2023~~12~~ City of Tucson/Pima County Outdoor Lighting Code

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Chapter 1
Administration

Section 101
Title, Scope and Purpose

101.1 Title. These provisions shall be known as the Outdoor Lighting Code for The City of Tucson, Arizona and Pima County Arizona. They shall be cited as such and will be referred to herein as "this code".

101.2 Scope. The provisions of this code apply to the construction, alteration, movement, enlargement, replacement and installation of outdoor lighting throughout the City of Tucson, Arizona and Pima County, Arizona.

101.3 Purpose and intent. The purpose of this code is to preserve the relationship of the residents of the City of Tucson, Arizona and Pima County, Arizona to their unique desert environment through protection of access to the dark night sky. Intended outcomes include continuing support of astronomical activity and minimizing wasted energy, while not compromising the safety, security, and well being of persons engaged in outdoor night time activities. It is the intent of this code to control the obtrusive aspects of excessive and careless outdoor lighting usage while preserving, protecting, and enhancing the lawful nighttime use and enjoyment of any and all property. All light should have a clear purpose, be directed only where it is needed, and no brighter than necessary. It is recognized that developed portions of properties may be required to be unlit, covered, or have reduced lighting levels in order to allow enough lumens in the lighted areas to achieve light levels in accordance with nationally recognized recommended practices.

101.4 Conformance with codes. All outdoor illuminating devices shall be installed in conformance with the provisions of this code, the building code, the electrical code and the sign code of the authorizing jurisdiction as applicable and under appropriate permit and inspection.

Section 102
Applicability

102.1 General. Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between the general requirements and a specific requirement, the specific requirement shall be applicable.

102.2 Other laws. Where any provision of federal, state, county, or city statutes, codes or laws conflicts with any provision of this code, the most restrictive shall govern unless otherwise regulated by law.

102.3 Partial invalidity. If any of the provisions of this code or the application thereof is held invalid, such invalidity shall not affect other provisions or applications of this code which can be given effect, and to this end, the provisions of this code are declared to be severable.

102.4 Application of code. The requirements of this code apply to all new construction, additions and alterations to land uses, developments, buildings, structures or light fixtures.

102.4.1 If a major addition occurs on a property, the entire property including legal, non-conforming lighting shall be brought into compliance with the requirements of this code. For purposes of this section, the following are considered to be major additions:

1. Additions of 25 percent or more to any site in terms of additional dwelling units, gross floor area, seating capacity, or parking spaces, either with a single addition or with cumulative additions subsequent to the effective date of this provision.

2. Non-conforming sites and non-conforming lighting: Modification to or replacement of outdoor lighting fixtures representing 25 percent or more of the allowed total lumens for the property constitutes a major addition for the purposes of this section. This shall be true regardless of the actual amount of lighting already on the site. Modification or replacement of outdoor lighting fixtures legally installed constituting 25 percent or more of the actual lumens for the property, no matter the actual amount of lighting already on a non-conforming site, constitutes a major addition for purposes of this section. Where existing outdoor lighting is modified or replaced and the resulting lighting fixture has a less lumen capacity than the previously existing fixture, the lumen capacity of the modified or replaced fixture shall not be included in the lumen calculations for determining a major addition, but the total of non-conforming lighting shall not be increased.

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3. Modification or replacement of outdoor lighting fixtures legally installed constituting 25 percent or more of the actual lumens for the property, no matter the actual amount of lighting already on a non-conforming site, constitutes a major addition for purposes of this section. Where existing outdoor lighting is modified or replaced and the resulting lighting fixture has a less lumen capacity than the previously existing fixture, the lumen capacity of the modified or replaced fixture shall not be included in the lumen calculations for determining a major addition, but the total of non-conforming lighting shall not be increased.

4. For additions of less than 25% refer to Section 102.4.2.

102.4.2 Additions or modifications less than 25 percent to existing uses or lighting shall require a submission of a complete inventory and site plan detailing all existing and any proposed new outdoor lighting. Any new lighting on the site shall meet the requirements of this code with regard to shielding and lamp type; the total amount of lighting after the modifications are complete shall not exceed that on the site before the modifications, or that permitted by this code, whichever is larger.

Exception to 102.4.2: On existing lighted properties or developments of 5 acres and larger in Lighting Areas E3, E3a and E2 where the quantity and ratings of existing lighting is unknown, not more than 3 full cut-off luminaires, rated 2,000 lumens or less each, may be installed per permit without submission of an inventory and site plan of existing outdoor lighting or preparation of lumen cap calculations. Not more than 10 such full cut-off luminaries may be installed per this exception.

102.5 Change of use. Whenever the use of any existing building, structure, or premises is changed to a new use, all outdoor lighting shall be reviewed and brought into compliance with this code before the new use commences.

102.6 Resumption of use after abandonment. If a property or use with non-conforming lighting is abandoned as defined in Chapter 2 of this code, then all outdoor lighting shall be reviewed and brought into compliance with this code before the use is resumed.

102.7 Alternate materials and methods of construction. The provisions of this code are not intended to prevent the use of any design, materials or method of installation or operation not specifically prescribed by this code, provided any such alternate has been approved. The Building Official may approve any such proposed alternate provided he or she finds that it:

1. Provides at least approximate equivalence to the applicable specific requirements of this code, and;
2. Is otherwise satisfactory or complies with the intent of this code, and;
3. Has been designed or approved by a registered lighting or electrical engineer and is supported by calculations showing that the design submitted meets that intent of the code. This sub-section shall not have the effect of waiving the lumen caps of Chapter 4 of this code.

102.8 Appeals. Any person substantially aggrieved by any decision of the Building Official made in administration of this code has the right and responsibilities of appeal to the Advisory/Appeals Board of this jurisdiction.

102.9 Destruction or deterioration. If a property or use with non-conforming lighting is destroyed by unforeseeable circumstances, or an act of God, or deteriorates to the point it is no longer safely or functionally usable in its current state as defined by Chapter 2 of this code, then all outdoor lighting shall be reviewed and

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brought into compliance with this code before use is resumed. This requirement shall not supersede the requirements set forth in 102.4.2.

Section 103
Exemptions

103.1 Natural gas lighting. Natural gas lighting is exempt from all requirements of this code.

103.2 Temporary exemption. Any person may submit a written request, on a form prepared by the jurisdiction, to the jurisdiction for temporary exemption request. A temporary exemption shall contain the following information:

1. Specific exemption(s) requested.
2. Type and use of outdoor light fixture involved.
3. Duration of time of the requested exemption.
4. Type of lamp and lamp lumens.
5. Total wattage of lamp or lamps and number of lamps to be used.
6. Proposed location on premises of the outdoor lighting fixture(s).
7. Previous temporary exemptions, if any, and addresses of premises there under.
8. Physical size of outdoor light fixture(s) and type of shielding provided.
9. Other data and information that may be required by the Building Official.

