



BUILDING YOUR

Landscape Lighting Business

FXLuminaire®

BUILDING YOUR

Landscape Lighting Business

FXLuminaire®

Table of Contents

INTRODUCTION VI

CHAPTER 1: GET ILLUMINATED 1

The Evolution of Landscape Lighting	1
The Growth of Low-Voltage Lighting	3
What's an LED?	3
FX Luminaire: Setting the Industry for Over 30 Years	4

CHAPTER 2: THE PROPERTIES OF LIGHT 5

Unlocking the Power of Light	5
Luminous Flux	5
Foot-Candles, Lux, and Illuminance	6
Luminous Intensity	6
Beam Angle	7
Luminous Efficacy	8
Putting It All Together	8
Color Temperature	9
Color Filters.....	10
Amber Filter.....	10
Blue Filter	10
Green Filter	10
Clear Filter	10
Color Rendering Index (CRI)	11
Elements of Color	11
Hue	11
Saturation.....	12
Value.....	12
Color Models.....	12
Photometrics	13
Lamp Life	14
Measuring the Lifespans of Conventional Lamps	14
Lumen Depreciation in LED Systems	14
Dimming.....	15
Building Your Business with the Power of Light	15

CHAPTER 3: FINDING THE RIGHT LIGHT 16

Meet the FX Luminaire Product Family	16
FX Luminaire Fixture Types	16
Up Lights	17
In-Grade Up Lights	17
Path Lights	17
Wall Lights.....	17
Down Lights.....	17
FX Luminaire Fixture Families	18
FX Luminaire Designer Series	19
Heat Management.....	19
Intensity.....	20
Zoning	20
Dimming.....	20
Color Filters.....	21
Design with 30,000 Vibrant Colors.....	21
Beam Angles	22
Designer Series Fixtures with Zoning, Dimming, and Color Capabilities	23
FX Luminaire Fixture Performance Chart	24
FX Luminaire Standard Series	24
LED Lamps	25
FX Luminaire MR-16 and G4 Lamps	25
MR-16 LED	25
MR-16 Eco LED.....	25
G4 LED.....	25
ZD MR-16	25
How to Choose the Right MR-16 Lamp	26

CHAPTER 4: LIGHTING CONTROL 27

The Critical Importance of Power and Control	27
Basic Lighting Control	27
EX Transformer.....	27
PX Transformer.....	27
DX Controller	27
Advanced Lighting Control	28
Luxor Controller	28
Designing with Luxor	29
Zoning	29
Dimming.....	29
Color	29
Themes.....	30
Total Wireless Control	31
Luxor Accessories.....	31
ZD MR-16	31
Luxor CUBE.....	31
Create the Ultimate Outdoor Experience	31

CHAPTER 5: LIGHTING TECHNIQUES 32

Designing with FX Luminaire Fixtures	32
Discover Your Path to Success at Hunter University	33
Hunter University Training Programs.....	33
FX Luminaire Product Technician Program.....	33
Lighting Designer Certificate Program	33
Luxor Controller Specialist Program	33
Lighting Techniques	34
Up Lighting: Fixtures and Techniques	35
Highlighting.....	36
Cross-Lighting	37
Grazing	38
Wall Washing	39
Shadowing.....	40
Silhouetting.....	41
Popular Up Lights.....	42
Down Lighting: Fixtures and Techniques.....	43

Fixture Placement	43
Moonlighting	44
Task Lighting	45
Accenting Garden Art	46
Scalloping	47
Popular Down Lights	48
Path Lighting: Fixtures and Techniques	49
Pathways	49
Staggered Path Lights	50
Single-Row Path Lights	51
Marker Lighting.....	52
Path Light Spacing	53
Path Light Considerations.....	53
Popular Path Lights	54
Wall Lighting: Fixtures and Techniques.....	55
Ledge Lightng.....	55
Wall Lighting.....	56
Deck Rails	57
Popular Wall Lights	58
Lighting Water Features: Fixtures and Techniques	59
Underwater Lighting	59
Refractional Lighting	60
Mirroring	61
Popular Underwater Lights.....	62
Lighting Elevation Changes	63
Walkways.....	63
Stairs.....	64
Steps.....	65
Down Lighting Stairs or Steps.....	66
Fixture Placement and Effects	67
Placement	67
Beam Angles	67
Bordering.....	67
Adding Depth	67

