

LIGHTING DESIGN SUPPLEMENT

The purpose of the Lighting section is to allow reasonable outdoor lighting while minimizing adverse impacts, improving views of the night sky, and conserving energy. Much of this section in the new LUDC was adapted to our community from the Model Lighting Ordinance developed in 2011 by the Illuminating Engineering Society and the International Dark Sky Association. The section applies to all outdoor lighting newly installed or replaced after July 1, 2014.

Lighting Zones Established

In order to ensure that the amount of lighting on a site fits the context of that site, Lighting Zones that correspond to the existing zoning districts have been adopted. The intensity of lighting allowed is designed to fit with the land uses allowed in each district. The five Lighting Zones range from 'No Ambient Lighting' to 'High Ambient Lighting'. Each zone specifies a maximum amount of lumens that can be used on a site.

Off-Site Impacts Managed

Through maximum lumen allowances, guidance on orientation, screening, and shielding, and limitations on backlight, uplight, and glare (BUG), impacts of lighting on adjacent properties and the community as a whole are proactively managed. The new standards review proposed lighting in a comprehensive manner so that any potential off-site impacts can be identified and mitigated.

Clear, Performance-Based Standards

The lighting standards use the most up-to-date measurement standards and techniques available. There are options for showing compliance with the adopted lighting standards. The simplest way is using the manufacturer's rating on the packing for new light fixtures. More detailed options are available for larger projects utilizing experienced lighting engineers. These options minimize costs to property owners and developers while also ensuring that performance standards are met.

"The Model Lighting Ordinance will allow communities to drastically reduce light pollution and glare and lower excessive light levels. The recommended practices...can be met using readily available, reasonably priced lighting equipment."

- Illuminating Engineering Society's
Model Lighting Ordinance



The lighting of properties and buildings dramatically affects the appearance of a community.

Section 4-3-2 Lighting

Available at:
<http://www.zoningplus.com/regs/durango/doc-viewer.aspx?secid=1207#secid-350>

For more information on this section or any part of the new Land Use & Development Code, please contact the City of Durango Community Development Department at (970) 375-4850 or comdev@durangogov.org.

As you design lighting for your site, this worksheet is intended to help you walk through the lighting standards in the City of Durango's Land Use and Development Code. Lighting Plans must show compliance with the adopted lighting standards in LUDC Section 4-3-2.

LIGHTING WORKSHEET

1. Determine the Lighting Zone for your site.

Zoning	Lighting Zone
EN/EN-MF, RL, RM, RH, MU-N, RA, PB, & some PD	LZ1
CB, MU-A, CG, BP, LI, some PD, some RM, & some RH	LZ2
CR and some PD	LZ3
Very limited situations (Check with Planning staff)	LZ4 and LZ0



Lighting Zone for the Site

2. Find:

- a. # of Parking Spaces _____
- b. SF of Hardscape _____
- c. Linear Feet of Hardscape Perimeter _____

3. Decide which one (1) of three (3) ways to use to determine Total Lumen Allowance.

a. **Parking Space Method** (only allowed on sites with ten (10) spaces or fewer)

# of Parking Spaces	Lumens per Space in the Zone (LZ1: 700, LZ2: 900, LZ3: 1,200)	Total Lumen Allowance
X		=

b. **Hardscape Method**

SF of Hardscape	Lumens per SF in the Zone (LZ1: 2.5, LZ2: 4, LZ3: 8)	Total Lumen Allowance
X		=

c. **Performance Method**

Overall Site Allowance (LZ1: 22K, LZ2: 33K, LZ3: 55K)	Lumens per SF of Hardscape in the Zone (LZ1: 2, LZ2: 3, LZ3: 7)	Lumens per LF of Hardscape Perimeter in the Zone (LZ1: 20, LZ2: 30, LZ3: 65)	Total Lumen Allowance
+	+		=

4. If you are proposing any of the following, you may be eligible for additional lumens. Mark which features you are proposing and review the Additional Lumen Allowances from Table 4-3-2-3C.

Location or Type of Lighting Feature	Proposed?	Location or Type of Lighting Feature	Proposed?
Luminaire at Building Entrance		Outdoor Dining	
Building Facade Lighting		Light Automobile Service / Fueling Station Hardscape	
Outdoor Sales Lot Lighting		Light Automobile Service / Fueling Station Canopies	
Hardscape Ornamental Lighting		Fueling Station Fuel Dispensers	
Drive-Through Windows		All Other Sales Canopies	
Guard Stations		Non-Sales Canopies	

TOTAL ADDITIONAL LUMENS =

5. Calculate the Total Lumen Allowance for the Site by adding the 'Additional Lumen Allowance' from Step 4 with the preferred 'Total Lumen Allowance' from Step 3.



Total Lumen Allowance for the Site

6. Provide the manufacturer's Initial Lamp Lumens for all proposed lighting features on the submitted Lighting Plan.

LIGHTING WORKSHEET (continued)

Off-Site Impacts, Controls, and Curfew

1. Required Orientation

- a. All fixtures must be oriented, shielded, screened such that the source of light is not visible from off-site.
- b. All fixtures less than two mounting heights to a property line shall have their backlight directed towards the property line.
- c. Adjustable mounts are not allowed.

