

Draft Sept 5, 2007

EXTERIOR LIGHTING STANDARDS

Sec. 35. Purpose and intent.

The purpose and intent of this article is to ensure that exterior (outdoor) lighting positively enhances the visual impact of a building or project on surrounding properties and uses. To that end, exterior lighting at a building or project should be designed and installed in a consistent and coordinated fashion to provide safe, convenient and efficient lighting for **THE SECURITY OF** customers, pedestrians and vehicles, and to avoid the creation of hot spots, glare, obtrusive light, light pollution, light trespass, and visual nuisance. Also, exterior lighting should accentuate key architectural elements of the building or project, and highlight or otherwise emphasize landscape features.

Sec. 35. Scope.

This article shall apply to all buildings and projects with exterior lighting in the unincorporated area, **except agricultural USES, single family, duplex, triplex, quadraplex AND OTHR MULTI-FAMILY RESIDENTIAL USES.** At religious institutions, this article shall apply only to paved parking areas; IESNA standards shall apply to non-paved parking areas.

Sec. 35. Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context may clearly indicate a different meaning:

Color rendering index (CRI): shall mean the scale used to compare the effect of the light source on the color appearance of its surroundings. (The higher the score, the more accurately the light source reflects true color.)

COMPACT FLORESCENT: SHALL MEAN A TYPE OF ILLUMINATION SOURCE PRODUCED THROUGH THE GENERATION OF ULTRAVIOLET ENERGY, WHICH ACTIVATES FLORESCENT MATERIAL.

Cutoff fixture: shall mean an outdoor light fixture that provides a cutoff (shielding) of the emitted light.

Fixture: shall mean the assembly that houses the lamp or lamps, and may include all or some of the following parts: reflector (mirror), refractor (lens), ballast, housing, and other attachment parts.

Footcandle (f.c.): shall mean a measure of light noted as a unit of illuminance amounting to one lumen per square foot.

Glare: shall mean intense and somewhat blinding light, or the sensation produced by a brightness within the visual field that is sufficiently greater than the intensity of light to which human eyes are accustomed or adapted, thereby causing annoyance, discomfort, visual impairment, or loss or reduction of visibility.

HIGH INTENSITY DISCHARG (HID): SHALL MEAN TYPES OF ILLUMINATION SOURCES GENERATED BY THE ELECTRIFICATION OF VARIOUS GAS VAPORS.

HIGH PRESSURE SODIUM: SHALL MEAN AN HID LAMP SOURCE NOTED FOR PRODUCING HARSH ILLUMINATION (SEE CRI), FREQUENTLY USED FOR SECURITY APPLICATIONS AND STREET LIGHTING.

LOW PRESSURE SODIUM (LPS): SHALL MEAN AN HID LAMP SOURCE NOTED FOR DISTORTION OF COLOR (SEE CRI), BUT IS TYPICALLY SOFTER THAN HPS.

MERCURY VAPOR: SHALL MEAN AN HID LAMP SOURCE CHARACTERIZED BY A SOMEWHAT HARSH, YELLOW CAST (SEE CRI).

Hot spot: shall mean an area of very high illumination above normal footcandle levels -- typically found in an area underneath a luminaire, making normal f.c. levels appear relatively dark.

Illuminance: shall mean the quantity of light arriving at a surface divided by the area of the lighted surface, measured in footcandles.

Illuminating Engineering Society of North America (IES or IESNA): shall mean the nonprofit professional society of lighting engineers and specialists that has established recommended design standards for various exterior lighting applications.

INCANDESCENT: SHALL MEAN A TYPE OF SOFT, WHITE ILLUMINATION SOURCE, PRODUCED BY HEATING A FILAMENT WITH ELECTRICITY. IT IS MOST COMMONLY USED IN RESIDENTIAL

SETTINGS AND THE NEED FOR FREQUENT REPLACEMENT AND LOW ENERGY EFFICIENCY ARE NOTED.

Internal louvered optical system: shall mean a series of high specular (mirror type) stacked louvers that cover the lamp, creating a cutoff, low glare light pattern.

Lamp: shall mean a light bulb.

Light pollution: shall mean any adverse effect of manmade light, often used to denote a brightness of the night sky, commonly known as urban sky glow.

Light trespass: shall mean light falling where it is not desired, wanted or needed.

Lumen: shall mean a quantitative unit measuring the amount of light emitted by a lamp or luminaire.

Luminaire: shall mean a complete lighting unit consisting of the lamp, the fixture and other parts designed to distribute the light.

Metal halide (lamp): shall mean a high intensity discharge lamp where the light is produced by radiation from metal-halide vapors, and which renders colors close to their daytime appearance.

