

DRAFT DARK SKY VERSION

SECTION 1. Smithfield Township Zoning Ordinance/SALDO, Chapter ____

§ ____ Definitions. For the purposes of this chapter the following terms, phrases, words and their derivations shall have the meanings given herein. When not inconsistent with the context, words used in the present tense include the future; words in plural include the singular; and words in the singular include the plural. Any personal pronoun shall be construed so as to mean either the masculine, feminine, or neuter gender, as the context may require; and the word "shall" is always mandatory and not merely precatory.

§ ____ Definitions.

As used in this chapter, the following terms shall have the meanings indicated:

ARCHITECTUAL LIGHTING

Lighting designed to reveal architectural beauty, shape and/or form and for which lighting for any other purpose is incidental.

BILLBOARD

A sign that directs attention to a business, commodity, service or entertainment conducted, sold or offered at a location other than the premises on which the sign is located - an off-site advertising sign.

FOOTCANDLE

A unit of light quantity stated in lumens per square foot and measurable with an illuminance meter, aka "footcandle or light meter."

FULL CUTOFF

A lighting fixture from which no light is emitted at or above a horizontal plane drawn through the bottom of the fixture, and no more than 10% of the lamp's intensity is emitted at or above an angle 10% below that horizontal plane, at all lateral angles around the fixture.

FULLY SHIELDED

A lighting fixture, from which, in the installed position, none of its light output, either directly from the lamp or a diffusing element, or indirectly by reflection or refraction from any part of the fixture (excepting only incidental reflections from supporting brackets or arms), is projected above a horizontal plane through the fixture's lowest light-emitting part, as determined by photometric test or certified by the manufacturer. Any structural part of the fixture providing this shielding shall be permanently affixed.

GLARE

The sensation produced by lighting that causes an annoyance, discomfort or loss in visual performance and visibility to the eye.

IESNA –

ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA

ILLUMINANCE

A measure of the amount of light falling onto a surface with light coming from an external light source(s). Illuminance, or illumination, is measured in units of footcandles or lux.

LAMP

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A generic term for a source of optical radiation, often called a "bulb" or "tube."

LED

Light-emitting diode.

LIGHT METER

An instrument called an illuminance meter or light meter which measures the amount of light (illuminance) being received at a location.

LIGHT TRESPASS

The level of illumination (illuminance) which the light source on one property shines onto another property. This is measured in footcandles (or lux), generally at the property line of the property receiving the light.

LUMEN

The light-output rating of a lamp (light bulb), as used in the context of this chapter.

LUMINAIRE

The complete lighting unit (fixture), consisting of a lamp, or lamps and ballast(s) (when applicable), together with the parts designed to distribute the light (reflector, lens, diffuser), to position and protect the lamps, and to connect the lamps to the power supply.

LUMINAIRE SHIELDED DIRECTIONAL

A fully shielded luminaire with an adjustable mounting device allowing aiming in a direction other than straight downward.

LUMINANCE

A measure of brightness of a source emitting light such as a backlit, digital or LED sign or billboard or a surface reflecting light. Luminance, or surface brightness, is most often measured in nits, or candelas per square meter (cd/m^2) which are equivalent.

NIT

A nit is a measurement of luminance whose standard is the amount of light that one candle gives off in one square meter of area. A nit measures light force given off from a curved surface such as a light bulb or an LED. The nit is a unit of measurement that is used for "brightness" given by such sources as digital signs, displays, lighted billboards, etc.

SHIELDED

The description of a luminaire from which no direct glare is visible at normal viewing angles, by virtue of its being properly aimed, oriented, and located and properly fitted with such devices as shields, barn doors, baffles, louvers, skirts or visors.

SIGN

Any structure, building, wall, or other outdoor surface, or any device or part thereof, which displays or includes any letter, word, model, banner, flag, pennant, insignia, device, or other representations used for announcement, direction or advertisement. The word "sign" includes the word "billboard" but does not include the flag, pennant, or insignia or any nation, state, city or other political unit nor public traffic or directional signs.

SECTION 2 APPLICABILITY. Except as described below, all outdoor lighting installed after the date of effect of this Ordinance shall comply with these requirements. This includes, but is not limited to, new lighting, replacement lighting, or any other lighting whether attached to structures, poles, the earth, or any other location, including lighting installed by any third party.

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- a) Exemptions. The following are not regulated by this Ordinance:
- 1) Lighting within the public right-of-way or easement for the principal purpose of illuminating roads and highways. No exemption shall apply to any street lighting and to any lighting within the public right of way or easement when the purpose of the luminaire is to illuminate areas outside of the public right of way or easement.
 - 2) Lighting for public monuments and statuary.
 - 3) Repairs to existing luminaires not exceeding 25% of total installed luminaires.
 - 4) Temporary lighting for theatrical, television, performance areas and construction sites;
 - 5) Underwater lighting in swimming pools and other water features
 - 6) Temporary lighting and seasonal lighting (e.g., Christmas lights, Halloween decorations; or any other short-lived lighting that will be reasonably removed after the seasonal date of event)
 - 7) Lighting that is only used under emergency conditions
 - 8) In lighting zones 2, 3 and 4, low voltage landscape lighting controlled by an automatic device that is set to turn the lights off at one hour after the site is closed to the public or at a time established by the authority.
- b) Exceptions Special Requirements. All lighting shall follow provisions in this ordinance; however, any special requirements for lighting listed in 1) and 2) below shall take precedence.
- 1) Lighting specified or identified in a specific use permit.
 - 2) Lighting required by federal, state, territorial, commonwealth or provincial laws or regulations.

