

# Lighting Ad Hoc Committee Report



## **Objective of the AD Hoc Committee**

The ADHOC committee was charged with reviewing and updating Unified Development Ordinance (UDO) Part III 155.9.7 – 155.9.14 which governs outdoor lighting for our town.

Key Objectives conveyed from the BOA were:

- Improve clarity of the existing ordinance.
- Consider the objective of enabling more Night Sky as may be practical.
- Evaluate & strengthen aspects of enforceability.

## **Executive Summary**

Upon review and comparison to other referenced ordinances, the committee concluded our current Ordinance is reasonably comprehensive but could benefit from several points of revision to clarify wording, reduce redundant statements, incorporate advances in lighting technology and streamline the ordinance structure. It was determined that the “Purpose Statement” needs to be more comprehensive, as it sets the tone for the Town’s intent.

It is important to note that there are many examples of non-compliance throughout the residential, commercial and municipal sections of our town. The lack of enforcement across existing and especially new construction is a root cause of non-compliance. Uplighting and unshielded lighting are primary causes on non-compliance. The prolific trend towards esthetic building and yard lighting, bright LED technology, fixture choices and affordability have resulted in increased illumination throughout our town. The Policy of compliant driven enforcement has failed. The 3-year sunset of our current ordinance, (adopted 11-8-2012) was never enforced.

The proposed revision to the current ordinance creates minimal new elements of non-compliance. The main issue is future enforcement as will be noted in the Recommendations.

**Note: Any Lighting ordinance elements related to sea turtles and nesting birds (beach lighting) are still under review and will be addressed in a future proposal.**

## **Findings**

Based on the review and comparison of the current UDO Part III 155.9.7 – 155.9.14 to other referenced ordinances and both visual and measured surveys of current lighting around the town by the ADHOC and Planning Staff, the following findings and conclusions have been reached.

- Clarification of the Need and Purpose of the Ordinance to set a clear tone and set expectations.
- Remove redundant statements.
- Remove inconsistent and ambiguous use of language and phrasing.
- Adopt the best practices identified among referenced ordinances.
- Improve accessibility of Definitions by consolidation and location in central UDO Definition Section.

- Update to industry standards (from watts to lumens).
- Update top to industry recommendations for LED Brightness (light visual color-Kelvin Value)
- Inclusion of graphic examples of compliant and non-compliant lights.
- Improve clarity regarding the methodology for measurement of light, and meeting required standards.
- Update Sunset aspects of the New Ordinance to achieve full compliance.
- There are substantial examples of non- compliance throughout the town, including new construction that can be specifically addressed.
- A more comprehensive and proactive approach to enforcement will help to fulfill the Purpose of this new proposed ordinance.
- The “complaint driven” policy of enforcement has not been effective at correcting long standing non-compliance nor controlling the expansion of non-compliance especially with new construction.

**Outcome**

The table below outlines a comparison of the current ordinance vs. the new proposed ordinance. **It should be underscored that most of the current non-compliance will continue to be in non-compliance under the new ordinance.**

Type of Revision	Specific Items
No Change	Fully Shielded/ Full Cutoff Lighting required, No Uplighting, No bare Bulb & String lighting.
Revised	Motion Activated Lights, Pole Mounted lights (heights), Wall Mounted Lights, Holiday lighting (time window), Docks/ Piers/ Gazebos lights (height & reference) , Non-Conformity sunset, Definitions, Max Illumination/ Uniformity Table
New Addition	Light Color (Kelvin) limit, Prohibition of underwater lighting, Lighting Review, Outdoor Sports Fields, Definitions, Light Graphic (Compliant/ non-compliant)
Deleted	Special design Areas, Gas Station & Convenience Store Canopies) , Definitions

**Recommendations**

The opportunity presents itself with adoption of this revised ordinance to establish initiatives that can help to accomplish the stated purpose of the ordinance. There are three such initiatives recommended:

- Enforcement – As the lack of enforcement has been a root cause of non- compliance this must be addressed. The Board of Aldermen by Policy must be committed to systematic and regular proactive enforcement. This can be accomplished with multiple strategies:

- Proactive prevention of new non-compliance through the Permitting and Certificate of Occupancy (CO) process. All this is driven by the Planning & Zoning Dept.
- Upon adoption and in anticipation of the Sunset clause, advanced notifications aligned with public education can get momentum on property owners self-correcting non-compliance.
- Based on the assessment/survey work accomplished in developing this ordinance, we know of specific types of non-compliance. These represent very clear enforcement items for active enforcement post Sunset.
- Public Education – The leadup to the adoption of the new ordinance through public hearings is only the starting point of Public Education. This can be carried forward through various methods of push communications and specific briefing documents and presentations. (TOWB Website, Town digital sign, Summary pamphlets, Sunshine List, Water Bill notice etc.)
- Partnerships- Locally we have key stakeholder organizations that have shown a strong interests in helping accomplish the purpose of this new Lighting ordinance. The WB Sea Turtle Project and NC Coastal Federation, they can assist in helping with education and promotion.

<b>Lighting Ordinance Project Fact Sheet</b>
<b>Ad Hoc Committee Members:</b> Zeke Partin, Jim Smith, Catherine Brunjes, John Wessel, Neal Briggi, Jim Chaffins (parttime)
<b>TOWB Staff Support:</b> Robert O’Quinn, Lance Heater, (Parttime) Tim Owens & Tony Wilson
<b>Expert Support:</b> Nancy Fahey (WB Turtle Project), Kerri Allen (NC Coastal Federation), David Munn (Duke Energy), David Sims (Sims & Associates)
<b>Referenced Lighting Ordinances:</b> (Total 10) Ocean Isle Beach NC, Kure Beach NC, Kiawah Island SC, Sanibel Island FL, Breckenridge CO, Kennebunkport ME, Palm Beach County FL, Wilmington NC, Duck NC, Nags Head NC,
<b>Meetings:</b> 24 Public Noticed meetings, January 2023 through May 2024, agendas and Minutes reside on Town Website
<b>Key Activities:</b> Review and Comparison of Referenced Light Ordinances, Presentation and Discussion with subject matter experts, Nighttime photographic & photometric survey of residential, municipal and commercial lighting, Technical information searches.
<b>Other:</b> Lighting Related Definitions Current Ordinance (37); New Proposed Ordinance (25)

