

Energy Code for the State of Massachusetts

The State of Massachusetts utilizes compliance with the ASHRAE 90.1-2007 Standard, or IECC-2009, as its State specific Energy Code.

The following are highlights of the Massachusetts Energy Code, with reference to ASHRAE 90.1-2007, which pertain to lighting controls.

INTERIOR LIGHTING.

AUTOMATIC LIGHTING SHUTOFF. Interior lighting in buildings greater than 5000 ft² shall be controlled with an automatic control device to shut off lighting in all spaces. The automatic control device can be:

1. Time-of-day operated device turning lights off at specific programmed times. Independent program schedules shall be provided for areas no more than 25,000 ft² but not more than one floor (or);
2. An occupant sensor that turns lights off within 30 minutes of an occupant leaving the space (or);
3. A signal from another control or alarm system indicating the area is unoccupied.

SPACE CONTROL. Each space enclosed by ceiling-height partitions shall have at least one control device to independently control the general lighting. The device can be activated manually or automatically by sensing an occupant. Each control device shall:

1. Control a maximum of 2,500 ft² for a space 10,000 ft² or less, or a maximum of 10,000 ft² for a space greater than 10,000 ft² (and);
2. Be capable of overriding any time-of-day scheduled shutoff control for no more than 4 hours.

Each manual device shall be readily accessible and located so the operator can see the controlled lighting. Remote location is permitted for reasons of safety or security when the remote device has an indicator pilot light and is clearly labelled to identify the controlled lighting.

A control device that automatically turns off lighting within 30 minutes of all occupants leaving shall be installed in all spaces, except spaces with multi-scene control or in classrooms, meeting rooms or lunch/break rooms.

ADDITIONAL CONTROLS. Separate control devices are required in the following cases:

1. Display or accent lighting;
2. Case lighting;
3. Hotel and motel guest room lighting;
4. Task lighting;
5. Nonvisual lighting;
6. Demonstration lighting.

TANDEM WIRING. With some exceptions, luminaires designed for use with 1 or 3 linear fluorescent lamps less than 30W each shall each use 2-lamp tandem-wired ballasts in place of single lamp ballasts when 2 or more luminaires are in the same space and on the same control device.

INTERIOR POWER ALLOWANCE. The interior lighting power allowance for a building shall be determined by either the building area (building area times allowed power density for building type) or the space-by-space method (sum of individual space allowances as determined by building type).

Power density factors for the building area method are in Table 9.5.1 and power density factors for the space-by-space method are in Table 9.6.1 of the ASHRAE 90.1-2007 Standard.

EXTERIOR LIGHTING.

GENERAL. Exterior lighting includes lighting for external building features including facades, illuminated roofs, architectural features, entrances, exits, loading docks, illuminated canopies and grounds lighting supplied by the building transformer.

Exterior lighting shall have automatic controls capable of turning off exterior lighting when sufficient daylight is available or when the lighting is not required during nighttime hours. Lighting not designated for dusk-to-dawn operation shall be controlled by either a combination of a photosensor and time switch or an astronomic time switch. Lighting designated for dusk-to-dawn operation shall be controlled by an astronomic time switch or photo sensor. All time switches shall be capable of retaining programming during loss of power for a period of at least 10 hours.

With some exceptions, all external building grounds luminaires that operate at greater than 100W shall contain lamps having a minimum efficacy of 60lm/W unless the luminaire is controlled by a motion sensor.

EXTERIOR POWER ALLOWANCES. The exterior power allowance is the sum of the individual power densities (found in Table 9.4.5 of the ASHRAE 90.1-2007 Standard) plus an additional 5% of that sum.

Lighting for the following exterior applications is exempt when equipped with an independent control device: transportation marker lighting, advertising signage, equipment lighting, theatrical lighting, athletic playing field lighting, temporary lighting, industrial production or storage area lighting, theme lighting in theme/amusement parks, and lighting that highlights monuments.

The above is a very brief guideline, as interpreted by Douglas Lighting Controls. Refer to the Massachusetts State Energy Code for details applicable to your lighting control project.

DOUGLAS LIGHTING CONTROLS

tel: (604) 873-2792 (toll free) 1-877-872-2792
 fax: (604) 873-6939
 email: lighting@douglaswest.com

DOUGLAS
lighting controls