c) **Exceptions to Lighting Control requirements.**

Lighting reductions are not required for any of the following:

- a. With the exception of landscape lighting, lighting for residential properties including multiple residential properties not having common areas, so long as the level of the light cannot be interpreted by the code enforcement officer as having a detrimental impact on adjacent or nearby residences.

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- b. When the outdoor lighting consists of only one luminaire.
- c. Code required lighting for steps, stairs, walkways, and building entrances.
- d. When in the opinion of the Township Supervisors, lighting levels must be maintained.
- e. Motion activated lighting, as long as the lights return to the off state within 7 minutes of activation from motion.
- f. Lighting governed by special use permit in which times of operation are specifically identified.
- g. Businesses that operate on a 24 hour basis.

SECTION 3: LIGHTING ZONE OVERLAY DISTRICTS

- A) Zoning Overlay Districts. The Township shall be divided into lighting overlay zones in which lighting is allowed or restricted commensurate with the need to control light trespass, glare and the need for more or less illumination. In addition to the other requirements in this chapter, the following supplementary restrictions shall be imposed

LZ1: Low ambient lighting

Areas where lighting might adversely affect flora and fauna or disturb the character of the area. The vision of human residents and users is adapted to and expects low light levels. Lighting may be used for safety and convenience but it is not necessarily uniform or continuous. After curfew, most lighting should be extinguished or reduced as activity levels decline.

RC District, R2 district, Include the National Recreation Area Parcels.

LZ2: Moderate ambient lighting

Areas of human activity where the vision of human residents and users is adapted to moderate light levels. Lighting may typically be used for safety and convenience but it is not necessarily uniform or continuous. After curfew, lighting may be extinguished or reduced as activity levels decline.

R1 district, omitting the National Recreation Area Parcels.

LZ3: Moderately high ambient lighting

Areas of human activity where the vision of human residents and users is adapted to moderately high light levels. Lighting is generally desired for safety, security and/or convenience and it is often uniform and/or continuous. After curfew, lighting may be extinguished or reduced in most areas as activity levels decline.

RE District, ED district

LZ4: High ambient lighting

Areas of human activity where the vision of human residents and users is adapted to high light levels. Lighting is generally considered necessary for safety, security and/or convenience and it is mostly uniform and/or continuous. After curfew, lighting may be extinguished or reduced in some areas as activity levels decline.

MI District

B. Zoning Overlay District Criteria Tables; and Backlight, Uplight, Glare (BUG): Tables shall accompany this ordinance, and are referenced herein. The tables are based on IES developed TM-15 Luminaire Classification System for Outdoor Luminaires.

A) The three components of BUG ratings are based on IES TM-15-07 (revised). **See Table C 1, C 2, C 3; See Figure 1 for visual reference.**

- 1) **Backlight**, which creates light trespass onto adjacent sites. The B rating takes into account the amount of light in the BL, BM, BH and BVH zones, which are in the direction of the luminaire OPPOSITE from the area intended to be lighted. **Table C-1 Shall govern.**
- 2) **Uplight**, which causes artificial sky glow. Lower uplight (zone UL) causes the most sky glow and negatively affects professional and academic astronomy. Upper uplight (UH) not reflected off a surface is mostly energy waste. The U rating defines the amount of light into the upper hemisphere with greater concern for the light at or near the horizontal angles (UL). **Table C-2 Shall govern.**
- 3) **Glare**, which can be annoying or visually disabling. The G rating takes into account the amount of frontlight in the FH and FVH zones as well as BH and BVH zones. **Table C-3 Shall govern.**

A) The lumen limits established for each lighting zone overlay apply to all types of lighting within that overlay zone. This includes, but is not limited to, specialty lighting, façade lighting, security lighting and the front row lighting for auto dealerships. BUG rating limits are defined for each luminaire and are based on the internal and external design of the luminaire, its aiming, and the initial luminaire lumens of the specified luminaires. The BUG rating limits also take into consideration the distance the luminaire is installed from the property line in multiples of the mounting height (**See Table C**).

B) In general, a higher BUG rating means more light is allowed in solid angles, and the rating increases with the lighting zone. However, a higher B (backlight) rating simply indicates that the luminaire directs a significant portion of light behind the pole, so B ratings are designated based on the location of the luminaire with respect to the property line. A high (B) rating luminaire maximizes the spread of light and is effective and efficient when used far from the property line. When luminaires are located near the property line, a lower B rating will prevent unwanted light from interfering with neighboring properties.

