

Comparison of Lights/Glare Regulations - Loudoun County Zoning Ordinances (3)

Location	Language	Applicable to Which Zoning District
1972 Zoning Ordinance	Page 36 535.3 Glare “All sources of glare (direct or reflected artificial light) from any premises (other than in connection with motor vehicles) must not cause illumination in excess of 0.5 foot candles above background measured at the district boundary of any residential district or at the lot line within any residential districts.	Any Residential District
	535.3.1 Method of Measurement and meaning of terms: Glare shall be measured by means of a photometer or foot-candle meter whose calibration is traceable to the National Bureau of Standards.	
	“Foot-candle” as a unit of illumination is the illumination at all points one foot distant from a uniform source of one candle power.	
1993 Zoning Ordinance	Page 133 5-1504 Light and Glare Standards (A) General Requirements. All sources of glare (direct or reflected artificial light) from any source (other than in connection with operating motor vehicles and/or street lighting) must not cause illumination in excess of 0.25 foot candles above background light levels measured at the boundary of any commercial or industrial use abutting any residential use or at the lot line with any residential district, or, in residential or agricultural districts, at the lot line of any adjacent lot. In addition, in the A-3, A-10, A-25, RR, and CR districts, lights shall be shielded so that the direct glare of the bulb is not visible beyond the property line of the parcel. (B) Method of Measurement. Illumination levels shall be measured with a photoelectric photometer having a spectral response similar to that of the human eye, following the standard spectral luminous efficiency curve adopted by the Internal Commission on Illumination.	
	Article 8, Page 12 Foot Candles: A unit of illumination; technically, the illumination of all points one (1) foot distant from a uniform point source of one (1) candle power.	
	Article 8, Page 31 Sign, Backlit: An illuminated sign, where the source of the illumination is located on the back of the sign or on the interior of an enclosed sign.	
Revised 1993 Zoning Ordinance	Article 4-915 Lighting. Street lighting shall be provided along all streets and shall meet the minimum standards required in the FSM (Facility Standards Manual)	

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Article 5-652	<p>Exterior Lighting and Noise Standards for Specific Uses. The following exterior lighting and noise standards shall apply to specific uses in this section when they are expressly referenced in the standards for the specific use.</p> <p>Exterior Lighting Standards.</p> <p>(1) Pole-Mounted Exterior Lighting. The maximum height of pole-mounted exterior lighting shall be 25 feet.</p> <p>(2) Shielded Lighting/Light Element. Fully shielded lighting fixtures shall be used in all areas. The light element (lamp or globe) of a fixture shall not extend below the cutoff shield.</p> <p>(3) Hours of Operation. All exterior lighting shall be extinguished from 10:00 p.m. to 6:00 a.m., except for exterior lighting that is determined to be necessary for security purposes.</p> <p>(4) No illuminated Signage. Signage related to the use shall not be illuminated.</p>	<p>5-601 (A) (4) Bed and Breakfast Homestay subject to 5-652 (A)(2)-(3)- but with the maximum height of pole-mounted exterior lighting shall be 12 feet.(vs 25 feet)</p> <p>5-601 (B) (4) Bed and Breakfast Inn subject to 5-652 (A)(2)-(3)- but with the maximum height of pole-mounted exterior lighting, outside of parking areas, shall be 12 feet.(vs 25 feet)</p> <p>5-601 (C) (4) Country Inn subject to 5-652 (A)(2)-(3)- but with the maximum height of pole-mounted exterior lighting, outside of parking areas, shall be 12 feet.(vs 25 feet)</p> <p>5-601 (D) (4) Rural Retreats and Resorts. subject to 5-652 (A)</p> <p>5-602 (C) Tenant Dwellings subject to 5-652 (A)</p> <p>5-606 (4) Kennels/Indoor Kennels. subject to 5-652 (A)</p> <p>5-614 (J) Small Businesses. subject to 5-652 (A)</p> <p>5-625 (F) Winery, Commercial. Exterior Lighting subject to 5-652 (A)</p>
Article 5-618	<p>Telecommunications Use And/Or Structures (A)Antennas (e) Signals, lights, and/or illumination shall not be permitted on any antenna, unless required by the Federal Communications Commission (FCC), the Federal Aviation Administration (FAA), State or Federal authorities, or the County.</p>	
Article 5-618	<p>Telecommunications Use And/Or Structures (B)Monopoles (h) No signals, lights, and/or illumination shall be permitted on a monopole, unless required by the Federal Communications Commission, the Federal Aviation Administration, State or Federal authorities, or the County.</p>	

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Article 5-618	Telecommunications Use And/Or Structures (C)Telecommunications Towers. (h) No signals, lights, and/or illumination shall be permitted on a monopole, unless required by the Federal Communications Commission, the Federal Aviation Administration, State or Federal authorities, or the County.	
Article 5-647(D)	Cross-Country Ski Business and Eco-Tourism. All located in the AR TJLMA-20 and TR-10 districts will be permitted to have exterior lighting for security purposes only.	
Article 5-657(D)	Stockpiling of Dirt. All located in the AR and TR districts shall have lighting for security purposes only and in accordance with Section 5-649. Signage for the stockpile of dirt use shall not be illuminated.	
Article 5-664(C)	Data Center. Data Centers in the CLI, PD-OP, PD-RDP, and PD-IP zoning districts shall have exterior lighting that is designed and constructed with cutoff and fully shielded fixtures that direct light downward and into the interior of the property and away fro adjacent roads and adjacent properties.	
Article 5-666(B)	<p>Schools, Public (Elementary, Middle, or High) Lighting:</p> <p>(1) Light Fixtures. Exterior building lighting, including security lighting, and parking lot lighting shall be full cutoff and fully shielded and shall direct light downwards and into the interior of the property and away from surrounding public or private roads and properties.</p> <p>(2) Exterior Building Lighting. Exterior building lighting, including security lighting, shall not exceed a maximum average illumination of five (5) foot-candles at grade level unless otherwise required by law, ordinance, or regulation.</p> <p>(3) Parking Lot Lighting. Parking lot lighting shall not exceed a maximum average illumination of two (2) foot-candles at grade level. Parking lot lighting shall be turned off within one hour following the end of evening activities, or by 11 p.m., whichever occurs first.</p> <p>(4) Recreational and Athletic Fields and Facilities Lighting. Lighting for recreational and athletic fields and facilities shall be turned off by 11 p.m., shall be directed inward and downward toward the field being illuminated, shall incorporate a reflector technology system that directs light onto the field being illuminated and shall be cut-off and shielded in directions away from the recreational or athletic field to minimizes glare and spillage onto adjacent properties. Lighting for recreational and athletic fields and facilities must not cause illumination in excess of ten foot-candles above background light levels measured at the boundary of any residential district, or, in residential or agricultural districts, at the lot line of any adjacent lot. Light poles for recreational and athletic fields and facilities shall not exceed 80 feet in height.</p> <p>(5) Height of Light Fixtures. The mounting height of any exterior light fixture shall not exceed 20 feet, except for light poles for athletic fields. Height shall be measured from the ground to the light fixture.</p>	

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Location	Language	Applicable to Which Zoning District
Article 5-1202	<p>(A) Signs Prohibited. Signs with any of the following characteristics are prohibited: (2) Outlines any building or sign with exposed neon illumination or other permanent lights. Outlines any building, sign, or part thereof with exposed neon illumination or other permanent lights, except as specifically permitted with the approval of a sign development plan. (4) Illuminated signs which reflect or cast glare, directly or indirectly, on any public roadway or adjacent property.</p>	
Article 5-1504	<p>Light and Glare Standards.</p> <p>(A) General Requirements.All sources of glare (direct or reflected artificial light) from any source (other than in connection with operating motor vehicles, lighting at publicly owned facilities utilized for athletic competition, and/or street lighting) must not cause illumination in excess of 0.25 foot candles above background light levels measured at the boundary of any commercial or industrial use abutting any residential use or at the lot line with any residential district, or, in residential or agricultural districts, at the lot line of any adjacent lot. In addition, in the A-3, A-10, AR-1, AR-2, and CR districts, lights shall be shielded so that the direct glare of the bulb is not visible beyond the property line of the parcel. Publicly owned facilities utilized for athletic competition, as exempted above, other than at public schools (elementary, middle or high), shall use cut-off and fully shielded lighting fixtures that 1) are aimed downward and inward toward the athletic field or interior of the property, and 2) are shielded in directions away from the athletic field to minimize glare and light trespass onto adjacent properties. Publicly owned athletic competition facilities must not cause illumination in excess of ten foot candles above background light levels measured at the boundary of any residential district, or, in residential or agricultural districts, at the lot line of any adjacent lot. Lighting for recreational and athletic fields and facilities at public schools (elementary, middle or high) shall adhere to the performance standards specified in Section 5-666.</p> <p>(B) Method of Measurement. Illumination levels shall be measured with a photoelectric photometer having a spectral response similar to that of the human eye, following the standard spectral luminous efficiency curve adopted by the Internal Commission on Illumination</p> <p>(C) Special Exception Review for Lighting that does not Comply with Standards. Lighting that does not meet the standards of Section 5- 1504(A) may be permitted by special exception, pursuant to Section 6- 1300, upon a finding that the proposed alternative lighting is appropriate.</p> <p style="font-size: small;">[SEP]</p>	

ARTICLE 9

PERFORMANCE STANDARDS

PART 1

9-100

GENERAL PROVISIONS

9-101

Applicability

1. No permitted, special permit or special exception use hereafter established, altered, modified or enlarged shall be operated or designed so as to conflict with the applicable performance standards established by this Article, except as qualified in Section 102 below.
2. Any existing use that complies with the applicable performance standards of this Article on the effective date of this Ordinance shall continue to so comply. If, at such time, the operations of any lawful existing use violate any of the applicable performance standards of this Article, such operations shall not be varied or changed in such a way as to increase the degree of such violation.
3. The fact that the operations of a lawful existing use violate the applicable performance standards of this Article shall not in and of itself make such use subject to the requirement of Article 10 relating to nonconformities.