CHAPTER 6: THE TRANSFORMATIVE POWER OF LIGHTING DESIGN

68

From Fun to Functional and Everything in Between	68
Getting Started with Lighting Design	70
Lighting as Art	70
Determining Client Considerations	70
How to Interview the Client	71
Identifying Design Opportunities	72
Ambience, Aesthetics, and Curb Appeal.....	72
Functional and Task Needs	72
Safety and Security Considerations	72
Conducting the Site Assessment	73
Municipal Codes and Laws	73
Pre-Visit Digital Assessment	73
During the Visit.....	73
Now, What to Light?	74
Site Considerations	74
Site Analysis	75
Determine Viewpoints within the Setting.....	75
Find the Key Focal Points.....	75
Identify Opportunities for Ambient Light	75
Identify Opportunities for Transitional Light.....	76
Determine the Depth of Field	76
Trees, Shrubs, and Plants	77
Soften Beam Edges with Frosted Lenses.....	78
Creating Contrast	78
Intensity.....	78
Pots and Planters.....	78
Statement Pieces.....	79
Boulders and Rock Formations	79
Illuminating Textures	79
Water Features and Fountains.....	80
Fire Features.....	80
Areas with High Foot Traffic	81
Architectural Considerations	82
Illuminating the Home	82
Entryways.....	82
Textured Walls and Columns.....	82
Outdoor Dining Areas	83
Outdoor Structures.....	83
Environmental Considerations	83

Seasonal Changes.....	83
Beautify the Scene with Color.....	84
Competing Lighting Sources	85
Additional Considerations	85
Managing Glare	85
Lighting Maintenance.....	85
Illuminating the Stage	85

CHAPTER 7: SPECIFICATION

86

Choosing the Best Light Source	86
Specifying Fixtures	87
Durability	87
Functionality	87
Finish	87
FX Luminaire Finish Options	87
Shielding.....	88
Mounting.....	88
Supplemental Lenses and Baffles.....	88
Finalizing Fixture Placement	88
Specifying Transformers	89
Determining the Control Method	89
EX Transformer	89
PX Transformer	89
DX Controller	90
Luxor Controller	90
Sizing the Transformer	90
Locating Transformers.....	90
Sleeving	90
Simplify Product Specification and Ordering with My List	91

CHAPTER 8: SUCCESSFUL SELLING 92

Strategies for Customer Engagement	92
The Initial Customer Meeting	93
The First Encounter	93
Dive Deeper	94
Know the Client's Budget	95
Think About Design Phases	95
Selling Spotlight: Effective Lighting Demonstrations	95
Make Your Proposal	96
Show a Portfolio and Samples	96
Decide on the Best Approach	96
Manage Questions and Objections	97
Define Next Steps	97
Secure the Order	97
Successfully Marketing Your Services	98
The Importance of Marketing Strategy	98
Create Your Brand	98
Business Tools for Professional Contractors	99
Understanding Target Customers for Landscape Lighting	99
Demographics and Characteristics	99
Preferences and Motivations	99
Building Credibility and Trust with Potential Clients	100
How to Find Customers	100
Referrals from Partner Organizations	100
Connect with Neighbors	100
Marketing Your Business Online	101
Capture Leads with Search Engine Optimization	101
Target Customers with Google AdWords	101
Purchasing Leads through Referral Sites	102
Drive Customer Engagement with YouTube	102
Measure Your Marketing Investments	102
Marketing Audit Worksheet	103
Branding	103
Printed Marketing Materials	103
Website	103
Search Engine Optimization	103
Social Media for Lead Generation	103

Pricing a Landscape Lighting Job and Preparing the Quote	104
Determining Material Costs	104
How to Calculate Labor Costs	105
Equipment Costs	105
Subcontractor Costs	105
Planning for Profit	106
Pricing Options and Upgrades	106
Pricing: Good, Better, Best	106
Pricing by Phase	106
Presenting Your Price to the Client	107
Closing the Sale	107
A Partnership for Business Success	107

GLOSSARY OF COMMON TERMS 108

NOTES 110



INTRODUCTION

Landscape lighting is a fun and rewarding profession. As a professional contractor, watching a customer's face light up when they see their outdoor living space beautifully illuminated by a well-designed landscape lighting system is a thrilling and satisfying experience. Homeowners are usually so happy with their new lights that they'll recommend you to their neighbors, family, and friends — making lighting not just gratifying, but highly profitable as well.