SECTION 4 LIGHTING CONTROL REQUIREMENTS

A) Automatic Switching Requirements

Controls shall be provided that automatically extinguish all outdoor lighting when sufficient daylight is available using a control device or system such as a photoelectric switch, astronomic time switch or equivalent functions from a programmable lighting controller, building automation system or lighting energy management system, all with battery or similar backup power or device.

Exceptions to 3 (A). Automatic lighting controls are not required for the following:

- a) Lighting under closed canopies.
- b) Lighting for tunnels, parking garages, garage entrances, and similar conditions.

B) Automatic Lighting Reduction Requirements

The Municipality shall establish curfew time(s) after which total outdoor lighting lumens shall be reduced by at least 30% or extinguished.

Exceptions to 3 (B). Lighting reductions are not required for any of the following:

- a. With the exception of landscape lighting, lighting for residential properties including multiple residential properties not having common areas, so long as the level of the light cannot be interpreted by the code enforcement officer as having a detrimental impact on adjacent or nearby residences.
 - b. When the outdoor lighting consists of only one luminaire.
 - c. Code required lighting for steps, stairs, walkways, and building entrances.
 - d. When in the opinion of the Township Supervisors, lighting levels must be maintained.
 - e. Motion activated lighting.
 - f. Lighting governed by special use permit in which times of operation are specifically identified.
 - g. Businesses that operate on a 24 hour basis.
- C) Unless otherwise permitted by the Board of Supervisors, e.g., for safety or security or all-night commercial/industrial operations, lighting for commercial, industrial and public recreational and institutional applications shall be controlled by automatic switching devices such as time clocks or combination motion detectors and photocells to permit

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extinguishing sources between 11:00 p.m. and dawn.

Security lighting proposed for use after 11:00 p.m., or after the normal hours of operation for commercial, industrial, institutional or municipal applications, shall be reduced by 75% from the levels normally permitted by this chapter from then until dawn.

- D) Directional fixtures for such applications as facade, fountain, feature and landscape illumination shall be aimed so as not to project their output beyond the objects intended to be illuminated and shall be extinguished between the hours of 11:00 p.m. and dawn.

SECTION 5_NON RESIDENTIAL LIGHTING.

- A) This section addresses non-residential lighting and multiple-family residences having common spaces, such as lobbies, interior corridors or parking. Its intent is to Limit the amount of light that can be used; minimize glare by controlling the amount of light that tends to create glare; minimize sky glow by controlling the amount of uplight; minimize the amount of off-site impacts or light trespass
- B) This Section provides two methods for determining compliance in non-residential districts. The **prescriptive method** contains precise and easily verifiable requirements for luminaire light output and fixture design that limit glare, uplight, light trespass and the amount of light that can be used. The **performance method** allows greater flexibility and creativity in meeting the intent of the ordinance. Note that both the prescriptive and the performance method limit the amount of light that can be used, but do not control how the lighting is to be used.
- C) Prescriptive Method. An outdoor lighting installation complies with this section if it meets the requirements of subsections 1 and 2, below. For the prescriptive method, the initial luminaire lumen allowances defined in Table A (Parking Space Method) or B (Hardscape Area Method) will provide basic lighting (parking lot and lighting at doors and/or sensitive security areas) that is consistent with the selected lighting zone. The prescriptive method is intended to provide a safe lighting environment while reducing sky glow and other adverse offsite impacts. Note that the values are for initial luminaire lumens, not footcandles on the target (parking lot, sidewalk, etc). Variables such as the efficiency of the luminaire, dispersion, and lamp wear can affect the actual amount of light so the lumens per square foot allowance is not equal to footcandles on the site. By specifying initial luminaire lumen values, it is easier for Smithfield Township to verify that the requirement is being met. Initial luminaire lumens are available from photometric data. Each initial luminaire lumens calculation should be supplied on the submittal form.
- A. Prescriptive Method. An outdoor lighting installation complies with this section if it meets the requirements of subsections 1 and 2, below.

1. *Total Site Lumen Limit*

The total installed initial luminaire lumens of all outdoor lighting shall not exceed the total site lumen limit. The total site lumen limit shall be determined using either the **Parking Space Method (Table A)** or the **Hardscape Area Method (Table B)**.

Only one method shall be used per permit application, and for sites with existing lighting, existing lighting shall be included in the calculation of total installed lumens.

The total installed initial luminaire lumens is calculated as the sum of the initial luminaire lumens for all luminaires.

2. Limits to Off Site Impacts

All luminaires shall be rated and installed according to **Table C**.

3. Light Shielding for Parking Lot Illumination

All parking lot lighting shall have no light emitted above 90 degrees.

B. Performance Method

The first step in the Performance Method regulates overlighting by establishing the Total Initial Site Lumens (Table D) that are allowed. Table E allows additional lumens for unique site conditions. The Site Total Initial Site Lumens allowed are a combination of allowances from Table D and Table E. The second step in the Performance Method is to determine if the proposed luminaires are producing off site impacts such as glare, sky glow and light trespass. One may use computer lighting calculations show compliance with Maximum Vertical Illuminance at any point in the plane of the property line in Table F.