9-102

Performance Standards Not Applicable

The performance standards presented in Parts 7 and 8 of this Article shall not apply to Category 19 Special Exception uses (see Article 5) regardless of the zoning district in which such uses may be located. Category 19, Extraction Uses, shall be subject to compliance with the performance standards presented in Part 19 of Article 5.

9-103

Administration of Certain Performance Standards

For the purpose of administering the required performance standards relative to Noise, Vibration and Glare, the standards are presented in two (2) basic groups, namely: Group I and Group II. Table I below sets forth the applicable performance standards that must be met in each zoning district.

PART 5

9-500

ELECTROMAGNETIC RADIATION AND INTERFERENCE STANDARDS

No activity, operation or use shall cause electromagnetic radiation interference that (a) adversely affects persons or the operation of any equipment across lot lines, and (b) is not in conformance with the regulations of the Federal Communications Commission.

PART 6

9-600

LIQUID AND SOLID WASTES STANDARDS

Any activity, operation or device which causes or tends to cause the discharge or other release of liquid or solid waste into public sanitary sewer, storm drains or public waters shall comply with applicable laws, rules and regulations governing such discharge or release, including but not limited to Federal Water Pollution Control Act, the Virginia Water Control Law and the Fauquier County regulation provisions on sewers and sewage disposal, pollution of state waters, maintenance and cleanliness of storm drainage facilities, garbage, trash and refuse, and erosion and sediment control.

PART 7

9-700

NOISE STANDARDS

9-701

Required Performance Level

No use, operation or activity shall cause or create noise in excess of the sound level prescribed below.

9-702

Method of Measurement

1. Noise shall be measured with a sound level meter, octave band analyzer and impact noise analyzer meeting the standards of the American National Standards Institute (ANSI S1.4-1961 and ANSI S1.11-1966). The instruments shall be set to the flat response weighing network and the meter to the slow response.
2. Sounds of short duration such as from forge hammers, punch presses and metal shears which cannot be measured accurately within the sound level meter shall be measured within the impact noise analyzer.
3. For the purpose of this Ordinance, impact noises shall be considered to be those noises whose peak values are more than 3dB higher than the values indicated on the sound level meter set to the slow response.

9-703

Exemptions

The following uses and activities shall be exempt from the noise level requirements:

1. Noises not directly under the control of the property owner.

2. Noises emanating from non-routine construction and maintenance activities between 8:00 A.M. and 7:00 P.M.
3. The noises of safety signals, warning devices and emergency pressure relief valves, whose frequency of operation does not exceed one per week, and any audible safety or warning devices required by law.
4. Transient noises of moving sources such as motor vehicles, airplanes and railroad trains, except where such transient noises are caused on the site and are a part of the operation of the use on the site.
5. Noises and activities directly associated with the safety warnings and training programs of the Fire and Rescue Services and Sheriff's Department.
6. Agricultural operations.

9-704

Group I Noise Standards

1. Uses subject to Group I standards shall not cause at any point on or beyond the boundary of the lot upon which the use is situated, noise resulting from any use, operation or activity which exceeds the maximum permitted sound level set forth in Table II below.

TABLE II

**Maximum Permitted Sound Pressure Level
In or Adjacent to Residential Districts**

<u>Octave Band, Preferred Frequencies Cycles Per Second</u>	<u>Decibels Re: 0.0002 Microbar</u>
31.5	66
125	63
250	61
500	55
1000	48
2000	41
4000	34
8000	28

2. Impact noises shall not exceed the sound pressure levels set forth in Table III.

TABLE III

Maximum Permitted Impact Noise Levels

<u>Location (at Lot Line)</u>	<u>Maximum Permitted Peak Sound Pressure Level, Decibels</u>
In Residential Districts	80
At a Nonresidential Lot Line	90

3. Between the hours of 8:00 P.M. and 7:00 A.M., all permissible noise levels indicated in the previous tables for Residential Districts shall be reduced by 5 decibels.

9-705

Group II Noise Standards

1. Uses subject to Group II standards shall not cause at any point on or beyond the lot where such use is located, noise resulting from any use, operation or activity which exceeds the maximum permitted sound levels set forth in Table IV below.

TABLE IV

Maximum Permitted Sound Pressure Level Beyond Nonresidential District Boundaries

<u>Octave Band, Preferred Frequencies Cycles Per Second</u>	<u>Decibels Re: 0.0002 Microbar</u>
31.5	70
63	71
125	69
250	65
500	61
1000	57
2000	53
4000	49
8000	45

2. Impact noises shall not exceed the sound pressure level set forth in Table V.

TABLE V

Maximum Permitted Impact Noise Levels

<u>Location (at lot line)</u>	<u>Maximum Permitted Peak Sound Pressure Level, Decibels</u>
In Residential District	80
At a Nonresidential District Boundary Line	90
One Impact Noise Per Day, Beyond Lot Lines	120

3. Between the hours of 8:00 P.M. and 7:00 A.M., all of the permissible noise levels indicated in the previous tables for Residential Districts shall be reduced by 5 decibels.

PART 8

9-800

EARTHBORN VIBRATION STANDARDS

9-801

No use, operation or activity shall cause or create earthborn vibrations in excess of the peak particle velocities prescribed below.

9-802

1. Measurements shall be made at or beyond the adjacent lot line, nearest Residential District boundary line or nearest district boundary line as indicated below. Ground transmitted vibration shall be measured with a seismograph or complement of instruments capable of recording vibration displacement and frequency, particle velocity or acceleration simultaneously in three (3) mutually perpendicular directions.
2. The maximum particle velocity shall be the maximum vector sum of three (3) mutually perpendicular components recorded simultaneously. Particle velocity may also be expressed as 6.28 times the displacement in inches multiplied by the frequency in cycles per second.
3. For the purpose of this Ordinance, steady state vibrations are continuous or vibrations in discrete impulses more frequent than sixty (60) per minute shall be considered impact vibrations.

9-803

Group I Vibration Standards

1. Uses subject to Group I standards shall not cause steady state vibrations to exceed the maximum permitted particle velocities described in Table VI below. Where more than one set of vibration levels apply, the most restrictive shall govern. Readings may be made at points of maximum vibration intensity.

TABLE VI

Maximum Permitted Steady State Vibration Levels

<u>Location (at lot line)</u>	<u>Maximum Peak Particle Velocity Inches Per Second</u>
In a Residential District	0.02
At or Beyond Adjacent Lot Lines, Except a Residential District	0.05

2. Impact vibrations shall be permitted at twice the values stated above.
3. Between the hours of 8:00 P.M. and 7:00 A.M., all of the permissible vibration levels indicated above in Table VI for Residential Districts shall be reduced to one-half (1/2) the indicated values.

9-804

Group II Vibration Standards

1. Uses subject to Group II standards shall not cause steady state vibrations to exceed the maximum permitted particle velocities described in Table VII below. Where more than one set of vibration levels apply, the most restrictive shall govern. Readings may be made at points of maximum vibration intensity.

TABLE VII

Maximum Permitted Steady State Vibration Levels

<u>Location (at lot line)</u>	<u>Maximum Peak Particle Velocity Inches Per Second</u>
In a Residential District	0.02
At or Beyond Adjacent District Boundary Lines, Except a Residential District	1.10

2. Impact vibrations shall be permitted at twice the values stated above.
3. Between the hours of 8:00 P.M. and 7:00 A.M., all of the permissible vibration levels indicated above in Table VII for Residential Districts shall be reduced to one-half (1/2) the indicated values.
4. When the frequency of impacts does not exceed one (1) per day the maximum vibration level, measured across lot lines, shall not exceed 0.4 inches per second.

PART 9

9-900

GLARE STANDARDS

9-901

Required Performance Level

All uses, operations and activities shall be conducted so as to comply with the performance standards governing glare prescribed below.

9-902

Method of Measurement

Illumination levels shall be measured with a photoelectric photometer having a spectral response to that of the human eye, following the standard spectral luminous efficiency curve adopted by the International Commission on Illumination.

9-903

General Requirements

Uses subject to Group I and Group II standards shall not produce glare so as to cause illumination in Residential Districts in excess of 0.5 foot-candles. Flickering or intrinsically bright sources of illumination shall be controlled so as not to be a nuisance in Residential Districts.

9-904

Group I or Group II Glare Standards

Uses subject to Group I and Group II standards shall limit the use of light sources and illuminated surfaces which are located in or are within 500 feet of and visible from any Residential District so as to comply with the light intensities indicated in Table VIII below.

TABLE VIII

Maximum Intensity of Light Sources

<u>Source</u>	<u>Intensity</u>	
	<u>Group I</u>	<u>Group II</u>
Bare incandescent bulbs	15 watts	40 watts
Illuminated buildings	15 foot-candles	30 foot-candles
Back-lighted or luminous	150 foot-lamberts	240 foot-lamberts
Outdoor illuminated signs	25 foot-candles	50 foot-candles

PART 10

9-1000

OUTDOOR LIGHT CONTROL

9-1001

Purpose and Intent

The purposes of the outdoor lighting regulations are to protect dark skies, the general welfare by controlling the spillover of light onto adjacent properties, and the public safety by preventing glare from outdoor luminaries, and to limit the

intensity of light on certain adjacent areas, roadways and properties as provided herein.

9-1002

Conformance with Applicable Codes and Ordinances

All outdoor artificial illuminating devices shall be installed in conformance with the provisions of this Article, and applicable provisions of the Zoning Ordinance. Where there is conflict between the provisions of this Article and applicable provisions of the Zoning Ordinance, the most restrictive shall govern.

9-1003

Approved Materials and Methods of Installation

The provisions of this Article are not intended to prevent the use of any equipment, material or method of installation not specifically prescribed by this Article provided the alternative has been approved by the Zoning Administrator. The Zoning Administrator may approve any such alternative provided that the proposed design provides the approximate equivalence to the specific requirements of this Article.

