

12.0 LIGHTING

12.1 Applicability

1. A permit for the construction, reconstruction, or expansion of any structure or use of land shall be issued only if the site plan (or construction plan) is in compliance with the requirements of this chapter.
2. Routine maintenance, including changing the lamp, ballast, starter, photo control, lens and other required components, is allowed for all existing fixtures.
3. When a building or site is renovated, any new or replaced outdoor lighting fixtures must conform to the requirements of this Code.

12.2 Light Level Measuring

1. Light levels are designed, calculated and measured in footcandles. All footcandle values are maintained footcandles, and shall be tested 100 hours after first being turned on.
2. Measurements are to be made at ground level, with the light-sensor portion of the meter lying flat on the ground, pointing upward.

12.3 General Exemptions

1. Emergency lighting: Lighting required for public safety in the reasonable determination of public safety officials with authority.
2. Decorative lighting: Low-wattage fixtures (comprised of incandescent bulbs of less than eight [8] watts each or other lamps of output less than one hundred [100] lumens each) used for holiday decorations.

12.4 Prohibited Sources

The following light fixtures and sources shall not be used:

1. Searchlights or laser source lights used for any advertising purpose.
2. Light sources that lack color correction (less than 70 CRI) or do not allow for uniform site lighting.

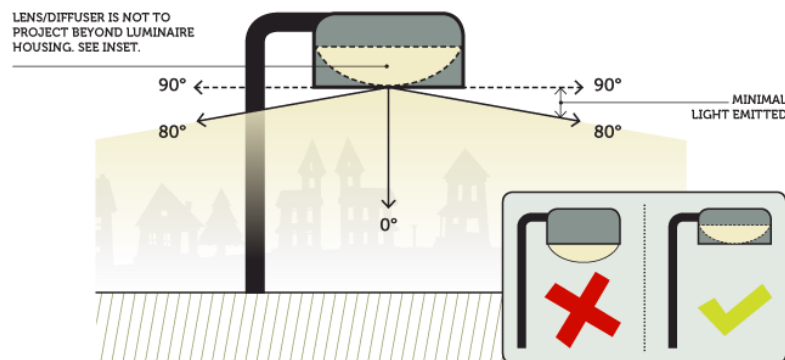
3. Flashing, revolving, or intermittent exterior lighting visible from any property line or street.

12.5 Design & Installation Requirements

1. The maximum light level shall not exceed 1.0 footcandle measured at the property line of any residential district and 2.0 footcandles measured at the right-of-way line of a street or non-residential property line.
2. Lighting shall not be oriented towards adjacent properties, streets, or sidewalks.
3. Service and distribution connections for all new freestanding lighting fixtures must be installed underground.

12.6 General Standards for Lighting Fixtures

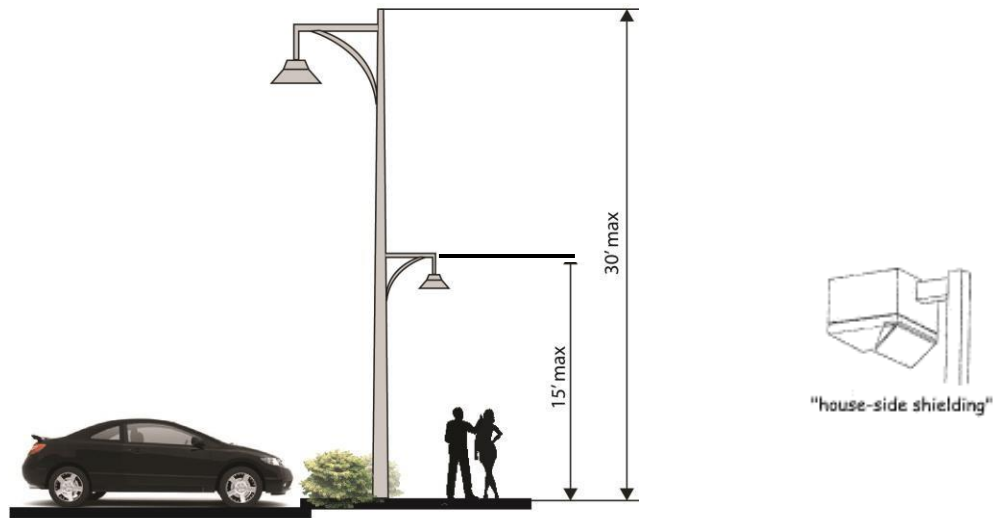
1. All light fixtures must be full cutoff, except, however, non-cutoff (unshielded) fixtures can be used when the maximum initial lumens generated by each fixture is less than 5,000 initial lamp lumens.¹ These fixtures must feature globes or vertical glass planes and must be coated with an internal white frosting to diffuse light.