For the performance method, Option B (2) requires photometric calculations for the site perimeter, to a height of no less than 33 feet (10 meters) above the tallest luminaire. Vertical illuminances at eye height (5 feet above grade) will give values that can be used to verify compliance by comparing actual site conditions to the photometric plan submitted during review.

1. Total Site Lumen Limit

The total installed initial luminaire lumens of all lighting systems on the site shall not exceed the allowed total initial site lumens. The allowed total initial site lumens shall be determined using **Tables D and E**. *For sites with existing lighting, existing lighting shall be included in the calculation of total installed lumens.*

The total installed initial luminaire lumens of all is calculated as the sum of the initial luminaire lumens for all luminaires.

2. Limits to Off Site Impacts

All luminaires shall be rated and installed using either Option A or Option B (below). Only one option may be used per permit application.

Option A: All luminaires shall be rated and installed according to **Table C**.

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Option B: The entire outdoor lighting design shall be analyzed using industry standard lighting software including inter-reflections in the following manner:

- 1) Input data shall describe the lighting system including luminaire locations, mounting heights, aiming directions, and employing photometric data tested in accordance with IES guidelines. Buildings or other physical objects on the site within three object heights of the property line must be included in the calculations. These recommended practices are hereby incorporated by reference as though more fully set forth herein. Copies of the recommended practices are available for use at the Township Municipal Building.
 - A) IES Guidelines referenced herein: Illuminating Engineering Society of North America (IESNA) as contained in the current issue of:
 - B) IESNA RP-33 Lighting for Exterior Environments;
 - C) IESNA RP-6 Sports and Recreational Area Lighting;
 - D) IESNA RP-8 Roadway Lighting; and
 - E) IESNA RP-20 Lighting for Parking Facilities.
- 2) Analysis shall utilize an enclosure comprised of calculation planes with zero reflectance values around the perimeter of the site. The top of the enclosure shall be no less than 33 feet (10 meters) above the tallest luminaire. Calculations shall include total lumens upon the inside surfaces of the box top and vertical sides and maximum vertical illuminance (footcandles and/or lux) on the sides of the enclosure.

The design shall comply only if:

- a) The total lumens on the inside surfaces of the virtual enclosure are less than 15% of the total site lumen limit; and
- b) The maximum vertical illuminance on any vertical surface is less than the allowed maximum illuminance per **Table F**.

SECTION 6_ RESIDENTIAL LIGHTING

A. General Requirements

For residential properties including multiple residential properties not having common areas, all outdoor luminaires shall be fully shielded and shall not exceed the allowed lumen output in Table G, row 2.

Exceptions

1. One partly shielded or unshielded luminaire at the main entry, not exceeding the

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- allowed lumen output in Table G row 1.
2. Any other partly shielded or unshielded luminaires not exceeding the allowed lumen output in Table G row 3.
3. Low voltage landscape lighting aimed away from adjacent properties and not exceeding the allowed lumen output in Table G row 4.
4. Shielded directional flood lighting aimed so that direct glare is not visible from adjacent properties and not exceeding the allowed lumen output in Table G row 5.
5. Open flame gas lamps.
6. Lighting installed with a vacancy sensor, where the sensor extinguishes the lights no more than 15 minutes after the area is vacated.
7. Lighting exempt.

B. Requirements for Residential Landscape Lighting

1. Shall comply with Table G.
2. Shall not be aimed onto adjacent properties.

SECTION 7 : OTHER STANDARDS FOR CONTROL OF LIGHT AND GLARE

§ ____ . Lighting criteria.

- A. Lighting fixture design.
 - (1) Fixtures/luminaries shall be fully shielded and designed appropriate to the lighting application and aesthetically acceptable to the Township. Figure 1.
- B. Control of nuisance and disabling glare, i.e., excessive brightness or hot spots in the field of view.
 - (1) All lighting shall be aimed, located, designed, fitted and maintained so as not to present a hazard to drivers or pedestrians by impairing their ability to safely traverse and so as not to create a nuisance by projecting or reflecting objectionable light onto a public roadway or neighboring use or property.
 - (2) Vegetation screens shall not be employed to serve as the primary means for controlling glare..
 - (3) Only the United States and the Pennsylvania state flag shall be permitted to be illuminated from dusk to dawn, and each flagpole shall be illuminated by a single source with a beam spread no greater than necessary to illuminate the flag(s). Flag lighting sources shall not exceed 7,000 lumens per flagpole.
 - (4) The use of white strobe lighting for tall structures such as smokestacks, chimneys and radio/communications/television towers is prohibited during hours of darkness, except as specifically required by Federal Aviation Administration.
 - (5) Canopy lighting, for such applications as gas/service stations and bank and fast-food

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drive-throughs, shall be accomplished using flat-lens, full-cutoff fixtures aimed straight down and shielded in such a manner that the lowest opaque edge of the fixture shall be level with or below the light source.

- (6) Uses that require the projection of light out at 45° or higher shall not be illuminated.