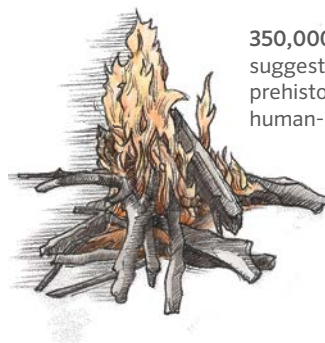
FX Luminaire and our parent company Hunter Industries believe that lighting contractors are best equipped to install landscape lighting systems. As such, we remain focused on supporting the professional channel. This guide is one element of our commitment to provide contractors with the most comprehensive training in the industry. For more helpful tools and the latest information about FX Luminaire landscape lighting solutions, visit fxl.com.



CHAPTER 1: GET ILLUMINATED

THE EVOLUTION OF LANDSCAPE LIGHTING

Light is a quintessential part of the human experience. One of humanity's earliest innovations was harnessing the power of fire to produce light. Innovation in lighting continues to this day, from how we generate light to how we use it to produce transformative effects. Humankind's use of light has progressed from fires to torches, oils to gases, and electric filaments to LEDs. Today, lighting is safer and uses much less energy than ever before. For landscape lighting contractors, the next wave of



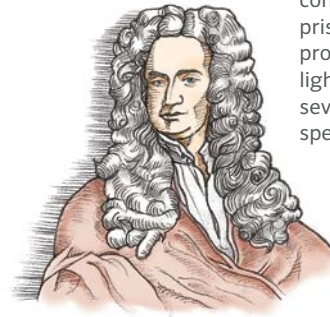
350,000 years ago: Flint tools suggest the regular use of fire among prehistoric humans. Fire is the earliest human-made light source.

innovation in lighting is here: using the flexibility of LED technology to push the boundaries of lighting design.

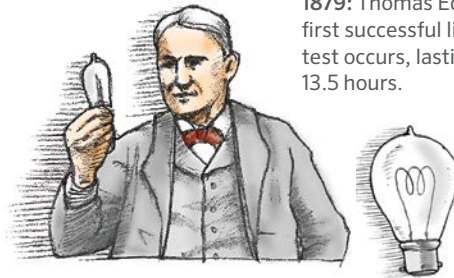
Humans started illuminating landscapes and gardens with light produced from burning plant materials, candles, and oils. This early landscape lighting focused on basic needs like outdoor cooking, providing security, and enhancing social gatherings. Beginning in the late 18th century, the Industrial Revolution led to a massive building boom. Busy streets and new structures demanded innovative sources of illumination, mostly fueled by oils. But oils were expensive. In the 19th century, bustling factories were illuminated by a cheaper method: the combustion of gas. This allowed manufacturing to extend into the night. But gas was flammable. Factory owners needed a safer way to illuminate their buildings. The intense need for better lighting sparked a wave of experiments and discoveries throughout the 1800s, including Thomas Edison's iconic invention of the incandescent light bulb. During the 20th century, incandescent light became safer and more reliable, leading to widespread adoption in public areas, commercial spaces, and private residences worldwide. However, incandescent light uses a lot of energy. Looking into the 21st century, the world is demanding more sustainable lighting solutions. Enter energy-efficient LED technology. Today, LEDs have gained mass adoption, as they provide high-quality light at a much lower energy consumption rate than incandescent bulbs.

To recap: Landscape lighting has evolved greatly since the dawn of humanity. The earliest forms provided illumination for outdoor gatherings. Over time, cities put up lighting systems in common spaces. Commercial interests installed lighting to keep business booming. Governments installed lighting at important public facilities. As residences grew in size in the 20th century through today, outdoor living spaces followed suit. Landscape lighting systems now illuminate patios, pools, porches, driveways, walkways, and gardens around the world. Today, the opportunities for landscape lighting contractors are virtually limitless.

As we have since 1989, FX Luminaire is proud to lead contractors into the next generation. Backed by our best-in-class Luxor® lighting control technology, we focus on the advancement of LED lighting systems with smart home integration and zoning, dimming, and color capabilities. We also offer a full spectrum of the highest-quality lighting fixtures to design elegant, creative, and functional landscape lighting systems in any application.



1666: Sir Isaac Newton conducts his famous prism experiment to prove sunlight is white light made up of the seven colors of the visual spectrum.



