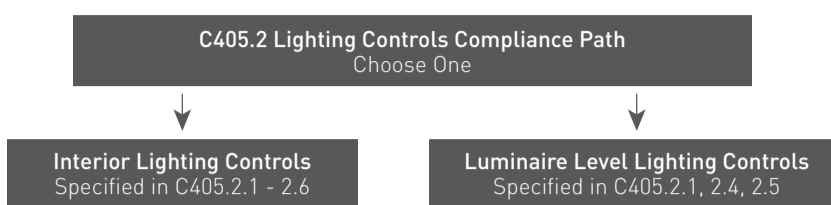


Scope: Lighting controls for interior and exterior applications and electrical consumption. Alternations that replace $\geq 10\%$ of luminaires in a space.

Exceptions: Multifamily dwelling units; continuously lit security and emergency areas; exit stairs, ramps, and passageways; emergency egress lighting normally off



Lighting Auto Off Control – Occupancy Sensor or Time Switch

SENSOR REQUIREMENTS	<p>C405.2.1 Occupancy Sensor Controls</p> <ul style="list-style-type: none"> Lights auto off within 20 minutes (C405.2.1.1.1) Manual turn off (C405.2.1.1.3) 	<p>Required for the Following Space Types:</p> <ul style="list-style-type: none"> Class/lecture/training Conference/meeting Copy/print rooms Lounges/break rooms Enclosed offices Open plan offices Restrooms Storage rooms Locker rooms Spaces $\leq 300\text{ft}^2$ Warehouses 	<p>Primary Exceptions:</p> <ul style="list-style-type: none"> Dwelling units, security and emergency areas; exit stairs, ramps and passageways; emergency egress
	<p>C405.2.1.1.2 Manual On or Partial Auto On</p> <ul style="list-style-type: none"> Manual on or partial auto on $\leq 50\%$ power 	<p>Lighting Full Auto On Only Permitted for:</p> <ul style="list-style-type: none"> Public corridors Stairways Where manual on would endanger safety or security Primary entrances Lobbies Restrooms 	<p>Primary Exceptions:</p> <ul style="list-style-type: none"> Where full auto on is permitted, manual on or partial auto on is not required
	<p>C405.2.1.2 Warehouse Aisle and Open Area</p> <ul style="list-style-type: none"> Automatically reduce lighting $\geq 50\%$ when unoccupied 	<p>Each aisle independently controlled, cannot control lighting beyond aisles</p>	<p>Primary Exceptions:</p> <ul style="list-style-type: none"> Need not comply with auto off, manual or partial on, or manual off provisions of C405.2.1.1
	<p>C405.2.1.3 Occupancy Sensors in Open Office</p> <ul style="list-style-type: none"> Control zones $\leq 600\text{ft}^2$ reduce lights $\geq 80\%$ Auto off all zones within 20 minutes 		<p>Primary Exceptions:</p> <ul style="list-style-type: none"> In open offices $< 300\text{ft}^2$ comply with C405.2.1 provisions

If Occupancy Sensor Not Required or Used, Time Switch Control is Required as Follows

TIME SWITCH REQUIREMENT	<p>² C405.2.2 Time Switch Controls</p> <ul style="list-style-type: none"> Provide a manual override switch Override for ≤ 2 hours, control area $\leq 5,000\text{ft}^2$ 	<p>In Mall Concourses, Auditoriums, Sales Areas, Manufacturing Facilities, Sports Arenas:</p> <ul style="list-style-type: none"> Override > 2 hours with captive key switch Control area $\leq 20,000\text{ft}^2$ 	<p>Primary Exceptions:</p> <ul style="list-style-type: none"> Patient care Where auto off would endanger safety or security Continuous 24/7 operations Shop and laboratory classrooms
	<p>C405.2.2.2 Manual Light Reduction Control</p> <ul style="list-style-type: none"> Uniformly dim or switch off $\geq 50\%$ of lighting 	<p>Choose between switching or dimming light reduction controls</p> <p>Note: Warehouse light reduction is automatically controlled under occupancy sensor control, section C405.2.1.2</p>	<p>Primary Exceptions:</p> <ul style="list-style-type: none"> One luminaire $< 100\text{W}$ or lighting $< 0.6\text{W}/\text{ft}^2$ Daylight-responsive control zones The following space types: <ul style="list-style-type: none"> Corridors Equipment rooms Public lobbies Elect/mech rooms
<p>C405.2.5 Manual Lighting Controls</p> <ul style="list-style-type: none"> Readily accessible to occupants Controlled lighting is visible from manual control 	<p>Choose between switching or dimming manual controls</p>	<p>Primary Exceptions:</p> <ul style="list-style-type: none"> Remote control allowed if lighting served is identified and status indicated 	
<p>C405.2.3 Daylight Responsive Control</p> <ul style="list-style-type: none"> Automatic continuous dimming of lighting in offices, classrooms, labs, library reading rooms. All other space types may use automatic dimming or on/off control. Configure to completely shut off lighting Authorized calibration access within controlled space 	<div style="text-align: center;"> <p>Primary daylight area lighting $> 150\text{W}$?</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>YES</p> <p>↓</p> <p>Daylight Control Required</p> </div> <div style="text-align: center;"> <p>NO</p> <p>↓</p> <p>Daylight Control Not Required</p> </div> </div> </div>	<p>Daylight Primary Exceptions:</p> <ul style="list-style-type: none"> Health and patient care spaces Specific application lighting Where sidelight fenestration is $< 24\text{ft}^2$ Where obstructions block daylight Where visible transmittance is too low Where LPD is reduced by equation 4-9 	
<p>C405.2.4 Specific Application Controls</p> <ul style="list-style-type: none"> Control independent from other lighting in the space 	<p>Required for the Following Lighting:</p> <ul style="list-style-type: none"> Display and accent Display cases Food warming Lighting for sale Lighting for education Plant growth Supplemental task Under shelf/cabinet 	<p>Primary Exceptions:</p> <p>None</p>	

Other Lighting Control Requirements

C405.2.4.3

Sleeping Units

Automatically switch off all installed luminaires and switched receptacles within 20 minutes of occupants leaving

Exceptions:

- Lighting and switched receptacles controlled by a captive key system
- Patient care spaces

C405.2.5

Exterior Lighting Controls

- Auto off when satisfactory daylight available
- Decorative lighting shut off** - Facade and landscape lighting auto off up to one hour after business close to 1 hour before business open
- Lighting setback** - Reduce all other lighting $\geq 30\%$ 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:

- Covered vehicle entrances/exits where required for eye adaptation
- Lighting controlled from a dwelling

C406.1

Additional Efficiency Package

Comply with one of the following:

- More efficient HVAC performance
- Reduce lighting power to 90%**
- Enhanced digital lighting controls**
- On-site renewable energy
- Dedicated outdoor air provision
- High-efficiency service water heating
- Enhanced envelope performance
- Reduced air infiltration

C408.3

Lighting System Functional Testing

Before final inspection, a *registered design professional* provides evidence that lighting controls have been tested, calibrated, adjusted, programmed, and are in working condition

- Test occupancy sensors (C408.3.1.1)
- Test auto time switch (C408.3.1.2)
- Test daylight responsive (C408.3.1.3)

Documentation Requirements

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



Note: This infographic is for informational purposes only. Always refer to the code for specific requirements or contact your local Wattstopper representative.

IECC is an acronym for the International Energy Conservation Code. For additional code resources visit Legrand's Code Minsite.