9-1004

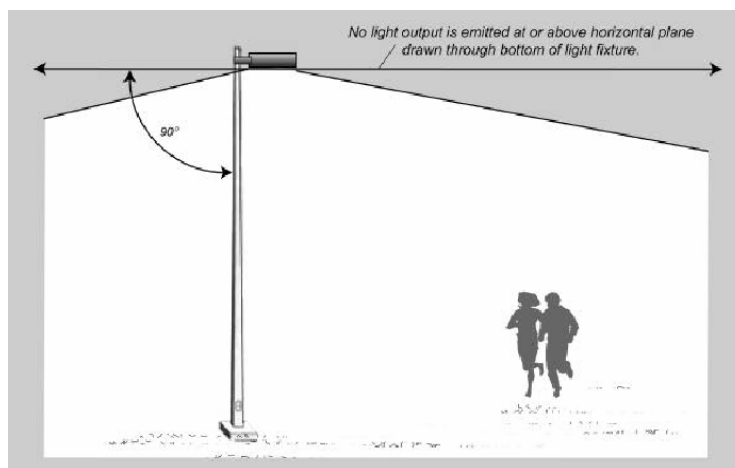
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9-1005

Shielding

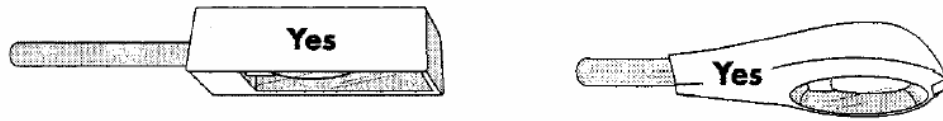
All outdoor light fixtures except those exempted by Section 9-1007 and those regulated by Section 9-1006.2 shall be fully shielded as identified in Section 9-1006. A fully shielded fixture must be a full cutoff luminaire or a decorative luminaire with full cutoff optics, and is defined as an outdoor lighting that is shielded or constructed so that all light emitted is projected below a horizontal plane running through the lowest part of the fixtures. The light source visibility shall be shielded from the adjoining property.

Figure 1: Fully Shielded Outdoor Light Fixture



Source: Fairfax County, Virginia Zoning Ordinance (June 2003)

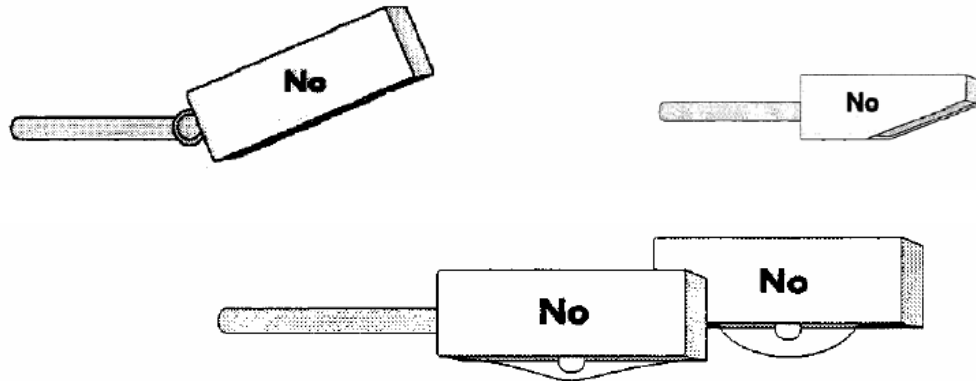
Figure 2: Illustrations of Full Cut-Off Outdoor Light Fixtures



Flat glass lens, eliminates or minimizes direct glare, no upward throw of light. The housing for these fixtures are available in many styles.



Same fixture as above mounted incorrectly – defeating the horizontal mounting design. The fixture now produces direct glare, and can also produce unlight at steeper mounting angles.



Known as just "Cutoff" Center "drop" or "sag" lens with or without exposed bulb, produces direct glare.

Source: The Hailey, Idaho Outdoor Lighting Ordinance provisions of the Zoning Ordinance, August 2002, Figure 1.

9-1006

General Requirements for all Uses

1. Public or Private Recreational Facilities. Outdoor nighttime recreational events have unique and site specific lighting needs. The regulations in this section are intended to permit adequate illumination for such events, while minimizing sky-glow, reducing glare and lighting spillover onto surrounding streets and properties.
 - a. Primary Playing Areas with the exception of residential accessory uses.
 - (1) Where playing fields or other recreational areas are to be illuminated, lighting fixtures shall be specified, mounted, and aimed so that their

beams fall within the primary playing area. Direct illumination shall be confined to within the property lines of the recreational use. Full light cutoff shall be required. No lighting shall be emitted above the horizontal plane of the luminaire, and the average maintained illumination levels must be within the parameters of the activity recommended by the Illumination Engineering Society of North America (IESNA).

- (2) A sports complex or athletic field lighting design plan shall be submitted, which demonstrates in detail the proposed lighting installation.
- b. For each athletic field or complex to be illuminated, a lighting design plan shall be submitted which demonstrates in detail the property lighting installation. The design plan shall include the lighting requirements for each sports field, the specifications and technical measures showing how those requirements will be achieved. Special tree planting and/or buffering to assist in light control and protection of adjacent properties and roadways shall be included. Parking lot lighting requirements are included in Section 9-1006 5., and entitled All Parking Lots, Loading and Display Areas.
- c. Outdoor recreational lighting is not permitted in the Rural Conservation (RC) Zoning Districts, or within 1,000 feet from the Rural Conservation (RC) zoning line.
- d. All applications for lighted outdoor recreational facilities shall include a computer generated light level grid in conjunction with a site plan for the proposed field and associated facilities.
- e. A certified lighting designer or manufacturer's representative shall evaluate the completed installation and shall certify that the installation meets the shielding, illumination and light standards contained herein.
- f. Event Hours. All events shall be scheduled so as to complete all activity before or as near to 11:00 p.m. as practical, but under no circumstances shall any illumination of the playing field, court or track be permitted after 11:00 p.m. except to conclude an event that was reasonably scheduled to conclude prior to 11:00 p.m. No event shall be permitted after 11:00 p.m., unless a valid permit is issued by the Director of Parks and Recreation in accordance with the Fauquier County Code.

All newly lighted fields, or existing fields being upgraded or refitted, (public or private) shall be equipped with override timing devices which will automatically cut off the lights to ensure curfew compliance.

- g. A modification, waiver or variation from the standards set forth in this article may be granted by the Board of Supervisors, with Planning Commission recommendation. Both the Board of Supervisors and the Planning Commission shall hold a public hearing on the proposed modification, waiver or variation.

The Board of Supervisors may modify or waive any standard set forth in Article 9 for an individual case, and it may impose conditions on such a modification or waiver which it deems appropriate to further the purposes of these outdoor recreational lighting regulations, in either of the following circumstances:

- (1) Upon finding the strict application of the standard would not forward the purposes of this chapter, or that alternatives proposed by the applicant would satisfy the purposes of these outdoor lighting regulations at least to an equivalent degree.
- (2) Upon finding that any outdoor fixture, or system of outdoor fixtures, required for an athletic field cannot reasonably comply with the standard and provide safe and sufficient illumination of the field, as determined by the recommended practices adopted by the Illuminating Engineering Society of North America for that type of field or activity.

h. Required Notice for Public Hearing, Written Notice to Applicant/Owners and Written Notice to Adjacent Property Owners shall be in accord with Section 13-111 4. of the Zoning Ordinance for all requests to modify, waive or vary the light requirements as set forth in this section.

2. Outdoor lighting of buildings, landscaping, signs, flags, statues and other objects shall consist of full cut-off or directionally shielded lighting fixtures that are aimed and controlled so that the directed light shall be confined to the object intended to be illuminated. Directional control shields shall be used where necessary to limit stray light. No light from any illuminated sign shall cause or direct non-reflected light from the fixture to shine onto any adjoining property or public right-of-way.

Figure 3: Architectural/Landscaping Lighting Examples



Lighting used for architectural/landscaping lighting shall be aimed and controlled so that light is confined, as much as possible, to the objects that are intended to be lit.

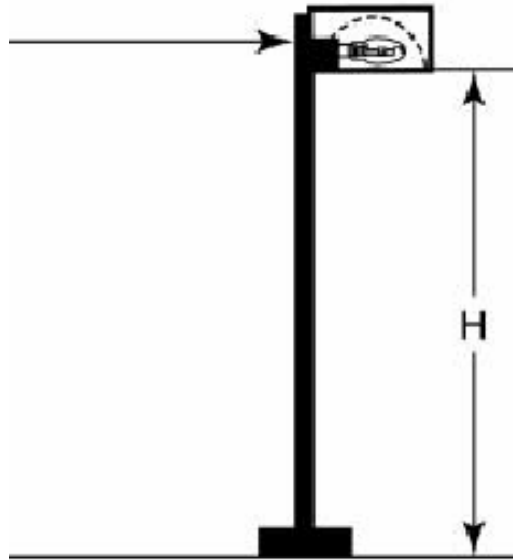
Source: Fairfax County, Va. Zoning Ordinance, June 2003, Illustration 4, Plate 2

3. All outdoor lighting fixtures, including display lighting, shall be turned off after the close of business, unless needed for safety or security, in which case the lighting shall be reduced to the minimum level necessary.
4. Outdoor Areas, including Parking Lots, Loading, Sales and Display Areas. This lighting requirement applies to townhouse and multi-family, educational, institutional, commercial recreation, public commercial business and retail, motor vehicle related, wholesaling, and limited and general industrial use categories identified within the Zoning Ordinance.
 - a. Lighting for all parking, display and loading areas shall not exceed an average horizontal illumination level of 2.5 footcandles. All lighting fixtures serving these areas shall be cut-off fixtures as defined by the Illuminating Engineering Society of North America (IESNA);
 - b. Maximum Mounting Height*

Residential:	20 feet
Non-Residential:	25 feet

*Height is measured from the ground surface to the bottom of the lighting fixture.