1879: Thomas Edison's first successful light bulb test occurs, lasting for 13.5 hours.



1970s: Residential landscape lighting grows in popularity to extend enjoyment of the outdoors.

THE GROWTH OF LOW-VOLTAGE LIGHTING

Early landscape lighting systems operated on line-voltage installations. Line-voltage is 120 volts (120 V) in North America, and 220 volts (220 V) in most other places around the world. In the 1950s, inventor William Locklin pioneered the first 12-volt (12 V) fixtures made from automobile lamps and orange juice cans. Today, a majority of landscape lighting systems operate on 12 V — more commonly known as low-voltage systems. Low-voltage lighting systems have many benefits over line-voltage systems, including:

- They can be installed with a reduced number of wires.
- They can support smaller fixtures.
- Low-voltage fixtures provide optimized outputs.
- There is usually no need to hire a licensed electrician.

With low-voltage landscape lighting, a transformer converts line-voltage to the required 12 V. The electrical codes of most jurisdictions allow 12 V wiring to be installed in the landscape without a professional license.

In residential and light commercial installations, low-voltage landscape lighting is usually more cost-efficient than line-voltage systems. This is because low-voltage wire can be buried without conduit in most applications, greatly saving on labor and material costs. Simpler wiring is used to connect system components, and each transformer can power many lights.

In general, a low-voltage landscape lighting system is safer to manage compared to a line-voltage system. To ensure compliance in your region, always investigate local codes and regulations prior to planning your lighting design.

What's an LED?

Before we continue, it's important to have a basic understanding of how LEDs work. A light-emitting diode (LED) is a semiconductor device that emits light when an electric current passes through it. Light is produced when the particles that carry the current combine within the solid material. Since light is generated within the material, LEDs are described as solid-state devices. The term solid-state lighting distinguishes LED technology from other sources that use heated filaments (incandescent and tungsten halogen lamps) or gas (fluorescent lamps).

LEDs have revolutionized landscape lighting. They are more robust, safer, and use less energy compared to other types of lamps. LED fixtures are the premier design tool for landscape lighting contractors. FX Luminaire proudly leads the industry in LED lighting technology. Now, let's read on to learn more about the properties of light.



2012: FX Luminaire introduces the Luxor ZD controller, which revolutionizes outdoor power and control with zoning and dimming capabilities.

2013: Wireless lighting control becomes a reality with the groundbreaking Luxor Wi-Fi system from FX Luminaire.



FX Luminaire proudly leads the industry in LED technology for landscape lighting systems.

FX LUMINAIRE: SETTING THE INDUSTRY FOR OVER 30 YEARS

From the early stages of our business to the present day, we are proud to lead the industry with groundbreaking innovations that push the boundaries of lighting design.

1989

FX Luminaire begins operation

Joshua Beadle, founder of FX Luminaire, leaves his landscaping contracting business to pave the way for the next generation of outdoor lighting technology.

2000

FX Luminaire joins the digital age

FX Luminaire sets up its first website, which includes dedicated resources for lighting installers, distributors, and architects.

2006

FX Luminaire releases its first hardscape fixtures

We turn our focus toward hardscape fixtures, launching the ML wall light and the CF in-grade light. The CF is an excellent entry-level option with the smooth beam angles of a PAR-36 lamp.

2008

FX Luminaire adds water feature lighting to lineup

We release our first fixtures for water features, the LB and SM. These products helped pave the way for future specialty lighting fixtures.

2010

FX Luminaire launches best-selling NP up light

After launching the NP up light, it quickly becomes our most popular fixture. The NP remains a top seller today.

2012

FX Luminaire debuts industry's first zoning and dimming controller

Luxor ZD is a true game-changer in the landscape lighting world. We are the first company in the industry to launch a controller that could zone and dim fixtures using a standard two-wire path installation.

2014

FX Luminaire introduces wall light with multiple faceplate options

The MO is a simple-to-install hardscape wall light. With multiple faceplate options, the MO can meet the needs of a range of projects.

2016

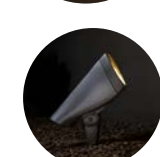
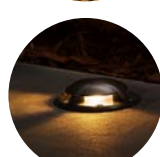
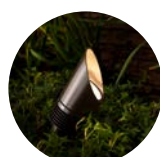
FX Luminaire expands hardscape line with ground-washing FC-GW

Another significant step forward in hardscape lighting, the FC-GW offered ground-washing options with minimal ground intrusion.

