lighting's status

Daylight Responsive Control C405.2.3
- Automatic continuous dimming in offices, classrooms,
- labs, library reading rooms. Automatic dimming or on/off control of all other space types
- Configure to completely turn lighting off
- Authorized calibration in space with ready access
- Control sidelit independent of toplit area

Primary daylight area lighting power > 150W?

YES	NO
Daylight Control Required	Daylight Control Not Required

Key Exceptions (Requires light reduction)
- Direct patient care areas
- Specific application lighting
- Where sidelight fenestration is < 24ft²
- Where obstructions block daylight
- Where visible transmittance is too low
- Where LPD is reduced by equation 4-9

Specific Application Controls C405.2.4
- Manual control independent from general lighting
- Auto off by timeswitch or occupancy sensor

Required for the Following Lighting
- Display & accent
- Display cases
- Food warming
- Lighting for sale
- Lighting for education
- Under shelf/ cabinet
- Supplemental task
- Plant growth

Key Exceptions
- None

Sleeping Units C405.2.4.2
- Auto off all permanent luminaires and switched receptacles within 20 minutes of occupants leaving

Key Exceptions
- Where lighting and switched receptacles are controlled by card key controls
- Spaces where direct patient care provided

Exterior Lighting Controls C405.2.6
- Auto off when daylight available
- Façade & landscape lights auto off up to one hour after business close to one hour before business open
- All other lighting reduce power ≥ 30% no later than midnight to 6 AM, one hour after closing to one hour before opening, or when no activity for > 15 min

Key Exceptions
- Covered vehicle entrance/exits where required for eye adaptation
- Lighting controlled from within a dwelling unit

Additional Efficiency Package Options C406.1
- Comply with at least one of the following:
  1. More efficient HVAC performance
  2. Reduce lighting power to < 90% of Table C405.3.2
  3. Provide enhanced digital lighting controls
  4. On-site renewable energy
  5. Dedicated outdoor air system
  6. Reduce service water heating energy use
  7. Enhanced envelope performance
  8. Reduced air infiltration

Buildings must select and comply with at least one additional efficiency option package from this list

Key Exceptions
- Tenant space alterations which previously complied with one of these package options

Lighting System Functional Testing C408.3
- Before passing final inspection, the registered design professional provides evidence that lighting controls have been tested, calibrated, adjusted, programmed, and in proper working condition

Documentation Requirements
Provide owner documents certifying lighting controls meet performance criteria within 90 days after certificate of occupancy

Key Exceptions
- None