103.2.1 Approval and duration. The jurisdiction shall have five business days from the date of submission of the request for temporary exemption to act, in writing, on the request. If approved, the exemption shall be valid for not more than thirty days from the date of issuance of the approval. The approval shall be renewable at the discretion of the Building Official upon a consideration of all the circumstances. Each such renewed exemption shall be valid for not more than thirty additional days.

103.2.2 Disapproval and appeal. If the request for temporary exemption is disapproved, the person making the request will have the appeal rights provided in Section 102 of this code.

103.3 Historic Landmark Signs. Lighting for signs listed in the City of Tucson Historic Landmark Sign Registry are exempt from this code except for Section 403 Curfew Requirements.

Section 104
Permits and Plan Submission Requirements

104.1 Permits required. Any owner or authorized agent who intends to install, construct, enlarge, alter, repair, move, or change any outdoor lighting within Pima County jurisdiction, the installation of which is regulated by this code, shall first make application to the Building Official for Pima County and obtain the required permit.

104.2 Permit submission requirements. The applicant for any permit required by any provision of the laws of this jurisdiction in connection with proposed work involving outdoor lighting fixtures shall submit (as part of the application for permit) evidence that the proposed work will comply with this code. The submission shall contain but shall not necessarily be limited to the following, all or part of which may be part or in addition to the information required elsewhere in the laws of this jurisdiction upon application for the required permit:

1. Plans indicating the location on the premises, and the type of illuminating devices, fixtures, lamps, supports, reflectors, and other devices, and a luminaire schedule as outlined in sub-section 104.2.1.
2. Description of the illuminating devices, fixtures, lamps, supports, reflectors, and other devices and the description may include, but is not limited to, catalog cut sheets by manufacturers and drawings (including sections where required).
3. Photometric data, such as that furnished by manufacturers, or similar showing the angle of cutoff or light emissions. Photometric data need not be submitted when the full cutoff performance of the fixture is obvious to the reviewing official.

Exception: When submittal includes a statement by a registered design professional that the design is in accordance with this code, the requirements of sub-sections 104.2.2 and 104.2.3 shall not apply.

104.2.1 Lumen calculation on plans. There shall be documentation on the plans to demonstrate compliance with the lumen cap per Table 401.1, and which includes the following information:
1. Each exterior luminaire type with the lumens for that type, the quantity of each type and whether the luminaire is full cut-off or unshielded/non-full cutoff.
2. The total of full cut-off and unshielded/non-full cutoff lumens for the developed area~~parcel~~.
3. A statement of the lighting area, the size of the permitted developed area~~parcel~~, and the maximum allowed full cut-off and unshielded/non-full cutoff lumens.

Exception to 104.2.1: In Lighting Areas E3, E3a and E2, when the total outdoor lighting installation is full cut-off lighting installed under canopies, roof overhangs or eaves, with a Lumen Multiplier of zero per Table 401.2.1, Lumen Calculation shall not be required. ~~Lumen Calculation shall not be required.~~

104.2.2 Special inspection note. The plan submission shall contain a note indicating whether special inspection is required in accordance with Section 106.

104.2.3 Additional submission. The above required plans, descriptions and data shall be sufficiently complete to enable the plans examiner to readily determine compliance with the requirements of this code. If such plans, descriptions and data cannot enable this determination, the applicant shall additionally submit as evidence of compliance such reports or tests as will, provided that these tests shall have been performed and certified by a recognized testing agency.

104.3 Lamp or fixture substitution. Should any outdoor light fixture or the type of light source herein be changed after the permit has been issued, a change request must be submitted to the design professional and Building Official for his or her approval, together with adequate information to assure compliance with this code, which must be received prior to substitution.

Section 105
Prohibitions

105.1 Bottom mounted sign lighting. Bottom mounted outdoor sign lighting attached to the sign structure shall not be used.

105.2 Mercury vapor lamps and fixtures. The use installation, sale, offer for sale, lease or purchase of any mercury vapor lamp for use as outdoor lighting is prohibited per ARS § 49-1104.

105.3 Laser source light. The use of laser source light or any similar high intensity light for outdoor advertising or entertainment, when projected above the horizontal, is prohibited.

105.4 Searchlights. The operation of searchlights for advertising purposes is prohibited.

Section 106
Inspections

106.1 General. The owner of a property, or the authorized agent of the owner, shall request all required inspections as noted on the permit issued under this code. All inspection requests shall be made at appropriate intervals as noted on the permit and it is the responsibility of the property owner or authorized agent of the owner to assure that all required inspections receive approval from the Building Official and that final inspection approval is obtained prior to placing the permitted outdoor lighting into service. Lumens in this section are total installed lumens prior to any lumen reduction per 401.2.1.

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106.2 Special inspection requirement.

106.2.1 Special inspection shall be required when the lumens per net acre are greater than 100,000 or 75% of the allowable lumens per Table 401.1, whichever is less.

106.2.2 Provide special inspection for all Recreational Facility lighting.

106.2.3 Provide special inspection for all Special Uses per Chapter 7.

Section 107
Violations

107.1 Unlawful acts. It shall be unlawful for any person, firm, or corporation to erect, construct, alter, extend, repair, move, remove, install, use or demolish outdoor lighting equipment as regulated by this code, or cause same to be done, in conflict with or in violation of any of the provisions of this code.

107.2 Notice of violation The Building Official is authorized to serve a notice of violation or order on the person responsible for the erection, construction, alteration, extension, repair, moving, removing, demolition or use of any outdoor lighting in violation of this code or in violation of a detail statement or a plan approved hereunder, or in violation of a permit issued under the provisions of this code. Such order shall direct the discontinuance of the illegal action or condition and the abatement of the violation. The property owner or authorized agent of the owner shall comply with the requirements of the notice of violation within the time period given on the notice for abatement of the violation.

107.3 Prosecution of violations. If the notice of violation is not complied with promptly, the Building Official is authorized to request the legal counsel of the jurisdiction to institute the appropriate proceeding at law or in equity to restrain, correct or abate such violation, or to require the removal or termination of the unlawful use of outdoor lighting in violation of the provisions of this code or of the order or direction made pursuant thereto.

107.4 Penalty. Any violation of this code, or any portion of this code, shall be considered a civil infraction and is subject to penalties not to exceed the amount of the maximum fine for a class 2 misdemeanor in accordance with A.R.S. 11-808. Each day of continuance of the violation constitutes a separate violation. Maximum fines are $750.00 for individuals and $10,000.00 for corporations, associations or other legal entities. Enforcement procedures shall be pursuant to those established by each authorizing jurisdiction.