Figure 4: Mounting Height

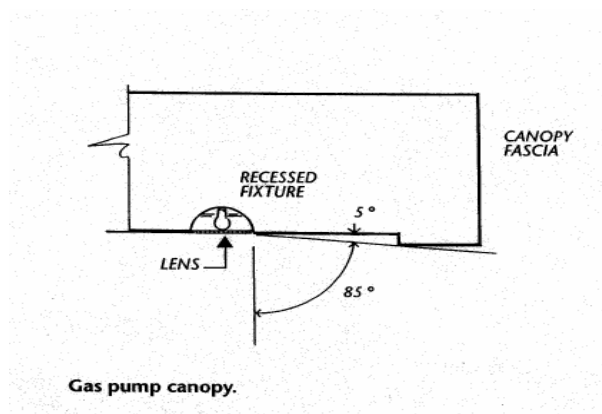


Source: Fairfax County, Va. Zoning Ordinance, June 2003, Illustration 4, Plate 4

5. Gasoline Station/Convenience Store Aprons and Canopies.

- a. The Lighting fixture bulbs shall be recessed into a canopy ceiling so that the bottom of the fixture is flush with the ceiling so that light is restrained to no more than 85 degrees from vertical as shown in Figure 5.

Figure 5: Gasoline Station/Convenience Store Canopies



Source: Outdoor Lighting Manual for Vermont Municipalities, Chittendon County Regional Planning Commission, May 1996, PTI Publications Center (Publication Order Number DG/95-308).

- b. As an alternative to recessed ceiling lights, indirect lighting may be used where the light is directed upward and then reflected down from the underside of the canopy. In this case, light fixtures shall be shielded so that direct illumination is focused exclusively on the underside of the canopy.

- c. Lights shall not be mounted on the top or sides (facial) of the canopy, and the sides of the canopy shall not be illuminated.
 - d. The lighting for new facilities (pump islands and under canopies) shall have a minimum of 1.0 footcandle at grade, and the average horizontal illumination cannot exceed 10 footcandles at grade level, subject to a uniformity ratio (ratio of average to minimum illuminance) no greater than 4:1. The standards herein are based on the Illuminating Engineering Society of North America (IESNA) RP-33, Lighting for Exterior Environments.
6. Mercury Vapor. The installation of mercury vapor fixtures is prohibited, except for agricultural buildings, paddocks and similar use areas in RA and RC zoning districts. For residential structures on agricultural property, lighting must be full cut-off fixtures, or retrofitted with, for example, the Hubble Sky Cap and illumination shielded downward.
 7. Spillover light, vertical or horizontal, from parking area luminaires onto public roads and property in residential or rural Rural Agricultural (RA) and Rural Conservation (RC) zoning districts shall not exceed one-half (1/2) footcandle at the property line.
 8. No growing lights shall be utilized in a greenhouse during non-daylight hours unless the light is completely screened so that no uplighting occurs and the light is not visible beyond property lines. Any interior or exterior lighting that is upgraded after approval of this regulation shall be brought into compliance with this requirement in conjunction with the upgrade.

9-1007

Exemptions

1. Nonconforming Fixtures. Outdoor light fixtures installed prior to the effective date of this Article are exempt from the provisions of this Article, provided, however, that no change in use, and no replacement, and structural alteration of outdoor light fixtures shall be made unless it thereafter conforms to the provisions of this Article. Replacement of a fixture shall mean a change of fixture type or change to the mounting height or location of a fixture. Routine lighting fixture maintenance, such as changing lamps or light bulbs, ballast, starter, photo control, housing, lenses and other similar components shall not constitute replacement and shall be permitted provided such changes do not result in a higher lumen output.
2. Lighting which is not subject to this chapter by state or federal law.
3. Roadway and Airport lighting and security lighting controlled and activated by motion sensor devices for a duration of fifteen (15) minutes or less.
4. Lighting of the United States of America or Commonwealth of Virginia flags and other non-commercial flags expressing constitutionally protected speech.

5. Temporary circus, fair, carnival, or civic uses.
6. Special Conditions. The Zoning Administrator may grant an exemption to the requirements of Section 9-1006 only upon a written finding that there are conditions warranting the exemption and that there are no conforming fixtures that would suffice.
7. Construction and Emergency Lighting. Lighting necessary for construction or emergencies is exempt from the provisions of this Article provided said lighting is temporary and is discontinued immediately upon completion of the construction work or abatement of the emergency necessitating said lighting.
8. Lighting associated with agricultural use structures, such as a barn, paddock area. Greenhouses, residential buildings and parking associated with a farm or other agricultural uses are not exempted from the lighting requirements contained herein.

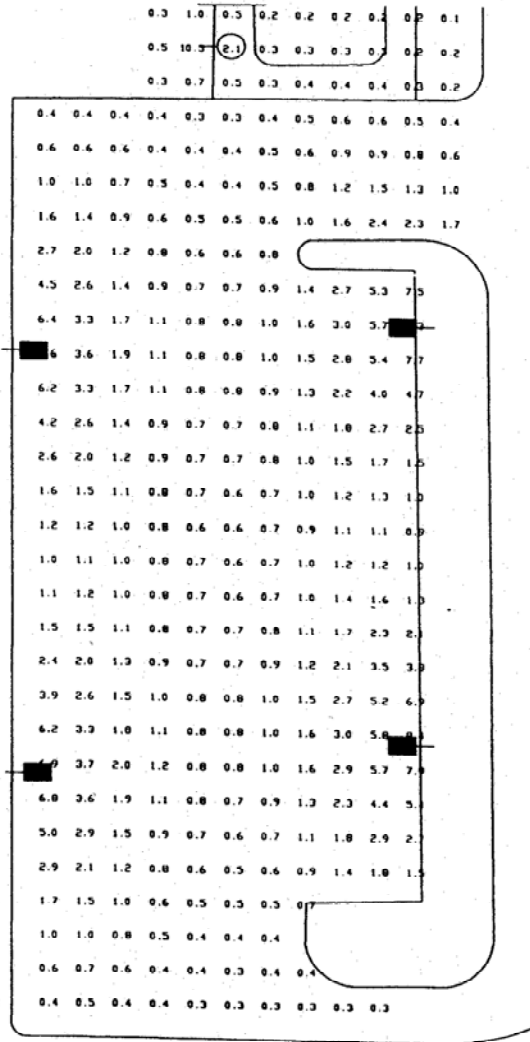
9-1008

Applications

1. Any person submitting a site plan or applying for a building, electrical or sign permit to install outdoor lighting fixtures shall as a part of said application submit evidence that the proposed work will comply with this Article.
2. The lighting plan application shall include at least the following:
 - a. A site plan drawn to scale showing building(s), landscaping, parking areas and proposed exterior lighting fixtures;
 - b. Location of all post, canopy, supports and light fixtures, including the height of each fixture, for any building, structure, parking, display and loading areas;
 - c. Specifications of the illuminating devices, lamps, supports, and other Devices, including designation as Illuminating Engineering Society of North America (IESNA) "cut-off" fixtures. This description may include but is not limited to manufacturers catalog cuts, and drawings including sections where required;
 - d. Plan shall show locations of all pole mounted and building mounted fixtures and a numerical 25 foot by 25 foot grid of lighting levels, in footcandles, that the fixtures will produce on the ground (photometric report). The photometric report will indicate the minimum and maximum footcandle levels within the lighted area of the site. The minimum (lowest number) is usually at the outer edges of the illuminated area or between two fixtures. The average light level is determined by adding the footcandle value of all the points in the grid and dividing by the total number of points.

This information is available from the manufacturer of the specified fixture. (Refer to Figure 6 for an example of this report style)

Figure 6
Computer Generated Light Level Grid Example for
Parking Lot Lighting Plans



Computer generated light level grid, with readings
in tenths of footcandles.

3. The above required plans and descriptions shall be sufficiently complete to enable the Zoning Administrator to readily determine whether compliance with the requirements of this Article will be secured. If such plans and descriptions cannot enable this ready determination, by reason of the nature or configuration of the devices, fixtures or lamps proposed, the applicant shall submit evidence of compliance by certified test reports as performed by a recognized testing lab.

9-1009

Issuance of Permit for Lighting on Private Property

Prior to issuance of a building, electrical or sign permit, the Zoning Administrator shall determine that the submitted plans and details for said permit are in conformance with this Article. The stamping of the plans and the signature of the director or his designated representative and the date of the signature shall indicate that the plans are in conformance.

9-1010

Amendment to Permit for Lighting on Private Property

Should the applicant desire to substitute outdoor light fixtures or lamps to be installed on private property after a permit has been issued, the applicant shall submit all changes to the Zoning Administrator for approval, with adequate information to assure compliance with this Article.

9-1011

Appeals

Except for street lighting within the right-of-way and for temporary exemptions as provided in Section 9-1007.1-5, any applicant's appeal of the Zoning Administrator's decision shall be made to the Board of Zoning Appeals, and the procedures of the Zoning Ordinance and shall apply.

9-1012

Requests for Temporary Exemptions

1. Request. Any person may submit a written request on a form prepared by the Zoning Administrator for a temporary exemption to the requirements of this Article.

The Request for Temporary Exemption shall contain the following information:

- a. Specific exemptions requested.
- b. Type and use of exterior light involved.
- c. Duration of time for requested exemption.
- d. Type of lamp and calculated lumens.
- e. Total wattage of lamp or lamps.
- f. Proposed location of exterior light.
- g. Previous temporary exemptions, if any.
- h. Physical size of exterior light and type of shielding provided.

In addition to the above data, the Zoning Administrator may request any additional information which would enable a reasonable evaluation of the Request for Temporary Exemption.

The fee for a temporary exemption shall be as required for a variance to the Zoning Ordinance.

2. Appeal. The Zoning Administrator, within five (5) days from the date of the properly completed Request for Temporary Exemption, shall approve or reject in writing the Request. If rejected, the individual making the Request shall have the right of appeal to the Board of Zoning Appeals.

