

ORDINANCE NO. 194,2009

AN ORDINANCE OF THE TOWNSHIP OF TILDEN, BERKS COUNTY, PENNSYLVANIA, AMENDING CHAPTER XXXII, ENTITLED "ZONING" OF THE TOWNSHIP OF TILDEN CODE OF ORDINANCES TO ESTABLISH DEFINITIONS OF FOOTCANDLE, FULL CUTOFF, FULLY SHIELDED, GLARE, ILLUMINANCE, LIGHT TRESPASS, AND LUMEN; AND TO ESTABLISH A NEW PART 20, ENTITLED "OUTDOOR LIGHTING" TO ESTABLISH PURPOSE, APPLICABILITY, CRITERIA, RESIDENTIAL SUBDIVISION FIXTURE PLACEMENT, RECREATIONAL USES, PLAN SUBMISSION REQUIREMENTS, COMPLIANCE MONITORING AND NONCONFORMING LIGHTING.

NOW, THEREFORE, BE IT ENACTED AND ORDAINED by the Board of Supervisors of the Township of Tilden, Berks County, Pennsylvania, and it is hereby ENACTED AND ORDAINED by the authority of the same as follows:

SECTION 1. Section 105, entitled "Definition of Terms", of Part 1, entitled "Objective, Purposes, Interpretation, Short Title, Definition of Terms", of Chapter XXXII, entitled "Zoning", of the Code of Ordinances of the Township of Tilden is hereby amended by adding thereto the following in alphabetical order:

"Footcandle. Unit of light density incident on a plane (assumed to be horizontal unless otherwise specified), and measurable with an illuminance meter, a.k.a. light meter."

"Full Cutoff. Attribute of 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. Attribute of a lighting fixture provided with internal and/or external shields and louvers to prevent brightness from lamps, reflectors, refractors and lenses from causing glare at normal viewing angles. In the context of this Chapter, Fully Shielded shall be construed as equal to Full Cutoff."

"Glare. Excessive brightness in the field of view that is sufficiently greater than the brightness to which the eyes are adapted, to cause annoyance or loss in visual performance and visibility, so as to jeopardize health, safety or welfare."

"Illuminance. Quantity of light, measured in footcandles."

"Light Trespass. Light emitted by a lighting fixture or installation, which is

cast beyond the boundaries of the property on which the lighting installation is sited."

"Lumen. As used in the context of this Chapter, the light-output rating of a lamp (light bulb)."

SECTION 2. Chapter XXXII, entitled "Zoning", of the Code of Ordinances of the Township of Tilden is hereby amended by adding thereto the following new part 20 and renumbering the current Part 20 through 22 to be 21 through 23:

"Part 20

Outdoor Lighting

Section 2001. Purpose. To Require and set minimum standards for outdoor lighting to:

- (a) Provide for and control lighting in outdoor public places where public health, safety and welfare are potential concerns;
- (b) Protect drivers and pedestrians from the glare of non-vehicular light sources;
- (c) Protect neighbors, the environment and the night sky from nuisance glare and light trespass from improperly selected, placed, aimed, applied, maintained or shielded light sources;
- (d) Promote energy efficient lighting design and operation; and
- (e) Protect and retain the intended visual character of the various Tilden Township venues.

Section 2002. Applicability.

- (a) All uses within the Township where there is interior or exterior lighting that creates a nuisance or hazard as viewed from outside, including, but not limited to, , commercial, industrial, public and private recreational/sports and institutional uses, and sign, , architectural and landscape lighting.
- (b) Temporary seasonal decorative lighting is exempt from all but the glare-control requirements of this Part.
- (c) Emergency lighting, as may be required by any public agency while

engaged in the performance of their duties, or for illumination of the path of egress during an emergency as described in NFPA 75 and NFPA 101, are exempt from the requirements of this Part.

#### Section 2003. Criteria.

(a) **Illumination Levels.** Lighting, where required by this Part, or otherwise required or allowed by the Township, shall have intensities, uniformities and glare control in accordance with the recommended practices of the Illuminating Engineering Society of North America (IESNA), unless otherwise directed by the Township.

(b) **Light Power Densities.** Lighting shall conform to the exterior LPDs as set forth by the current edition of ASHRAE/IESNA 90.1 Standard.

