

ARTICLE XIII LIGHTING REGULATIONS

13.1 - PURPOSE

Outdoor lighting enables people to see essential detail for work or recreation, facilitates the safety or security of persons or property, emphasizes features of architectural or historical significance, lights parks and gardens, promotes products or services, or calls attention to commercial premises. But, with the benefits of lighting also comes a need to protect travelers or adjacent properties from the use of inappropriate lighting practices and systems. The reduction of glare, light trespass, and excess illumination can maximize the effectiveness of site lighting, and conserve energy and resources. Through the regulation of the placement, orientation, distribution patterns and fixture types of electronically-powered illuminating devices, it is the intent of this Code to encourage better lighting practices and systems to reduce visual glare and conserve energy without decreasing safety or utility.

13.2 - APPLICABILITY

These regulations shall apply to all exterior lighting fixtures including, but not limited to, boundary, parking lot, landscape, building (architectural), product display area, and driving lane lighting. It shall also apply to externally-lighted advertising signs. The following lighting applications, are specifically exempted from these regulations:

- 13.2.1 Communication towers or motion sensor devices controlling not more than three hundred (300) watts total connected load;
- 13.2.2 Temporary construction or emergency lighting provided it is discontinued immediately upon completion of the required work;
- 13.2.3 Special event lighting including circus, fair, carnival or civic uses, and fireworks displays;
- 13.2.4 Permanent emergency or security lighting for buildings or uses, provided it is required by building or electrical codes, or government regulation;
- 13.2.5 Exterior lighting for public monuments;
- 13.2.6 Exterior lighting fixtures for single-family and duplex residential dwelling units, provided that the maximum intensity of directional lighting (the center of the light beam) is not directed off-site;
- 13.2.7 Incandescent lighting fixtures of one hundred and sixty (160) watts or less, or any other light fixture (metal halide, HPS, fluorescent, etc.) of fifty (50) watts or less;
- 13.2.8 Internally-illuminated signs where the bare bulb cannot be seen directly;

- 13.2.9 Transportation lighting, including street lighting, automobiles, traffic signals, aircraft, trains and railroad signals;
- 13.2.10 State, federal, or municipal facilities. However, voluntary compliance with the intent of this Code is encouraged;
- 13.2.11 Temporary exemptions that may be approved by the Chief Building Official, as outlined below; and
- 13.2.12 Free-standing, antique or ornamental-style parking lot or private street lighting fixtures, using HPS or LPS lamps having no more than one hundred and fifty (150) watts output per lamp, or any fixtures using HPS or LPS lamps with no more than one hundred (100) watts output per lamp, provided that the light emitted above the horizontal plane be restricted to no more than twenty-five (25) percent of the lamp's total output, that no more than two (2) such lamps shall be located within fifty (50) feet of each other, and that all illumination standards from Section 13.4.1 are met.

13.3 - TEMPORARY EXEMPTIONS

Any person may submit a written request to the Chief Building Official for a temporary exemption to these regulations. A temporary exemption request shall contain the following information: the specific exemption requested, the type and use of outdoor fixture involved, the duration of the requested exemption, the type and wattage of the luminaires, calculated lumens and/or estimated footcandle levels, the proposed location and mounting height, the type of baffling or shielding to be provided, and any other data or information that may be deemed necessary by the Chief Building Official. A temporary exemption, if approved, shall be valid for not more than thirty (30) days from the date of issuance. The approval may be renewable at the discretion of the Chief Building Official, and any renewed exemption shall also be valid for not more than thirty (30) days.

13.4 - GENERAL STANDARDS

- 13.4.1 All non-exempt exterior lighting and illuminated signs shall be designed, installed, and directed in such a manner to prevent glare beyond the property line. The horizontal and vertical illuminance standards established by this Code shall be observed during the design, construction, and subsequent modification of any fixture.

*Maximum Illumination Levels (fc)**

Horizontal Illuminance

General site lighting, open parking facilities	15 fc
Building entrances, security areas, drive-thrus, fuel pump islands, active storage areas such as lumber yards and automobile sales displays, and general advertising signs	40 fc

Vertical Illuminance

Light trespass along a residentially-zoned property or a street (excluding the possible contribution of off-site sources such as street lighting) 1.5 fc

*Based on initial footcandle values. The use of initial footcandle levels usually results in field measurements that are less intense over the life of a lamp, sometimes as much as thirty (30) percent lower.

- 13.4.2 Exterior lighting fixtures, except as otherwise allowed, shall be recessed or flush-mounted, or otherwise properly shielded to reduce glare on-premises and eliminate glare off-site.
- 13.4.3 All exterior lighting shall, as a minimum, be full cut-off fixtures, not allowing any distribution of light above the horizontal plane. Excepted is floodlighting, if it is properly shielded to prevent glare or light trespass.
- 13.4.4 A minimum uniformity ratio of 10:1 between the maximum level of illumination and the minimum level is recommended for open parking facilities, to reduce eye adaptation difficulty between lighter and darker areas.
- 13.4.5 It is recommended all non-essential lighting be turned off after business hours, excluding lighting for security purposes.
- 13.4.6 Single-family or duplex residential directional lighting, such as floodlighting, that has the center of its light beam directed off-site is prohibited.
- 13.4.7 Luminaires shall not have a mounting height in excess of forty (40) feet.
- 13.4.8 Except as allowed in Subsection 13.4.6, the cut-off angle for exterior lighting fixtures shall not extend beyond the property line, unless proper shielding, baffling, or buffering techniques are employed. When buffering techniques are employed, allowances are not to be made for potential buffer growth and the Code requirements must be immediately met.
- 13.4.9 Any buffering approved and installed to facilitate compliance with the provisions of this section shall be deemed to be a required buffer under Section 12.4 and must be maintained as a required buffer.

13.5 - SITE PLAN REVIEW

An exterior lighting plan, drawn to scale, shall be submitted for review and approval for all developments utilizing non-exempted exterior lighting. Included in the plan shall be, as a minimum:

- 13.5.1 The location, mounting height, and orientation of all exterior lighting fixtures;

- 13.5.2 The make, model, lamp type, and wattage of each lighting fixture;
- 13.5.3 Initial footcandle data calculated by the point method (using horizontal illuminance calculations) for all lighted areas, using isofootcandle calculations on a thirty (30) foot or less grid spacing or isofootcandle lines;
- 13.5.4 Vertical illuminance calculations along all property lines;
- 13.5.5 Technical specifications for all luminaires, including the beam angle, field angle, isofootcandle diagrams, and cut-off angle of individual luminaires; and
- 13.5.6 Any baffles, shielding, or other light protection measures to be employed.

13.6 - COMPLIANCE

- 13.6.1 Modifications to exterior lighting fixtures shall not be made without the approval of the Chief Building Official. The upgrading of a fixture to a higher wattage or higher illumination lamp shall be considered a modification.
- 13.6.2 Approval of a lighting plan does not relieve the property owner or developer of responsibility should any lighting fixture fail to perform as approved. The Chief Building Official may require modifications to installed lighting if a violation is determined to exist. The city reserves the right to conduct post-installation inspections and/or illuminance measurements to verify compliance, and to require timely remedial action at the expense of the landowner or other responsible person.
- 13.6.3 Any use existing on the effective date of this ordinance that does not fully comply with the requirements pertaining to lighting then in effect shall be abated forthwith.