# Comparison of Current & Revised Ordinance

**Comparison of Current & Revised Lighting Ordinance**

<b>Ordinance Item</b>	<b>Current Ordinance</b>	<b>Revised Ordinance</b>
Purpose	Statement included	Expanded to "Need & Purpose" states a rationale
Fully Shielded/ Full Cutoff	Required	No change
Uplighting	Not permitted	No change
Bare Bulb & String Lights	Not Permitted	No Change
Motion Activated Lighting (Flood & Spot lights)	Residential only Permitted unshielded lights (>45 watts 520 lumens)	Expanded to cover both Residential & Commercial max 700 lumens Restricted triggered light duration to max 10 minutes (per event). Removed allowance for non -shielded type fixture.
Pole Mounted lighting	Commercial Parking Lot 30 ft Max from base of pole Resident 16 ft Max	Commercial Parking Lot 18 ft Max from base of pole Reference to Intensity & Uniformity Table
Wall Mounted Lighting	Commercial 20 ft Max above grade Resident 16 ft above grade or 10 ft above any 1 <sup>st</sup> floor	Commercial 10 ft Max above grade Residential no change
Light Color (LED Technology driven)	No standard, no reference	Kelvin Standard definition included. Kelvin Range specified 2700 to 3000 degrees Kelvin
Holiday Lighting	Thanksgiving > January 15	October 15 > January 15
Special Design Areas (architectural, carriage style lights)	Included (None exist in TOWB)	Removed (these do not exist in TOWB)
Docks & Piers	Separate Commercial & Residential sections.  Max fixture height Commercial and Residential 25 feet	Added "associated gazebo" to this section.  Reduced max fixture mounting height measured at ground level (10 feet height) where the dock or pier meets the land, or 15 feet from the lowest platform of the pier.  Combined all sections into one.  Added prohibition of underwater fish and decorative lighting.
Gas Station/ Convenience Store Canopies	Permitted (None exist in TOWB)	Removed (these do not exist in TOWB)
Lighting Review	Not Covered	General Requirement - Prior review & approval as part of zoning inspection for final CO Residential Requirement – A lighting Plan (Cut Sheet/ Graphic) required prior to zoning permit issuance. Commercial Requirement – A Photometric plan required prior to zoning permit issuance.
Sign Lighting		
Outdoor Sport Fields	Not covered	Added this new Item Pole Lighting Max height 30 ft above grade
Nonconformities	3 years	180 days for current non-compliance
Definitions	Approx 37	Approx 25 consolidated, reduced ambiguity, added new missing

# Current Ordinance Adopted 2012

**PART III.  
OUTDOOR LIGHTING**

**Section 155.9.7 Purpose.**

This section sets forth criteria for the installation and acceptable levels of exterior lighting in the town. The purposes of this section are as follows:

- (A) Preserve and enhance public safety;
- (B) Protect drivers from disabling glare and thereby enhance traffic safety;
- (C) Protect marine vessels from disabling glare on the waterways and thereby enhance navigation safety;
- (D) Enhance the town's nighttime character;
- (E) Shield neighboring properties from nuisance glare;
- (F) Reduce light pollution, light trespass and the brightening of the night sky due to manmade lighting;
- (G) Protect and not disrupt sea turtle nesting habitats; and
- (H) Promote energy conservation through efficient light design and operation.

(Ord. 1695, passed 11-8-12; Am. Ord. 1838, passed 3-10-22)

**Section 155.9.8 Commercial Exterior Lighting.**

(A) *Outdoor Parking Lots, Storage and Display Areas and Driveways.* Lighting for outdoor parking lots, outdoor storage and display areas, and commercial driveways shall be designed to provide the minimum lighting necessary to ensure adequate public safety, to control excessive glare onto adjacent streets and properties, and to prevent light trespass onto adjoining properties, public rights-of-way, and any public trust waters.

(1) *General.*

(a) All lighting fixtures used for the purpose of illuminating parking lots and driveways shall be full cut-off fixtures that meet the standards set forth in the definition as documented by the manufacturer's specification or a qualified engineer.

(b) Directional floodlighting fixtures must be full-cutoff or shielded and properly aimed so that the light source:

1. Does not produce glare;
2. Does not produce up-lighting; and
3. Contains light so that it does not trespass onto adjoining properties, public rights-of-way, and any public trust waters.

(c) The maximum mounting height for pole-mounted fixtures intended to illuminate parking lots is 30 feet measured from the base of the pole.

(2) *Special Design Areas.* Lighting fixtures of a particular period or architectural style such as carriage lights and post lights, may be used in special design areas. In such areas, fixtures that are not full cut-off are permitted provided that:

(a) The maximum initial lumens generated by each lamp shall not exceed 500 lumens, according to the manufacturer's specifications (the purpose of this lumen cap is to avoid cumulative use of lights that may be too bright or that may cause trespass); and

(b) Post top shall be fitted with a solid top to control up-lighting and reduce glare; and

(c) Fixture mounting height is no more than 16 feet above grade level.

(3) *Standard.* All illumination of parking lots, outdoor storage and display areas and commercial driveways shall comply with the intensities and uniformity ratios in Section [155.9.14](#) or by the standard within this section whichever is more stringent.

(B) *Commercial Building Exteriors and Parking Garages.* These provisions apply to all buildings and uses within the town's Commercial and Public/Semi-Public Zoning Districts and to any non-conforming nonresidential uses in other zoning districts.

(1) *General.* Exterior building lights may be mounted in front, at ground level, or wall mounted provided that:

(a) All light fixtures, wherever mounted, are properly aimed and full cut-off or shielded to confine the light to the area of the building being lighted and to prevent light trespass.

(b) Wall-mounted light fixtures may be mounted no higher than 20 feet above grade. The fixtures must be full cut-off or shielded and aimed to avoid up-lighting.

(c) Ground mounted fixtures must restrict up-lighting.

(d) Bare light sources (including but not limited to festive light strands, incandescent, fluorescent, high intensity discharge, and neon) used to outline property lines, open sales areas, rooflines, doors, windows, the edges of walls or any other area of the building or property visible from outside the building are prohibited, except for holiday lighting permitted from Thanksgiving through January 15th of the new year.

(e) The maximum illumination level on any vertical surface or roof of a commercial building shall not exceed 3.0 average foot-candles of vertical illuminance.