(c) **Lighting Fixture Design.**

(1) Fixtures shall be of a type and design appropriate to the lighting application and shall be aesthetically acceptable to the Township.

(2) For the lighting of predominantly horizontal surfaces such as, but not limited to parking areas, roadways, vehicular and pedestrian passage areas, merchandising and storage areas, automotive-fuel dispensing facilities, automotive sales areas, loading docks, cul-de-sacs, active and passive recreational areas, building entrances, sidewalks, bicycle and pedestrian paths, and site entrances, fixtures shall be aimed straight down and shall meet IESNA full-cutoff criteria. In the case of decorative street lighting, the Township may approve the use of luminaires that are fully shielded or comply with IESNA cutoff criteria.

(3) For the lighting of predominantly non-horizontal surfaces such as, but not limited to, facades, landscaping, signs, fountains, displays and statuary, fixtures shall be fully shielded and shall be installed and aimed so as to not project their output into the windows of neighboring residences, adjacent uses, past the object being illuminated, skyward or onto a public roadway.

(d) **Control of Glare.**

(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 neighboring use or property.

(2) Directional fixtures such as floodlights and spotlights shall be so shielded, installed and aimed that they do not project their output into the windows of neighboring residences, adjacent uses, past the object being illuminated, skyward or onto a public roadway or pedestrian way. Floodlights, when building, pole or otherwise installed above grade, except when motion-sensor actuated, shall not be aimed out more than 45° from straight down. When a floodlight creates glare as viewed from an adjacent residential property, the floodlight shall be required to be reaimed and/or fitted with a shielding device to block the view of the glare source from that property.

(3) Parking facility and vehicular and pedestrian-way lighting (except for safety and security applications and all-night business operations), for commercial, industrial and institutional uses shall be automatically extinguished no later than one-hour after the close of business or facility operation. When safety or security lighting is proposed for after-hours illumination, it shall not be in excess of twenty-five (25) percent of the number of fixtures or illumination level required or permitted for illumination during regular business hours. When it can be demonstrated to the satisfaction of the Township that an elevated security risk exists, e.g., a history of relevant crime, an appropriate increase above the twenty-five (25) percent limit may be permitted.

(4) Illumination for signs, building facades and/or surrounding landscapes for decorative, advertising or aesthetic purposes is prohibited between 11:00 p.m. and dawn, except that such lighting situated on the premises for a commercial establishment may be operated while the establishment is actually open for business, and until one-half hour after closing.

(5) Vegetation screens shall not be employed to serve as the primary means for controlling glare. Rather, glare control shall be achieved primarily through the use of such means as cutoff fixtures, shields and baffles, and appropriate application of fixture mounting height, wattage, aiming angle and fixture placement.

(6) The illumination projected from any use onto a residential use shall at no time exceed 0.1 footcandle, measured line-of-sight from any point on the receiving residential property.

(7) The illumination projected from any property onto a non-residential use shall at no time exceed 1.0 footcandle, measured line-of-sight from any point on the receiving property.

(8) Except as permitted for certain recreational lighting and permitted elsewhere in this Section, fixtures shall not be mounted in excess of twenty (20) feet above finished grade of the surface being illuminated. Fixtures not meeting full-cutoff criteria, when their use is specifically allowed by the Township, shall not be mounted in excess of 16' AFG. Mounting height shall be defined as the distance from the finished grade of the surface being illuminated to the optical center of the luminaire. Where proposed parking lots consist of 100 or more contiguous spaces, the Township may, at its sole discretion, based partially on mitigation of potential off-site impacts, allow a fixture mounting height not to exceed 25' AFG. For recreational lighting maximum mounting height requirements, refer to "Recreational Uses" elsewhere in this Part.

(9) Only the United States and the state flag shall be permitted to be illuminated past 11:00 p.m. Flag lighting sources shall not exceed 7,000 aggregate lamp lumens per flagpole. The light source shall have a beam spread no greater than necessary to illuminate the flag and shall be shielded so that it is not visible at normal viewing angles.

(10) Under-canopy lighting for such applications as gas/service stations, hotel/theater marquees, fast-food/bank/drugstore drive-ups, 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 below the light source at all lateral angles. The average illumination in the area directly below the canopy shall not exceed 20 initial footcandles and the maximum shall not exceed 30 initial footcandles.

