## *Lighting Types & Techniques*





Architectural and landscape elements become visually dramatic features when illuminated from below. Uplighting is the most common technique used to accent key focal points in the landscape and to create shadows on walls.



Downlighting is illuminating an object or surface from above. Downlighting can be used to highlight specific garden elements and functional areas. Also used for illuminating large spaces for safety, security or recreational purposes.



Area lighting is used to enhance flower beds and also safely illuminate pathways. Area lights are often staggered and alternating from one side to another when used on a pathway.



Hardscape lighting enhances the colors and shapes of the hardscape area being lit. Most commonly used areas are block walls, seating areas or barbeques.





In the garden, a hanging light can be used to create the shadowing patterns of a moonlit night. This type of lighting is a subtle and natural effect, often using cool bluish LED lamps to create the look of natural moonlight.

## What Fixtures to Use



**Odyssey Series:** Big Bang, Pulsar, Nova, Apollo **Knights Series:** Bishop, Oxford, Valor, Guardian **Elements Series:** Nucleus, Transmittance

#### UP LIGHTING



*Odyssey Series:* Lunar, Quasar1, Comet *Knights Series:* Conquest, Crusader *Elements Series:* Nucleus, Photon (Particle Base needed)

#### DOWN LIGHTING



**Odyssey Series:** Centaurus, Mercury, Saturn **Knights Series:** Lancer, Illuminator, Cambridge **Elements Series:** Proton, Neutron, Fission

#### AREA LIGHTING



**Odyssey Series:** Apollo Star, Nova **Knights Series:** Noble, Windsor, Monarch **Elements Series:** Nucleus, Photon

#### GRAZE LIGHTING



*Odyssey Series:* Islander, Vanguard, Voyager *Knights Series:* Londoner, Sovereign *Elements Series:* Iso, Ion

#### HARDSCAPE LIGHTING



*Odyssey Series:* Starburst, Stellar, Nova *Knights Series:* Windsor, Monarch *Elements Series:* Transmittance

WALL WASHING



5825 Jasmine Street Riverside, CA 92504 www.uniquelighting.com

# UNIQUE LIGHTING SYSTEMS®



# Things to Know

## **Critical Three**

## 1. Test Primary Amperage:

- A. Use a true RMS Amp Clamp to measure 120 VAC amperage.
- B. 120 VAC Amp table: 150W......1.5 Amps 200W......1.7 Amps 300W......2.5 Amps 360W......3.0 Amps 500W......4.2 Amps
  - 600W......5.0 Amps 840W.....7.0 Amps 1120W......9.3 Amps

## 2. Test Secondary Amperage:

- A. Use a true RMS Amp Clamp to measure 120 VAC amperage.
- B. NEC states not to exceed 80% of rated electrical rating.

#### C. Wire table:

Wire Size	Max. Amps	Max. VA @80
14 AWG	16 Amp	192
12AWG	20 Amp	240
10 AWG	24 Amp	288

### 3. Test Secondary Voltage at HUB:

A. Test and adjust voltage at the transformer until point of connection (POC) voltage is at 12 VAC +/- .5 VAC.

## Ohm's Law

Amps = Watts ÷ Volts Watts = Volts x Amps

# Volt Amps

Calculate Volt Amps with this formula:

Lamp Watts \_\_\_\_\_ X 1.5 = \_\_\_\_ VA

Why do Volt Amps matter? Volt Amps are the blend of LED chips and driver draw. This value represents *true lamp watt draw.* 

# Voltage Drop

3 amps or 36 VA will drop 1 volt over 100 feet

Tap Needed: 13V



# **Designing The Job Right**

## 1. Test Secondary Amperage:

- A. Use transformer table to cross reference transformer size needed.
- B. Project total VA should NOT exceed 80% of the transformer max. amperage rating.

### 2. Calculate Voltage Drop for long runs and high-load HUBs

A. Start with the longest run and highest VA run.

**Example:** Longest run is 200' and has 105 VA. Voltage drop = 6, 12 VAC + 6V = 18V. The smallest transformer with an 18V tap is 840W.



# Design Services

The SDSP Program is a free design service ULS offers to landscape architects and lighting contactors.

- Complimentary design services
- Details and specifications included
- Wiring design and value engineering included



Example wiring design plan