Wattstopper® Quick Guide to

OREGON ZERO ENERGY READY COMMERCIAL CODE (2019)

Commercial Lighting and Electrical Control Requirements

Scope: Interior building spaces, exterior lighting powered through building electrical service. Interior space lighting alterations where 20% or more of the connected lighting is altered.
Exceptions: Emergency lighting off during normal operation, lighting within dwelling units, lighting required by health or life safety, gas lighting

9.1.2

- Lighting Alterations Scope

Alterations Must Follow:

- Interior lighting controls requirements (except daylighting)
- Exterior control requirements

Required for:
Required for:
- Lighting system alteration
- Lamp plus ballast or one for on e replacement (only comply with shut-off requirements)

Key Exceptions:
- Alterations of less than 20% of connected lighting load given LPD not increased
- Routine maintenance

9.4.1.1(a)
Local Control Device

One or more manual control devices in a space:
- Readily accessible
- Can see lighting controlled from local device

(May be an on/off switch or dimmer)

Space ≤ 10,000ft²?
YES → Control area must be ≤ 2,500ft²
NO → Control area must be ≤ 10,000ft²

Key Exceptions:
- Remote control device permitted for safety or security, provided it has a status pilot light and is labeled to identify lights controlled

9.4.1.1(b) and 9.4.1.1(c)
Manual or Partial Auto On

- Lighting shall either be manual on or auto on to no more than 50% of the general lighting

Lighting Full Auto On Only Permitted for:
- Corridors
- Restrooms
- Lobbies
- Stairwells
- Healthcare facility
- Where manual on would endanger safety or security
- Storage rooms < 50ft²
- Elect/mech rooms

Key Exceptions:
- Where full auto on is permitted, manual on or partial auto on is not required

9.4.1.1(d)
Bi-level Control

- Besides on and off, general lighting is either continuously dimmed or controlled with at least one step between 30% and 70% of full lighting power

Choose between bi-level switching or continuous dimming control

Key Exceptions:
- Atriums < 20ft ht
- Corridors
- Elect/mech rooms
- Storerooms
- Loading docks
- Restrooms
- Lobbies

9.4.1.1(e) and 9.4.1.1(f)
Automatic Daylight Responsive Control

- Either continuous dimming or at least one step between 50-70% and a second step between 20-40% or lowest dimmed level
- Turns off all controlled lighting

Sidelighting – Two independent zones: primary and secondary
No calibration at sensor Calibration ≤11ft
Toplighting – Single primary zone under skylights and monitors
No calibration at sensor

Primary daylight area lighting ≥ 150W or primary and secondary daylight area lighting ≥ 300W?
YES → Daylight Control Required. Choose dimming or step control
NO → Daylight Control Not Required

Key Exceptions Sidelight:
- Adjacent structure obstruction
- Glazing < 20ft²
- Retail spaces

Key Exceptions Toplight:
- Obstruction > 1,500 hrs/year
- Skylight effective aperture <0.006
- Climate zone 8 and lighting < 200W

9.4.1.1(g)
Automatic Partial Off

- Automatically reduce general lighting ≤ 50% within 20 minutes of occupants leaving. Automatic Full Off complies. (Occupancy sensor control)

Required for the Following Space Types:
- Corridors (not manufacturing)
- Lobbies
- Library stacks
- Storage rooms > 1,000ft²
- Classroom labs
- Stairwells
- Warehouses

Key Exceptions:
All three conditions must be met:
1. LPD no more than 0.8W/ft²
2. Spaces lit by HID lamps
3. Light power reduced by ≥ 30% within 20 minutes after leaving

9.4.1.1(h)
Automatic Full Off

- All lighting (including those connected to emergency circuits) must auto off within 20 minutes of occupants leaving. Control device shall control an area no larger than 5,000ft². (Occupancy sensor control)

Required for the Following Space Types:
- Classroom/training rooms
- Lecture Hall
- Conference/meeting rooms
- Multipurpose rooms
- Lounge/break rooms
- Fitting/dressing rooms
- Copy/print rooms
- Storage rooms ≥ 50 to ≤ 1,000ft²
- Locker rooms
- Restrooms
- Offices ≤ 250ft²

Key Exceptions:
- Shop and classroom laboratories
- Electrical and mechanical rooms
- Where auto off would endanger safety or security
- Lighting for 24/7 operation

9.4.1.1(i)
Scheduled Shut Off

Lighting (including those on emergency circuits) not already shut off by Automatic Full Off control must be shut off when scheduled unoccupied:
- Time schedule or other control device signal
- Control area ≤ 25,000ft² but not more than one floor
- Override ≤ 2 hours and area ≤ 5,000ft²

Required for spaces not already controlled by Automatic Full Off (9.4.1.1(h))

Key Exceptions:
- Lighting for patient care
- Where auto off would endanger safety or security
- Lighting for 24/7 operation
- Electrical and mechanical rooms
- Add Up to 0.02W/ft2 for egress

9.4.1.3
Special Application Lighting

- Lighting that must be separately controlled from the space's general lighting

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

Key Exceptions:
None

8.4.2
Automatic Receptacle Control

At least 50% of receptacles and 25% of feeders to modular furniture shall auto off by either:
- Time schedule, ≤ 2 hour override, control area ≤ 5,000ft²
- Occupancy sensor with 20 minute off delay
- Automated signal that shall auto off receptacles within 20 minutes of occupants leaving

Required for the Following Space Types:
- Private offices
- Print/copy rooms
- Individual workstations
- Conference rooms
- Break rooms
- Classrooms

Key Exceptions:
- Equipment operating 24/7
- Wh ere auto control would endanger safety or security

Other Lighting Control Requirements

9.4.1.2
Parking Garage Lighting Control

- Automatic lighting shut off per 9.4.1.1(i)
- Automatically reduce lighting ≥ 50% when no activity detected within 20 minutes and with the area controlled ≤ 3,600ft²
- Covered vehicle entrances and exits have separate controls to reduce lighting ≥ 50% from sunset to sunrise
- Within 20ft of perimeter wall openings, automatically reduce lighting power in response to daylight

9.4.1.3(b)
Guestroom Control

Auto off all lighting and switched receptacles within 20 minutes of occupants leaving

Exceptions:

Lighting and switched receptacles controlled by a captive key system

Bathroom Control

Guestroom bathrooms have separate control to auto off bathroom lighting within 30 minutes of occupants leaving

Bathroom Exceptions:

Nightlights up to 5W per bathroom

9.4.1.4
Exterior Lighting Controls

- Auto off when daylight is available
- Façade, landscape auto off no later than midnight or closing and 6AM or opening
- Reduce other lighting and signage ≥ 50% no later than midnight or within one hour after operations end to 6AM or opening, or when no activity detected for > 15 minutes
- Parking lights > 78W with mounting heights ≤ 24ft must reduce power ≥ 50% when no activity detected for > 15 minutes. Control zone ≤ 1500W

Primary Exceptions:

- Covered vehicle entrances or for safety, security, or eye adaptation

9.4.3
Functional Testing

Lighting controls tested for proper calibration, adjustment, programming, and working condition
- Certify occupancy sensor parameters (see 9.4.3(a))
- Confirm and verify automatic time switch parameters (see 9.4.3(b))
- Verify daylight controls meet criteria (see 9.4.3(c))

Testing individual shall not be involved with project design or construction and must provide certifying document that lighting controls meet the performance criteria

Note: This infographic is for informational purposes only. Always refer to the code for specific requirements or contact your local Wattstopper representative. ASHRAE is an acronym for the American Society of Heating, Refrigeration, and Air Conditioning Engineers.

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