(e) Installation

(1) Electrical feeds for lighting standards shall be run underground, not overhead and shall be in accordance with the NEC Handbook.

(2) Poles supporting lighting fixtures for the illumination of parking areas and located directly behind parking spaces, or where they could be hit by snow plows or wide-swinging vehicles, shall be placed a minimum of five (5) feet outside paved area or tire stops, or placed on

concrete pedestals at least thirty (30) inches high above the pavement, or suitably protected by other Township-approved means.

(3) Pole mounted fixtures for lighting horizontal tasks shall be aimed straight down and poles shall be plumb.

(4) Poles and brackets for supporting lighting fixtures shall be those specifically manufactured for that purpose and shall be designed and rated for the weights and wind loads involved.

(5) Pole foundations shall be designed consistent with the wind loads and local soil conditions involved.

(f) Maintenance. Lighting fixtures and ancillary equipment shall be maintained so as to always meet the requirements of this Part.

(g) Signs. The lighting of new or relighting of existing signs shall require a Sign Permit, which shall be granted when the Township is satisfied that excessive illumination, light pollution, glare and light trespass have been adequately mitigated, and shall be subject to the following requirements:

(1) Externally illuminated signs shall have fixtures mounted at the top of the sign and aimed downward. The fixtures shall be designed, fitted and aimed to shield the source from off-site view and to place the light output onto and not beyond the sign. External lighting such as floodlights, thin line, and goose neck reflectors are permitted provided the light source is directed downward on the face of the sign. At no point on the face of the sign or billboard and at no time shall the illumination exceed 30-vertical footcandles during hours of darkness.

(2) Internally illuminated signs, the aggregate output of the light sources shall not exceed 500 initial lumens per square foot of sign face per side.

(3) The illumination of any sign within two hundred (200) feet of any property zoned for or in residential use shall be diffused or indirect in design to prevent direct rays of light from shining onto adjoining property. Off-premises signs shall be extinguished automatically by a programmable controller, with astronomical and daylight savings time control and spring or battery power-outage reset, by no later than 11:00 each evening until dawn, prevailing time, except that signs for establishments (not companies) that operate or remain open past 11:00 p.m. may remain on no later than ½ hour



past the close of the establishment.

(4) The illumination of off-premises signs shall not create a general nuisance to adjoining properties and shall be effectively shielded so as to prevent beams or rays from being directed at any portion of adjacent roads and are not of such a brightness to cause glare or impair the vision of the driver of any motor vehicle.

(5) Flashing, blinking, twinkling, animated or moving signs of any type, except emergency signs, those related to road or other construction activities and those portions of signs that indicate time and/or temperature. LED billboard and sign lighting shall only be permitted in commercial and industrial districts, shall be static and shall not be allowed to operate between 11:00 p.m. and dawn when located where visible from a residential district or use. Except for time and weather signs, the message shall not be permitted to change more than once in each 1-hour period. The LED output shall be automatically reduced to a brightness level that does not create glare during hours of darkness.

(6) The use of highly reflective signage that creates nuisance glare or a safety hazard shall not be permitted.

#### Section 2004. Residential Subdivision Fixture Placement.

(a) For residential subdivisions, when required by the Township Supervisors, street lighting shall be provided at:

(1) the intersection of public roads with entrance roads to the proposed development;

(2) intersections involving proposed public or non-public major-thoroughfare roads within the proposed development;

(3) the apex of the curve of any major-thoroughfare road, public or non-public, within the proposed development, having a radius of 300 feet or less;

(4) cul-de-sac bulbs;

(5) terminal ends of center median islands having concrete structure curbing, trees and/or other fixed objects not having breakaway design for speeds of 25 m.p.h. or greater;

(6) defined pedestrian crossings located within the development;  
and

(7) At other locations along the street as deemed necessary by the Board of Supervisors.

(b) Where lot sizes permit the parking of less than three (3) vehicles on the residential lot, thereby necessitating on-street parking, street lighting may be required along the length of the street.

(c) In multi-family developments, common parking areas of 4 spaces or greater shall be illuminated.

(d) In residential developments with lots of less than twenty thousand (20,000) square feet, where five (5) or more common contiguous parking spaces are proposed, such spaces shall be illuminated.