C. Installation.

- (1) For new installations, electrical feeds for pole-mounted fixtures shall be run underground, not overhead.
- (2) Poles supporting lighting fixtures for the illumination of parking areas and located directly behind parking spaces or where they could be hit by snowplows or wide-swinging vehicles shall be placed a minimum of four feet outside paved areas or tire stops, or on concrete pedestals at least 30 inches high above the pavement, or suitably protected by other Township-approved means.
- (3) Pole-mounted fixtures shall be aimed straight down.
- (4) Electrical installation of streetlighting shall be in accordance with prevailing regulations and specifications established by the Metropolitan Edison Company. It shall be the responsibility of the installing contractor, or his agent, to have final construction inspected by an electrical inspection agency and a written report attesting to this fact submitted to the Metropolitan Edison Company, thereby allowing the utility to provide pole illumination.

- D. Post-installation inspection. The Township reserves the right to conduct post-installation nighttime inspections to verify compliance with the requirements of this chapter and if appropriate, to require remedial action at no expense to the Township.

SECTION 8: PLAN SUBMISSION REQUIREMENTS

- A. For any subdivision and land development applications where outdoor site lighting is proposed by the applicant or required by this chapter, lighting plans shall be submitted to the Township for review and approval with any preliminary or final subdivision/land development plan application. Where public health, safety and welfare are at issue, the Township shall also require that lighting plans be submitted for building permit applications, conditional use applications, special exception applications and variance applications. Lighting plans shall include:
 - (1) A site plan, complete with all structures, parking spaces, building entrances, traffic areas (both vehicular and pedestrian), vegetation that might interfere with lighting, and adjacent uses that might be adversely impacted by the lighting, containing a layout of all proposed fixtures by location, mounting height and type. The submission shall include, in addition to area lighting, exterior architectural, building entrance, landscape lighting, etc.
 - (2) A ten-foot-by-ten-foot illuminance-grid (point-by-point) plot of maintained footcandles/illumination level units overlaid on the site plan, plotted out to 0.0

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footcandles/illumination level units, which demonstrates compliance with the light trespass, intensity and uniformity requirements as set forth in this chapter or as otherwise required by the Township.

- (3) The lamp lumen/illumination level unit ratings and types, maintenance (light-loss) factors and IES file names used in calculating the illuminance levels.
 - (4) Description and artistic rendering of all the proposed equipment, including fixture catalog cuts, photometries, glare reduction devices, lamps, on/off control devices, mounting heights, pole foundation details and mounting methods.
 - (5) Landscaping plans shall contain lighting fixture locations and shall demonstrate that the site lighting and landscaping have been coordinated to minimize conflict between vegetation and intended light distribution, both initially and at vegetation maturity.
- B. For applications presenting unique lighting issues, a visual impact plan may be required of the applicant to demonstrate appropriate steps have been taken to mitigate on-site and off-site glare.
- C. Plan notes: The following notes shall appear on the lighting plan:
- (1) Post-approval alterations to lighting plans or intended substitutions for approved lighting equipment shall be submitted to the Township for review and approval.
 - (2) The Township reserves the right to conduct post-installation nighttime inspections to verify compliance with the requirements of this chapter and as otherwise agreed upon by the Township and, if appropriate, to require remedial action at no expense to the Township.
 - (3) All site lighting shall meet IESNA full-cutoff criteria.

SECTION 9: COMPLIANCE MONITORING; NOTICE OF VIOLATION

- A. Safety hazards.
- (1) If the Township Code Enforcement Officer determines that a lighting installation creates a safety or personal security hazard, the person(s) responsible for the lighting shall be notified, in writing, and required to take remedial action.
 - (2) If appropriate corrective action has not been effected and if no appeal of the determination has been filed with the Board of Supervisors within 30 days of written notification, the violation shall be deemed a strict liability offense, and the Township may commence legal action as provided in this chapter.
- B. Nuisance glare and inadequate illumination levels.
- (1) When the Township Code Enforcement Officer determines an installation produces unacceptable levels of nuisance glare, skyward light, excessive or insufficient illumination levels or otherwise varies from this chapter, the Township may cause written notification of the person(s) responsible for the lighting and require appropriate remedial action.
 - (2) If appropriate corrective action has not been effected and if no appeal of the determination has been filed with the Smithfield Township Board of Supervisors within 30 days of written notification, the violation shall be deemed a strict liability offense, and the Township may commence legal action as provided in this chapter.

SECTION 10: NONCONFORMING LIGHTING

Any lighting fixture or lighting installation existing on the effective date of this chapter that does not conform with the requirements of this chapter shall be brought into conformance when:

- A. Minor corrective action, such as reaiming or shielding can bring conformity with the applicable requirements of the chapter.
- B. It is deemed by the Township Code Enforcement Officer to create a safety hazard or any possible other health and welfare concerns.
- C. It is replaced with another fixture or fixtures, abandoned or relocated.
- D. There is a change in use.
- E. **Major Additions.** If a major addition occurs on a property, lighting for the entire property shall comply with the requirements of this Code. For purposes of this section, the following are considered to be major additions. Additions of 25 percent or more in terms of additional dwelling units, gross floor area, seating capacity, or parking spaces, either with a single addition or with cumulative additions after the effective date of this Ordinance.