(2) *Gas Station/Convenience Store Canopies.*

(a) Light fixtures above 200 watts mounted on canopies shall be recessed so that the lens cover is recessed or flush with the bottom surface of the canopy and/or shielded by the fixture or the edge of the canopy so that light is restricted to no more than 85 degrees from vertical.

(b) The illumination level for canopy lighting measured at the pavement/ground level shall not exceed ten average maintained foot-candles.

(3) *Parking Garages.*

(a) Lighting located outside the structure shall comply with the requirements of subsection (C)(1) below. Lighting located inside the structure providing illumination that is visible from the exterior of the structure shall be full cutoff or shielded by the structure, shield, visor, hood, or louvers in a manner that contains light and glare within the structure and meets this section's standards for light trespass.

(b) The illumination level of interior lighting that is visible from the exterior of the structure shall comply with the intensities and uniformity ratios in Section [155.9.14](#).

(4) *Standard.* All illumination of commercial building exteriors, gas and convenience store canopies, and parking garages shall comply with the intensities and uniformity ratios in Section [155.9.14](#) or by the standard within this section whichever is the more stringent.

(C) *Commercial Docks and Piers.* Lighting for commercial docks and piers shall minimize glare, trespass, and restrict up-lighting.

(1) All lighting fixtures must meet the following standards:

(a) Fixtures must be full cut-off or shielded and properly aimed so that they control glare, do not produce up-lighting, and contain light to prevent trespass on adjoining uplands, public rights-of-way and public trust waters.

(b) Disabling glare that impairs the ability of boaters to safely traverse public trust waters shall be prohibited.

(c) Mounting height shall be as low as practicable but in no case shall the fixture be mounted higher than 25 feet above the lowest platform of the dock or pier.

(d) Bare light sources (including but not limited to festive light strands, incandescent, fluorescent, high intensity discharge, and neon) used to outline commercial docks and piers are prohibited.

(2) *Standard.* All illumination of docks and piers shall comply with the intensities and uniformity ratios in Section [155.9.14](#) or by the standard within this section whichever is the more stringent.

(Ord. 1695, passed 11-8-12; Am. Ord. 1838, passed 3-10-22)

**Section 155.9.9 Residential Exterior Lighting.**

(A) *General.* Fixtures using lamps (bulbs) of 60 watts/640 lumens or less for incandescent bulbs (frosted) or 25 watts for clear lamps, such as typical porch lights, may be installed at any location in residentially zoned areas.

(B) *Security Lighting.*

(1) *Motion Activated Security Lighting.* Unshielded flood and spot lights, with lamps of 45 watts/520 lumens or less or their equivalent (this information is specified on the retail packaging), installed for security and activated by motion sensors are permitted. These unshielded lights must be mounted and aimed in a manner that minimizes up-lighting and light trespass and that is consistent with the security purposes of the lights.

(2) All other flood and spot light fixtures must have top and side shields capable of containing light below the roof line of the house and reducing light trespass on adjoining properties to the maximum extent feasible.

(C) *Landscape and Decorative Lighting.* Landscape and decorative lighting using quartz halogen lamps of 36 watts/110 volt system or less is permitted (or the equivalent low-voltage system rating), provided that the light is installed and aimed to prevent up-lighting and light trespass and shielded to prevent view of the bulb from the public right-of-way.

(D) Area lights or "dusk to dawn" lights are permitted, as follows:

(1) These lights must be full cut-off or shielded.

(2) If pole mounted on the ground, the fixture mounting height may be no more than 16 feet above grade at the base of the pole.

(3) If wall mounted, the fixture mounting height may be no more than 16 feet above grade, or ten feet above any first floor of houses constructed on pilings, measured from the level of the lowest habitable floor.

(E) *Standard.* All illumination of residential exteriors shall comply with the intensities and uniformity ratios in Section [155.9.14](#) or by the standard within this section whichever is the more stringent.

(Ord. 1695, passed 11-8-12; Am. Ord. 1838, passed 3-10-22)

#### **Section 155.9.10 Private Piers and Docks Including Residential.**

(A) All lighting fixtures must meet the following standards:

(1) Fixtures must be full cut-off or shielded and properly aimed so that they control glare, do not produce up-lighting, and contain light to prevent trespass on adjoining uplands, public rights-of-way and public trust waters.

(2) Disabling glare that impairs the ability of boaters to safely traverse public trust waters shall be prohibited.

(3) Mounting height shall be as low as practicable but in no case shall the fixture be mounted higher than 25 feet above the lowest platform of the dock or pier.

(4) Bare light sources (including but not limited to festive light strands, incandescent, fluorescent, high intensity discharge, and neon) used to outline private piers and docks are prohibited.

(B) *Standard.* All illumination of parking lots, outdoor storage and display areas and commercial driveways shall comply with the intensities and uniformity ratios in Section 155.9.14 or by the standard within this section whichever is the more stringent.

(Ord. 1695, passed 11-8-12; Am. Ord. 1838, passed 3-10-22)

#### **Section 155.9.11 Signs.**

Lighting of signs shall comply with the provisions of [Article 155.10](#). In addition, the following requirements apply:

(A) Lighting fixtures used to illuminate on-premise commercial signs must be mounted at the top of the sign structure.

(B) The sign lighting fixture(s) must be fully-shielded to control glare, to prevent encroachment on neighboring properties and rights-of-way and to contain light so that it is projected below an horizontal plane extending through the fixture.

(C) The height of the sign lighting fixture shall be no greater than the maximum permitted height of the sign.

(Ord. 1695, passed 11-8-12; Am. Ord. 1838, passed 3-10-22)

**Section 155.9.12 Other Requirements.**

(A) No lighting fixture or device may be operated in such a manner as to constitute a hazard or danger to persons, or to the safe operation and navigation of vehicles or watercraft.

(B) The following are exempt from the requirements of this section:

(1) Situations where federal and state laws, rules and regulations take precedence;

(2) Location and operation of traffic control devices;

(3) Situations where there are special requirements, such as public monuments and flag lighting, provided, however, that such lighting shall be selected and installed to shield the lamp(s) from direct view to the greatest extent possible and to minimize upward lighting and trespass; and

(4) Up lighting and security lighting owned by the town and installed in order to illuminate trees, foliage and other structures located within a public right-of-way or on public property.

