

# Energy Code for the City of Phoenix, Arizona

The city of Phoenix uses 2006 IECC as its Municipal Energy Code.

The following are highlights of the Phoenix Energy Code which pertain to lighting controls.

## INTERIOR LIGHTING.

**GENERAL.** Each area enclosed by walls or floor-to-ceiling partitions shall have at least one manual control for the lighting servicing that area. The manual controls shall be located within the area or be remote switches that identify the lights served and their status.

Exceptions are areas that are continuously lighted or lighting in stairway or corridors.

**LIGHT REDUCTION CONTROLS.** Each area required to have manual controls must also allow the occupant to reduce the lighting in a reasonably uniform illumination pattern by at least 50%.

Lighting reduction can be accomplished by controlling all lamps or luminaires, by dual switching of alternate lamps or luminaires or alternate rows of luminaires, by switching middle lamp luminaires independently of outer lamps, or by switching each luminaire or lamp.

Exceptions are areas with 1 luminaire, areas that are controlled by occupancy sensors, corridors, sleeping units or spaces with less than 0.6W/ft<sup>2</sup>.

**AUTOMATIC SHUTOFF CONTROLS.** Buildings greater than 5000 ft<sup>2</sup> shall have automatic controls, including holiday scheduling, to shut off lighting. Automatic controls shall be any of:

- (1) a scheduled basis, using time-of-day with an independent program schedule controlling lighting in areas not exceeding 25,000 ft<sup>2</sup> and on the same floor.
- (2) an occupancy sensor that turns lights off within 30 minutes of occupant(s) leaving the space.
- (3) a signal from another control or alarm that indicates the area is unoccupied.

Automatic controls must have an override switching device. The override switch must be readily accessible, be located so the operator can see the lights or a light status indicator, be manually operated and, with some exceptions, allow lighting to remain on for no more than 2 hours after override is initiated, and control an area no larger than 5,000 ft<sup>2</sup>.

**TANDEM WIRING.** Fluorescent luminaires with one or an odd number of lamps that are mounted closer than 10' (recessed) or 1' (pendent) shall be tandem wired.

**SLEEPING UNITS/SUITES.** Guestrooms and suites within buildings shall have at least one master switch located near the entry that controls lighting fixtures.

**EXIT SIGNS.** Internally illuminated exit signs shall not exceed 5W per side.

**INTERIOR POWER ALLOWANCE.** The total connected light power of a building interior must not exceed the interior power allowance.

The connected light power is the sum of the watts of all interior lighting equipment. For low-voltage lighting, the wattage is the specified wattage of the transformer supplying the system. The wattage of other lighting equipment shall be that verified by its manufacturer. For low-voltage track lighting, the wattage shall be the greater of the wattages specified for the luminaires or 30W/lineal ft. Extra power allowances are allowed for display lighting.

The interior power allowance, in watts, is the sum for all interior areas of the building of the floor area times the lighting power density for that area's designated use.

Values for calculating interior power allowances are listed in Table 505.5.2 of the 2006 IECC Standard.

## EXTERIOR LIGHTING.

**GENERAL.** Lighting for all external applications shall have automatic controls that turn off lighting when sufficient daylight is available or when lighting is not required during night hours. Astronomic time switch or photocell controls shall be provided for all exterior lighting designated for dusk-to-dawn operation. Astronomic controls shall be capable of retaining programming during loss of power for at least 10 hours.

**EXTERIOR LIGHTING.** When the power for exterior lighting is supplied through the energy service of the building, all exterior lighting greater than 100W, unless controlled by a motion sensor or designated as low-voltage landscape lighting, shall have a source efficacy of at least 60 lumens/W.

**EXTERIOR POWER ALLOWANCES.** The connected exterior lighting power must not exceed the exterior lighting power allowance, as calculated by adding all lighting power densities by exterior function, then adding an additional 5% to the total.

Values for exterior power densities are listed in Table 505.6.2 of the 2006 IECC Standard.

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

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