2020

FX Luminaire introduces architectural fixtures

The Line-Voltage Series is a complete family of high-output fixtures for large architectural projects.



1998

FX Luminaire incorporates

To prepare the business for rapid growth, FX Luminaire evolves from a sole proprietorship to a corporation.

2005

FX Luminaire launches path light offerings

This year, we launch 11 path lights. One of these fixtures was the CA. The classic design of the CA has helped it remain popular for over a decade.

2007

New hardscape fixtures offer creative lighting options

We launch four more hardscape fixtures. The highly versatile RP in-grade light can be configured to create a wide wall-wash effect or provide a tall, narrow projection of light for large trees.

2009

Hunter Industries acquires FX Luminaire

Hunter Industries acquires FX Luminaire, setting the stage for a journey of rapid innovation!

2011

New glare-reducing down lights deliver more design options

The LE down light provides a simple, low-cost option for contractors. Its small footprint allows it to blend among foliage and reduce glare.

2013

Luxor Wi-Fi sets new standard for outdoor lighting control

We become the first landscape lighting company to offer a smartphone app to control outdoor lighting systems. This innovation puts control in the hands of our customers with an easy-to-use lighting management tool.

2015

Luxor ZDC controller wins two awards

Our Luxor ZDC outdoor lighting controller wins the Best New Product and People's Choice Awards at the 2015 Irrigation Association Show.

2019

FX Luminaire celebrates 30 years in business

As we reflect on our achievements, we look forward to even more innovations over the next 30 years and beyond.

2021

New product training for lighting contractors

The FX Luminaire Product Technician program launches on Hunter University, giving contractors key industry insights, product knowledge, and strategies to grow business.





CHAPTER 2: THE PROPERTIES OF LIGHT

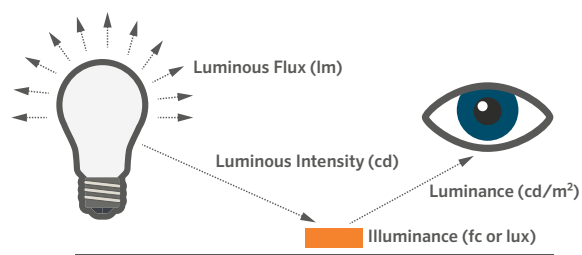
UNLOCKING THE POWER OF LIGHT

As a landscape lighting contractor, you must understand how to detect, measure, and manipulate light. This way, you can properly specify light sources that are capable of producing the desired effects in each installation. A thorough understanding of the properties of light will help you choose the right light source to effectively illuminate any subject. Let's explore some of the primary ways humans measure light.

LUMINOUS FLUX

Luminous flux is how we measure the total perceived power of light from a specific source by the human eye. It's what we see. We measure luminous flux in units called

lumens (lm). So, why don't we just say "brightness"? Well, luminous flux is measurable, or objective. It's marked by a specific value. Brightness, on the other hand, is subjective. It's possible to measure the luminous flux from a light source. The more lumens produced by a source, the brighter the light.



The total perceived power of light from a specific source by the human eye is known as luminous flux.

Foot-Candles, Lux, and Illuminance

Foot-candles (fc) measure the amount of light produced by a source on a one-square-foot surface measured exactly one foot away from the source. A foot-candle is defined as one lumen per square foot.

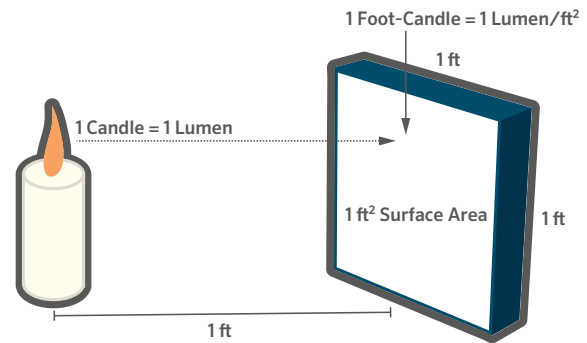
Today, foot-candles are one of the most important properties of light that a contractor must calculate and understand. If a source produces too many foot-candles, the lighting system will be too bright. If it produces too few, it will be too dim. The foot-candles have to be just right to produce the desired effects for the homeowner. The metric unit of measurement for this property is called lux (lx). One lux is equal to one lumen produced by a source on a one-square-meter surface. One foot-candle = 10 lux.