(Ord. 1695, passed 11-8-12; Am. Ord. 1730, passed 6-12-14; Am. Ord. 1838, passed 3-10-22)

**Section 155.9.13 Nonconformities.**

(A) This section shall be effective immediately upon adoption by the Board of Aldermen of the town and shall supersede and replace all previous ordinances pertaining to outdoor lighting.

(B) Any outdoor lighting not in conformity with the requirements of this Ordinance and lawfully in place prior to the effective date of this Ordinance shall be removed or rendered in compliance with this Ordinance within three years of its effective date.

(C) After the effective date of this Ordinance, any lighting system that replaces a lighting system not in conformity, or any lighting system that is moved, must meet the standards of this Ordinance.

(D) Non-conforming lighting systems that cause disability glare to motorists or cyclists or that directs light toward public waters so as to cause disability glare to operators of watercraft shall be either fully-shielded as directed in this section or re-directed within 90 days of notification so that the lighting system does not cause a potential hazard to motorists, cyclists or watercraft operators.

(E) Non-conforming lighting systems that cause light trespass or up-lighting which can be corrected by redirecting the fixture shall be re-directed to eliminate the trespass or up-lighting within 90 days of notification.

(Ord. 1695, passed 11-8-12; Am. Ord. 1838, passed 3-10-22)

**Section 155.9.14 Maximum Illumination Standards.**

The figures in this table represent maximum levels of illumination for roadways, parking lots, and building exteriors.

<i>Type of Land Use</i>	<i>Horizontal Illuminance (Foot-candles)</i>		<i>Uniformity Ratio (Average to Minimum)</i>
	<i>Average</i>	<i>Minimum</i>	
Roadways			3:1
Major road	0.6 - 1.6		6:1
Local road	0.3 - 0.8		
Parking Lots			
High activity (i.e., fast food facilities)	3.6	0.9	4:1
Medium activity (i.e., office, residential complex, or hotel)	2.4	0.6	4:1
Low activity (i.e., neighborhood shopping, schools, or churches)	0.8	0.2	4:1
Building Exteriors			
Entrances, active (pedestrian, conveyances)	5		
Entrances, inactive (locked doors)	1		
Vital locations or structures	5		
Surroundings	1		
Commercial Docks and Piers	5		

Note: Where conflict is found between the standards set forth in Sections [155.9.7](#) through [155.9.13](#) and this section, the more conservative, lower illuminance standard will be the standard of choice.

(Ord. 1695, passed 11-8-12; Am. Ord. 1838, passed 3-10-22)

# Draft Ordinance

### **155.9.7 Need and Purpose:**

(A) Outdoor lighting at night benefits everyone. It increases safety, enhances the Town's nighttime character, and helps provide security.

(B) New lighting technologies produce extremely powerful light sources.

(C) Improper installation of a light source can lead to problems, including excessive glare, light trespass, and increased energy use. Excessive glare can be annoying and may cause safety issues. Light trespass invades everyone's privacy, and higher energy consumption results in increased costs for all. Additionally, numerous existing lighting installations violate the current Town of Wrightsville Beach Lighting Ordinance.

(D) There is a need for a lighting ordinance that acknowledges the benefits of outdoor lighting while providing clear guidelines for its installation purpose, to preserve and complement the Town's character. When appropriately regulated and properly installed, outdoor lighting can contribute to the safety and wellbeing of the Town's residents.

(E) This ordinance is intended to address and eliminate the problems created by improperly designed and installed outdoor lighting. Its purpose is to eliminate glare issues, minimize light trespass, protect nesting turtles and other wildlife, and reduce energy consumption by establishing regulations that limit the areas illuminated and the total allowable levels of property illumination. Further, it is to discourage unnecessary illumination and provide a clear basis for determining and measuring noncompliance and enforcement expectations.

(F) All businesses, residences, municipal properties, community driveways, sidewalks, and public trust waters lighting shall be installed with the goal of being a "good neighbor." This includes preventing unnecessary direct light from causing light trespass while preserving the character and peaceful enjoyment of the natural features of Wrightsville Beach.

All lighting regulations in section 155.9.8 apply to both residential and commercial uses. For regulations pertaining specifically to residential uses, see section 155.9.9. Residential Exterior Lighting. For regulations pertaining specifically to commercial uses, see section 155.9.10. Commercial Exterior Lighting.

### **Section 155.9.8 General Lighting Regulations**

Regulations in this section shall apply to lighting standards in all zoning districts.

#### *(A) Motion Activated Lighting.*

Motion-Activated Lighting: Flood and spotlights, utilizing lamps of 700 lumens or lower (clearly specified on retail packaging), are permissible if installed and activated by motion sensors. Motion activated lighting shall not remain illuminated for more than ten minutes after lighting activation event. These lights must be mounted and directed in a way that eliminates up-lighting and shielded to prevent light trespass, aligning with the primary security objectives of the lighting system. All fixtures must use light sources with a color temperature not exceeding 3,000 Kelvin.

(B) *Area Light Fixtures*

(1) Area light or Directional Floodlighting fixtures are allowed under the following provisions:

(a) These lights are required to possess full cut-off and shielding, while being accurately aimed to ensure that the light source avoids generating glare, eliminates up-lighting, and contains light to prevent light trespass onto adjacent properties, public rights-of-way, and any public trust waters. All fixtures must use light sources with a color temperature not exceeding 3,000 Kelvin.

(b) When pole-mounted on the ground, the fixture's mounting height should not exceed 16 feet above the grade measured at the base of the pole.

(c) When wall-mounted, the fixture's mounting height should not exceed 16 feet above grade or ten feet above the first floor of houses built on pilings, measured from the lowest habitable finished floor level.

(C) *Unshielded light sources.*

(1) All unshielded light sources are prohibited across all zoning districts. This includes, but is not limited to, the following types of lighting: decorative string lights, LED string/tape lights, fluorescent bulbs, Edison bulbs, high-intensity discharge lamps, porch lights, and neon lights used to mark property boundaries, sales areas, or to highlight exterior features of a property such as rooflines, doors, and windows.

(2) Holiday-themed light strings or decorations for festive illumination are permitted solely from October 15 through January 15th of the subsequent year in accordance with all other restrictions.

