

**Scope:** Lighting controls for interior and exterior applications and electrical consumption

**Exceptions:** Commercial building dwelling units; continuously lit security and emergency areas; exit stairs, ramps, and passageways; emergency egress

## Lighting Auto Off Control – Occupancy Sensor or Time Switch

<b>SENSOR REQUIREMENTS</b>	<b>C405.2.1</b> <b>Occupancy Sensor Controls</b> <ul style="list-style-type: none"> <li>Lights auto off within 20 minutes (C405.2.1.1.1)</li> <li>Manual turn off (C405.2.1.1.3)</li> </ul>	<b>Required for the Following Space Types:</b> <ul style="list-style-type: none"> <li>Class/lecture/training</li> <li>Conference/meeting</li> <li>Locker rooms</li> <li>Spaces ≤ 300ft<sup>2</sup></li> <li>Warehouses</li> <li>Lunch and break rooms</li> <li>Private offices</li> <li>Copy/print rooms</li> <li>Lounges</li> <li>Janitorial closets</li> <li>Open plan offices</li> <li>Restrooms</li> <li>Storage rooms</li> </ul>	<b>Primary Exceptions:</b> None	
	<b>C405.2.1.1</b> <b>Manual On or Partial Auto On</b> <ul style="list-style-type: none"> <li>Manual on</li> <li>Partial auto on ≤ 50% power</li> <li>Full auto on only permitted for select spaces</li> </ul>	<b>Lighting Full Auto On Only Permitted for:</b> <ul style="list-style-type: none"> <li>Public corridors</li> <li>Restrooms</li> <li>Lobbies</li> <li>Where manual on would endanger safety or security</li> <li>Primary entrances</li> <li>Stairways</li> <li>Open plan offices</li> </ul>	<b>Manual On Control Required for:</b> <ul style="list-style-type: none"> <li>Classrooms</li> <li>Conference/meeting</li> <li>Lunch and break rooms</li> <li>Offices &lt; 200ft<sup>2</sup></li> </ul>	<b>Primary Exceptions:</b> <ul style="list-style-type: none"> <li>Where full auto on is permitted, manual on or partial auto on is not required</li> <li>Manual on not required in shop, laboratory, and preschool classrooms</li> </ul>
	<b>C405.2.1.2</b> <b>Warehouse Aisle and Open Area</b> <ul style="list-style-type: none"> <li>Automatically reduce lighting ≥ 50% when unoccupied</li> </ul>	Each aisle independently controlled, cannot control lighting beyond aisles		<b>Primary Exceptions:</b> Need not comply with auto off, manual or partial on, or manual off provisions of C405.2.1.1