Example of Full Cutoff Fixture

2. Light fixtures within parking areas may be mounted no higher than 30 feet.
3. Light fixtures within pedestrian areas may be mounted no higher than ~~45~~ 18 feet.

¹Lumen is equal to one foot-candle falling on one square foot of area.



4. Light fixtures located within 50 feet of the property line of a residential district may be no higher than 15 feet unless equipped with shielding to meet the maximum allowed footcandles as measured at the property line.
5. Light fixtures shall be decorative in appearance. Wooden poles are prohibited.



12.7 Street Lighting

1. **Required Improvements:** The owner, developer, or subdivider of property shall install street lighting via underground distribution along all proposed streets and along all adjoining existing streets in conformance with utility company and the City of Belmont standards at the developer's expense.
2. **Design and maintenance:**
 - a. **Type:** Pedestrian-scale lighting that is no more than 18 feet in height shall be provided using decorative lighting fixtures.

- b. **Location:** The placement of street lighting fixtures in residential areas shall be at 140-160 foot intervals (300-500 foot intervals in the Rural Residential zones), and at each intersection. The placement of street lighting fixtures in commercial areas shall be 160 – 200 foot intervals and at each intersection.
- c. **Maintenance:** The City will accept responsibility of the lights at the time streets are accepted for maintenance and one-time decorative fees have been paid to the city or light provider.

12.8 Standards for Specific Uses

1. Vehicular Canopies: These canopies are often installed at gas stations and convenience stores.
 - a. Lighting under a vehicular canopy must be less than 24 maintained footcandles (average) and designed to prevent glare offsite.
 - b. Light fixtures mounted on canopies may be recessed so that the lens cover is recessed or flush with the bottom surface (ceiling) of the canopy or shielded by the fixture or edge of the canopy so that light is restrained to seventy (70) degrees or less from vertical.



Recessed gas station lighting on the left; non-recessed lighting on the right

2. Security and Display Lighting
 - a. Security lighting should utilize the lowest possible illumination in order to effectively allow proper surveillance.
 - b. The use of motion sensors, timers, photocells, or other means to activate lighting during times when it is needed as required to conserve energy, provide safety and promote compatibility between different land uses is permitted.
 - c. In order to direct light downward and minimize the amount of light spill from the light source, all security lighting fixtures shall be full cut-off fixtures as defined by the

Illuminating Engineering Society of North America (IESNA) or shielded at a minimum.

3. Recreational Facilities

- a. The mounting height of outdoor sports field and outdoor performance area lighting fixtures shall not exceed eighty (80) feet from finished grade.
- b. All outdoor sports field and outdoor performance area lighting fixtures shall be equipped with a glare control package (louvers, shields, visors or similar devices). The fixtures must be aimed so that their beams are directed and fall within the primary playing field or performance area.
- c. The hours of operation for the field lighting system for any game or event shall not exceed one (1) hour after the end of the event. The security and egress illumination lighting systems may remain turned on for any amount of time deemed necessary to remove people safely.
- d. Light levels for sports field illumination shall comply with, but not exceed, IESNA standards. Where new sporting facility lighting is installed adjacent to an existing residential property, the intent shall be made for all installations to limit property line light levels to a maximum of two (2) footcandles at grade level. When not installed adjacent to a residential property, light levels at the property line shall not exceed four (4) footcandles at grade level. All possible means of shielding must be applied if this level has not been met. Owner must prove to the planning department that these means have been exhausted, and the intent has been made to meet these goals.

12.9 Compliance

1. A photometric site plan and cut sheets for all proposed exterior fixtures shall be included with the required application for a site plan. Information to be submitted shall include:
 - a. A photometric diagram showing predicted levels of maintained lighting from the proposed fixtures.
 - b. The location and height of all lighting poles, building mounted lighting fixtures, and ground-mounted lighting fixtures.
 - c. The zoning district classifications of all properties abutting the site.
 - d. The manufacturer's product descriptions showing that the proposed lighting fixture (s) meets the requirements of the code.
 - e. Manufacturer data shall include the wattage and lumen output of all new lighting fixtures.