Illuminance is the amount of light that strikes a surface or object as measured in foot-candles or lux.

Luminous Intensity

The amount of light that a point source radiates in a given direction is known as luminous intensity. It is expressed by the luminous flux leaving the source in that direction in one determined angle. We often think the luminous flux (i.e., total lumens) tells us the brightness of a light source. But that calculation describes light radiating outward in all directions.

Luminous intensity, measured in units called candelas (cd), explains the intensity at a specific point. Think about a typical flashlight with an adjustable beam. As you increase or decrease the width of the beam by rotating the flashlight head, the luminous flux (i.e., total lumens) does not change, but the luminous intensity (i.e., candelas) does change.



A foot-candle is defined as one lumen per square foot.

Beam Angle

The angle at which light is emitted from a light source is called the beam angle. Beam angles are measured in degrees. They span a range of styles, from very wide to very narrow. Lamps with narrow and very narrow beam spreads are used to pinpoint light on a specific target or reach the tops of tall trees. Wider angles are used to illuminate bigger spaces.

As one of the primary attributes of a light source, beam angle is important for contractors to understand. Specifically, the beam spread is defined as the greatest angle, measured from the center of the distribution, at which the intensity drops to 50% of the maximum. Other attributes include the field angle, which is the angle at which 90% of the light is found, and the area outside the field angle, which is known as spill and contains the last 10% of visible light from the fixture.

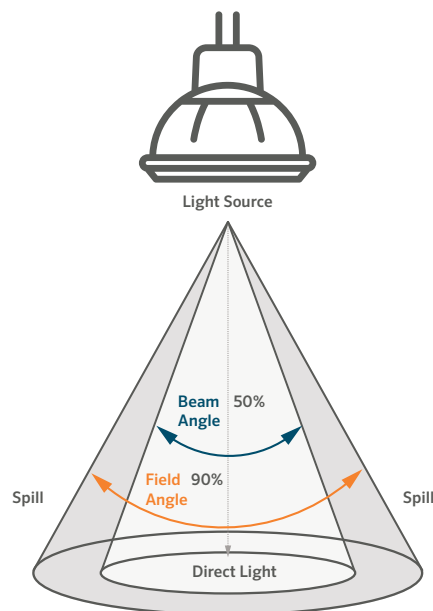
Broad-beam flood lamps ($\geq 36^\circ$) are used to illuminate larger areas. Because the light extends outward in a wider angle, these lamps create less of a “hot spot” than the narrow-beam lamps. The beam angle increases in diameter as the distance from the source increases, so you may need to adjust fixture and lamp combinations to achieve the desired lighting effect.

Beam angles are commonly grouped into six categories as defined by the American National Standards Institute (ANSI).

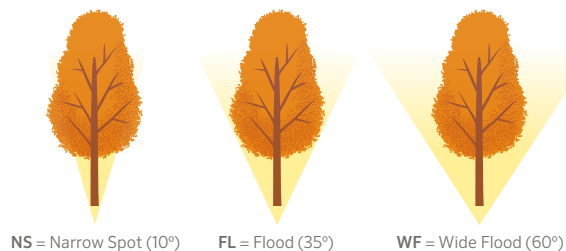
NAME	ABBREVIATION	BEAM ANGLE
Narrow Spot	NS	5–15°
Spot	ST	16–22°
Narrow Flood	NF	23–32°
Flood	FL	33–45°
Wide Flood	WF	46–74°
Very Wide Flood	VW	$\geq 75^\circ$



Beam angle is calculated using the LM-79 method for SSL luminaires. Beam angle is defined as two times the vertical angle at which the intensity of light is 50% of the maximum.



The light emanating from a source consists of the beam angle, field angle, and spill.



Different beam angles produce distinctive effects when illuminating a particular subject.

Lamps

From incandescent bulbs to LEDs, there are many different kinds of lamps. Lamp outputs are commonly measured in units of power called watts (W). Typically, the higher the wattage, the brighter the lamp (as measured within the same family of lamps).

Beam angles influence the visual brightness of a lamp, sometimes significantly. A 20 W lamp with a very narrow beam angle will appear much brighter than a 50 W lamp with a very wide beam spread when shined on the same surface from the same distance.

