

**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

OCCUPANCY SENSOR REQUIREMENTS

LUMINAIRE LEVEL LIGHTING CONTROLS  
INTERIOR LIGHTING CONTROLS

<b>Occupancy Sensor Controls C405.2.1</b> <ul style="list-style-type: none"> <li>Lights auto off within 20 minutes of occupants leaving</li> <li>Manual off control</li> </ul>	<b>Required for the Following Space Types</b> <ul style="list-style-type: none"> <li>Class/lecture/training</li> <li>Enclosed offices</li> <li>Locker rooms</li> <li>Conference/meeting</li> <li>Open plan offices</li> <li>Spaces ≤ 300ft<sup>2</sup></li> <li>Copy/print rooms</li> <li>Restrooms</li> <li>Warehouse</li> <li>Lounges/break rooms</li> <li>Storage rooms</li> </ul>	<b>Key Exceptions</b> <ul style="list-style-type: none"> <li>None</li> </ul>
<b>Manual On or Partial Auto On C405.2.1.1.2</b> <ul style="list-style-type: none"> <li>Manual on or partial auto on to ≤ 50% power</li> </ul>	<b>Lighting Full Auto On Only Permitted for</b> <ul style="list-style-type: none"> <li>Public corridors</li> <li>Primary entrances</li> <li>Restrooms</li> <li>Stairways</li> <li>Lobbies</li> <li>Areas where manual on would endanger safety and security</li> </ul>	<b>Key Exceptions</b> <ul style="list-style-type: none"> <li>Where full auto on is permitted, Manual On or Partial Auto On control is not required</li> </ul>
<b>Warehouse Aisle &amp; Open Areas C405.2.1.2</b> <ul style="list-style-type: none"> <li>Automatically reduce lighting ≥ 50% when unoccupied (Auto off by timeswitch or occupancy sensor required)</li> </ul>	<b>Each aisle independently controlled, cannot control lighting beyond aisles</b>	<b>Key Exceptions</b> <ul style="list-style-type: none"> <li>Need not comply with auto off, manual or partial on or manual off provisions of C405.2.1.1</li> </ul>
<b>Occupancy Sensors in Open Office C405.2.1.3</b> <ul style="list-style-type: none"> <li>Control zone limited to no more than 600ft<sup>2</sup></li> <li>Auto off or reduce lights ≥ 80% light power</li> <li>Auto off all zones within 20 minutes</li> </ul>		<b>Key Exceptions</b> <ul style="list-style-type: none"> <li>Where open offices are &lt; 300ft<sup>2</sup> comply with section C405.2.1.1</li> </ul>

TIMESWITCH REQUIREMENTS (where occupancy sensors not used)

<b>Time Switch Controls C405.2.2</b> <ul style="list-style-type: none"> <li>Scheduled lighting shut off</li> <li>Provide manual override &amp; light reduction control</li> <li>Override for ≤ 2 hours, control area ≤ 5,000ft<sup>2</sup></li> </ul>	<b>In Mall Concourses, Auditoriums, Sales Areas, Manufacturing Facilities, Sports Arenas</b> Override permitted > 2 hours with captive key switch Control area ≥ 20,000ft <sup>2</sup>	<b>Key Exceptions</b> <ul style="list-style-type: none"> <li>Where patient care is directly provided</li> <li>Where auto off endangers safety or security</li> <li>24/7 operations</li> <li>Shop and laboratory classrooms</li> </ul>
<b>Light Reduction Control C405.2.2.2</b> <ul style="list-style-type: none"> <li>Manual controls that uniformly dim or switch off ≥ 50% of lighting</li> </ul>	<b>Choose between bilevel switching or dimming light reduction controls in the space</b>	<b>Key Exceptions</b> <ul style="list-style-type: none"> <li>One luminaire &lt; 100W or LPD &lt; 0.6W/ft<sup>2</sup></li> <li>Daylight-responsive control zones</li> <li>The following space types:                         <ul style="list-style-type: none"> <li>Corridors</li> <li>Equipment rooms</li> <li>Public lobbies</li> <li>Elect/mech rooms</li> </ul> </li> </ul>

