

B&H ENGINEERS
CONSULTING ELECTRICAL, MECHANICAL, & PLUMBING ENGINEERS
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CLEARVIEW MARKET AND GAS STATION
4815 YUCATAN DRIVE
COLORADO SPRINGS, CO 80911
EL PASO COUNTY

B&H ENGINEERS
PHOTO METRIC PLAN
PM1

GENERAL NOTES

1. ALL WORK SHALL BE DONE IN COMPLIANCE WITH 2017 NEC, IBC 2015, 2015 IECC, 2017 PPRBC, 2015 IMC, 2015 IPC, AND ALL OTHER LOCAL CODES.

2. ELECTRICAL CONTRACTOR SHALL VISIT SITE AND EXAMINE DRAWINGS OF OTHER TRADES ON THIS PROJECT, ARCHITECTURAL AND MECHANICAL, TO DETERMINE ANY ADDITIONAL WORK THAT MAY BE REQUIRED FOR A COMPLETE AND OPERATIONAL ELECTRICAL INSTALLATION AND SHALL INCLUDE AN ALLOWANCE FOR THIS WORK IN HIS BID.

3. CONTRACTOR SHALL BE HELD RESPONSIBLE FOR VERIFICATION OF EXISTING JOB CONDITIONS PRIOR TO BID. NO ADDITIONAL COSTS SHALL BE AWARDED TO THE SUCCESSFUL CONTRACTOR OR HIS SUBCONTRACTORS.

4. THE CONDUIT SYSTEM AND ALL CONDUCTING WIRE ENCLOSURES SHALL BE SECURELY BONDED TOGETHER.

5. LAND DEVELOPMENT STANDARDS:

6.2.3. Lighting

(A) General

(1) Purpose

The purpose of this Section is to address the physical effects of lighting, and the affect that lighting may have on the surrounding neighborhood.

(2) Applicability

This Section applies in all zoning districts, except as otherwise provided.

(3) Existing Lighting Allowed

Lighting existing at the time of adoption of this Section is not required to be modified to conform to this Section.

(4) Lighting Plan to Reflect Standards

A lighting plan for meeting these standards shall be submitted in accordance with submittal requirements for lighting plans described in the Procedures Manual.

(B) Design Standards and Requirements

(1) Limitations on Extent of Lighted Area

(a) Concealed or Shielded

Light fixtures shall be arranged and positioned such that the light sources are concealed and fully shielded so that no direct light or reflection creates a nuisance or hazard to any adjacent ownership or right-of-way and that up-light, spill-light, glare, and unnecessary diffusion are minimized. Light fixtures, except as otherwise permitted herein, are required to be full cutoff as defined by the Illuminating Engineers Society of North America (IESNA) The cut-off angle of an exterior light source shall not exceed 90 degrees. Full cut-off fixtures may not be tilted or aimed in a manner that results in light distribution above the horizontal plane. The use of semi-cutoff or cutoff (as opposed to full cutoff) fixtures shall be permitted to illuminate areas other than parking lots provided the pole or mounting point is no more than 10' in height and the maximum lumen output does not exceed 1800 lumens per lamp.

(b) Non-Security Lighting During Non-Operating Hours

Exterior lighting, including but not limited to floodlights used to light a building façade, shall be reduced, activated by motion sensor devices, or turned off during the principal use's non-operating hours. Lighting necessary for security shall not be subject to this provision.

(c) Upward Lighting

Upward lighting for architectural, landscape or decorative purposes shall have at least 90% of the total distribution pattern within the profile of the illuminated structure or feature. Light fixtures used to illuminate flags, statues, or any other objects mounted on a pole, pedestal, or platform, shall use a narrow cone of light that does not extend beyond the illuminated object.

(d) Maximum Levels

Maximum on-site lighting levels shall not exceed 10 foot candles, except for loading and unloading platforms where the maximum lighting level shall be 20 foot candles.

(e) Measurement at Property Boundaries

Light levels measured at the property line of the development site adjacent to residential property or public right of way shall not exceed 0.1 foot candles as a direct result of the on-site lighting. All light fixtures mounted within 15' of any residential property line of the site shall be classified as IES Type II or Type III, or fixture demonstrated to provide similar distribution patterns and shielding properties. Fixtures shall be fitted with "house side shield" reflectors on the sides facing the residential property line.