Luminous Efficacy

Luminous efficacy is a measure of how well a light source produces visible light. It is the ratio of luminous flux to power, measured in lumens per watt.

Putting It All Together

From luminous flux to beam angle, a range of factors work in tandem to create the desired effects in any landscape lighting design. The most important thing to remember is that brightness is subjective. Understanding how the properties of light can perfect, change, complement, or detract from a setting is an important skill for every lighting contractor.

For example, low levels of light in the evening hours can produce remarkably stunning lighting effects. When properly integrated into a lighting design, even a 1 W LED fixture can produce adequate illumination in certain applications. As you continue designing landscape lighting systems, you'll recognize that more light is not always better. Read on to learn about more color properties of light.



4 W
250–315 lm
20 W equivalent



5 W
200–370 lm
35 W equivalent



6 W
447 lm
50 W equivalent

Lamp outputs are measured in units called watts. Different wattages have different intensities.

COLOR TEMPERATURE

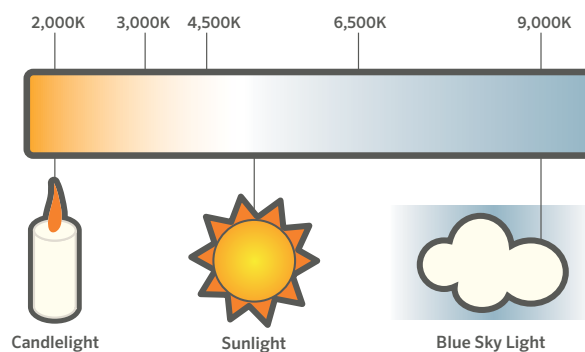
Color temperature is an intrinsic characteristic of visible light that describes the warmth or coolness of a light source. It is measured in units of absolute temperature known as kelvin (K).

Warm, soft, and cool are terms commonly used to describe the color temperature of a light source. On the warm end of the scale, color temperature begins as red in appearance and graduates to orange, yellow, white, blue-white, and finally to deeper colors of blue on the cool end of the scale. While some lamps (e.g., LEDs) do not elevate to high kelvin temperatures, we use a metric called correlated color temperature (CCT) to determine the value. The CCT describes the appearance of a light source in relation to known color temperatures of light that are emitted from a heated piece of black metal (e.g., electric stove coils).

Commonly, yellow-red colors (like the flames of a fire) are considered “warm,” and blue-green colors (like light from an overcast sky) are considered “cool.” In lighting, higher kelvin temperatures (3,600–5,500K) are labeled cool and lower color temperatures (2,700–3,000K) are labeled warm. Incandescent and halogen lamps fall in the warm range, with halogen lamps being slightly cooler. White light has a color temperature between 3,500K and 4,500K.

In landscape lighting design, understanding the color temperature of the lamps being specified is critically important. Since the color temperature of a lamp will determine how an object illuminated by that lamp will appear, you should always choose a lamp with a color temperature that will enhance the landscape instead of making it seem unnatural. For example, you can use a slightly cool white light source to illuminate a tree and create an elegant moonlighting effect. However, if you use too much cool white light, the tree will appear unnaturally blue.

Based on the subject to be illuminated, you should specify light sources providing either a warm, soft, or cool color temperature — light sources that complement the object to be illuminated. If a light source will be used to illuminate spaces where people gather, it should have a warm or soft color temperature. Light sources with cooler color temperatures are a great choice to complement landscapes and foliage.



Common light sources have different color temperatures.



Pine trees exhibit distinct visual characteristics when illuminated with warm and cool light sources.



▲ RED	
HUE	143
SATURATION	96%
INTENSITY	59%

▲ CYAN	
HUE	43
SATURATION	38%
INTENSITY	31%

▲ PURPLE	
HUE	301
SATURATION	81%
INTENSITY	63%

FX Luminaire Designer Series fixtures are engineered to provide maximum freedom to transform landscapes with the power of light. You'll learn more about these fixtures in Chapter 3.

Color Filters

You can add a filter to a lighting fixture to alter the color temperature of the light source, bringing versatility to a single luminaire. Designer Series fixtures from FX Luminaire are built with LEDs that produce light that is white to the human eye, about 4,000K. You'll learn more about Designer Series fixtures in Chapter 3. We do this to make it simple for contractors and lighting designers to use filters to fine-tune the color temperature. It is much easier to start at a higher kelvin value and use filters to change the color temperature to a lower value, which creates a warmer look, than the other way around.