ARTICLE 14
PERFORMANCE STANDARDS
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FAIRFAX COUNTY ZONING ORDINANCE

ARTICLE 14

PERFORMANCE STANDARDS

PART 1 14-100 GENERAL PROVISIONS

14-101 Applicability

1. No permitted, special permit or special exception use hereafter established, altered, modified or enlarged shall be operated or designed so as to conflict with the applicable performance standards established by this Article, except as qualified in Sect. 102 below.
2. Any existing use that complies with the applicable performance standards of this Article on the effective date of this Ordinance shall continue to so comply. If, at such time, the operations of any lawful existing use violate any of the applicable performance standards of this Article, such operations shall not be varied or changed in such a way as to increase the degree of such violation.
3. Any use which is a lawful nonconforming use, and which on the effective date of this Ordinance complies with the applicable performance standards of this Article, shall continue to so comply. If, at such time, the operations of such lawful nonconforming use violate the specified standards, such operations shall not be varied or changed in such a way as to increase the degree of such violation.
4. The fact that the operations of a lawful existing use violate the applicable performance standards of this Article shall not of itself make such use subject to the requirements of Article 15 relating to nonconformities.

14-102 Performance Standards Not Applicable

The performance standards presented in this Article shall not apply to Group 1 special permit uses regardless of the zoning district in which such uses may be located. Group 1, Extraction and Excavation Uses, shall be subject to compliance with the performance standards presented in Sect. 8-105.

14-103 Administration of Certain Performance Standards

For the purpose of administering the required performance standards relative to Vibration, the standard is presented in two (2) basic groups, namely: Group I and Group II. Table III sets forth the applicable performance standard that must be met in each zoning district.

PART 2 14-200 AIR POLLUTION STANDARD

Any activity, operation or device which causes or tends to cause the release of air contaminants into the atmosphere shall comply with the rules and regulations of the State and the Fairfax County Air Pollution Control Ordinance.

PERFORMANCE STANDARDS

PART 3 14-300 FIRE AND EXPLOSION HAZARD STANDARD

All operations, activities and uses shall be conducted so as to comply with the Fire Prevention Code (Chapter 62 of The Code).

FAIRFAX COUNTY ZONING ORDINANCE

PERFORMANCE STANDARDS

PART 4 14-400 RADIATION HAZARD STANDARD

All operations, activities and uses shall comply with the regulations of the U.S. Atomic Energy Commission set out in Chapter 1 of Title 10 of the Code of Federal Regulations which apply to byproduct material, source material and special nuclear material, as those terms are defined in section 11e., z., and aa. of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2014(e), (z), and (aa)).

No activity, operation or use shall cause radiation emissions which are in violation of the Radiation Health and Safety Act of 1968 (PL 90-602), as amended, or the implementing regulations of the Virginia Department of Health established pursuant thereto.

FAIRFAX COUNTY ZONING ORDINANCE

PERFORMANCE STANDARDS

PART 5 14-500 ELECTROMAGNETIC RADIATION AND INTERFERENCE STANDARD

No activity, operation or use shall cause electromagnetic radiation interference that (a) adversely affects persons or the operation of any equipment across lot lines and (b) is not in conformance with the regulations of the Federal Communications Commission.

FAIRFAX COUNTY ZONING ORDINANCE

PERFORMANCE STANDARDS

PART 6 14-600 LIQUID AND SOLID WASTES STANDARD

Any activity, operation or device which causes or tends to cause the discharge or other release of liquid or solid waste into public sanitary sewers, storm drains or public waters shall comply with applicable laws, rules and regulations governing such discharge or release, including but not limited to the Federal Water Pollution Control Act; the Virginia Water Control Law; and the Fairfax County Code provisions on sewers and sewage disposal, pollution of state waters, maintenance and cleanliness of storm drainage facilities, garbage, trash and refuse, and erosion and sediment control.

FAIRFAX COUNTY ZONING ORDINANCE

PERFORMANCE STANDARDS

PART 7 14-700 NOISE STANDARDS

No use, operation or activity shall cause or create noise in excess of the sound levels prescribed in Chapter 108.1 of The Code.

FAIRFAX COUNTY ZONING ORDINANCE

PERFORMANCE STANDARDS

PART 8 14-800 EARTHBOEN VIBRATION STANDARDS

14-801 Required Performance Level

No use, operation or activity shall cause or create earthborn vibrations in excess of the peak particle velocities prescribed below.

14-802 Method of Measurement

1. Measurements shall be made at or beyond the adjacent lot line, nearest R district boundary line, or nearest district boundary line as indicated below. Ground transmitted vibration shall be measured with a seismograph or complement of instruments capable of recording vibration displacement and frequency, particle velocity, or acceleration simultaneously in three (3) mutually perpendicular directions.
2. The maximum particle velocity shall be the maximum vector sum of three (3) mutually perpendicular components recorded simultaneously. Particle velocity may also be expressed as 6.28 times the displacement in inches multiplied by the frequency in cycles per second.
3. For the purpose of this Ordinance, steady state vibrations are vibrations which are continuous, or vibrations in discrete impulses more frequent than sixty (60) per minute. Discrete impulses which do not exceed sixty (60) per minute shall be considered impact vibrations.

14-803 Group I Vibration Standards

1. Uses subject to Group I standards shall not cause steady state vibrations to exceed the maximum permitted particle velocities described in Table I below. Where more than one set of vibration levels apply, the most restrictive shall govern. Readings may be made at points of maximum vibration intensity.

**TABLE I
MAXIMUM PERMITTED STEADY STATE VIBRATION LEVELS**

Location (at Lot Line)	Maximum peak particle velocity inches per second
In a residential district	0.02
At or beyond adjacent lot lines, except a residential district	0.05

2. Impact vibrations shall be permitted at twice the values stated above.
3. Between the hours of 8 PM and 7 AM, all of the permissible vibration levels indicated above in Table I for R districts shall be reduced to one-half (1/2) the indicated values.

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14-804 Group II Vibration Standards

1. Uses subject to Group II standards shall not cause steady state vibrations to exceed the maximum permitted particle velocities described in Table II below. Where more than one set of vibration levels apply, the most restrictive shall govern. Readings may be made at points of maximum vibration intensity.

PERFORMANCE STANDARDS

**TABLE II
MAXIMUM PERMITTED STEADY STATE VIBRATION LEVELS**

Location (at Lot Line)	Maximum peak particle velocity inches per second
In a residential district	0.02
At or beyond adjacent lot lines, except a residential district	0.10
2. Impact vibrations shall be permitted at twice the values stated above.	
3. Between the hours of 8 PM and 7 AM, all of the permissible vibration levels indicated above in Table II for R districts shall be reduced to one-half (½) the indicated values.	
4. When the frequency of impacts does not exceed one (1) per day, the maximum vibration level, measured across lot lines, shall not exceed 0.4 inches per second.	

**TABLE III
REQUIRED PERFORMANCE STANDARDS
(GROUP I OR GROUP II)**

	ZONING DISTRICT				
	All R Districts	C-1 through C-4	C-5 through C-8	I-1 through I-4	I-5 and I-6
VIBRATION	I	I	I	I	II

Note: Required performance standards for uses in P Districts shall equate to those standards for uses in the most similar R, C or I District, as determined by the Zoning Administrator.

FAIRFAX COUNTY ZONING ORDINANCE

PERFORMANCE STANDARDS

PART 9 14-900 OUTDOOR LIGHTING STANDARDS

14-901 Purpose and Intent

The purpose and intent of this Part is to establish outdoor lighting standards that reduce the impacts of glare, light trespass and overlighting; promote safety and security; and encourage energy conservation.

14-902 Applicability and General Provisions

1. Except as provided in Sect. 905, Exemptions, below, this Part applies to the installation of new outdoor lighting fixtures or the replacement of existing outdoor fixtures. Replacement of a fixture means a change of fixture type or change to the mounting height or location of the fixture. Routine lighting fixture maintenance, such as changing lamps or light bulbs, ballast, starter, photo control, housing, lenses and other similar components, does not constitute replacement and will be permitted provided such changes do not result in a higher lumen output or a color temperature that exceeds the provisions of Par. 4 below.

Outdoor lighting fixtures lawfully existing prior to June 17, 2003, that do not conform to the provisions of this Part are deemed to be a lawful nonconforming use and may remain. For the purpose of the provisions in Par. 4 of Sect. 14-902 (correlated color temperature), Par. 5 of Sect. 14-905 (exemptions for motion activated light fixtures), and Par. 6 of Sect. 14-905 (exemptions for lots developed with single family dwellings), outdoor lighting fixtures lawfully existing prior to February 12, 2020, are deemed to be a lawful nonconforming use and may remain. A nonconforming lighting fixture that is changed to or replaced by a conforming lighting fixture is no longer deemed to be nonconforming and must be in accordance with the provisions of this Part.

Notwithstanding the above, for existing service stations, service station/mini-marts, vehicle sale, rental and ancillary service establishments and outdoor recreation/sports facilities that do not comply with the applicable maintained lighting levels specified in Sections 903 and 904 below, replacement of or the addition of new lighting fixtures may be permitted in accordance with the following:

- A. There may be a replacement of or the addition of new lighting fixtures to an existing service station or service station/mini mart canopy, display area of a vehicle sale, rental and ancillary service establishment or lighted playing field/court of an outdoor recreation/sports facility, only when the lighting fixture meets the provisions of this Part and such replacement or addition will not increase the noncompliance with the applicable maintained lighting level requirements of Sections 903 and 904 below.
- B. A new canopy, display area or lighted field/court may be added to an existing service station, service station/mini-mart, vehicle sale, rental and ancillary service establishment or outdoor recreation/sports facility, provided the lighting for such new canopy, display area or playing field/court is in conformance with all the requirements of this Part.

FAIRFAX COUNTY ZONING ORDINANCE

2. Except as provided in Sections 904 and 905 below, all outdoor lighting fixtures must comply with the following:
- A. Full cut-off lighting fixtures shall be mounted horizontal to the ground and shall be used for all walkway, parking lot, canopy and building/wall mounted lighting, and all lighting fixtures located within those portions of open-sided parking structures that are above ground. For the purposes of this provision, an open-sided parking structure shall be a parking structure which contains exterior walls that are not fully enclosed between the floor and ceiling. (Reference Plates 1 and 5 of Illustration 5 in Appendix 2)
 - B. Except for internally illuminated signs, the use of lighting fixtures, which are enclosed in clear or translucent white, off-white or yellow casing, shall not be permitted on the roofs of buildings or on the sides of canopies.
 - C. Lighting used to illuminate flags, statues, signs or any other objects mounted on a pole, pedestal or platform, spotlighting or floodlighting used for architectural or landscape purposes, shall consist of full cut-off or directionally shielded lighting fixtures that are aimed and controlled so that the directed light shall be substantially confined to the object intended to be illuminated. Directional control shields shall be used where necessary to limit stray light. In addition, such lighting shall be shielded to protect motorists and pedestrians from glare. (Reference Plates 2 and 3 of Illustration 5 in Appendix 2)
 - D. Internally illuminated signs must have an opaque background and translucent text and symbols, or have a translucent background that is not white, off-white or yellow in color.