Single or cumulative additions, modification or replacement of 25 percent or more of installed outdoor lighting luminaires existing as of the effective date of this Ordinance.

- F. **Minor Modifications, Additions, or New Lighting Fixtures for Non-residential and Multiple Dwellings**

For non-residential and multiple dwellings, all additions, modifications, or replacement of more than 25 percent of outdoor lighting fixtures existing as of the effective date of this Ordinance shall require the submission of a complete inventory and site plan detailing all existing and any proposed new outdoor lighting. Any new lighting shall meet the requirements of this Ordinance.

- G. **Resumption of Use after Abandonment.** If a property with non-conforming lighting is abandoned for a period of six months or more, then all outdoor lighting shall be brought into compliance with this Ordinance before any further use of the property occurs

SECTION 11: VIOLATIONS AND PENALTIES; ENFORCEMENT

- A. Any person who is found to have violated an order of the Township or who willfully or negligently failed to comply with the provisions of this chapter and the orders, rules, regulations and permits issued hereunder shall be prosecuted by action brought before a District Justice in the same manner provided for the enforcement of summary offenses under the Pennsylvania Rules of Criminal Procedure. The Municipal Solicitor or the Code Enforcement Officer may assume charge of prosecution without the consent of the District Attorney as required by Pa. R.Crim.P. No. 83 (relating to trial in summary cases). The Board shall prescribe criminal fines not to exceed \$1,000 for the violation of this chapter and shall prescribe imprisonment to the extent allowed by law for the punishment of summary offenses. Each day or portion thereof that such violation continues or is permitted to continue shall constitute a separate offense, and each section of this chapter that is violated shall also constitute a separate offense.
- B. The Smithfield Township Supervisors may take any appropriate action at law or in equity, civil or criminal, to enforce the provisions of this chapter, and this chapter shall in no way restrict any remedies

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or otherwise available and provided by law.

- C. In all actions instituted and successfully prosecuted by the Township, it shall have a further right to reimbursement from the violator for attorney's fees and costs related to the action.

SECTION 12. Severability. In the event any provision, section, sentence, clause, or part of this Ordinance shall be held invalid, such invalidity shall not affect or impair any remaining provision, section, sentence, clause or part of this Ordinance, it being the intent of this Township that such remainder shall be and shall remain in full force and effect.

SECTION 13. Repealer. All other ordinances or parts of ordinances inconsistent herewith shall be and the same expressly are repealed.

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Table A - Allowed Total Initial Luminaire Lumens per Site for Non-residential Outdoor Lighting, Per Parking Space Method May only be applied to properties up to 10 parking spaces (including handicapped accessible spaces).

LZ-0	LZ-1	LZ-2	LZ-3	LZ-4
350 lms/space	490 lms/space	630 lms/space	840 lms/space	1,050 lms/space

Table B - Allowed Total Initial Lumens per Site for Non- residential Outdoor Lighting, Hardscape Area Method. May be used for any project. When lighting intersections of site drives and public streets or road, a total of 600 square feet for each intersection may be added to the actual site hardscape area to provide for intersection lighting.

LZ-0	LZ-1	LZ-2	LZ-3	LZ-4
Base Allowance				
0.5 lumens per SF of Hardscape	1.25 lumens per SF of Hardscape	2.5 lumens per SF of Hardscape	5.0 lumens per SF of Hardscape	7.5 lumens per SF of Hardscape

Table B - Lumen Allowances, in Addition to Base Allowance

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Table B (CONTINUED)- Lumen Allowances, in Addition to Base Allowance

	LZ 0	LZ 1	LZ 2	LZ 3	LZ 4
Additional allowances for sales and service facilities. No more than two additional allowances per site, Use it or Lose it.					
Outdoor Sales Lots. This allowance is lumens per square foot of uncovered sales lots used exclusively for the display of vehicles or other merchandise for sale, and may not include driveways, parking or other non sales areas. To use this allowance, luminaires must be within 2 mounting heights of sales lot area.	0	4 lumens per square foot	8 lumens per square foot	16 lumens per square foot	16 lumens per square foot
Outdoor Sales Frontage. This allowance is for lineal feet of sales frontage immediately adjacent to the principal viewing location(s) and unobstructed for its viewing length. A corner sales lot may include two adjacent sides provided that a different principal viewing location exists for each side. In order to use this allowance, luminaires must be located between the principal viewing location and the frontage outdoor sales area	0	0	1,000 per LF	1,500 per LF	2,000 per LF
Drive Up Windows. In order to use this allowance, luminaires must be within 20 feet horizontal distance of the center of the window.	0	2,000 lumens per drive-up window	4,000 lumens per drive-up window	8,000 lumens per drive-up window	8,000 lumens per drive-up window
Vehicle Service Station. This allowance is lumens per installed fuel pump.	0	4,000 lumens per pump (based on 5 fc horiz)	8,000 lumens per pump (based on 10 fc horiz)	16,000 lumens per pump (based on 20 fc horiz)	24,000 lumens per pump (based on 20 fc horiz)

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Table C - Maximum Allowable Backlight, Uplight and Glare (BUG) Ratings

A luminaire may be used if it is rated for the lighting zone of the site or lower in number for all ratings B, U and G. Luminaires equipped with adjustable mounting devices permitting alteration of luminaire aiming in the field shall not be permitted.