Chapter 2
Definitions

Section 201
General

201.1 Scope. Unless otherwise expressly stated, the following words and terms shall, for the purposes of this code, have the meanings indicated in this chapter.

201.2 Interchangeability. Words used in the present tense include the future; words in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural, the singular.

201.3 Terms not defined. Where terms are not defined through the methods authorized by this section, such terms shall have ordinarily accepted meanings such as the context implies.

Section 202
Definitions

Curfew. A time established for listed lighting systems to be automatically extinguished.

Deteriorated Property. A property that has been damaged or dilapidated beyond normal reasonable repair, by casualty loss, acts of nature or god, or by severe lack of maintenance to the point it is no longer safely or functionally usable is its current state shall be deemed deteroriated in line with ARS Title 33.

Destroyed Property. A property that by definition has been ruined beyond use, or other demolished, either by casualty loss, or by acts of nature of god, and is unsuitable or unsafe for habitation or normal use shall be deemd destroyed as per U.S. Department of Housing and Urban Development definitions.

Developed Area. All improved surface area including but not limited to: buildings, structures, storage, service and manufacturing areas, assembly areas, parking, loading, driveways, and landscaping related to the uses, but not areas that are only cleared.

Development Project. Any residential, commercial, industrial or mixed use subdivision plan or development plan which is submitted to the jurisdiction for approval or for permit.

Direct Illumination. Illumination resulting from light emitted directly from a lamp or luminaire, not light diffused through translucent signs or reflected from other surfaces such as the ground or building faces.

Full Cutoff Light Fixture. A full cutoff light fixture is a luminaire where ~~no~~ no ~~candela occur~~light is emitted at or above an angle of 90 degrees above the nadir. This applies to all lateral angles around the luminaire. Such candela information shall be as determined by a photometric test report from a nationally recognized independent testing laboratory and as certified by the manufacturer. Any structural part of the luminaire providing full cutoff angle shielding shall be permanently attached.

Installed. The attachment, or assembly fixed in place, whether or not connected to a power source, or any outdoor light fixture.

~~**Lamp.** Generic term for a man-made source of light. In the context of this Code, the lamp is the electrically powered light bulb, fluorescent or neon tube, or LED light source.~~

~~**LED.** Light emitting diode solid state lighting source.~~

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Light Fixture. See also Luminaire. The terms Light Fixture and Luminaire may be used interchangeably in this document.

Light Sources.

Incandescent.

Lamp. Generic term for a man-made source of light. In the context of this Code, the lamp is the electrically powered light bulb, fluorescent or neon tube, or LED light source.

LED. Light emitting diode solid state lighting source.

Mercury Vapor. This is prohibited.

Narrow-Band Amber LED: Quasi-monochromatic source with maximum radiant flux (in Watts per nm) lying within the 585-605 nm spectral range and having full width half maximum smaller than 18 nm. Narrow Band Amber LEDs emit mostly yellow-amber light, and emit no blue light.

Phosphor-Converted Amber LED: Non-white light source that uses a LED with a phosphor to produce a broad amber emission; requirement that less than 7% of the light emitted in 380-780 nm be emitted in 380-500 nm. Phosphor-coated Amber LEDs work by using a phosphor coated filter which works to convert blue light mostly to amber light.

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Lumen. Unit of luminous flux; used to measure the amount of light emitted by lamps.

Luminaire. The complete lighting assembly, less the support assembly. For purposes of determining total light output lighting assemblies which include multiple lamps or light sources in a single housing shall be considered as a single luminaire. Two or more luminaires installed less than three feet apart shall be considered a single luminaire.

Opaque. Opaque means that the material shall not transmit visible light.

Outdoor light fixture. An outdoor illuminating device, luminaire or other device that emits light, permanently installed or portable.

Outdoor Light Output - Total. The total amount of light, measured in lumens, from all outdoor light sources. Total outdoor light output is determined as follows:

1. For all lamp types, the initial lumen output, as defined by the lamp manufacturer, shall be the lumen value used.
2. The total light output for each outdoor light fixture shall be based on the largest lamp that the outdoor light fixture is rated to accommodate. For the purpose of compliance with this section, the largest lamp rating for fluorescent and high intensity discharge fixtures shall be based on the installed ballast rating.
3. It shall be permissible to adjust the lamp lumen rating of fluorescent lamps in accordance with the ballast factor for the specific ballast type installed.

Outdoor Recreation Facility. An area designed for active recreation, whether publicly or privately owned, including, but not limited to baseball, soccer, football, golf, tennis, swimming pools, equestrian, and race tracks of any sort.

Person. Any individual, tenant, lessee, owner, or any commercial entity including but not limited to firm, business, partnership, joint venture or corporation.

Right-of-way. An alley, road, street, or highway, and associated sidewalks permanently dedicated for public or private use.

Shield. A component of the Outdoor Light Fixture that blocks the transmission or emission of light as a means of controlling or directing the light emitted from the fixture. A permanently attached shield may be part of the fixture which contributes to the full cutoff lighting performance of the fixture.

Shielded. An Outdoor Light Fixture having shields permanently installed to provide full cutoff photometric performance.See Full Cutoff Light Fixture.

Sign. Every message, announcement, declaration, display, illustration, insignia, surface or space erected or maintained in a location outside and visible to the public for identification, advertising or promotion of the interest of any person, entity, product or service.

Temporary Lighting. Lighting which will not be used for more than one thirty (30) day period within a calendar year, with one thirty (30) day extension. Temporary lighting is intended for uses which by their nature are of limited duration; for example holiday decorations. Civic events, or construction projects.

Unshielded. Any light fixture or luminaire that is not a Full Cutoff Light Fixture.

Use – Abandonment of. The relinquishment of a property, or the cessation of the use or activity by the owner or tenant for a period of six months, excluding temporary or short term interruptions for the purpose of remodeling, maintaining, or otherwise improving or rearranging a facility. A use shall be deemed abandoned when such use is suspended as evidenced by the cessation of activities or conditions which constitute the principal use of the property.