All illuminated signage located on the sides of a canopy must be internally illuminated or backlit.
 - E. In addition to the above and Sect. 10-104, on lots which abut property that is residentially zoned and developed, vacant or homeowner's association open space, all outdoor lighting, to include light poles located on top of any parking deck or structure, shall be:
 - (1) Mounted at a height which is measured from grade to the bottom of the lighting fixture, including the height of the parking deck or structure when located on top of a parking deck or parking structure, and is equal to or less than the value $3 + (D/3)$, where D is equal to the horizontal distance in feet from the light source to the nearest residential lot line extended vertically; or
 - (2) Equipped with supplemental opaque shielding on the residential property side of the lighting fixture to reduce glare caused by direct light source exposure.(Reference Plate 4 of Illustration 5 in Appendix 2)
 - F. On all nonresidentially developed lots which contain a minimum of four (4) parking lot light poles, parking lot lighting levels for ground surface parking lots

PERFORMANCE STANDARDS

and the top levels of parking decks or parking structures shall be reduced by a least fifty (50) percent of full operational levels within thirty (30) minutes after the close of business. This reduced lighting level shall be achieved by extinguishing at least fifty (50) percent of the total number of pole mounted lamps, by dimming lighting levels to no more than fifty (50) percent of the levels used during business or activity hours, or by some combination thereof; provided, however, that this provision shall not require parking lot lighting levels to be reduced to less than 0.2 footcandles as measured horizontally at the surface on which the light pole is mounted.

G. Lighting used for construction sites shall consist of the following:

- (1) All construction site lighting, with the exception of lighting that is used to illuminate the interiors of buildings under construction which is provided for in the following paragraph, shall use full cut-off or directionally shielded fixtures that are aimed and controlled so the directed light shall be substantially confined to the object intended to be illuminated. Directional control shields shall be used where necessary to limit stray light.
- (2) Frosted light bulbs shall be used to light the ten (10) foot outermost perimeter area of the interiors of the buildings under construction which contain five (5) or more stories.

For the purposes of this provision, a building is no longer considered under construction once exterior walls and windows are installed and permanent lighting replaces temporary lighting as the primary source of light for the building.

- H. All outdoor lighting fixtures shall be aimed, located and maintained so as not to produce disability glare. (Reference Plate 5 of Illustration 5 in Appendix 2)
3. High intensity light beams in the form of outdoor search lights, lasers or strobe lights shall not be permitted.
 4. All light sources may not exceed a maximum Correlated Color Temperature (CCT) of 3,000K unless otherwise approved by the Director. However, sports fields or courts that are subject to a sports illumination plan may have a maximum CCT of up to 5,700K.

14-903 Lighting Standards for Certain Commercial Uses

In addition to Sect. 902 above, outdoor lighting fixtures associated with service stations, service station/mini-marts and vehicle sale, rental and ancillary service establishments shall be subject to the following:

1. Service station and service station/mini-mart canopy lighting shall not exceed a maintained lighting level of thirty (30) footcandles under the canopy as measured horizontally at grade. However, a higher or lower maintained lighting level, not to exceed fifty (50) footcandles, may be specified by the Board in conjunction with the approval of a special exception, development plan or proffered rezoning. All underside canopy lighting shall consist of full cut-off lighting fixtures.

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2. Outdoor display area lighting used in conjunction with a vehicle sale, rental and ancillary service establishment shall not exceed a maintained lighting level of thirty (30) footcandles as measured horizontally at grade. However, a higher or lower maintained lighting level, not to exceed fifty (50) footcandles, may be specifically approved by the Board in conjunction with the approval of a special exception, development plan or proffered rezoning. For the purposes of this Part, outdoor display areas shall include all display/storage areas for vehicles offered for sale or rent and the associated travel lanes.
3. A photometric plan shall be required for these uses in accordance with one of the following:
 - A. As part of the submission of a Category 5 or 6 special exception, development plan or rezoning application for a service station, service station/mini-mart, or vehicle sale, rental and ancillary service establishment. A photometric plan shall be subject to approval by the Board in conjunction with a special exception, development plan or proffered rezoning and a photometric plan approved by the Board shall be submitted as part of a site plan submission for such use. Upon written request with justification, the Zoning Administrator may modify a submission requirement of Par. 4 below for a special exception, development plan or rezoning application if it is determined that the requirement is not necessary for an adequate review of the photometric plan.
 - B. As part of a site plan submission or as a separate submission, when site plan approval is not required. Upon written request with justification, the Director may modify a submission requirement of Par. 4 below if it is determined that the requirement is not necessary for an adequate review of the photometric plan. Such photometric plan shall be subject to review and approval by the Director.
4. A photometric plan shall be prepared by a lighting professional that is certified by the National Council on Qualifications for the Lighting Professions (NCQLP), or a State licensed professional engineer, architect, landscape architect or land surveyor and shall contain the following information:
 - A. Location and limits of the canopy or outdoor display area at a scale of not less than 1 inch equals fifty feet (1" = 50').
 - B. Location and height of all canopy lighting for service stations and service station/mini-marts and all pole, building or ground mounted lighting fixtures for an outdoor display area at a vehicle sale, rental and ancillary service establishments.
 - C. A photometric diagram showing predicted maintained lighting levels produced by the proposed lighting fixture facilities.
5. When site plan approval is not required and the plan is submitted as a separate submission, five (5) copies of a photometric plan shall be submitted to the Director for review and approval and shall be subject to a fee as provided for in Article 17.

PERFORMANCE STANDARDS

14-904 Outdoor Recreation/Sports Facility Lighting Requirements

When an outdoor recreation/sports facility has illuminated playing fields/courts that, individually or cumulatively, exceed 10,000 square feet in area, and/or associated light poles that exceed 20 feet in height, the playing fields/courts shall be subject to the provisions of this Section. Other components of such facilities, to include, but not limited to, parking lots, administrative offices, restrooms, ticket sales, concession stands and bleachers or other spectator viewing areas, shall not be subject to this Section, but shall be subject to the provisions of Sect. 902 above. An outdoor recreation/sports facility that has illuminated playing fields/courts, either individually or cumulatively, that are 10,000 square feet or less in area and/or contain associated light poles 20 feet or less in height, shall not be subject to this Section. For the purposes of this Section, the perimeter area defined in Par. 2B below shall be included in the area of the playing field/court.

1. A sports illumination plan shall be required in accordance with one of the following:
 - A. As part of the submission of a Group 4, 5 or 6 special permit, Category 3 or 5 special exception, development plan or rezoning application for outdoor recreation/sports facilities. A sports illumination plan shall be subject to approval by either the BZA in conjunction with a special permit or the Board in conjunction with a special exception, development plan or proffered rezoning and a sports illumination plan approved by the BZA or Board shall be submitted as part of a site plan submission for such use. Upon a written request with justification, the Zoning Administrator may modify a submission requirement of Par. 2 below for a special permit, special exception, development plan or rezoning application if it is determined that the requirement is not necessary for an adequate review of the sports illumination plan.
 - B. For an outdoor recreation/sports facility that is permitted by right in the zoning district in which located, as part of the site plan submission or as a separate submission, when site plan approval is not required. Upon a written request with justification, the Director may modify a submission requirement of Par. 2 below if it is determined that the requirement is not necessary for an adequate review of the sports illumination plan. Such sports illumination plan shall be subject to review and approval by the Director.
2. A sports illumination plan must be prepared by a lighting professional that is certified by the National Council on Qualifications for the Lighting Professions (NCQLP) or a State licensed professional engineer, architect, landscape architect, or land surveyor and must contain the following information:
 - A. The boundaries, dimensions and total land area of the outdoor recreation/sports facility property at a designated scale of not less than one inch equals fifty feet (1" = 50'). For proposed uses on large tracts of land where the lighted playing field/court occupies a small portion of the site, the boundaries, dimensions and total land area of just the lighted playing field/court with perimeter areas, as required by Par. 2B below, shall be provided, at a designated scale of not less than one inch equals fifty feet (1" = 50'), with a graphic that depicts the location of the fields/courts in relation to the perimeter lot lines of the entire property.

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- B. Location and limits of playing fields/courts, to include a perimeter area which must be located entirely on the same lot. For baseball/softball fields, the perimeter area extends 40 feet in a direction perpendicular to the foul lines and away from the field. The perimeter area for rectangular playing fields, such as soccer, football, lacrosse, and field hockey, extends 20 feet from the side lines and 30 feet from the end lines. The perimeter area for tee boxes on golf courses and golf driving ranges is 30 feet. The perimeter area for all other playing fields/courts extends 10 feet beyond the playing field/court boundary.
 - C. Location, height and illustration of each style of all pole, building, and ground mounted lighting fixtures for the playing field/court.
 - D. A photometric diagram showing predicted maintained lighting levels for the proposed playing field/court and associated perimeter area lighting.
3. The lighting for playing field/courts and associated perimeter areas shall comply with the maximum footcandle levels indicated for the specific uses listed in Table IV below, unless a lesser limit is specifically approved by the BZA in conjunction with the approval of a special permit, or by the board in conjunction with the approval of a special exception, development plan or proffered rezoning. Footcandle measurements shall be measured horizontally three (3) feet above grade level and shall represent maintained lighting levels. The Zoning Administrator shall determine maximum permitted lighting levels for outdoor recreation/sports facilities which are not listed in Table IV.
4. All playing field/court lighting fixtures shall use full cut-off or directionally shielded lighting fixtures, aimed toward the playing field/court and shielded in directions away from the playing field/court so as to minimize glare and light trespass onto adjacent properties.
5. Time limits for lighting of outdoor playing fields or courts that are subject to a sports illumination plan, unless other hours are specifically approved by the BZA in conjunction with the approval of a special permit, or by the Board in conjunction with the approval of a special exception, development plan, or proffered rezoning:
- A. For properties that are both zoned to a residential district and developed with a single family residential use, lighting is not allowed between the hours of 10:00 PM and 7:00 AM; and
 - B. For all other properties including but not limited to public athletic field sites, lighting is not allowed between the hours of 11:00 PM and 7:00 AM.
6. When site plan approval is not required and the plan is submitted as a separate submission, five (5) copies of the plan shall be submitted to the Director for review and approval and shall be subject to a fee as provided for in Article 17.