(f) Light Standards and Fixtures

The style of light standards and fixtures shall be consistent with the style and character of architecture proposed on the site. Poles shall be anodized or coated to minimize glare from the light source. Ballards or similar light fixtures intended to illuminate landscape features or walkways are permitted which do not exceed 4 feet in height, 2 fixtures per ballard and 1 lamp not exceeding 900 lumens per fixture.

(g) Lamp Types

All outdoor light fixtures should utilize one of the following lamp types: metal halide, induction lamp, compact fluorescent, incandescent (including tungsten-halogen), or high-pressure sodium. Alternatives are permitted provided they are demonstrated to be more effective for the proposed use based on IESNA recommendations.

(h) Canopy Lighting

Light fixtures associated with canopies, including but not limited to fuel islands, seasonal outdoor sales areas, shopping malls, theaters, bank drive-thrus, and hotels shall be full cutoff or mounted so that the bottom of the lens is recessed or flush with the bottom surface of the canopy. All light emitted from the canopy shall be substantially confined to the ground directly beneath the perimeter of the canopy. No lighting of any kind, except as permitted by sign regulations, shall be allowed on the top or sides of a canopy. The design of the canopy in terms of height above grade, and the spacing between the fixtures within the canopy, shall be such that the illuminance level under the canopy does not exceed 20 foot-candles.

(i) Consideration of Pilots

No lighting shall make it difficult for pilots to distinguish airport lights from others, result in glare in the eyes of the pilots using an aviation facility, impair visibility in the vicinity of an aviation facility or, in any way create a hazard or endanger the landing, take-off, or maneuvering of aircrafts intending to use an aviation facility.

(2) Height

No freestanding light fixtures shall be mounted higher than 15 feet, except parking lot light fixtures which shall be mounted no higher than 20 feet unless an alternative lighting proposal is approved in accordance with this Code.

(3) Requirements for Outdoor Recreation Facilities

Ball diamonds, playing fields, tennis courts, and other outdoor recreational uses shall be required to meet the following standards:

(a) Maximum Pole Height

The maximum light pole height shall be 80 feet.

(b) Cut-Off Angle

The cut-off angle from a lighting source that illuminates an outdoor recreational use may exceed 90 degrees provided the light source is shielded to prevent light and glare from spilling to adjacent residential properties.

(c) Hours of Use

Exterior lighting for an outdoor recreational use shall be extinguished no later than 10:00 p.m. or immediately after the conclusion of the final event of the day, whichever is later.

(C) Prohibited Lighting

The following are considered prohibited lighting:

Site lighting that may be confused with warning, emergency or traffic signals, except as authorized by a federal, State or County government;

Any fixed light not designed for roadway illumination that produces incident or reflected light that could be disturbing to the operator of a vehicle;

Blinking, flashing or changing intensity lights and lighted signs, except for temporary holiday displays or lighting required by the FAA for air traffic control and warning purposes;

The use of laser source light or any similar high intensity light for outdoor advertising or entertainment when projected above the horizontal;

The private operation of searchlights; and

The nighttime use of white lighting or white strobe lighting in communication tower lighting.

(D) Exemptions

The following lighting shall be exempt from the requirements of this Section:

Holiday lights in the nature of decorations, clearly incidental and customary and commonly associated with any national, local or religious holiday. Holiday lights may be of any type, number, area, height, location, illumination or animation, except that they shall not produce incident or reflected light that may be confused with or construed as a traffic control device;

Any lighting required by the FAA for air traffic control, navigation, and warning purposes;

Emergency lighting as required by law enforcement or emergency services personnel to protect life or property provided the lighting is temporary and is discontinued immediately on attainment of the emergency necessitating the lighting;

Road lighting;

Construction lighting provided the lighting is temporary and is discontinued immediately on completion of the construction work;

Traffic control signals and devices;

Vehicular lights;

Temporary use of low wattage or low voltage lighting for public festivals, celebrations, and carnivals approved as a temporary use; and

Single family residential lighting, except as prohibited herein

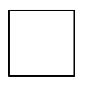

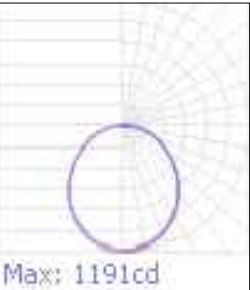
(E) Alternative Lighting Proposal


(1) Authority

The PCD Director may approve a proposal that offers an alternative approach for meeting the standards of this Section. A lighting plan proposing an alternative approach for meeting these standards shall be submitted in accordance with submittal requirements for lighting plans described in the Procedures Manual. The plan shall clearly identify and discuss the modifications and alternatives proposed and describe how the proposal would better accomplish the purpose of this Section.