## If Occupancy Sensor Not Required or Preferred, Time Switch Auto Off is Required as Follows

<b>TIME SWITCH REQUIREMENT</b>	<b>C405.2.2</b> <b>Time Switch Controls</b> <ul style="list-style-type: none"> <li>Manual override switch</li> <li>Override for ≤ 2 hours</li> <li>Control area ≤ 5,000ft<sup>2</sup></li> </ul>	<b>In Malls, Arcades, Auditoriums, Retail, Industrial Facilities, Arenas:</b> <ul style="list-style-type: none"> <li>Override &gt; 2 hours with captive key switch</li> <li>Control area ≤ 20,000ft<sup>2</sup></li> </ul>	<b>Primary Exceptions:</b> <ul style="list-style-type: none"> <li>Where manual reduction provided:</li> <li>Sleeping units</li> <li>Patient care</li> <li>Where auto shut off may endanger safety or security</li> <li>24/7 operations</li> <li>Shop and laboratory classrooms</li> </ul>
	<b>C405.2.2.2</b> <b>Manual Light Reduction Control</b> <ul style="list-style-type: none"> <li>Uniformly dim or switch off ≥ 50% of lighting</li> </ul>	Choose between switching or dimming light reduction controls Note: Warehouse light reduction is automatically controlled under occupancy sensor control, section C405.2.1.2	<b>Primary Exceptions:</b> <ul style="list-style-type: none"> <li>Provided manually controlled:</li> <li>Only one luminaire &lt; 100W</li> <li>Space lighting &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>
<b>C405.2.2.3</b> <b>Manual Lighting Controls</b> <ul style="list-style-type: none"> <li>Readily accessible to occupants</li> <li>Controlled lighting is visible from manual device</li> </ul>	Choose between switching or dimming manual controls		<b>Primary Exceptions:</b> None
<b>C405.2.3</b> <b>Daylight Responsive Control</b> <ul style="list-style-type: none"> <li>Automatically reduce lighting with daylight contribution</li> <li>Must continuously dim offices, labs, library reading rooms to ≤ 15%</li> <li>Either continuous dimming or on/off control for all other space types</li> <li>Capable of complete lighting shut off</li> <li>Calibration readily accessible and located within daylight space</li> </ul>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">                     Primary daylight area lighting ≥ 150W?                 </div> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>YES</p> <p>↓</p> <div style="border: 1px solid black; padding: 5px; background-color: #333; color: white;"> <b>Daylight Control Required</b>                      Choose continuous dimming (required for some spaces) or on/off control                 </div> </div> <div style="text-align: center;"> <p>NO</p> <p>↓</p> <div style="border: 1px solid black; padding: 5px; background-color: #333; color: white;"> <b>Daylight Control Not Required</b> </div> </div> </div>		<b>Daylight Primary Exceptions:</b> <ul style="list-style-type: none"> <li>Health and patient care spaces</li> <li>Dwelling and sleeping units</li> <li>Specific application lighting</li> </ul> <b>Primary Exceptions Sidelight:</b> <ul style="list-style-type: none"> <li>Blocking adjacent obstructions</li> <li>Visual transmittance &lt; 0.2</li> </ul> <b>Primary Exceptions Toplight:</b> <ul style="list-style-type: none"> <li>Blocking adjacent obstructions</li> <li>Transmittance times opening area divided by zone area ≥ 0.008</li> </ul>
<b>C405.2.4</b> <b>Specific Application Lighting</b> <ul style="list-style-type: none"> <li>Independently controlled from other lighting in the room or space</li> </ul>	<b>Required for the Following Lighting:</b> <ul style="list-style-type: none"> <li>Display or accent</li> <li>Display cases</li> <li>Food warming</li> <li>Lighting for sale</li> <li>Lighting for education</li> <li>Plant growth</li> <li>Supplemental task</li> <li>Under shelf/cabinet</li> </ul>	<b>Primary Exceptions:</b> None	

## Other Lighting Control Requirements

### C405.2.4.3

#### Hotel/Motel and Guest Suites

Master control device turns off all installed luminaires and switched receptacles within 20 minutes after occupants leave

**Exceptions:**

Lighting and switched receptacles controlled by a captive key system

### C405.2.5

#### Exterior Lighting Controls

- Auto off when daylight available
- Façade, landscape lights auto off with function of dusk/dawn and open/close time
- Reduce lighting ≥ 30% no later than midnight to 6AM, one hour after closing to one hour before opening, or when no activity for > 15 minutes

**Exceptions:**

- Emergency lighting normally off
- Lighting for health and safety
- Covered vehicle entrances
- Building/parking structure exits for safety, security, or eye adaptation

### C405.1

#### Additional Efficiency Package

Comply with one of the following:

- More efficient HVAC
- Reduced lighting power density:**  
Reduce to 90% of Table C405.4.2
- Enhanced digital lighting controls:**  
Continuous dimming, individually addressable luminaires, daylight responsive, digital reconfigurable, load shedding, individual user control, digital occupancy sensor reconfigurable
- On-site renewable energy
- Dedicated outdoor air provision
- High-efficiency service water heating

### 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. NYCECC is an acronym for the New York City Energy Conservation Code.