Section 2005. Recreational Uses. The nighttime illumination of outdoor recreational facilities for such aerial sports as baseball, basketball, soccer, tennis, track and field, and football typically necessitate higher than normally allowed fixture mounting heights and aiming angles, utilize very high-wattage lamps and potentially produce unacceptable levels of light trespass and glare when located near residential properties. Permission to illuminate such facilities shall be granted only when the Township is satisfied that the health, safety and welfare rights of nearby property owners and the Township as a whole have been properly protected. When recreational uses are specifically permitted by the Township for operation during hours of darkness, the following requirements shall apply:

(a) Race tracks and such recreational venues as golf driving ranges and trap-shooting facilities that necessitate the horizontal or near horizontal projection of illumination, shall not be permitted to be artificially illuminated.

(b) Recreational facilities for basketball, baseball, football, soccer, miniature golf, tennis or track shall not be illuminated if located within a residential district or sited on a nonresidential property located within 1,000 feet of a property containing a residential use.

(c) Sporting events shall be timed to end at such time that all lighting in the sports facility, other than lighting for safe exit of patrons, shall be extinguished by ten (10:00) p.m.

(d) Maximum mounting heights for recreational lighting shall be in accordance with the following:



Basketball	20'
Football	70'
Soccer	70'
Little League Baseball	
200' Radius	60'
300' Radius	70'
Miniature Golf	20'
Swimming Pool Aprons	20'
Tennis	20'
Track	20'

(e) To assist the Township in determining whether the potential impacts of proposed lighting have been suitably managed, applications for illuminating recreational facilities shall be accompanied not only with the information required under Section 2006 below but also by a visual impact plan that contains the following:

(1) Plan views containing a layout of the recreational facility and showing pole locations and the location of residences on adjoining properties.

(2) Elevations containing pole and fixture mounting heights, horizontal and vertical aiming angles and fixture arrays for each pole location.

(3) Elevations containing initial vertical illuminance plots at the boundary of the site, taken at a height of 5' line-of-sight.

(4) Elevations containing initial vertical illuminance plots on the windowed facades of all residences facing and adjacent to the recreational facility. Such plots shall demonstrate compliance with the light trespass and glare control requirements of this Part.

(5) Proposed frequency of use of the facility during hours of darkness on a month-by-month basis and proposed time when the sports lighting will be extinguished.

(6) A narrative describing the measures proposed to achieve minimum off-site disturbance.

Section 2006. Plan Submission. Where site lighting is required by this Part, is otherwise required by the Township or is proposed by Applicant, lighting plans shall be submitted for Township review and approval for Subdivision & Land Development,

Conditional Use, Variance, Building Permit, Zoning Permit and Special Exception applications. The submitted information shall include the following:

(a) A plan or plans of the site, complete with all structures, parking spaces, building entrances, traffic areas (both vehicular and pedestrian), existing and proposed trees, and adjacent uses that might be adversely impacted by the lighting. The lighting plan shall contain a layout of all proposed and existing fixtures, including but not limited to area, architectural, building entrance, canopy, soffit, landscape, flag, sign, etc., by location, orientation, aiming direction, mounting height, lamp, photometry and type.

(b) A 20'x20' illuminance grid (point-by-point) plot of maintained horizontal footcandles overlaid on the site plan, plotted out to 0.0 footcandles, which demonstrates compliance with the light trespass, illuminance and uniformity requirements as set forth in this Part or as otherwise required by the Township. When the scale of the plan, as judged by the Township, makes a 20'x20' grid plot impractical, a smaller grid spacing may be permitted.

(c) The maintenance (light-loss) factors, IES candela test-filename, initial lamp-lumen ratings and specific lamp manufacturer's lamp ordering nomenclature, used in calculating the presented illuminance levels.

(d) Description of the proposed equipment, including fixture catalog cuts, photometrics, glare reduction devices, lamps, on/off control devices, mounting heights, pole foundation details, pole protection means and mounting methods.

(e) When landscaping plans are involved, they shall contain the 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.

(f) When requested by the Township, Applicant shall also submit a visual-impact plan that demonstrates appropriate steps have been taken to mitigate the potential consequences of on-site and off-site glare and to retain the intended character of the Township. This plan may require the inclusion of initial vertical footcandle values at specific off-site venues, e.g., bedroom windows of adjacent residential uses.