(2) Review Criteria


The PCD Director shall find the alternative lighting proposal accomplishes the purposes of this Section as well as a lighting plan that complies with this Section. The PCD Director will consider the extent to which the proposed design protects natural areas from light intrusion; how it enhances neighborhood continuity and connectivity; how it fosters non-vehicular access; and how it demonstrates innovative design and use of fixtures or other elements.

Schedule											
Symbol	Label	Image	Quantity	Manufacturer	Catalog Number	Description	Number Lamps	Lumens Per Lamp	Light Loss Factor	Wattage	Plot
	A		10	Lithonia Lighting	CNY LED P0 50K MVD	CNY LED Canopy P0=3,500lm	108	3473	1	26.4	

Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #1		0.2 fc	9.9 fc	0.0 fc	N/A	N/A

CS

CONTRACTOR SELECT™




Contractor Select™

OFM LED

Canopy

The OFM LED canopy luminaire is a versatile and energy efficient solution for replacing 150W HID luminaires. Delivering up to 4,200 lumens using a modest 47 input watts, OFM LED provides a great, cost effective solution with an efficacy of 89 lumens per watt.



FEATURES:

Replaces up to 150W HID lamps, saves 90% energy

Cost effective and energy efficient, Payback within two years


Expected service life over 10 years - no maintenance costs and hassles

Catalog Number	UPC	Description	Replaces Up To	Lumens	Wattage	CCT	Voltage	Finish	Pallet qty.
OFM LED P1 50K MVOLT DOB HP17 M4	190887667011	CANOPY LUMINAIRE	150W HID	4,200	47W	5000K	120-277V	DARK BRONZE	96

More configurations are available. [Click here](#) or visit [www.acuitybrands.com](#) and search for OFM LED.

CS

CONTRACTOR SELECT™



Specifications

INTENDED USE:

47 watt LED canopy light delivers 4,200 lumens for an energy-efficient replacement of 150W MH canopy/ceiling lights. Traditional style maintains current building aesthetics. The OFM LED provides years of maintenance-free general illumination for outdoor applications. Ideal for entrances, parking areas, covered walkways and loading docks.

CONSTRUCTION:

Rugged cast aluminum, corrosion-resistant housing with bronze polyester powder paint for lasting durability. Castings are sealed with a one-piece gasket to inhibit the entrance of external contaminants. Rated for outdoor installations, 40°C minimum ambient. Acrylic lens is designed for uniform light distribution. OFM LED is IP65 rated.

ELECTRICAL:

OFM LED delivers 4,200 lumens. Includes an MVOLT (120-277V) driver. LEDs maintain 72% of light output at 100,000 hours of service life (L84/100,000 hours).

INSTALLATION:

Mounts to a recessed junction box or surface mount with three conduit entry points. Can be pendant mounted with ¾ NPT pendant stem provided by others.

LISTINGS:

UL Listed to U.S. and Canadian safety standards for wet locations. Tested in accordance with IESNA LM-79 and LM-80 standards. DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at [www.designlights.org/DQL](#) to confirm which versions are qualified.

WARRANTY:

5-year limited warranty. Complete warranty terms located at: [www.acuitybrands.com/CustomersResources/terms_and_conditions.aspx](#)

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Dimensions

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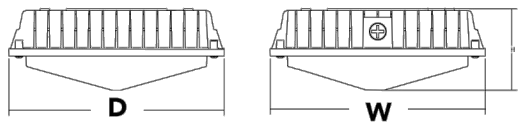
Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Width: 10" (25.4 cm)

Height: 4" (10.16 cm)

Depth: 10" (25.4 cm)

Weight: 4.25lbs (1.93kg)



All dimensions are inches (centimeters) unless otherwise indicated.

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CONTRACTOR SELECT™ OFM LED

REGISTERED PROFESSIONAL ENGINEER
20781
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STATE OF COLORADO
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REVISION/DATE

DATE: JOB NO. DRAWN BY: B&H CHECKED BY: B.P.

FILE NAME

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PM2