2. Performance Measurement

All Lighting Plans must show compliance using one (1) of the following two (2) performance measurement systems related to off-site impacts.

- a. Tabular Alternative Performance Measure: This table uses the industry standard backlight, uplight, and glare (BUG) rating developed by the Illuminating Engineering Society (IES). The table gives maximum BUG Ratings by Type, Location, and Lighting Zone. BUG Ratings are typically provided on manufacturer's specification sheets. If using this method, provide all BUG ratings for proposed fixtures as part of the submitted Lighting Plan.

Table 4-3-2-4 Maximum BUG Ratings by Type, Location, and Lighting Zone			
Mount Type; Distance from Property Line to Fixture	BUG Rating by Lighting Zone		
	LZ1	LZ2	LZ3
Allowed Backlight ("B") Rating			
Any mount type; more than 2 x mounting height	B3	B4	B5
Any mount type; 1 to 2 x mounting height	B2	B3	B4
Any mount type; 0.5 to 0.99 x mounting height	B1	B2	B3
Any mount type; less than (0.5 x mounting height to right-of-way property line, plus 2.5 ft.)	B0	B1	B2
Any mount type; less than 0.5 x mounting height to interior property line	B0	B0	B1
Allowed Uplight ("U") Rating			
Any mount type; any distance to property line	U0	U1	U2
Allowed Glare ("G") Rating			
All luminaires that are not building-mounted	G1	G2	G3
Building mounted; More than 2 x mounting height	G1	G2	G3
Building mounted; 1 to 2 x mounting height	G0	G1	G1
Building mounted; 0.5 to 0.99 x mounting height	G0	G0	G1
Building mounted; Less than 0.5 x mounting height to property line	G0	G0	G0

- b. Modeling Alternative Performance Measure: This alternative requires that the entire outdoor lighting design be analyzed using industry standard lighting software. This option will typically be for larger, complex projects.

3. Controls and Curfew

- a. All outdoor lighting (except lighting under canopies, parking structure lighting, and certain event/athletic venues) shall be controlled by automatic switches, such as photoelectric switches or astronomic time switches, that turn lights off during daylight hours.
- b. All lighting except residential lighting, code-required lighting for steps, walkways, and entrances, and motion sensor lights, must be dimmed by at least 30 percent or extinguished at the assigned lighting curfew. The curfew is 11:00 PM for 24-hour businesses and one-hour after close of business for all other facilities.

A process has also been established to issue specialty lighting permits for complex and special purpose lighting. These will be considered in very rare circumstances.

Staff in the City of Durango's Community Development Department are happy to help you complete this worksheet and answer any questions you may have. Please e-mail commdev@durangogov.org or call (970) 375-4850 if you need assistance.

**Table 4-3-2-3C
Additional Lumen Allowances**

			Initial Lumens by Lighting Zone		
Location or Type of Luminaire	Allowance Available If	Measurement Unit	LZ1	LZ2	LZ3
Luminaire at Building Entrance	Luminaire is located within 20 feet of Building Entrance or Exit, or within 100 feet of Building Entrance or Exit of Police, Fire, EMT, or Nursing Home facility	Total Lumens	2,000	4,000	6,000
Building Facade Lighting	Luminaires must face facade, illuminate it without obstruction, and may not spill over into other areas	Lumens per sf. of Facade Plane	0	12	25
Outdoor Sales Lot Lighting	Lights are located on parcel proposed for development within 30 feet of sales lot area, which does not include parking, driveways, and areas not used for sales	Base Allowance, Plus Lumens per sf. of Sales Lot Area	10,000 + 10 psf.	10,000 + 40 psf.	10,000 + 60 psf.
Hardscape Ornamental Lighting	Luminaires are 1,000 initial lumens or less	Lumens per sf. of Illuminated Hardscape	0	1.2 psf.	2.4 psf.
Drive-Through Windows	Luminaires are within 20 feet of the center of the window	Lumens per Drive-Through Window	2,700	4,000	8,000
Guard Stations	Luminaires are within 40 feet of vehicle lane or guard station	Lumens per (sf. of Guard Station + 2,000 sf. per Vehicle Lane)	10	25	50
Outdoor Dining	Luminaires are within 30 feet of the hardscape used for outdoor dining	Lumens per sf. of hardscape area used for outdoor dining	1	10	15
Light Automobile Service / Fueling Station Hardscape	Luminaires must be illuminating hardscape area, and must not be within a building, below a canopy, beyond property lines, or obstructed by a sign or other structure	Lumens per sf. of hardscape area that is not building, under canopy, off property, or obstructed by signs or other structures	5	10	25
Light Automobile Service / Fueling Station Canopies	Luminaires are located under the canopy and are not visible from abutting properties or public rights-of-way	Lumens per sf. of Area within Drip Line of Canopy	30	60	80
Fueling Station Fuel Dispensers	Luminaires are within two mounting heights of dispensers	Lumens per fueling side (2 maximum) per dispenser	7,500	15,000	20,000
All Other Sales Canopies	Luminaires are located under the canopy and are not visible from abutting properties or public rights-of-way	Lumens per sf. of Area within Drip Line of Canopy	10	40	65
Non-Sales Canopies	Luminaires are located under the canopy and are not visible from abutting properties or public rights-of-way	Lumens per sf. of Area within Drip Line of Canopy	5	13	25