Chapter 3
Lighting Areas

Section 301
Description of Lighting Areas

301.1 Lighting Areas. Lighting areas are defined as follows:

301.1.1 Lighting Area E3. Lighting area E3 is the urban area circumscribed by the Tucson city limits, but not including any area within the physical boundaries of Lighting Area E3a as described below. Additional locations in lighting area E3 include:

1. The area bounded by the Rillito River on the north, Interstate Highway 10 on the West, and the Tucson city limits on the south and east.
2. The area northwest of Ft. Lowell Road and Alvernon Way bounded by the Rillito River on the North and the Tucson city limits on the west, south and east.
3. The area north of Los Reales Road from Country Club Road on the west and Interstate 10 Highway on the east bounded by the Tucson city limits on the west, north and east.
4. The area east and west of Kolb Road at Valencia Road bounded on the north, south, east and west by the Tucson city limits and extending southeast to Interstate 10 Highway and Rita Road.
5. The area within the entire city limits of the City of South Tucson.

301.1.2 Lighting Area E3a. Lighting area E3a is a special area south and west of Mt. Lemmon defined as follows: the Pinal County line on the north, along the center line of the Santa Cruz River, to the center line of Rillito River, to the center line of Tanque Verde Creek, then along the centerline of Tanque Verde Creek to a point 1500 feet north of the northwesterly most corner of Saguaro National Park East, then to said northwesterly corner, then due east to the border of the Santa Catalina District of the Coronado National Forest, then north and west along the border of the Santa Catalina District of the Coronado National Forest to the Pinal County Line. Additional locations in lighting Area E3a include:

1. The area south and east from the joining of the the Tanque Verde Creek and Pantano Wash, bounded on the south and west by the Pantano Wash, on the south and east by the Tucson city limits and the north by the Tanque Verde Creek.

301.1.3 Lighting Area E2. Lighting area E2 is area falling outside all other lighting areas defined herein.

301.1.4 Lighting Area E1a. Lighting areas E1a are special areas around astronomical observatories and include all areas within 15 miles of the summit of Kitt Peak and 12.5 miles of the summit of Mount Hopkins, and those areas within any national park, monument, or forest boundary. The area in the northeast corner of Pima County bounded to the north by Pinal County, to the west by the Santa Catalina District of Coronado National Forest, to the south by Saguaro National Park East and to the east by Cochise County is also included in Lighting Area E1a. In these areas, the preservation of a naturally-dark environment, both in the sky and in the visible landscape, is considered of paramount concern.

301.1.5 Lighting Area E1b. Lighting area E1b includes the circular area twenty-five miles in radius the center of which is the summit of Mount Hopkins.

301.1.6 Lighting Area E1c. Lighting area E1c includes the circular area thirty-five miles in radius the center of which is the summit of Kitt Peak.

301.2 Properties in more than one lighting area. A property located in more than one of the lighting areas described within this chapter shall be considered to be only in the more restrictive lighting area.

301.3 Map of Lighting Areas. Lighting areas may be viewed at http://gis.pima.gov/maps/mapguide.

Chapter 4
Lighting Sources, Illumination Levels and Shielding Requirements

Section 401
Total Outdoor Light Output and Shielding Requirements

401.1 General. Table 401.1 provides requirements of the total light output permitted per acre for the different lighting areas and the fixture shielding requirements for, lamp type and lighting area. These requirements shall be met for all lighting installations subject to this code, unless specifically exempted by Chapters 6, 7 and 8.

401.2 Total outdoor light output. The sum total of all installed outdoor light sources shall not exceed the Lumen Cap listed in Table 401.1. The lumen output of each light source shall be subject to applicable Lumen Multipliers in Sections 401.2.1 and 401.2.2 for the locations and types of outdoor lighting equipment installed and shall be calculated in accordance with Section 401.2.3. In Table 401.1, "Total" means the sum of shielded/full cutoff and unshielded/non-full cutoff light. ~~Total outdoor light output shall not exceed the lumen limits listed in Table 401.1. In the table, "total" means the sum of shielded and unshielded light.~~

~~**401.2.1 Determining compliance.** For determining compliance with this chapter the total lumens is the sum of the following:~~

~~1. One hundred percent of the lumens from outdoor light fixtures installed on grade, on poles, and installed on the top or sides of buildings of other structures.~~

~~2. Fifty percent of the lumens from underwater light fixtures unless the fixture is aimed at an angle of less than 45 degrees above the horizontal; in which case the calculated lumens is calculated at 10 percent of the rated lumens.~~

~~3. Fixtures installed under canopies and overhangs. Outdoor lighting fixtures shall not be counted in determining the total light output when they are full cutoff light fixtures installed under canopies, building overhangs, or roof eaves.~~

~~1. Unshielded light fixtures installed under canopies, building overhangs, or roof eaves shall be calculated at 100 percent of the luminaire total light output. Installation under canopies, overhangs or roof eaves shall not provide full cutoff classification of unshielded light fixtures.~~

401.2.1 Lumen Multipliers for installation location. The rated lumen output of each Outdoor Light Fixture shall be multiplied by the applicable lumen multiplier in Table 401.2.1 based on the installed location of each Outdoor Light Fixture.

401.2.2 Lumen Multipliers for Light Source type and Color Temperature. The rated lumen output of each Outdoor Light Fixture shall be multiplied by the applicable lumen multiplier in Table 401.2.2 in accordance with the source type and color temperature rating of each light fixture.

401.2.3 Total Lumens: To determine light fixture lumens to be used in calculating total lumens for the Lumen Cap multiply rated source lumens by the multipliers in section 401.2.1 and 401.2.2 as applicable for each light fixture light source and location.

Examples:

1. 10,000 Lumen full cut-off Amber LED light fixture mounted on a pole:
10,000 lumens x 1.0 (location multiplier) x 1.0 (source multiplier) = 10,000 lumens

2. 10,000 Lumen full cut-off 3000K LED light fixture mounted on a pole:
10,000 lumens x 1.0 (location multiplier) x 7.0 (source multiplier) = 70,000 lumens

3. 2,000 Lumen full cut-off 2,700K LED light fixture mounted below a canopy, but less than 4' from edge of canopy:
2,000 lumens x 0.5 (location multiplier) x 6.0 (source multiplier) = 6,000 lumens

4. 2,000 Lumen full cut-off 2,700K LED light fixture mounted below a canopy and greater than 4' from edge of canopy.
2,000 lumens x 0 (location multiplier) x 6.0 (source multiplier) = 0 lumens

5. 1,000 Lumen not full cut-off, 3000K LED light fixture mounted below a canopy:
1,000 lumens x 1.0 (location multiplier) x 7.0 (source multiplier) = 7,000 lumens

~~4.~~ 401.2.3 Under canopy lighting in Lighting Areas E1c, E1b, and E1a: Total lumens installed below a canopy, overhang or building eaves shall not exceed 30 lumens per square foot in Lighting Areas E1c and E1b, and shall not exced 15 lumens per square foot in Lighting Area E1a. The lumen reduction multipliers of Table 401.2.1 shall not apply to this section. Lumen multipliers for outdoor lighting source type per Table 401.2.2 shall apply to this section.