TABLE C-1	Lighting Zone 0	Lighting Zone 1	Lighting Zone 2	Lighting Zone 3	Lighting Zone 4
Allowed Backlight Rating*					
Greater than 2 mounting heights from property line	B1	B3	B4	B5	B5
1 to less than 2 mounting heights from property line and ideally oriented**	B1	B2	B3	B4	B4
0.5 to 1 mounting heights from property line and ideally oriented**	B0	B1	B2	B3	B3
Less than 0.5 mounting height to property line and properly oriented**	B0	B0	B0	B1	B2

For property lines that abut public walkways, bikeways, plazas, and parking lots, the property line may be considered to be 5 feet beyond the actual property line for purpose of determining compliance with this section. For property lines that abut public roadways and public transit corridors, the property line may be considered to be the center-line of the public roadway or public transit corridor for the purpose of determining compliance with this section. NOTE: This adjustment is relative to Table C-1 and C-3 only and shall not be used to increase the lighting area of the site.

** To be considered 'ideally oriented', the luminaire must be mounted with the backlight portion of the light output oriented perpendicular and towards the property line of concern.

Table C - 2 Maximum Allowable Uplight (BUG) Ratings - Continued

TABLE C-2	Lighting Zone 0	Lighting Zone 1	Lighting Zone 2	Lighting Zone 3	Lighting Zone 4
Allowed Uplight Rating	U0	U1	U2	U3	U4
Allowed % light emission above 90° for street or Area lighting	0%	0%	0%	0%	0%

Table C - 3 Maximum Allowable Glare (BUG) Ratings - Continued

TABLE C-3	Lighting Zone 0	Lighting Zone 1	Lighting Zone 2	Lighting Zone 3	Lighting Zone 4
Allowed Glare Rating	G0	G1	G2	G3	G4
Any luminaire not ideally oriented*** with 1 to less than 2 mounting heights to any property line of concern	G0	G0	G1	G1	G2
Any luminaire not ideally oriented*** with 0.5 to 1 mounting heights to any property line of concern	G0	G0	G0	G1	G1
Any luminaire not ideally oriented*** with less than 0.5 mounting heights to any property line of concern	G0	G0	G0	G0	G1

*** Any luminaire that cannot be mounted with its backlight perpendicular to any property line within 2X the mounting heights of the luminaire location shall meet the reduced Allowed Glare Rating in Table C-3.

Table D Performance Method Allowed Total Initial Site Lumens

May be used on any project.

Lighting Zone	LZ 0	LZ 1	LZ 2	LZ 3	LZ 4
Allowed Lumens Per SF	0.5	1.25	2.5	5.0	7.5
Allowed Base Lumens Per Site	0	3,500	7,000	14,000	21,000

Table E Performance Method Additional Initial Luminaire Lumen Allowances. All of the following are “use it or lose it” allowances.

All area and distance measurements in plan view unless otherwise noted.

Lighting Application	LZ 0	LZ 1	LZ 2	LZ 3	LZ 4
Additional Lumens Allowances for All Buildings except service stations and outdoor sales facilities. A MAXIMUM OF THREE (3) ALLOWANCES ARE PERMITTED. THESE ALLOWANCES ARE “USE IT OR LOSE IT”.					
Building Entrances or Exits. This allowance is per door. In order to use this allowance, luminaires must be within 20 feet of the door.	400	1,000	2,000	4,000	6,000
Building Facades. This allowance is lumens per unit area of building façade that are illuminated. To use this allowance, luminaires must be aimed at the façade and capable of illuminating it without obstruction.	0	0	8/SF	16/SF	24/SF

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Lighting Application	LZ 0	LZ 1	LZ 2	LZ 3	LZ 4
Sales or Non-sales Canopies. This allowance is lumens per unit area for the total area within the drip line of the canopy. In order to qualify for this allowance, luminaires must be located under the canopy.	0	3/SF	6/SF	12/SF	18/SF
Guard Stations. This allowance is lumens per unit area of guardhouse plus 2000 sf per vehicle lane. In order to use this allowance, luminaires must be within 2 mounting heights of a vehicle lane or the guardhouse.	0	6/SF	12/SF	24/SF	36/SF
Outdoor Dining. This allowance is lumens per unit area for the total illuminated hardscape of outdoor dining. In order to use this allowance, luminaires must be within 2 mounting heights of the hardscape area of outdoor dining	0	1/SF	5/SF	10/SF	15/SF
Drive Up Windows. This allowance is lumens per window. In order to use this allowance, luminaires must be within 20 feet of the center of the window.	0	2,000 lumens per drive-up window	4,000 lumens per drive-up window	8,000 lumens per drive-up window	8,000 lumens per drive-up window
Additional Lumens Allowances for Service Stations only. Service stations may not use any other additional allowances.					
Vehicle Service Station Hardscape. This allowance is lumens per unit area for the total illuminated hardscape area less area of buildings, area under canopies, area off property, or areas obstructed by signs or structures. In order to use this allowance, luminaires must be illuminating the hardscape area and must not be within a building below a canopy, beyond property lines, or obstructed by a sign or other structure.	0	4/SF	8/SF	16/SF	24/SF

