



Automatic Lighting Shutoff for Tenant Spaces - Code Notes

[ASHRAE 90.1-2007, 2009 IECC]

Automatic shutoff capability for all interior building lighting (with exceptions) is required by ANSI/ASHRAE/IESNA Standard 90.1-2007 (as well as previous versions back to 1999) and the 2009 International Energy Conservation Code® (IECC) (including versions back to 2003) for buildings over 5,000 square feet. The energy-saving intent of the requirement is to be sure that unnecessary lights are turned off, such as those not needed after the end of the business day. The requirement itself ensures that the control is available so that occupants can set up automatic shutoff of lighting..



The requirement does have important exceptions including: lighting intended for 24-hour operation, lighting in spaces where patient care is rendered, and lighting in spaces where automatic shutoff would endanger the safety or security of the room or occupants. The IECC has a specific exception for sleeping units within hotels, motels, boarding houses, and similar buildings while Standard 90.1 considers these spaces exempted under the 24- hour-operation exemption.

The size threshold issue and tenant spaces

The 5,000-square-foot threshold was originally included because of the potential impracticality and relative high cost of whole-building control systems for smaller buildings. This threshold is easy to apply for single-tenant buildings and for buildings with structured or uniform operating hours because the building schedule can be easily programmed into a whole building system that applies to the entire building.



However, some building types with multiple tenant occupancies do not lend themselves to practical application of whole-building control. One classic example is the typical retail strip mall. If a strip mall is over 5,000 square feet in total, the code language as written in the controls section technically requires complete automatic shutoff for the building as a whole. Because each retail business will typically have different operating schedules, it is difficult and often impractical to apply a whole-building control system.

Typically, individual tenant businesses (such as those in a strip mall structure) will have separate electrical feeds and firewalls between adjoining tenants, making them effectively separate business entities. In these cases, the whole building automatic shutoff is intended to be applied on a tenant business basis and those individual businesses less than 5,000 square feet would not have to comply with the automatic lighting shutoff requirement. The intent in both ASHRAE 90.1 and the IECC code is to apply this requirement in a practical manner. ASHRAE 90.1 interpretations and IECC staff opinions are likely to focus on the uniqueness of business schedules and separate electrical services in determining appropriate application of the 5,000-square-foot threshold.

It is anticipated that future versions of Standard 90.1 (2010 and beyond) and IECC (2012 and beyond) will eliminate the 5,000-square-foot exception because costs have come down on whole-building controls and the requirement already offers an alternative in the form of individual space occupancy sensors or other automatic controls.

Plan Review

1. Verify that the lighting and/or electrical control plans specify controls to be installed that meet the provisions of the code, including the control area limitations. Check individual tenant space sizes for applicable exemption.
2. Verify from the design submission (plans and specifications) that the control has appropriate scheduling capability in sufficient detail for the intended use of the space or building. An appropriate scheduling control should be capable of maintaining the type of day (weekday or weekend) and appropriate lighting schedule for that day type.

Field Inspection

1. Verify that controls installed meet the capabilities and requirements as shown on the plans.
2. Verify the automatic control device will shut off during the designated or programmed times as scheduled for each day of the week.

Code Citations*

ASHRAE Standard 90.1-2007, Section 9.4.1.1 and 2009 IECC, Section 505.2.2.2, Automatic Lighting Shutoff

Interior lighting in *buildings* larger than 5000 ft² shall be controlled with an *automatic control device* to shut off *building* lighting in all spaces. This *automatic control device* shall function on either

1. a scheduled basis using a time-of-day operated control device that turns lighting off at specific programmed times--an independent program schedule shall be provided for areas of no more than 25,000 ft² but not more than one floor or
2. an occupant sensor that shall turn lighting off within 30 minutes of an occupant leaving a space or
3. a signal from another control or alarm system that indicates the area is unoccupied.

The following shall not require an *automatic control device*:



1. Lighting intended for 24-hour operation
2. Lighting in spaces where patient care is rendered
3. Lighting in spaces where an automatic shutoff would endanger the safety or security of the room or building occupant(s).

ASHRAE 90.1-2007 Reference and link

*Copyright, 2007, [American Society of Heating, Refrigerating and Air-Conditioning Engineers](#), Atlanta, GA.
ASHRAE Standard 90.1-2007. Reproduced with permission. All rights reserved.
2009 ICC Reference and link

*Copyright, 2009, [International Code Council](#), Inc. Falls Church, Virginia. All rights reserved. 2009
International Energy Conservation Code.

PNNL-SA-66719