(D) *Docks, Piers, and Associated Gazebos.*

(1) Lighting fixtures must employ full cut-off or shielding and be accurately aimed to prevent glare, eliminate up-lighting, and confine light to prevent light trespass onto public rights-of-way, and public trust waters. All fixtures must use light sources with a color temperature not exceeding 3,000 Kelvin.

(2) Disabling glare and reflections on the water that impairs the ability of boaters to safely traverse public trust waters shall be prohibited.

(3) Mounting height shall be as low as practicable but in no case shall the fixture be mounted higher than 10 feet above where the dock or pier adjoins the mainland. Except for commercial piers where the Mounting height shall be as low as practicable but in no case shall the fixture be mounted higher than 15 feet above the lowest platform of the pier.

(4) Unshielded light sources (including but not limited to festive light strands, fluorescent, high intensity discharge, and neon) used to outline private piers and docks are prohibited except as specified per Section 155.9.8 General Lighting Regulations (D)(2).

(5) Underwater fishing and decorative lights attached to piers, docks, docked boats, or land are prohibited in all zoning districts.

(E) *Flashing Lights*. Flashing, intermittently illuminated, or moving lights are prohibited in all districts. For electronic signs, refer to Section 155.10.2 Exempt Signs. *Safety*.

(1) No lighting fixture or device may be operated in such a manner as to constitute a hazard or danger to persons, or to the safe operation and navigation of vehicles or watercraft.

(F) *Lighting Review*.

(1) Before a Certificate of Occupancy is issued, the exterior lighting shall undergo review and approval by the Zoning Administrator as part of the final zoning inspection to ensure compliance with Part III Outdoor Lighting.

### **Section 155.9.9 Residential Lighting Regulations**

*Lighting Permitted in Required Open Spaces.*

(1) Landscaping and decorative lighting with a maximum of 300 lumens or its equivalent in a low-voltage system are allowed, on condition that these lights are positioned and directed to prevent up-lighting and light trespass onto neighboring areas. Additionally, these fixtures shall be shielded to prevent the light source from being visible from any public right-of-way.

(2) A Lighting plan (cut sheet/graphic) shall be submitted for review before the issuance of a zoning permit for new construction.

### **Section 155.9.10 Commercial Exterior Lighting.**

(A) *General*.

The provisions of this section apply to all buildings and uses within the Town's Commercial and Public/Semi-Public Zoning Districts and to any non-conforming nonresidential uses in other zoning districts.

(1) All lighting fixtures must use light sources with a color temperature not exceeding 3,000 Kelvin. This requirement does not apply to lighting fixtures used in sports fields.

(2) All lighting fixtures used for the purpose of illuminating parking lots and driveways shall be full cut-off fixtures.

(3) Exterior building lights may be mounted at ground level, or wall-mounted, provided that:

(a) All light fixtures, regardless of their mounting, are accurately aimed and equipped with full cut-off or shielding to contain the light within the building area and prevent light trespass and up-lighting.

(b) Wall-mounted light fixtures should not be installed higher than 10 feet above grade. The fixtures must utilize full cut-off or shielding and be positioned to prevent up-lighting.

(c) Ground-mounted fixtures are required to be installed to prevent up-lighting.

(d) The maximum mounting height for pole-mounted fixtures intended to illuminate parking lots is 18 feet measured from grade.

(4) A photometric plan shall be submitted for all commercial parking lots for review before the issuance of a zoning permit.

*(B) Outdoor Parking Lots, Outdoor Storage, Outdoor Display Areas and Driveways.*

All illumination of parking lots, outdoor storage and display areas and commercial driveways shall comply with the intensities and uniformity ratios in Section 155.9.15 or by the standard within this section whichever is more stringent.

*(C) Parking Garages.*

(1) Lighting located inside the structure shall be full cutoff or shielded by the structure, shield, visor, hood, or louvers in a manner that contains light glare, and prevents light trespass.

(2) The illumination level of interior lighting that is visible from the exterior of the structure shall comply with the intensities and uniformity ratios in Section 155.9.15.

*(D) Outdoor Sports Fields*

The maximum mounting height for pole-mounted fixtures intended to illuminate Outdoor sports fields is 60 feet measured from grade.

*(E) Landscaping and Decorative Lighting*

Landscaping and decorative lighting with a maximum of 300 lumens or its equivalent in a low-voltage system are allowed, on condition that these lights are positioned and directed to prevent up-lighting and light trespass onto neighboring areas. Additionally, these fixtures shall be shielded to prevent the light source from being visible from any public right-of-way.

**Section 155.9.11 Photometric Plans.**

A photometric plan is a detailed document used in lighting design to illustrate the distribution, intensity, and projected impact of light emitted from an installation of commercial parking lots. Required photometric plans shall include the following:

- (1) Date of plan preparation.
- (2) Project name and description of land use.
- (3) Project owner and mailing address.
- (4) A map at a scale of 1" = 50' or less showing:
  - (a) Light Levels and Uniformity: detail the levels of illumination provided throughout the area. It shall include measurements in foot-candles to specify how much light falls on different areas.

(b) Fixture Details: Information about the lighting fixtures used, including the type, model, wattage, and any relevant technologies like motion sensors or dimming capabilities.

(c) Mounting Heights and Locations: The plan shall show where each lighting fixture is located and at what height they are mounted.

(d) Light Trespass and Spill Control: The plan shall detail how light trespass beyond the boundaries of the property is eliminated.

(e) Glare Reduction: The plan shall address potential glare issues, ensuring that lighting does not impair vision.

(f) Illuminance Diagrams: graphical representations showing the distribution of light on a horizontal plane, at ground level.

(g) Isolux Curves: curves on a diagram showing lines of equal light level. They depict how light intensity varies across the area.

### **Section 155.9.12 Sign Lighting.**

(A) Lighting of signs shall comply with the provisions of Article **155.9.9** In addition, the following requirements apply:

(1) Lighting fixtures used to illuminate on premise commercial signs must be mounted at the top of the sign structure and aimed in a manner to illuminate only the sign.

(2) The sign lighting fixture(s) must be fully-shielded to prevent glare, to prevent light trespass on neighboring properties and rights-of-way and to contain light so that it is projected below an horizontal plane extending through the fixture.

(3) The height of the sign lighting fixture shall be no greater than the maximum permitted height of the sign.