NEON: SHALL MEAN A TYPE OF ILLUMINATION SOURCE PRODUCED IN A SIMILAR MANNER TO HID LIGHTING, WITH GREATER COLOR FLEXIBILITY. NEON IS TYPICALLY USED FOR COMMERCIAL BUILDING ORNAMENTATION, AS OPOSED TO ILLUMINATION.

Obtrusive light: shall mean light which causes annoyance, discomfort, visual impairment, or loss or reduction of visibility.

OPAQUE: SHALL MEAN BLOCKING THE PASSAGE OF RADIANT ENERGY, ESPECIALLY LIGHT.

Sag lens, convex lens or drop-lens: shall mean a clear or prismatic refracting lens that extends below the lowest opaque portion of a light fixture.

Spill light: shall mean light which falls outside the property where the luminaire is sited. **(ALSO SEE LIGHT TRESPASS)**

Sec. 35. Exterior lighting.

(a) General standards.

(1) *Exterior lighting plan.* An exterior lighting plan, including a photometric plan (which covers the parcel which is the site of the building or project in question), appropriate pole, fixture, and lamp cut sheets, and descriptions of lenses and appropriate data tables, shall be submitted for review. The exterior lighting plan shall be prepared by a licensed professional engineer, who shall certify that the exterior lighting plan complies with this article. (The photometric plan shall be prepared in a scale that is easily legible).

(2) *Lighting intensities.* Lighting intensities for buildings, projects, or other uses not specifically regulated by this article (for example, athletic fields, courts, and swimming pools) shall be designed as recommended by the Illuminating Engineering Society of North America (IESNA). However, all such uses shall comply with these regulations for control of glare and light level at the property line.

(3) *Footcandle intensities.* Footcandle intensities specified in this article shall be maintained values calculated using a maintenance factor ("m.f.") not lower than 0.72.

(4) *Light fixtures; types.* All light fixtures, including security lighting, shall be cutoff fixtures, and shall be incorporated as an integral design element that complements the design of the building or project through style, material or color. Luminaires shall not be tilted. Lighting of or on buildings shall be limited to wall washer type fixtures or up-lights, which do not produce spill light or glare. A cutoff fixture shall not have more than one percent (1%) of lamp lumens above horizontal. Sag lenses, convex lenses, and drop lenses shall be prohibited. Lighting at a building or project shall not be comprised in whole or part of any floodlights, except floodlights may be permitted with a noncommercial industrial use, provided the floodlights are shielded to meet cut-off standards.

(5) *Illumination levels.* Illumination levels at the property line of the building or project shall not be more than 0.2 f.c. at any point when the building or project is located next to any residential use, and shall not be more than 1.0 f.c. when located next to any other use. To avoid glare or spill light from encroaching onto adjacent properties, illumination shall be installed with house side shields and reflectors, and shall be maintained in such a manner as to confine light rays to the premises of the building or project.

(6) *Time controls.* Non-residential lighting shall be installed with time controls so that light levels are reduced not later than one hour after the close of

operations to the minimum levels needed under the IESNA to ensure safety and security (approximately a 50% reduction).

(7) *Upgrade or replacement.* When fifty percent (50%) or more of any component (e.g., luminaires, poles) of the exterior lighting system at a building or project is upgraded, changed, or replaced (not including regular maintenance), such component for the remainder of the exterior lighting shall be brought into substantial compliance with the requirements of this article.

(b) *Specific standards.*

(1) *Height.* Except as otherwise required under this article, the height of an outdoor lighting fixture (inclusive of the pole and light source/luminaire) shall be a maximum of twenty-five feet (25') within a parking lot, and a maximum of fifteen feet (15') within a non-vehicular pedestrian area. Height shall be measured from the finished grade to the top of the light fixture.

(2) *Parking areas.* To avoid conflict in layout, parking area lighting shall be coordinated with the required parking area landscape plans. In a parking area, the following lighting requirements shall apply:

a. The lamp source shall be metal halide, or compact fluorescent, or a light source that produces a Color Rendering Index (CRI) of 65 or higher. Wattage shall not exceed four hundred (400) watts per bulb.

b. Illumination levels outside the radius of any light pole (with radius meaning or equaling the height of the pole, not to exceed thirty feet, but no less than twenty feet) shall range between a minimum of 0.6 f.c. and a maximum of 3.6 f.c. The thirty foot (30') or lesser radius shall be shown on the photometric plan. The spacing between poles shall be no closer than 2 1/2 times the pole height. However, overflow lighting in a transition zone around a canopied area (*see* subsection (b)(4) regarding canopied areas) shall be permissible in the parking area surrounding the canopied area, notwithstanding the general lighting requirements in this subsection (b)(2) for parking areas.

c. Decorative acorn-type fixtures shall not exceed eighteen feet (18') in height and two hundred fifty (250) watts per bulb, and shall have a textured clear lens/globe, frosted/phosphor coated bulbs, and an internal louvered optical system. (Refractor type glass globes that meet the cutoff standard and are equipped with frosted/phosphor coated bulbs are acceptable.)

d. Other type fixtures/luminaires, light-levels and mounting heights may be allowed in a special geographic area as may be formally approved from time to time by the township trustees.