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401.3 Shielding requirements. All light fixtures that are required to be shielded shall be installed in such a manner that the shielding, or full-cutoff effect, is effective and permanent.

401.3.1 Light trespass. For commercial property abutting residential property, light fixtures on the commercial property adjacent to the residential property shall be full cutoff and shall be installed not higher than 10 feet above grade at the property line and no higher than a line rising 20 degrees above the 10 feet until 100 feet from the property line, measured perpendicular to the lot line. ~~Light fixtures on the residential side of commercial property adjacent to residential property shall be full cutoff and shall be installed not higher than 10 feet above grade at the property line and no higher than a line rising 20 degrees above the 10 feet until 100 feet from the property line, measured perpendicular to the lot line.~~

401.3.2 House Side Shields. Outdoor lighting fixtures closer to the lot line than the mounting height of the fixture, measured perpendicular to the lot line, adjacent to residential areas, shall have internal house-side shields.

401.3.3 Fixtures within 25 feet of residential lot lines. Residential and commercial luminaires shall be full cutoff within 25 feet of adjacent residential property lines, measured perpendicular to the lot line.

401.3.4 Flood and spot lamps. Flood or spot lamps shall be aimed no higher than 45 degrees to the horizontal (half-way between straight down and straight to the side) when the source is visible from any adjacent residential property.

401.4 Other than Full Cutoff Lighting. Unshielded/non-full cutoff fixtures or lighting sources shall not exceed 2~~3~~,000 lumens per luminaire.

Exception to 401.4: Non-full cutoff lighting installed in accordance with Section 601.2.

~~**401.5 Optional compliance method for single family residential compliance.** In lieu of calculating total lumens per Section 401.2, a single residential lot of any size shall be considered in compliance with the Lumen Cap if it has a maximum of 5 – 850 lumen (60 watt incandescent or 13 watt compact fluorescent) Full Cut-Off luminaires in Lighting Areas E3, E3a & E2 or a maximum of 4 – 550 lumen (40 watt incandescent or 9 watt compact fluorescent) in Areas E1c, E1b & E1a. If this option is utilized, no unshielded luminaires are allowed.~~

Commented [13]: Action Check, needs to be revised. incandescent

401.5 Optional compliance method for single family residential compliance. In lieu of calculating total lumens per Section 401.2, a single residential lot shall be exempt from the Lumen Cap if the total amount of outdoor lighting complies with the following:
1. Outdoor Light Fixtures at all locations listed below shall be shielded/full cutoff. In Lighting Areas E3, E3a or E2 light sources shall be compliant with Section 402.1. In Lighting Areas E1c, E1b and E1a light sources shall be Amber LED as described below, unless otherwise noted.
2. In Lighting Areas E3, E3a and E2 with a minimum lot size of 0.25 acre – not more than 3,400 lumens may be installed at any location. In addition, light fixtures may be installed under canopies or overhangs, not exceeding 15 lumens/square foot of canopy area.

3. In Lighting Areas E3, E3a and E2 lot sizes less than 0.25 acre – not more than 2,000 lumens may be installed at any location. In addition, light fixtures may be installed under canopies or overhangs, not exceeding 15 lumens/square foot of canopy area.

4. In Lighting Areas E1c and E1b with a minimum lot size of 0.25 acre – not more than 3,400 lumens from PC Amber LED source may be installed at any location. In addition, light fixtures compliant with Section 402.1 may be installed under canopies or overhangs, not exceeding 8 lumens/square foot of canopy area.

5. In Lighting Areas E1c and E1b lot sizes less than 0.25 acre – not more than 2,000 lumens from PC Amber sources may be installed at any location. In addition, light fixtures compliant with Section 402.1 may be installed under canopies or overhangs, not exceeding 8 lumens/square foot of canopy area.

6. In Lighting Areas E1b and E1a any lot size – not more than 2,000 lumens from NB Amber LED source may be installed at any location. In addition NB Amber light fixtures may be installed under canopies or overhangs, not exceeding 8 lumens/square foot of canopy area.

401.6 Seasonal Decorations. Seasonal decorations using unshielded/non-full cutoff low-wattage lamps (not exceeding 7 watts each) shall be exempted from the Lumen Caps of Table 401.1 from Thanksgiving to the 15th of January each year. This exemption is not applicable to Lighting Area E1a.

Table 401.1
Maximum total Outdoor Light Output Requirements
Lumen Caps: Developed Area Lumens per Acre (1)

Commercial & Industrial (2)	*Lighting Areas as Defined in Chapter 3*					
	E3	*E3a*	*E2*	*E1c*	*E1b*	*E1a*
Total (shielded/full cutoff plus unshielded/non-full cutoff)	*280,000*	*160,000*	*75,000*	*32,000*	*30,000*	*27,000*
Limit on unshielded/non-full cutoff component	*18,000*	*16,000*	*7,500*	*3,200*	*3,000*	*0*
Single Family Detached and Duplex Residential	*Lighting Areas as Defined in Chapter 3*					
	E3	*E3a*	*E2*	*E1c*	*E1b*	*E1a*
Total (shielded/full cutoff plus unshielded/non-full cutoff)	*180,000*	*100,000*	*50,000*	*25,000*	*22,000*	*12,000*
Limit on unshielded/non-full cutoff component	*18,000*	*10,000*	*5,000*	*2,500*	*2,200*	*0*

Commented [14]: @coon4444@basicisp.net I am tagging you because I cannot remember what the need for the strikethrough was here. Tagging a couple of other places. _Assigned to coon4444@basicisp.net_

Commented [15]: @coon4444@basicisp.net _Assigned to coon4444@basicisp.net_

Commented [16]: @coon4444@basicisp.net, I'm not 100% sure where the strikethrough begins and ends on this one. Was it just a strikethrough to E1b? _Assigned to coon4444@basicisp.net_

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Notes for Table 401.1
(1) Light fixture Lumens to be used for the Lumen Cap shall be calculated in accordance with Section 401.2.
(2) This refers to all land-use zoning except for single family and duplex residential zoning.