### **Section 155.9.13 Other Requirements.**

(A) The following are exempt from the requirements of this section:

(1) Situations where federal and state laws, rules and regulations take precedence;

(2) Location and operation of traffic control devices;

(3) Public monuments and flag lighting shall be installed to shield the lighting fixture from direct view to prevent up-lighting and light trespass.

### **Section 155.9.14 Nonconformities.**

(A) This section shall be effective immediately upon adoption by the Board of Aldermen of the Town and shall supersede and replace all previous ordinances pertaining to outdoor lighting.

(B) Any outdoor lighting not in conformity with the requirements of this Ordinance shall be removed or rendered in compliance with this Ordinance within 180 days of its adoption.

(1) Compliance with any newly enacted Beach Zone ordinance shall come into compliance within two (2) years of adoption of this ordinance.

(C) After the effective date of this Ordinance, any lighting system that replaces a lighting system not in conformity, or any lighting system that is moved, must meet the standards of this Ordinance.

(D) Non-conforming lighting systems that cause disability glare to motorists, cyclists, pedestrians, or that directs light toward public waters so as to cause disability glare to operators of watercraft shall be either fully-shielded as directed in this section or re-directed within 90 days of notification so that the lighting system does not cause a potential hazard to motorists, cyclists or watercraft operators.

Non-conforming lighting systems that cause light trespass or up-lighting which can be corrected by redirecting the fixture shall be re-directed to eliminate the trespass or up-lighting within 90 days of notification.

**Section 155.9.15 Maximum Illumination Standards.**

The figures in this table represent maximum levels of illumination for, parking lots, and building exteriors.

Commercial Zones	Horizontal Illuminance (Foot-candles)		Uniformity Ratio (Average to Minimum)
	Average	Minimum	
<b>Parking Lots</b>			
Standard (i.e., office, residential complex, or hotel)	2.0	0.5	4:1
Minor (i.e., neighborhood shopping, schools, or churches)	1.5	0.2	4:1
<b>Building Exteriors</b>			
Entrances, active and Canopy (pedestrian, conveyances)	15	5	3:1
Municipal and Public Buildings	5		

**Note:** Where conflict is found between the standards set forth in sections 155.9.7 through 155.9.14 and this section, the more conservative, lower illuminance standard will be the standard of choice. The method for measuring the uniformity ratio of lighting using a 10-foot grid involves setting up a grid of measurement points spaced 10 feet apart over the area where the lighting is to be evaluated. At each grid point, measure the illumination level using a light meter. Identify the minimum and maximum illumination levels recorded across all grid points. The uniformity ratio is calculated by dividing the minimum illumination level by the maximum illumination level (Min/Max).

# Revised Definitions

### **Definitions to be added Into Exhibit A**

**Lighting, Area** Lighting fixtures designed to provide broad and even illumination across a designated area, such as parking lots, walkways, or public spaces. These fixtures are characterized by their capacity to cast light over a wide expanse, contributing to enhanced visibility and safety within the illuminated zone.

**Lighting, Cumulative Use** The combined impact of multiple lighting fixtures within a given area. It involves considering the aggregate effects of various lighting sources on the overall visual environment, night sky, and surrounding community.

**Lighting, Cut sheet** A "cut sheet" refers to a detailed specification sheet provided by the manufacturer or contractor that describes the physical and operational characteristics of a lighting fixture.

**Lighting, Decorative** Light fixtures and installations intentionally designed for aesthetic enhancement rather than functional illumination. Such lighting elements are employed to augment the visual appeal of designated areas, including streets, public spaces, and buildings, by contributing to a specific ambiance or artistic atmosphere.

**Lighting, Flood Light or Spotlight** Any reflector-type light fixture attached directly to a building and left unshielded or any light fixture or lamp that incorporates a reflector or a refractor to concentrate the light output into a directed beam.

**Lighting, Foot-Candle** Illuminance produced on a surface as measured by a calibrated light meter; A unit of measure of the intensity of light falling on a surface, equal to one lumen per square foot. One foot-candle equals approximately 0.1 (0.093) lux; A measure of light falling upon a given surface One foot-candle is equal to one lumen per square foot;

**Lighting, Full Cut-Off Lights (a)** An outdoor light fixture that emits no light rays above the horizontal plane of the fixture.

**Lighting, Glare** Light emitted from a light fixture with intensity great enough to reduce a viewer's ability to see, and in extreme cases, causing momentary blindness; the eye's direct line-of-sight contact with a light source.

**Lighting, Holiday Lighting** Temporary seasonal lighting, in the nature of decorations, clearly incidental to and customarily associated with nationally recognized holidays.

**Lighting, Horizontal Illuminance** Light falling on a horizontal surface measured in foot-candles.

**Lighting, Indirect Illumination** Illuminated as a result of the glowing element(s), lamp(s), globe(s), or reflector(s) of an artificial light source that is not visible to an observer.

**Lighting, Kelvin (K)** Kelvin is a unit of measure used to describe the color temperature of a light source, indicating the hue emitted by a bulb. The Kelvin scale measures the apparent warmth

or coolness of the light, ranging from warm, yellowish tones at lower values (around 2000K to 3000K) to neutral and bright white tones in the mid-range (3100K to 4500K), extending to cool, bluish-white light at higher values (above 4600K). This specification is crucial in lighting ordinances to ensure consistent lighting aesthetics, appropriate ambiance for various settings, and to mitigate the environmental impact of lighting on human and ecological health.

**Lighting, Landscape** Outdoor lighting fixtures and installations specifically designed to enhance the visual appeal of outdoor spaces, such as gardens, lawns, pathways, or architectural features.

**Lighting, Light(ing)** Light emanating from any human-made device.

**Lighting, Light Source (Lamp)** Any light or lighting that directly radiates visible light; part of the fixture that produces actual light.

**Lighting, Light Trespass** Shining of light produced by a light fixture, other than a municipal streetlight on a public right-of-way, beyond the boundaries of the property on which it is located. A calibrated measurement above 0.1 foot-candles on the receiving property (the property of the person complaining of the trespass) is "light trespass." The measurement is made at adult eye level five feet within the boundary of the receiving property with a calibrated light meter.

**Lighting, Lumen** Total quantity of light produced by a light source, according to the manufacturer's ratings. One foot-candle is one lumen per square foot.