(g) 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 Tilden Township for review and approval. Requests for substitutions shall be

accompanied by catalog cuts of the proposed equipment and lighting plans, including a point-by-point plot, as required, that demonstrate full compliance with the Township-approved plan.

(2) Tilden Township reserves the right to conduct post-installation inspections to verify compliance with the Part requirements and approved Lighting Plan commitments, and if deemed appropriate by the Township, to require remedial action at no expense to the Township.

(3) All exterior lighting, including building-mounted lighting, shall meet IESNA full-cutoff criteria unless otherwise specifically approved by the Township.

(4) Installer shall notify Tilden Township to arrange for inspection and approval of all exterior lighting, including building-mounted lighting, prior to its installation.

#### Section 2007. Compliance Monitoring.

(a) Safety Hazards.

(1) If the Township judges a lighting installation creates a safety hazard, the person(s) responsible for the lighting shall be notified and required to take remedial action.

(2) If appropriate corrective action has not been effected within fifteen (15) days of notification, the Township may take appropriate legal action.

(b) Nuisance Glare and Inadequate Illumination Levels.

(1) When the Township judges an installation produces unacceptable levels of nuisance glare, skyward light, excessive or insufficient illumination levels or otherwise varies from this Part, the Township may cause notification of the person(s) responsible for the lighting and require appropriate remedial action within thirty (30) days to comply with effective action.

(2) If the infraction so warrants, the Township may act to have the problem corrected as in Section 2007(a)(2) above.

Section 2008. Nonconforming Lighting. Any lighting fixture or lighting installation existing on the effective date of this Part that does not conform with the requirements of this Part shall be considered as a lawful nonconformance.

(a) A nonconforming lighting fixture or lighting installation shall be made to conform with the requirements of this Part when:

(1) Minor corrective action, such as reaiming or shielding can achieve conformity with the applicable requirements of this Part;

(2) It is deemed by the Township to create a safety hazard;

(3) It is replaced by another fixture or fixtures or abandoned or relocated;

(4) The number of fixtures is increased by 50% or more; and

(5) There is a change in use.

(b) Regardless of the requirements Section 2008(a) above, nonconforming lighting fixtures and lighting installations shall be made to conform to the requirements of this Part or removed within three (3) years from the effective date of this Part."

SECTION 3. If any sentence, clause, section or part of this Ordinance is for any reason found to be unconstitutional, illegal or invalid, such unconstitutionality, illegality or invalidity shall not affect or impair any of the remaining provisions, sentences, clauses, sections or parts of this Ordinance. It is hereby declared as the intent of the Board of Supervisors of the Township that this Ordinance would have been adopted had such unconstitutional, illegal or invalid sentence, clause, section or part thereof not been included herein.

SECTION 4. All ordinances or parts of ordinances conflicting with the provisions of this Ordinance are hereby repealed insofar as they are inconsistent with this Ordinance.

SECTION 5. This Ordinance shall become effective in accordance with the law.

SECTION 6. The Code of Ordinances of the Township of Tilden, Berks County, Pennsylvania, as amended, shall be and remain unchanged and in full force and effect except as amended, supplemented and modified by this Ordinance. This Ordinance shall become a part of the Code of Ordinances of the Township of Tilden, Berks County, Pennsylvania, as amended, upon adoption.

DULY ENACTED AND ORDAINED this 14th day of July, 2009.

TOWNSHIP OF TILDEN  
BOARD OF SUPERVISORS

Russell H. Weir

Judy E. Romig

Troy R. Hatt

Attest:

Cheryl A. Haus

Secretary

## MUNICIPAL CERTIFICATION

I, CHERYL A. HAUS, Secretary of the TOWNSHIP OF TILDEN, BERKS COUNTY, PENNSYLVANIA, do hereby certify that the foregoing Ordinance 194, 2009 was advertised in the Reading Eagle/Times, a daily newspaper of general circulation in Tilden Township, on ~~June 15~~ June 22, 2009 and was duly enacted and approved as set forth at a Regular Meeting of the Board of Supervisors held on July 11, 2009.

(SEAL)

Cheryl A. Haus  
Secretary

Date: July 11, 2009