

# Energy Code for the State of Arizona

Currently, Arizona does not have a State energy code, as codes are adapted and enforced on a local level.

State-owned or funded buildings use the ASHRAE 90.1-1999 Standard. Most of the more heavily populated local jurisdictions in Arizona use either 2003 IECC or 2006 IECC.

These jurisdictions use 2006 IECC: Pima County, Buckeye, Duncan, Oro Valley, Phoenix and Scottsdale.

These jurisdictions use 2003 IECC: Benson, Carefree, Clarkdale, Cochise County, Goodyear, Peoria, Queen Creek, Show Low, Sierra Vista, Surprise, Tuscon.

These jurisdictions use 2000 IECC: Florence, Pinal County.

The following show highlights pertaining to lighting controls of both the 2003 IECC and the 2006 IECC.

## INTERIOR LIGHTING.

**GENERAL.** (2003 and 2006 IECC) Each area, except for continuous lit areas or stairways or corridors, enclosed by walls or floor-to-ceiling partitions shall have at least one manual control for the lighting servicing that area.

**LIGHT REDUCTION CONTROLS.** (2003 and 2006 IECC) 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 /luminaires or rows, by switching middle lamp luminaires independently, or by switching each luminaire or lamp.

Areas that have 1 luminaire, or that are controlled by occupancy sensors do not have this requirement.

**AUTOMATIC SHUTOFF CONTROLS.** (2003 and 2006 IECC) Buildings greater than 5000 ft<sup>2</sup> shall have automatic controls to shut off lighting, either:

(1) on a scheduled basis, using time of day, with an independent program schedule and with a holiday feature. Areas controlled must not exceed 15,000 ft<sup>2</sup> (2003 IECC) or 25,000 ft<sup>2</sup> (2006 IECC) and must be on the same floor.

(2) on an unscheduled basis by occupant intervention.

(3) (2006 IECC only) a signal from another control or alarm indicating area is unoccupied.

(2003 and 2006 IECC) 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 the area controlled, be manually operated, 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>. those located in bathrooms, within the area. (2006 IECC only) Operator can also respond to a light status indicator, lighting may remain on for less than 2 hours after override under some exceptions.

**INTERIOR POWER ALLOWANCE.** (2003 and 2006 IECC) 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. (2006 IECC only) Extra power allowance are allowed for display lighting.

(2003 IECC only) 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. (2006 IECC only) the interior power allowance, in watts, can be calculated by the entire building method or the building portion method.

(2003 and 2006 IECC) Values for calculating interior power allowances are listed in Table 505.5.2.

## EXTERIOR LIGHTING.

**GENERAL.** (2003 IECC only) Automatic time switches shall have a combination seven-day and seasonal program schedule adjustment, and a minimum 4-hour power backup.

(2006 IECC only) Lighting for all external applications shall have automatic controls that turn off lighting when sufficient daylight is available or when lighting is not required. Astronomic time switch or photocell controls shall be provided for all exterior lighting designated for dusk-to-dawn operation. Astronomic controls shall retain programming during loss of power for at least 10 hours.

**EXTERIOR LIGHTING.** (2003 IECC only) All exterior lighting, other than low-voltage landscape lighting, shall have a source efficacy of at least 45 lumens/W.

(2006 IECC only) 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.** (2006 IECC only) The connected exterior lighting power must not exceed 105% of the sum of all lighting power densities by exterior function. 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 Energy Code in your jurisdiction of Arizona for details applicable to your lighting control project.

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