Table 401.2.1
Lumen Multipliers for Outdoor Lighting Installation Locations

Light Fixture Location	*Lumen Multiplier*
General installation areas: On grade, on poles, on the top or sides of buildings or other structures.	*1.0*
Under water aimed higher than 45 degrees above the horizontal.	*0.5*
Under water aimed 45 degrees above the horizontal or lower.	*0.1*
Shielded/full cutoff fixtures located under canopies, building overhangs and roof eaves and located at least 4' from the edge of the overhanging canopy.	*(1) (2) 0*
Shielded/full cutoff fixtures located under canopies, building overhangs and roof eaves and located less than 4' from the edge of the overhanging canopy.	*(1) (2) 0.5*
Unshielded/non-full cutoff fixtures located under canopies, Building overhangs and roof eaves.	*1.0*

Notes for Table 401.2.1
(1) Canopies or overhangs shall be solid and not allow light to pass through such as trellis type canopies.
(2) The actual Light Fixture shall be shielded/full cutoff type design. The canopy does not provide the shielding.

Table 401.2.2
Lumen Multipliers for Outdoor Lighting Source Type

Light Source Type	*Lumen Multiplier*
LED Amber (1)	*1.0*
LED 4000K & higher (2)	*12.0*
LED 3500K (2)	*9.0*
LED 3000K	*7.0*
LED 2700K	*6.0*
Metal Halide (2)	*12.0*
High Pressure Sodium	*1.4*
Low Pressure Sodium	*1.0*
Fluorescent 3500K & Higher (2)	*8.0*

Fluorescent 3000K	*6.0*
Incandescent & Halogen	*4.0*

Notes for Table 401.2.2
(1) Phosphor Coated Amber for Lighting Areas E3, E3a, E2 and E1c. NB Amber for Lighting Areas E1b and E1a.
(2) Obsolete light source – not for new construction. Lumen multiplier to be used only for legal non-conforming existing light fixtures in accordance with Section 102.4.1 and 102.4.2.

~~Table 401.0~~
~~Maximum Total Outdoor Light Output Requirements~~

	~~Lighting Area as Defined in Chapter 3~~					
~~Commercial and industrial "Option 1" (1)(2) mostly fully shielded Amber* LED~~	~~E3~~	~~E3a~~	~~E2~~	~~E1c~~	~~E1b(5)~~	~~E1a(5)~~
~~Total (fully shielded Amber LED plus non-Amber LED plus unshielded)~~	~~280000~~	~~160000~~	~~75000~~	~~32000~~	~~27000~~	~~27000~~
~~Limit on fully shielded, non-Amber LED~~	~~28000~~	~~16000~~	~~8000~~	~~3000~~	~~3000~~	~~0~~
~~Limit on unshielded component~~	~~18000~~	~~14000~~	~~4000~~	~~4000~~	~~6000~~	~~0~~
~~Commercial and industrial "Option 2" (1)(2) mostly fully shielded White** 2700K LED~~	~~E3~~	~~E3a~~	~~E2~~	~~E1c~~	~~E1b(5)~~	~~E1a(5)~~
~~Total – fully shielded plus unshielded component~~	~~123000~~	~~70000~~	~~33000~~	~~14000~~	~~9000~~	~~9000~~
~~Limit on unshielded component~~	~~8000~~	~~6000~~	~~2000~~	~~2000~~	~~2000~~	~~0~~
~~Commercial and industrial "Option 3" (1)(2) mostly fully shielded White**3000K LED~~	~~E3~~	~~E3a~~	~~E2~~	~~E1c~~	~~E1b(5)~~	~~E1a(5)~~
~~Total – fully shielded plus unshielded component~~	~~100000~~	~~57000~~	~~27000~~	~~14000~~	~~9000~~	~~9000~~
~~Limit on unshielded component~~	~~6500~~	~~5000~~	~~2000~~	~~2000~~	~~2000~~	~~0~~
~~All residential zoning (3) Amber* LED~~	~~E3~~	~~E3a~~	~~E2~~	~~E1c~~	~~E1b(5)~~	~~E1a(5)~~
~~Total (full cut-off plus unshielded) (4)~~	~~46000~~	~~33000~~	~~25000~~	~~20000~~	~~7500~~	~~3000~~
~~Limit on unshielded component~~	~~8000~~	~~7000~~	~~2700~~	~~2700~~	~~2700~~	~~0~~

~~*Amber LED is Narrow-Band Amber for Zones E1 and Phosphor-Converted Amber for Zones E2 & E3~~
~~**White LED is broad-spectrum LED characterized by Correlated Color Temperature, as specified in Section 402.1 for Zones E2 & E3, with Phosphor-Converted Amber for Zones E1~~

~~Notes to Table 401~~

~~1. Use either option for the developed area.~~

2. This refers to all land-use zoning classifications for multiple family uses, commercial, and industrial sites.

3. This refers to all residential land-use zoning, including all densities and types of housing, such as single family detached and duplexes.

4. For Residential lighting, White 2700K LED may be substituted for phosphor-Converted Amber LED at the rate of one white LED lumen for every two PCA lumens <. Note that this factor is properly 1.8 for 2700K white light.

5.1. Variance may be granted for a strongly demonstrated need for color rendition, allowing up to 10% of the total lumens per acre to be White LED.

Commented [17]: Action — Need to clean up definition of Residential and Commercial.

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Table 401.1
Maximum Total Outdoor Light Output Requirements
Lumen Caps: Developed Area Lumens per Acre

	Lighting Area as Defined in Chapter 3					
Commercial and industrial "Option 1" (1)(2) (mostly LPS* lighting)	**E3**	**E3a**	**E2**	**E1c**	**E1b(5)**	**E1a(5)**
Total (full cut-off LPS, plus full cut-off non-LPS, plus unshielded)	350,000	250,000	195,000	125,000	48,000	18,000
Limit on non-LPS full cut-off.	35,000	25,000	18,000	6,000	3,000	3,000
Limit on unshielded component (LPS or non-LPS)	11,000	9,000	3,000	3,000	3,000	0
Commercial and industrial "Option 2" (1)(2) (full cut-off for all lighting)	**E3**	**E3a**	**E2**	**E1c**	**E1b(5)**	**E1a(5)**
All lighting must be full cut-off	250,000	150,000	62,000	28,000	25,000	12,500
Limit on unshielded component	0	0	0	0	0	0
Commercial and industrial "Option 3" (1)(2) (full cut-off for most lighting)	**E3**	**E3a**	**E2**	**E1c**	**E1b(5)**	**E1a(5)**
Total (full cut-off plus unshielded)	175,000	100,000	47,000	20,000	12,500	12,500
Limit on unshielded component	11,000	9,000	2,700	2,700	2,700	0
All residential zoning (3)	**E3**	**E3a**	**E2**	**E1c**	**E1b(5)**	**E1a(5)**
Total (full cut-off plus unshielded) (4)	55,000	39,000	24,000	15,000	12,000	12,000
Limit on unshielded component	11,000	9,000	2,700	2,700	2,700	0

* LPS (Low Pressure Sodium)

Notes to Table 401.1

1. Use any one of the three options, 1, 2, 3 for the developed area.
2. This refers to all land-use zoning classifications for multiple family uses, commercial, and industrial sites.
3. This refers to all residential land-use zoning, including all densities and types of housing, such as single family detached and duplexes.