**Lighting, Outdoor Lighting** Nighttime illumination of an outside area, object, or building by any fabricated device located outdoors or indoors that produces light by any means.

**Lighting, Pedestal Light** A "Pedestal Light" refers to a type of outdoor lighting fixture that is mounted on a pedestal, pole, or a short stand. These lights are designed to illuminate areas such as walkways, docks, and piers without projecting light upwards or causing excessive glare. They are used for safety and navigation along the pier and dock areas of waterfront locations.

**Lighting, Photometric Plan** a detailed document used in lighting design to illustrate the distribution, intensity, and projected impact of light emitted from an installation.

**Lighting, Recessed/Flush Mounted Lighting** A lighting fixture recessed into an outdoor ceiling or canopy so that its bottom is flush with the underside of the structure; a fixture mounted above the ceiling with the opening, lens, or cover of the fixture recessed or level with the ceiling surface whereby all light is emitted below the horizontal plane.

**Lighting, Shielding** A design feature or a device that is applied to a light fixture or to a structure on which a light fixture is mounted to prevent its light output from being visible from selected locations or horizontal and/or vertical angles.

**Lighting, Sign, Searchlight (Beacon)** Searchlights shall be considered signs that are used to announce, direct attention to, or advertise businesses.

**Lighting, Streetlight** Any pole light located within the public right of way.

**Lighting, Underwater Fishing Light** An underwater fishing light refers to any artificial lighting device designed and utilized to attract aquatic life or for decorative purposes by submerging it in water. These devices include both portable and fixed units that operate by emitting light of various spectra and intensities directly into the water. Their primary function may be to enhance the visibility of aquatic organisms for capture or to aesthetically enhance underwater environments.

**Lighting, Uniformity Ratio** the "Uniformity Ratio" refers to a measure that assesses the evenness of lighting distribution across a designated area. It is expressed as a ratio or percentage, indicating the balance between the brightest and dimmest areas of illumination in a given space.

1. *Maximum to Minimum Uniformity Ratio:* This ratio is used to describe how the brightest spot of light compares to the darkest spot within the same area. For example, 40:1, means the brightest point should not be more than 40 times brighter than the darkest point.

2. *Average to Minimum Uniformity Ratio:* This ratio compares the average level of illumination across an area to the minimum illumination in that area. For instance, a ratio of 4:1 would mean that the average lighting level should not exceed four times the minimum level.

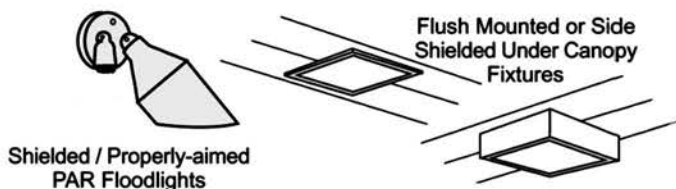
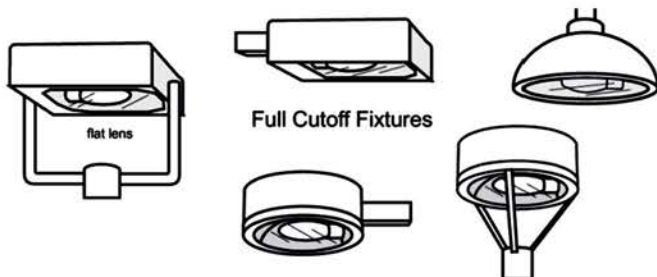
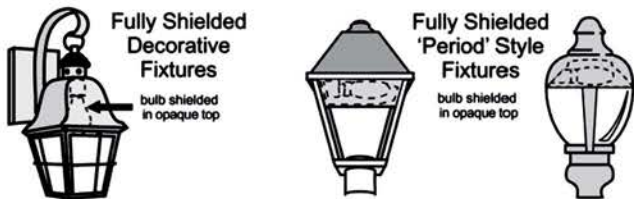
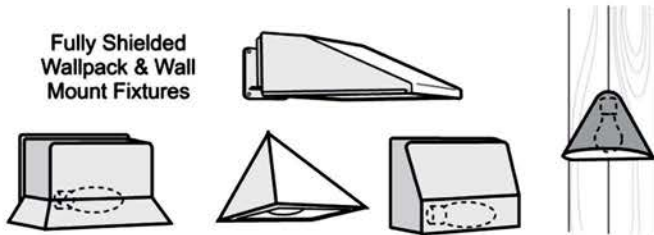
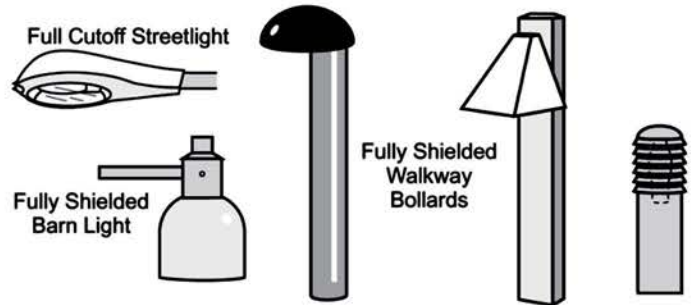
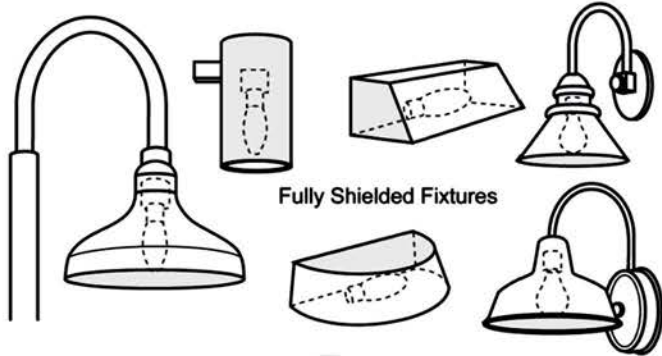
**Lighting, Unshielded Light Source** A lighting fixture or luminaire that emits light in a manner that allows a significant portion of the light to be directed above the horizontal plane.