TABLE IV

PERFORMANCE STANDARDS

**MAXIMUM PERMITTED LEVELS OF ILLUMINATION
FOR OUTDOOR RECREATION/SPORTS FACILITY PLAYING
FIELD/COURT**

Recreation/Sport Facility Use	Specific Lighted Area	Footcandles*
Archery Ranges		10
Baseball/Softball	Infield	60
	Outfield	40
Baseball (Professional)	Infield	150
	Outfield	100
Baseball Hitting Ranges		50
Basketball, Volleyball		30
Field Hockey, Football, Soccer, Lacrosse, Track & Field		50
Go-Cart Tracks		30
Golf Courses Fairways	Tee Boxes, Greens	5
		3
Golf Driving Ranges	Tee Boxes	20
	Fairways	3
	Greens	5
Golf (Miniature)		20
Horse Riding Rings/Show Areas		30
Ice Skating, Ice Hockey, Roller Skating Rinks		50
Swimming Pools	Pool Surface	10
	Pool Deck	30
Tennis Courts (College/High School)		60
Tennis Courts (Recreational)		40

*Maintained Lighting Level

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14-905 Exemptions

The following are exempt from the provisions of this Part, provided that such fixtures, except for those set forth in Paragraphs 1 and 2 below, do not cause disability glare:

1. Lighting fixtures and standards required by the Federal Communications Commission, Federal Aviation Administration, Federal and State Occupational Safety and Health Administrations, or other federal, state or county agencies, to include street lights within the public right-of-way.
2. Outdoor lighting fixtures required by law enforcement, fire and rescue, the Virginia Department of Transportation or other emergency response agencies to perform emergency or construction repair work, or to perform nighttime road construction on major thoroughfares.
3. Holiday lighting fixtures.
4. Neon lighting used to outline a structure.
5. Motion activated light fixtures located as follows:
 - A. On lots developed with single family dwellings, when such lighting fixtures: (1) emit initial lighting levels of 4000 lumens or less; (2) are extinguished within five minutes upon cessation of motion; and (3) are aimed such that the illumination is directed within the property boundary.
 - B. On all other lots when such lighting fixtures are aimed such that the illumination is directed within the property boundary.
6. On lots developed with single family dwellings, outdoor lighting fixtures with initial light outputs of 1,500 lumens or less are not subject to the provisions of Paragraphs 2A and 2E of Sect. 902 above.

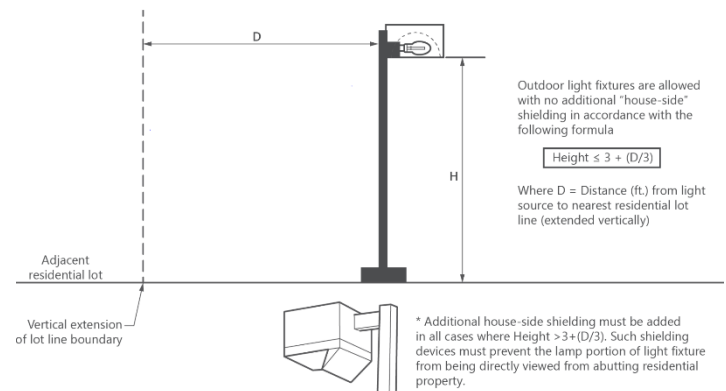
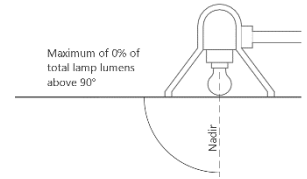
Residential Outdoor Lighting Zoning Regulations Overview



To reduce unwanted glare, the Zoning Ordinance contains standards for outdoor lighting.

What's Required?

- Fixtures must be **full cut-off and mounted horizontal** to the ground. Full cut-off means that light is not emitted above the bottom of the fixture.
- Light bulbs must have a **color temperature** of 3,000K or less, except with an approved sports illumination plan. Check the package for this information.
- **Spotlighting** of flags, landscaping, or other similar objects must be aimed and shielded to confine the light to the object.
- On lots adjacent to residential, all lights must have a **setback** based on their height or have additional **shielding**.
- Light poles **7 ft. high** or less are allowed in any location; higher poles are subject to height and location standards.
- On all lots (including single family), sports fields/courts, including pools, over 10,000 square feet or with light poles that are 20 ft. high, are required to have an approved **sports illumination plan**.



What's Exempt?

- On lots with single family dwellings (including townhouses), lights do not need to be full cut-off or meet the setback/shielding requirement if:
 - The light fixture has **1,500 lumens** or less; or
 - The light is **motion-activated with 4,000 lumens** or less, turns off within 5 minutes of motion ceasing, and the light is directed within the property.
 - Check the package for this information.
- Holiday lighting.
- Depending on when the light was installed, it may be allowed to remain as is.

Complaints:

To report a possible violation, please contact the Department of Code Compliance at 703.324.1300 (TTY 711) or send an email to: DCCCodeComplianceEmail@fairfaxcounty.gov

Contact Us:

If you have any questions about these outdoor lighting regulations, please contact the Zoning Administration Division at 703.324.1314 (TTY 711) or send an email to: ORDADMIN@fairfaxcounty.gov

This publication summarizes a few regulations as of February 2020. See the Fairfax County Zoning Ordinance for specific requirements.

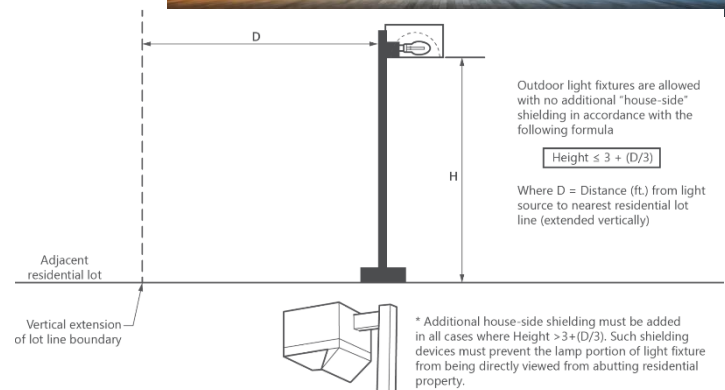
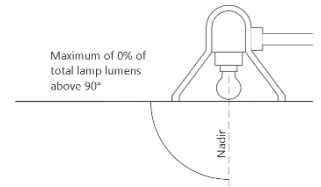
Nonresidential Outdoor Lighting Zoning Regulations Overview



To reduce unwanted glare, the Zoning Ordinance contains standards for outdoor lighting.

What's Required?

- Fixtures must be **full cut-off and mounted horizontal** to the ground. Full cut-off means that light is not emitted above the bottom of the fixture.
- Lights must have a **color temperature** of 3,000K or less, except with an approved sports illumination plan. Check the package for this information.
- **Spotlighting** of flags, landscaping, or other similar objects must be aimed and shielded to confine the light to the object.
- On lots adjacent to residential, all lights must have a **setback** based on their height or have additional **shielding**.
- Parking lots with 4 or more light poles must **dim the lights** by 50% within 30 minutes after closing.
- **Maximum height:** 40 ft. (20 ft. on the top of parking decks). Light poles 7 ft. high or less are allowed in any location; higher poles must meet setbacks, except in parking lots.
- **Roofs and canopies** cannot use lights with clear or translucent white, off-white or yellow casing.
- Sports fields/courts, including pools, over 10,000 square feet or with light poles that are 20 ft. high, are required to have an approved **sports illumination plan**.
- Service stations and vehicle sales uses must have an approved **photometric plan**.
- Additional requirements apply to **signs**.



What's Exempt?

- Lights do not need to be full cut-off or meet the setback/shielding requirement if they are **motion-activated** and the light is directed within the property.
- Holiday lighting.
- Depending on when the light was installed, it may be allowed to remain as is.

Complaints:

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This publication summarizes a few regulations as of February 2020. See the Fairfax County Zoning Ordinance for specific requirements.

Botetourt County, VA Lighting Ordinance

DIVISION 5. - OUTDOOR LIGHTING

Sec. 25-501. - Purpose.

The purposes of the outdoor lighting regulations are to regulate the design, size, height, placement, orientation, distribution patterns, and fixture types of outdoor lighting in order to:

- (1) Ensure the provision of lighting that provides safety, utility, and security;
- (2) Prevent dangerous conditions caused by glare on public roadways and nuisance glare onto adjacent properties;
- (3) Protect the privacy of neighbors by limiting light trespass;
- (4) Limit atmospheric light pollution; and
- (5) Conserve energy.

(Res. of 1-1-02, § 4-501)

Sec. 25-502. - Applicability.