4. ~~For Residential lighting, if at least 75 percent of the installed lumens are from LPS sources, then the total lumens in the table, for all areas, may be increased by 50 percent.~~

5. ~~In addition to the lumen caps given in the table above, the maximum illumination level under any canopy in lighting Area E1a shall not exceed 30 lumens per square foot nor in Area E1b shall not exceed 55 lumens per square foot of the canopy area.~~

Section 402
Outdoor Lighting Source Color Temperature

402.1 Rated Color Temperature. The rated color temperature of light sources (lamps and fixtures) shall not exceed 3000K.

Commented [18]: Need discussion by full Committee. If product were available, 2700K would be preferred.

Exception No. 1: Recreation Lighting ~~Special Use Lighting~~ complying with Chapter~~s~~ 6 ~~and 7~~ of this Code.

Commented [19]: Need discussion by full Committee.

Exception No. 2: Existing legal, non-conforming light fixtures may be relamped with greater than 3050~~0~~0K rated lamps when 3050~~0~~0K or lower rated lamps are not manufactured for such fixtures.

Section 403
Curfew Requirements

Commented [20]: Action to check on turn on times.

403.1 Unshielded/Non-Full Cutoff Light Sources. Unshielded/non-full cutoff lighting shall be extinguished between 11:00 P.M. and sunrise the following day.

~~**Exception No. 1:** Unshielded lighting installed for the illumination of the flag of the United States of America.~~

Commented [21]: There is no requirement to illuminate the flag at night. The U.S. Flag code notes that, "it is universal custom to display the flag only from sunrise to sunset on buildings and on stationary flagstaffs in the open." Suggest full committee discussion.

Exception No. 12: Unshielded/non-full cutoff lighting installed in accordance with Section 601.2 shall be turned off in accordance with the curfew requirements of Section 601.3.

Exception No. 23: Unshielded non-full cutoff lighting on installations classified as Residential Zoning in accordance with Footnote 23 to Table 401.1.

403.2 Illuminated Signs. Refer to Section 501.5.

403.3 Recreational Facilities. Refer to Section 601.3

403.4 Special Use Areas. Refer to Section 701.3

403.5 Outdoor Lighting Controls.

403.5.1 The means of controlling the specific "off" curfew shall be by a 24 hour timing device that includes stand-by power to maintain the time and program for a minimum of 6 hours.

403.5.2 Whenever any curfew "off" time is required by this Code, a permanent sign or notice shall be installed at the time control device stating the required turn-off time. Such sign or notice may be installed within the cover of the time control device such that it is visible whenever the device is set or adjusted. Suggested wording is as follows:

"Set off time for Sign no later than 10:00PM MST in accordance with City of Tucson/Pima County Outdoor Lighting Code. Penalty for non-compliance per Outdoor Lighting Code Section 107.4. Penalties shall not exceed $750.00 for individuals and $10,000.00 for other legal entities." (Adjust wording as needed for type of lighting to which curfew applies and the applicable curfew time.)

403.6 Illumination of the flag of the United States of America.

403.6.1 For nighttime illumination of the flag of the United States of America, flagpoles shall be outfitted with a pole top downward illuminating light fixture. Lumens in these fixtures shall be calculated as part of the unshielded/non-full cutoff lighting totals unless the fixture meets the requirements for full-cutoff.

Section 404
Motion Sensing Controls

404.1 Motion Sensing Controls. Motion Sensing Controls shall be provided for building and pole mounted light fixtures which illuminate parking lots, driveways, pedestrian areas and other open outdoor areas.

Exception No. 1: Light fixtures mounted 12' above grade level and below.
Exception No. 2: Lighting installed in accordance with Chapters 6, 7 and 8.
Exception No. 3: Lighting installed under canopies or in open parking garages.
Exception No. 4: Legal, non-conforming existing light fixtures.
Exception No. 5: Full cut-off light fixtures installed for the illumination of the United States Flag and mounted over 12' above grade level.

404.2 Motion Sensing Controls Operation: Motion sensing controls shall automatically dim light fixtures to 50% or less of the full rated light output per the following:
1. During any time when no activity has been detected for 15 minutes or more.
2. Sensing and dimming shall be done on a per fixture or per pole basis.

Chapter 5
Sign Lighting

Section 501
Illuminated Outdoor Signs

501.1 External illumination of on-site signs. External illumination for on-site signs shall conform to all provisions of this code. In particular, such lighting shall conform to the lamp source, shielding requirements, color temperature, and lumen caps of Chapter 4.

501.2 Illumination of off-site signs prohibited. Electrical illumination of outdoor off-site signs is prohibited, except that the use of lighting fixtures legally installed in Areas E2 and E3 prior to the effective date of this code may continue, provided such fixtures are mounted on the top of the sign structure, shall not be illuminated between the hours of 11:00 P.M. and sunrise the following day, and comply with all other provisions of this code.

501.3 Internal illumination of signs. The requirements of this paragraph apply to totally enclosed and unenclosed signs where the lamp is not directly visible from any viewing angle. A lamp concealed behind opaque or translucent material is considered not directly visible.

501.3.1 Lumen cap. Outdoor internally illuminated signs are exempt from the lumen caps described in Chapter 4.
501.3.2 Color temperature. Rated lamp color temperature shall not exceed 4400K.
501.3.3 Prohibited installations. Outdoor internally illuminated signs shall not be installed in Lighting Area E1a.

501.4 Exposed Lamps. Lamps not concealed from view by opaque or translucent material shall be considered outdoor lighting and shall conform to the lamp source, shielding requirements, color temperature, and lumen caps of Chapter 4.

501.5 LED, LCD, Plasma Screen and Similar Signs: Outdoor LED, LCD, Plasma and Similar signs shall comply with Sections 501.3.1 and 501.3.3. Further, they shall be limited to a maximum luminous intensity of ~~200~~ 125 nits (candela per square meter), full white mode, from sunset to sunrise.

Commented [22]: Did the committee agree to this?

Commented [23]: Proposed compromise between those advocating for limit of 60-80 nits. Will need discussion by full committee.

501.6 Sign illumination curfew. Illuminated signs shall be turned off at the curfew times listed in Table 501.5 or when the business activities cease, whichever is later. Signs shall be turned off when the business activity relating to the sign has ceased for 30 days or more. Controls shall comply with Section 403.5.