ADDITIONAL LIGHTING CONTROL REQUIREMENTS

<b>Manual Controls C405.2.5</b> <ul style="list-style-type: none"> <li>Readily accessible to occupants</li> <li>Controlled lighting is visible from manual control device</li> </ul>	<b>Choose between switching or dimming manual controls</b>	<b>Key Exceptions</b> <ul style="list-style-type: none"> <li>When installed remotely, identify the area controlled and indicate the lighting's status</li> </ul>				
<b>Daylight Responsive Control C405.2.3</b> <ul style="list-style-type: none"> <li>Automatic continuous dimming in offices, classrooms, labs, library reading rooms. Automatic dimming or on/off control of all other space types</li> <li>Configure to completely turn lighting off</li> <li>Authorized calibration in space with ready access</li> <li>Control sidelit independent of toplit area</li> </ul>	<p style="text-align: center;">Primary daylight area lighting power &gt; 150W?</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">YES</td> <td style="text-align: center;">NO</td> </tr> <tr> <td style="text-align: center;">Daylight Control Required</td> <td style="text-align: center;">Daylight Control Not Required</td> </tr> </table>	YES	NO	Daylight Control Required	Daylight Control Not Required	<b>Key Exceptions (Requires light reduction)</b> <ul style="list-style-type: none"> <li>Direct patient care areas</li> <li>Specific application lighting</li> <li>Where sidelight fenestration is &lt; 24ft<sup>2</sup></li> <li>Where obstructions block daylight</li> <li>Where visible transmittance is too low</li> <li>Where LPD is reduced by equation 4-9</li> </ul>
YES	NO					
Daylight Control Required	Daylight Control Not Required					
<b>Specific Application Controls C405.2.4</b> <ul style="list-style-type: none"> <li>Manual control independent from general lighting</li> <li>Auto off by timeswitch or occupancy sensor</li> </ul>	<b>Required for the Following Lighting</b> <ul style="list-style-type: none"> <li>Display &amp; accent</li> <li>Lighting for sale</li> <li>Supplemental task</li> <li>Display cases</li> <li>Lighting for education</li> <li>Plant growth</li> <li>Food warming</li> <li>Under shelf/ cabinet</li> </ul>	<b>Key Exceptions</b> <ul style="list-style-type: none"> <li>None</li> </ul>				
<b>Sleeping Units C405.2.4.2</b> <ul style="list-style-type: none"> <li>Auto off all permanent luminaires and switched receptacles within 20 minutes of occupants leaving</li> </ul>		<b>Key Exceptions</b> <ul style="list-style-type: none"> <li>Where lighting and switched receptacles are controlled by card key controls</li> <li>Spaces where direct patient care provided</li> </ul>				
<b>Exterior Lighting Controls C405.2.6</b> <ul style="list-style-type: none"> <li>Auto off when daylight available</li> <li>Façade &amp; landscape lights auto off up to one hour after business close to one hour before business open</li> <li>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 &gt; 15 min</li> </ul>		<b>Key Exceptions</b> <ul style="list-style-type: none"> <li>Covered vehicle entrance/exits where required for eye adaptation</li> <li>Lighting controlled from within a dwelling unit</li> </ul>				
<b>Additional Efficiency Package Options C406.1</b> <ul style="list-style-type: none"> <li>Comply with at least one of the following:                         <ol style="list-style-type: none"> <li>More efficient HVAC performance</li> <li>Reduce lighting power to &lt; 90% of Table C405.3.2</li> <li>Provide enhanced digital lighting controls</li> <li>On-site renewable energy</li> <li>Dedicated outdoor air system</li> <li>Reduce service water heating energy use</li> <li>Enhanced envelope performance</li> <li>Reduced air infiltration</li> </ol> </li> </ul>	<b>Buildings must select and comply with at least one additional efficiency option package from this list</b>	<b>Key Exceptions</b> <ul style="list-style-type: none"> <li>Tenant space alterations which previously complied with one of these package options</li> </ul>				
<b>Lighting System Functional Testing C408.3</b> <ul style="list-style-type: none"> <li>Before passing final inspection, the registered design professional provides evidence that lighting controls have been tested, calibrated, adjusted, programmed, and in proper working condition</li> </ul>	<b>Documentation Requirements</b> Provide owner documents certifying lighting controls meet performance criteria within 90 days after certificate of occupancy	<b>Key Exceptions</b> <ul style="list-style-type: none"> <li>None</li> </ul>				