(3) *Pedestrian walkways and bikeways.* In pedestrian walkways or bikeways, the following lighting requirements shall apply:

- a. The light fixture/luminaire shall be decorative in appearance, style and finish.
- b. The lamp source shall be metal halide, or compact fluorescent, or a light source that produces a CRI of sixty-five (65) or higher. Wattage shall not exceed one hundred (100) watts per bulb.
- c. Illumination levels shall range between a minimum of 0.2 f.c. and a maximum of 2.5 f.c.

(4) *Canopied areas.* At a canopied area, such as that found at drive-through facilities at banks, service stations, convenience centers, and car-washes, lighting under the canopy, awning, porte-cochere, etcetera, shall be either recessed or cut-off fixtures. Additionally, the following lighting requirements shall apply:

- a. The lamp source shall be either metal halide, with wattage not to exceed two hundred fifty (250) watts per bulb, or compact fluorescent, or a light source that produces a CRI of sixty-five (65) or higher;
- b. The maximum footcandle level shall be twenty (20) f.c. (average maintained maximum), with a maximum to minimum ratio of 2:1.

(5) *Dealerships.*

a. Display areas at dealerships for new and used products, including automobiles, trucks, recreational vehicles, motorcycles, and boats, shall have a maximum footcandle level of twenty-four (24) f.c. for any row or tier of display that is adjacent to an external road or street (public or private), and a maximum level of ten (10) f.c. for all other rows or tiers of display. However, overflow lighting in a transition zone around a row or tier of display that is adjacent to an external road or street shall be permissible between such row or tier and the adjoining row or tier.

b. Entrances and exits to and from the dealership shall not exceed ten (10) f.c.

c. All other areas (parking and storage) shall comply with the applicable requirements of this article.

(6) *Fire lanes and driveways.* Lighting at fire lanes or driveways at building entrances may exceed allowable standards of intensity for safety

purposes upon demonstration that compliance with these lighting criteria would otherwise create a safety hazard. However, light levels shall not exceed five (5) f.c. at any point.

(7) *Automatic teller machines (ATMs)*. Lighting intensities at ATM machines shall be governed by applicable Ohio Statutes. However, free standing ATMs shall not exceed twenty (20) f.c. within a five foot (5') radius from the ATM or five (5) f.c. within a thirty foot (30') radius.

(8) BUILDING ORNAMENTATION AND ACCENTUATION. UTILIZATION OF NEON LIGHTING TO ACCENTUATE KEY ARCHITECTURAL ELEMENTS OF THE BUILDING OR PROJECT IS PERMITTED. IN NO CASE SHALL SUCH LIGHTING FLASH OR BLINK INTERMITTENTLY, AND ANY SUCH LIGHTING SOURCE LOCATED ON THE SIDE OF A BUILDING THAT FACES AN ADJOINING RESIDENTIAL USE OR ZONING DISTRICT SHALL BE EFFECTIVELY SCREENED THEREFROM.

(9) SEARCHLIGHTING FOR PURPOSES OF SPECIAL EVENTS OR ATTRACTIONS. ONE (1) OR MORE LIGHTS OF SUCH TYPE AND FOR SUCH PURPOSE SHALL BE PERMITTED FOR A PERIOD NOT TO EXCEED THREE (3) CALENDAR DAYS, PROVIDED THE LOCATION AND OPERATION DOES NOT INTERFERE WITH TRAFFIC MOVEMENT, ENDANGER PUBLIC SAFETY AND IS NOT OEPRATED PAST MIDNIGHT ON EACH DAY SO ALLOWED.

Sec. 35. Technical deviations.

(a) Any proposal which includes technical deviations from these lighting standards shall demonstrate the unique aesthetic and/or engineering design that meets or is within the spirit of these regulations. Such presentation shall include appropriate calculations and drawings or illustrations as necessary to explain the request or as may be required by the county.

(b) The zoning inspector shall make a determination whether to accept such proposed technical deviation after consulting with a mutually acceptable licensed professional engineer. The cost of making such determination shall be borne by the party requesting the technical deviation.

Sec. 35. Certificate of compliance required.

The zoning inspector shall not issue a certificate of occupancy until a licensed professional engineer delivers a certificate of compliance stating that the exterior lighting at the building and site complies with this article. However, where a project is of such a small scale that the lighting layout is considered an incidental engineering service, a

certificate of compliance may be **ISSUED** by the licensed professional rendering the incidental service.

Sec.35. Appeals.

Any decision by the zoning inspector in regards to this division, **INCLUDING PROPOSED TECHNICAL DEVIATIONS** may be appealed to the Hamilton Township Board of Zoning Appeals.