

Oregon Non-Residential Building Energy Code



OREGON
DEPARTMENT OF
ENERGY

Interior Lighting Controls

Indoor lighting is one of the single largest consumers of energy in a nonresidential building, representing about one-third of electricity use. Because of this fact, lighting controls are critical for minimizing lighting energy use while still ensuring that the space is functional and comfortable for occupants.

The Oregon Department of Energy requires lighting controls for interior lighted spaces according to section 1313.3.1 of the Oregon Energy Code.

Local Shutoff Control [1313.3.1.1]

The code requires that most spaces have some means for turning lights on and off. A wall toggle switch, an occupancy sensor, or a dimmer can meet this requirement. The control must be within the room and available to the room occupants, and it cannot control an area larger than 2,000 ft².

There are four exceptions to the code requirement for local shutoff controls. Low-lighting spaces such as warehouses and parking garages, areas that must be continuously lit, public areas such as concourses and corridors, and contiguous single-tenant retail spaces do not require local shutoff controls. Other lighting applications may be exempt from the code—see 1313.1.

Automatic Shutoff Control [1313.3.1.2]

This section of code requires that lights be automatically shut off during normally unoccupied periods. Occupancy sensors, which turn off lights in the area no more than 30 minutes after the area has been vacated, and automatic time switches, which turn off lights during nights, holidays, and other unoccupied times can fulfill these requirements (1313.3.1.2.1 and 1313.3.1.2.2 specify requirements for these controls).

The code requires that automatic time switches incorporate an override switching device for a person needing to use the space after regular hours. The override switch must be accessible, manually operated, and located so that a person using the device can see the effects of the control. If local shutoff controls are required, each override switch cannot control an area larger than 2,000 ft² (186 m²). If an occupant overrides the automatic shutoff control (i.e., switches on the light during a normally unoccupied time), the shutoff control is also required to employ a device that automatically turns off the lights again in no more than 2 hours.

In addition, regardless of building size, all offices smaller than

Code Language

1313.3.1 Interior lighting controls. The following controls are required for interior lighted spaces:

1313.3.1.1 Local shutoff control. At least one local shutoff lighting control shall be provided for every 2,000 square feet (186 m²) of lit floor area and for all spaces enclosed by walls or ceiling height partitions.

Exceptions:

1. Lighting for warehouses, parking garages or spaces using less than 0.5 watts per square feet (5.4 W/m²).
2. Lighting systems serving areas that must be continuously lit.
3. Public areas, such as concourses, with switches that are accessible only to authorized personnel.
4. Lighting for contiguous, single-tenant retail spaces.

1313.3.1.2 Automatic shutoff control. Buildings greater than 5,000 square feet (465 m²) and office occupancies over 2,000 square feet (186 m²) of contiguous floor area shall be equipped with separate automatic controls to shut off the lighting during unoccupied periods. Automatic controls shall be an occupancy sensor, time switch or other device capable of automatically shutting off lighting that complies with Section 1313.3.1.2.1 or 1313.3.1.2.2

Offices less than 300 square feet (27.9 m²), meeting and conference rooms, and school classrooms shall be equipped with occupancy sensors that comply with Section 1313.3.1.2.1.

Exceptions:

1. Emergency and pathway lights as required by code.
2. Where the system is serving an area that must be continuously lit.
3. Display and accent lighting, including plug-in, track and display case lighting, shall be separately controlled.
5. Hospitals and laboratory spaces.
6. Areas in which medical or dental tasks are performed.
7. Mechanical and electrical equipment rooms.

Documentation:

To document compliance with this section of code, fill out Compliance Form 5a.



1313.3.1.2.1 Occupancy sensors. Occupancy sensors shall be capable of automatically turning off all the lights in an area, no more than 30 minutes after the area has been vacated. Lighting fixtures controlled by occupancy sensors shall have a wall-mounted, manual switch capable of turning on and off lights when the space is occupied.

1313.3.1.2.2 Automatic time switches. Automatic time switches shall have a minimum 7-day clock and be capable of being set for 7 different day types per week and incorporate an automatic holiday “shut-off” feature, which turns off all loads for at least 24 hours and then resumes normally scheduled operations. Automatic time switches shall also have program back-up capabilities, which prevent the loss of program and time settings for at least 10 hours, if power is interrupted.

Automatic time switches shall incorporate an override switching device that:

1. Is readily accessible,
2. Is located so that a person using the device can see the effects of the control
3. Is manually operated,
4. Allows the lighting to remain on for no more than 2 hours when an override is initiated, and
5. Controls an area not exceeding 2,000 ft² (186 m²).

Note: Refer to separate fact sheet for code regarding Daylighting [1313.3.1.3.]

Find Out More

Copies of Code:

Oregon Building Officials Association
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Technical Support:

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12/05 ODOE CF-125/Fact Sheet 2
Photo on page 1 c/o Warren Gretz, DOE/NREL

Non-residential code lighting Fact Sheets include:

- Exterior Lighting and Controls
- Interior Lighting Controls
- Interior Connected Lighting Power
- Daylighting Controls

300 ft², all meeting and conference rooms, and all school classrooms are required to be equipped with occupancy sensors (1313.3.1.2.1) that turn off lights automatically in no more than 30 minutes.

A few spaces, because of safety or functional concerns, need continuous lighting and are exempted from the automatic shutoff control requirement. These include emergency and pathway lights, display and accent lighting, switching for manufacturing processes, patient care areas in hospitals and any other areas where medical or dental tasks are performed, and mechanical and electrical equipment rooms.

Additions and Alterations [1313.6]

Any lighting systems installed in additions to or alterations of existing buildings must comply with the interior lighting control requirements of Section 1313.3.1. However, if your alterations replace less than 50% of the luminaires/fixtures and do not increase the existing total connected lighting power, then your project is exempt and does not need to add lighting controls for that space.

Examples

Q I'm a new tenant occupying 4,000 ft² of a 20,000 ft² building, and I want to replace most of the lighting fixtures in my space. Am I required to install controls according to Section 1313.3.1?

A Even though your 4,000 ft² space is not 50% of the building space, the space is 100% of your *permitted project*, so you would still be required to meet the requirements of Section 1313.3.1: adding local shutoff controls and automatic shutoff controls (either occupant sensors or automatic time switches).

Q I'm designing a bank and some of the interior lighting needs to remain on all night for security purposes. Am I exempt from the requirements of Section 1313.3.1?

A Yes, lighting systems that serve areas that must be continuously lit for security or emergency reasons, such as bank security lighting, police dispatch areas, and 24-hour convenience stores, are exempted.

Q The code says that hospital spaces are exempted from having automatic shutoff controls [1313.3.1.2]. Does that mean I don't need to install automatic shutoff controls in office spaces or meeting rooms in the hospital I'm designing?

A No. Patient care areas in hospitals, medical, and dental facilities, and areas of the facilities in use 24 hours a day (such as emergency rooms) are exempted, but any areas not used by patients still require automatic shutoff controls.