Lighting Application	LZ 0	LZ 1	LZ 2	LZ 3	LZ 4
Vehicle Service Station Canopies. This allowance is lumens per unit area for the total area within the drip line of the canopy. In order to use this allowance, luminaires must be located under the canopy.	0	8/SF	16/SF	32/SF	32/SF
Additional Lumens Allowances for Outdoor Sales facilities only. Outdoor Sales facilities may not use any other additional allowances. NOTICE: lighting permitted by these allowances shall employ controls extinguishing this lighting after a curfew time to be determined by the Authority.					
Outdoor Sales Lots. This allowance is lumens per square foot of uncovered sales lots used exclusively for the display of vehicles or other merchandise for sale, and may not include driveways, parking or other non sales areas and shall not exceed 25% of the total hardscape area. To use this allowance, Luminaires must be within 2 mounting heights of the sales lot area.	0	4/SF	8/SF	12/SF	18/SF
Outdoor Sales Frontage. This allowance is for lineal feet of sales frontage immediately adjacent to the principal viewing location(s) and unobstructed for its viewing length. A corner sales lot may include two adjacent sides provided that a different principal viewing location exists for each side. In order to use this allowance, luminaires must be located between the principal viewing location and the frontage outdoor sales area.	0	0	1,000/LF	1,500/LF	2,000/LF

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Table F Maximum Vertical Illuminance at any point in the plane of the property line.

Lighting Zone 0	Lighting Zone 1	Lighting Zone 2	Lighting Zone 3	Lighting Zone 4
0.05 FC or 0.5 LUX	0.1 FC or 1.0 LUX	0.3 FC or 3.0 LUX	0.8 FC or 8.0 LUX	1.5 FC or 15.0 LUX

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Table G - Residential Lighting Limits

Lighting Application	LZ 0	LZ 1	LZ 2	LZ 3	LZ 4
Row 1 Maximum Allowed Luminaire Lumens* for Unshielded Luminaires at one entry only	Not allowed	420 lumens	630 lumens	630 lumens	630 lumens
Row 2 Maximum Allowed Luminaire Lumens* for each Fully Shielded Luminaire	630 lumens	1,260 lumens	1,260 lumens	1,260 lumens	1,260 lumens
Row 3 Maximum Allowed Luminaire Lumens* for each Unshielded Luminaire excluding main entry	Not allowed	315 lumens	315 lumens	315 lumens	315 lumens
Row 4 Maximum Allowed Luminaire Lumens* for each Landscape Lighting	Not allowed	Not allowed	1,050 lumens	2,100 lumens	2,100 lumens
Row 5 Maximum Allowed Luminaire Lumens* for each Shielded Directional Flood Lighting	Not allowed	Not allowed	1,260 lumens	2,100 lumens	2,100 lumens
Row 6 Maximum Allowed Luminaire Lumens* for each Low Voltage Landscape Lighting	Not allowed	Not allowed	525 lumens	525 lumens	525 lumens

* Luminaire lumens equals Initial Lamp Lumens for a lamp, multiplied by the number of lamps in the luminaire

Figure 1: BUG Visual explanation. (Key: UH=Uplight High, UL=Uplight Low, BVH=Backlight Very High, BH=Backlight High, BM=Backlight Medium, BL=Backlight Low, FVH=Forward Light Very High, FH=Forward Light High, FM=Forward Light Medium, FL=Forward Light Low.)

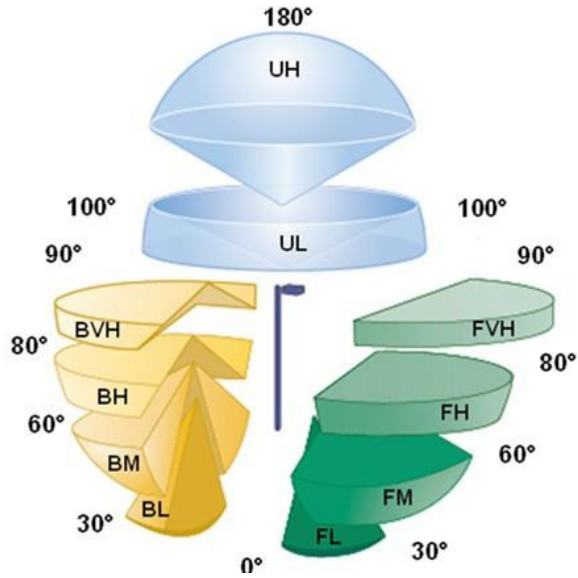


Figure 2. Examples of Fully Shielded Luminaires.