Table 501.5
Illuminated Sign Curfews

Lighting Area	E3	E3a	E2	E1b or c	E1a
Commercial and Industrial Zoning or Land Use (1)	12:00 A.M.	12:00 A.M.	11:00 P.M.	11:00 P.M.	X
All Residential Zoning or Land Use (1)	11:00 P.M.	11:00 P.M.	10:00 P.M.	9:00 P.M.	X

Notes to Table 501.5
1. "Land Use" refers to the predominant use of land surrounding the parcel on which the sign is located.
2. "X" means "not allowed".

Chapter 6
Recreational Facilities

Section 601
Illumination of Recreational Facilities

601.1 Lighting not directly related to athletic areas. All site lighting not directly associated with the athletic playing areas shall conform to the lighting standards described in this ordinance, including but not limited to the lamp type and lumens per acre limits of Chapter 4.

601.2 Lighting for athletic fields **requiring full color rendition** ~~**Class 1.**~~ Lighting for athletic fields, courts or tracks shall be exempt from the lumens per acre limits of Chapter 4. All such lighting shall utilize full cut-off luminaires that are installed in a fashion that maintains the full cut-off characteristics unless certified by a registered engineer that such shielding is impractical. Every such lighting system design shall be certified by a registered engineer as conforming to all applicable restrictions of this ordinance. Where full cut-off fixtures are not utilized, acceptable luminaires shall include those which:

1. Are provided with internal and /or external glare control louvers and installed so as to limit direct up-light to less than 5 percent of the total lumens exiting from the installed fixtures and minimize off-site light trespass and;
2. Are installed and maintained with minimum aiming angles of 25 degrees downward from the horizontal. Said aiming angle shall be measured from the axis of the luminaire maximum beam candlepower as certified by independent testing agency.

Commented [24]: There are proposals for adding a color temp requirement for non-TV covered fields. Options are 4000K or 5700K. Full Committee will discuss.

There is also strong support for tighter regulation of the aiming angles.

Commented [25]: Needs discussion by full committee.

Commented [26R25]: Committee agreed to this but I have left it sitting as is.

601.3 **Curfew requirements.**

601.3.1 Event Schedule. All events shall be scheduled so as to complete all activity before the curfew listed in Table 601.3. Illumination of the playing field, court or track shall be permitted after the curfew only to conclude a scheduled event that was unable to conclude before the curfew due to unusual circumstances. Lighting may remain on up to one hour after the conclusion of play in order to allow for any required field maintenance that must take place at the end of play. Timing devices for recreational facilities may include a manual override setting which returns to the established program within 1 hour.

601.3.2 Allowable operation and turn-on controls. Athletic field lighting not conforming to the shielding and lumen caps of Chapter 4 shall not be operated, except during those days and times when the athletic event occurs. Turn-on of the lighting shall be activated by manual control of the lighting system. The Building Official may approve automatic controls for lighting turn on if they provide equivalent assurance that the lighting will not be operating at times when the facilities are not in use.

601.3.3 Automatic Controls. Automatic controls shall comply with Section 403.5.

Table 601.3
Recreational Facilities and Special Use Areas Curfews

E3	E3a	E2	E1b or c	E1a
12:00 A.M.	11:00 P.M.	11:00 P.M.	10:00 P.M.	X

"x" means not allowed.

Chapter 7
Special Use Areas

Section 701
Illumination of Special Use Areas

701.1 Special Use Areas Defined. This chapter applies to lighting for outdoor sales areas and outdoor manufacturing areas.

701.2 Lighting not associated with special use areas. All outdoor lighting not directly associated with the special use areas shall conform to the lighting standards described in this ordinance, including but not limited to the lumen per acre limits, shielding requirements, color temperature and curfew requirements of Chapter 4.

701.3 Lighting for special use areas. Lighting for special use areas is exempt from the lumens per acre limits of Section 401. ~~and source color temperature restrictions of Section 402.~~ All such lighting shall utilize full cut-off luminaires that are installed in a fashion that maintains the full cut-off characteristics. Every such lighting system design shall be certified by a registered lighting or electrical engineer as conforming to all applicable restrictions of this code.

701.4 Curfew requirements. Special Use Area lighting shall be turned off at the curfew times listed in Table 601.3 or within thirty minutes after closing of the business, whichever is later. Automatic controls shall comply with Section 403.4.

701.5 L~~Security l~~ighting for special use areas after curfew. Outdoor lighting operated after curfew times listed in Table 601.3 shall comply with the lumen per acre limits, shielding, source color temperature and curfew requirements of Chapter 4.

Chapter 8
Right-of-Ways

Section 801
Illumination of Right-of-Ways

801.1 Lighting of Right-of-Ways. Lighting of public and private right-of-ways shall be full cutoff~~fully shielded~~ or comply with Section 401.4. In addition, lighting shall comply with source color temperature of Section 402.1. The lighting system performance shall be demonstrated by a computer program printout of the maintained illumination levels produced from the right-of way lighting fixtures certified by a registered design professional.

Exception No. 1: Traffic signal indications.
Exception No. 2: Chapter 4, except where specifically referenced in this Section.

801.2 Definitions:

Right-of-Way types-
Expressway – A divided major roadway for through traffic, with partial control of access and generally with interchanges at major crossroads.
Major Roads – The part of the roadway system that serves as the principal network for the through traffic flow. The routes connect areas of principal traffic generation and important rural roadways leaving the city.
Collector Roads – Roadways serving traffic between major and local streets. These are streets used mainly for traffic movement within residential, commercial and industrial areas.
Local Roads – Local streets are used primarily for direct access to residential, commercial, industrial, or other abutting property.

801.3 Illumination levels of Right-of-Ways. The maximum average illumination level, as demonstrated by the computer printout, along the entire right-of way being illuminated and over the right-of-way area only, shall be:

Expressway	1.4 footcandles
Major Roads	1.5 footcandles
Collector Roads	1.0 footcandles
Local Roads	Prohibited, except 0.4 footcandles in area E3 and at signalized intersections and marked pedestrian crossings.

Existing luminaires on local roads may be retrofitted with full cutoff luminaires with the design not to exceed 0.4 footcandles average maintained as described in 801.1.

The uniformity ratio of average to minimum illumination shall not be greater than the values for uniformity in the latest version of IES RP-8.00.

801.4 Illumination level of intersections. The maximum maintained average illumination in the intersection area shall be 2 times the average of the maintained footcandles of the two types of roads at the intersections. Intersections of Collector & Local Roads shall be 1.6 footcandles maximum and at Local & Local Roads shall be 1.4 footcandles maximum.

801.5 Minimum source efficacy. The minimum source efficacy to be used for light fixtures used in public right-of-way illumination shall be 60 lumens per watt.