**Lighting, Up-Lighting** Any lighting fixture that directly or indirectly projects light above the horizontal plane of a 90-degree angle passing through the lowest point of the lighting fixture's Full cutoff

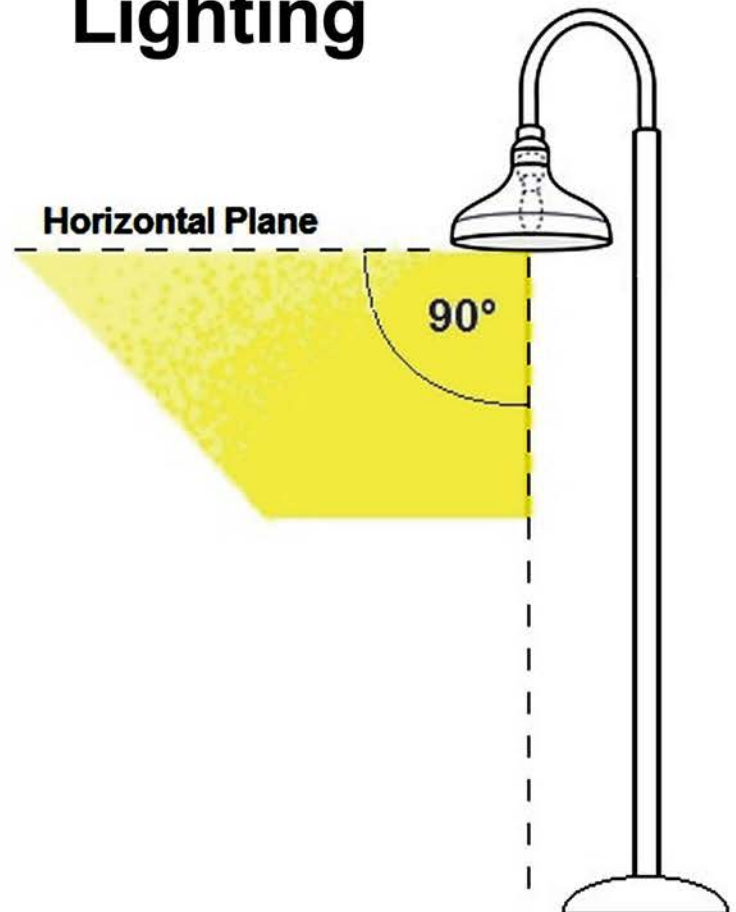
**Lighting, Vertical Illuminance** Light falling on a vertical surface measured in foot-candles.

# New Illustrations

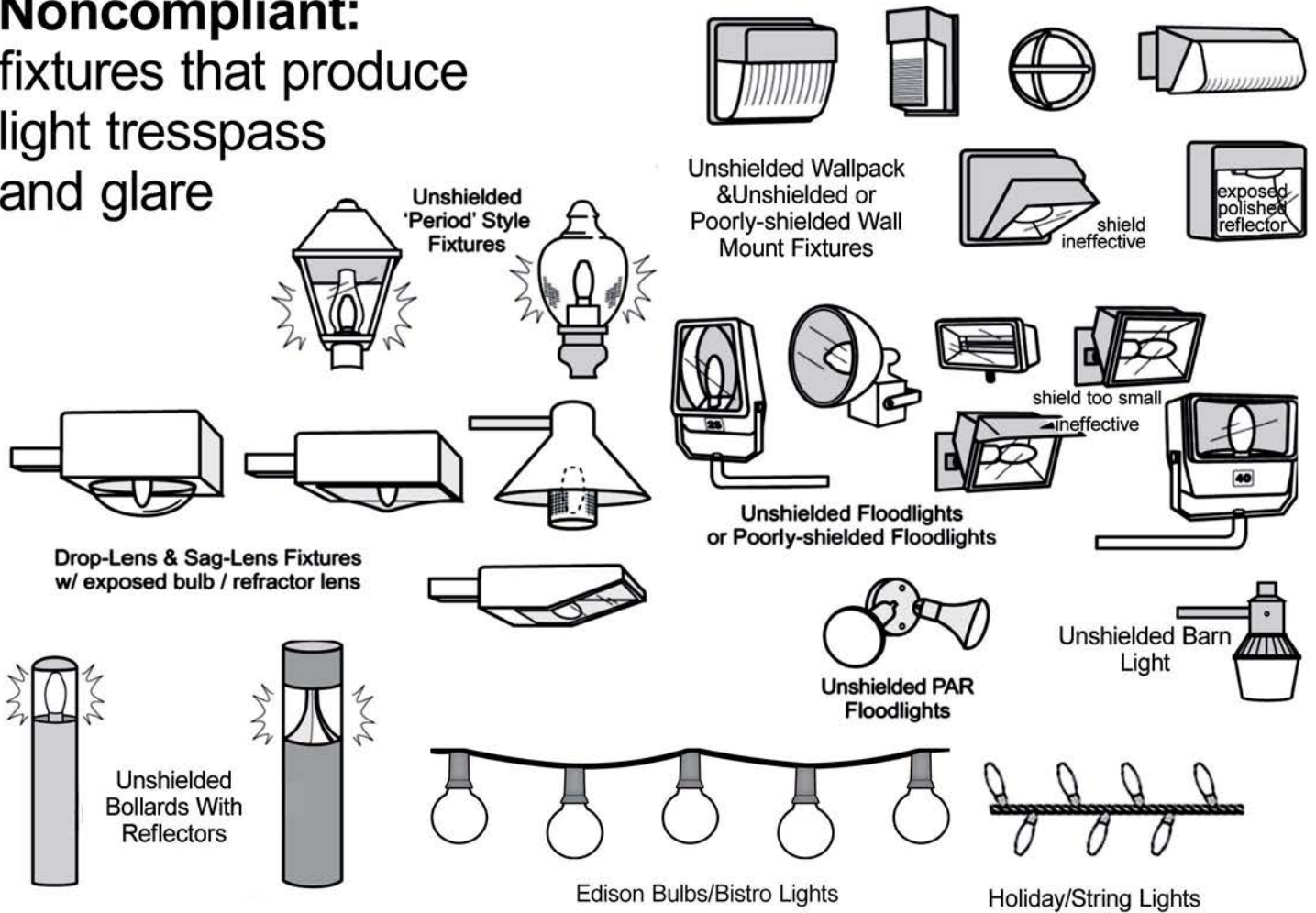
# Compliant: Fixtures that shield the light source to minimize glare and light trespass and to facilitate better vision at night



## Compliant Lighting



# Noncompliant: fixtures that produce light trespass and glare



# Noncompliant Fixtures