- (a) *General.* These outdoor lighting regulations shall apply to each outdoor lighting fixture installed or replaced after the date of adoption of these regulations which is equipped with a lamp which emits two thousand (2,000) or more initial lumens and is:
 - (1) Located on property within a commercial, mixed-use or industrial zoning district; or
 - (2) To be installed in conjunction with a use for which a site plan is required by this chapter; or
 - (3) To be installed in conjunction with a public or municipal use such as schools, parks, fire/rescue stations and libraries; or
 - (4) Located on property within a residential or agricultural zoning district and involves the use or installation of a high intensity discharge lamp, regardless of its initial lumens; or
 - (5) The replacement of inoperable bulbs, fixtures or other components shall be subject to the requirements of this chapter. However, if the failed component is part of a multi-fixture installation, it may be replaced with a similar fixture if necessary to maintain the appearance or performance of the entire installation.
- (b) *Exemptions.* The following outdoor lighting and related acts shall be exempt from the requirements of these outdoor lighting regulations:
 - (1) Lighting which is not subject to this chapter by state or federal law.
 - (2) Temporary lighting for construction activities, agricultural uses, emergency activities, fairs, civic activities, carnivals or holiday decorative purposes, provided that the lighting is temporary, and is discontinued within fourteen (14) days upon completion of the activity, project or holiday for which the lighting was used, and does not begin before thirty-one (31) days prior to the activity, project or holiday.
 - (3) Security lighting controlled by sensors which provides illumination for ten (10) minutes or less.
 - (4) The replacement of an inoperable lamp or component which is in a luminaire that was installed prior to the date of adoption of this chapter.
 - (5) Public airport lighting.

(Res. of 1-1-02, § 4-502)

Sec. 25-503. - Lighting plan required.

- (a) *Required plan submission.* The applicant for any permit required by any provision of the Botetourt County Code which involves any proposed work affecting or involving outdoor lighting fixtures shall submit, as part of the application for such permit, a lighting plan that provides evidence that the proposed work will comply with all aspects of the outdoor lighting requirements of this Code. Even if no other such permit be required, the installation or modification of any exterior lighting shall require submission of the information described herein, except for cases of routine servicing and same-type lamp replacement. Should any outdoor light fixture or the type of light source therein be changed after any such permit has been issued, a written change request must be submitted to the zoning administrator for written approval, together with adequate information to assure compliance with this Code, which must be received and approved prior to substitution of the light fixture or source.

All such required lighting plans shall include the following:

- (1) Plans indicating the location on the premises of all lighting fixtures, both proposed and already existing on the site, including a schematic layout of proposed outdoor lighting fixture locations that demonstrate adequate intensities and uniformity, and the light coverage resulting from the proposed lighting layout.
 - (2) Description of all lighting fixtures, both proposed and existing, which shall include but are not limited to catalog cuts and illustrations by manufacturers that describe the equipment, including, lamp types, wattages and initial lumen outputs, glare control devices, lamps, switching devices, proposed placement of all fixtures, including engineering detail of fixtures, manufacturer, model, and installation of same.
 - (3) Photometric data, such as that furnished by manufacturers, or similar showing the angle cut-off light emissions and glare-control devices.
 - (4) Mounting heights and methods proposed hours of operation and maintenance schedule.
 - (5) The provision for adequate measures to mitigate nuisance from light pollution and disabling glare to both on-site and off-site uses.
- (b) *Plan approval.* If the zoning administrator determines that the proposed lighting plan does not comply with the Botetourt County Code, the permit shall not be issued nor the plan approved. The zoning administrator shall provide the applicant with a written description of the deficiencies of the plan, and the applicant may submit a revised plan for review and approval.

(Res. of 1-1-02, § 4-503)

Sec. 25-504. - Lighting standards.

- (a) *General standards.*
- (1) Control of nuisance and disabling glare.
 - a. All outdoor lighting on residential, commercial, industrial, municipal, recreational or institutional property shall be aimed, located, designed, fitted and maintained so as not to present a significant amount of glare to drivers, pedestrians, or users of neighboring properties.
 - b. Directional fixtures such as flood lights, spot lights and sign lights shall be installed or aimed so that they do not shine directly into the window of a neighboring residence, directly into a roadway, or skyward.

- c. All outdoor lighting fixtures, including display lighting, shall be turned off after close-of-business, unless needed for safety and security, in which case the lighting shall be reduced to the minimum level necessary for such purpose.
 - d. Vegetation screens shall not be the primary means for controlling glare. Rather, such control shall be achieved primarily through the use of full cut-off fixtures, the appropriate application of mounting height, wattage, aiming angle, fixture placement and fixture design, and the addition of louvers, shields and baffles as necessary.
 - e. Externally illuminated signs shall be lighted by fixtures mounted at the top of the sign, shielded and aimed down or by fixtures mounted at the bottom of the sign and aimed and shielded such that the light falls only on the sign surface so as to limit sky-lighting impacts, and that no glare is created off of the sign face.
 - f. Neon lighting extending beyond the sign area shall conform to all provisions of this Code.
- (2) Installation.
- a. Lighting fixtures shall not be mounted in excess of twenty-five (25) feet above grade.
 - b. Electrical feeds to lighting standards shall run underground, not overhead.
 - c. Lighting standards in public parking areas shall be placed outside the paved area, or behind tire stops, or on reinforced concrete pedestals at least thirty (30) inches high above the pavement, or by other acceptable protective means.
 - d. Wallpacks shall be shielded.
 - e. If the output of a lamp is greater than two thousand (2,000) lumens, it shall be fully shielded. If the output is less than two thousand (2,000) lumens, the lamp shall be aimed at no greater than 45-degree downward angle (halfway between straight down and straight to the side).
- (3) Maintenance. Lighting fixtures shall be maintained so as to always meet the requirements of this chapter.
- (4) Required cut-off.
- a. All light fixtures that are required to be full cut-off fixtures shall be installed and maintained so that the shielding is effective as described in the definition of a full cut-off fixture in article VI.
 - b. Lamp types that are required to have full cut-off fixtures include low/high pressure sodium, mercury vapor, metal halide and fluorescent over fifty (50) watts and Incandescent (including tungsten-halogen (quartz) lamps) over one hundred sixty (160) watts.

Lamp types that are not required to have full cut-off fixtures include incandescent one hundred sixty (160) watts or less, fossil fuel, any light source of fifty (50) watts or less.
 - c. All lights in open areas such as parking lots are required to have full cut-off fixtures.
- (5) Glare control.
- a. No lighting shall be permitted which shines directly into neighboring residential units or buildings on adjacent properties or on the public right-of-way.
 - b. Light fixtures, including mounting base, shall not exceed twenty-five (25) feet in height above finished grade unless the zoning administrator determines that an increase in height, not to exceed ten (10) additional feet, would reduce the total number of light fixtures required for the site and still meet the intent of the chapter.
 - c. Illuminated signs shall have an indirect lighting source or shielded source. Fixtures used for architectural lighting, such as facade, feature and landscape lighting, shall be aimed or directed so as to preclude light projection beyond the immediate objects intended to be illuminated.

- d. The zoning administrator may require that lighting be controlled by automatic timing devices to extinguish light sources during specific periods to mitigate the adverse impacts on adjacent properties.

(b) *Special standards.*

- (1) For all uses within industrial and commercial zoning districts, and all industrial, commercial, and institutional uses in any zoning district:
 - a. Outdoor lighting fixtures shall comply with the requirements of subsection 25-504(a)(4).
 - b. The amount of illumination projected onto a non-residential use from another property shall not exceed 0.5 vertical foot-candles at a height of five (5) feet at the property line.
 - c. The amount of illumination projected onto a residential use from another property shall not exceed 0.2 vertical foot-candles at a height of five (5) feet at the property line.
- (2) For auto/truck service stations and convenience retail uses, lighting in island canopy ceilings shall be recessed, full cut-off fixtures with flat lenses and shall not exceed forty (40) initial output lumens per square foot of canopy.

(c) *Prohibitions.*

- (1) The operation of searchlights for advertising purposes shall be prohibited.

(Res. of 1-1-02, § 4-504)

Sec. 25-505. - Waivers and modifications.

The board of supervisors may modify or waive one or more of the standards set forth in section 25-504 in a particular case, and may impose conditions on such a modification or waiver which it deems appropriate to further the purposes of these outdoor lighting regulations, in the following circumstances:

- (1) Upon finding that strict application of the standard would not forward the purposes of this chapter or otherwise serve the public interest, or that alternatives proposed by the owner would satisfy the purposes of these outdoor lighting regulations at least to an equivalent degree.
- (2) Upon finding that an outdoor luminaire, or system of outdoor luminaries, required for a publicly owned baseball, softball, football or soccer field cannot reasonably comply with the standard and provide sufficient illumination of the field for its safe use, as determined by recommended practices adopted by the Illuminating Engineering Society of North America (IESNA) for that type of field and activity or other evidence if a recommended practice is not applicable. Outdoor lighting of sports fields and facilities shall be extinguished after the completion of the event.

Prior to the board of supervisors considering a request for modification or waiver, the applicant for the modification or waiver shall provide written notice no less than fourteen (14) days and no greater than ninety (90) days to the owner, owner's agent or occupant of each abutting lot or parcel and each parcel immediately across the street or road from the lot or parcel which is the subject of the request. The written notice shall identify the nature of the request and the date and time the board will consider the request.

(Res. of 1-1-02, § 4-505)

Sec. 25-506. - Installation and maintenance.

- (a) The applicant shall, at the applicant's expense, install or cause to be installed all lighting fixtures, poles and related facilities in accord with the lighting plan approved by the zoning administrator. The applicant and subsequent landowner shall be responsible for all costs involved in the maintenance, upkeep and operation of all lighting, parking and loading areas and other elements required by this division.

- (b) Electrical feeds to lighting standards shall be run underground, not overhead.
- (c) Lighting fixtures shall be maintained by the landowner so as to always meet the requirements of this chapter.

(Res. of 1-1-02, § 4-506)

Sec. 25-507. - Compliance.

(a) *Safety hazards.*

- (1) If and when the building official determines that a lighting installation creates a safety or personal security hazard, the person or entity responsible for the lighting shall be notified and required to take timely remedial action at that person's or entity's expense.
- (2) If appropriate corrective action has not been effected within thirty (30) days of notification, the county may proceed with enforcement of the ordinance provisions in accord with art. V, div. 1.

(b) *Nuisance glare and inadequate illumination levels.*

- (1) If and when the zoning administrator determines that an installation does not conform with the provisions of this chapter, the zoning administrator shall cause notification of the person or entity responsible for the lighting and require them to take timely remedial action at their own expense.
- (2) If the infraction so warrants, the zoning administrator may act to have the problem corrected as in 25-507(a)(2) above.

(Res. of 1-1-02, § 4-507)

Secs. 25-508—25-520. - Reserved.