In summary, a color filter placed in front of an LED light source will change the color appearance of the light to produce the desired effect. With the right filter, you can create a distinct mood for every setting.



Amber Filter
Creates a warm, yellow light similar to incandescent lamps.



Blue Filter
Produces a cooler glow and mimics moonlight for a natural look.



Green Filter
Magnifies the beauty of green foliage and boosts the warmth of autumn colors.



Clear Filter
Retains the natural colors and elements of hardscape and other outdoor features.

COLOR RENDERING INDEX (CRI)

The Color Rendering Index (CRI) is a scale from 0 to 100 that indicates how accurately a light source renders colors. Due to the quality of light produced, different light sources render color differently. With a CRI value of 100, sunlight has the most accurate color rendering ability. For other sources of light, the higher the CRI, the better the color rendering ability. In landscape lighting, a CRI of 70 is good and anything higher than 80 is phenomenal.

Every beam of light contains a spectrum of the assorted colors within the visible light spectrum (i.e., red, orange, yellow, green, blue, indigo, and violet). Contrary to the perfect rainbows you drew as a child, that spectrum is rarely an even distribution with LED lights. More often, it's a rollercoaster ride of sharp spikes and falls across the spectrum. If the beam of light contains a high concentration of a color (e.g., red), then that light will easily reflect off a red surface (likewise for blue or any other color). If a spectrum lacks a particular color, then a viewer will likely not be able to see that specific color when the light is reflected off an object. A high CRI indicates a rich presence of colors in the spectrum, and thus a greater ability to render colors.



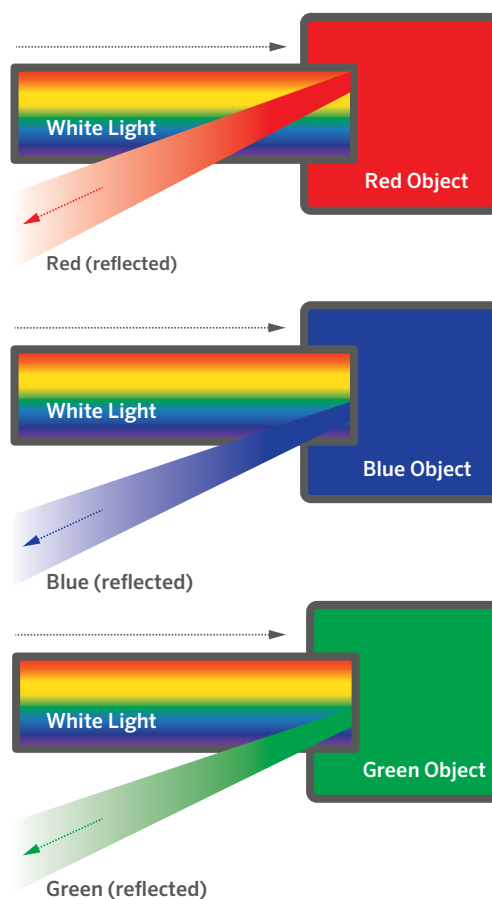
The CRI of a light source is independent of the color temperature of the light source, or correlated color temperature (CCT).

Elements of Color

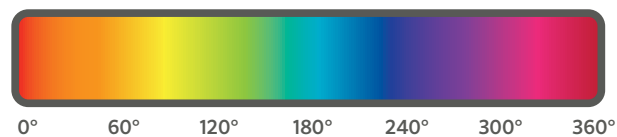
When controlled by industry-leading Luxor technology, LEDs in FX Luminaire Designer Series fixtures can change color. To harness the transformational effects of color-changing fixtures, the CRI information still applies. But we must now add three more considerations because color has three main attributes: hue, saturation, and value (or intensity).

Hue

Hue, the main attribute of a color, is the color itself. Hue can typically be divided into the “pure” colors within the visual spectrum: red, orange, yellow, green, blue, indigo, and violet. A value from 0° to 360° typically represents a specific hue. Together, hues are often represented in a color bar or color wheel.



Measured on a scale from 0 to 100, the Color Rendering Index indicates how accurately a light source renders colors.



Hue is represented by the colors of the visual spectrum.

Saturation

The second-most important attribute of a color, saturation, allows a color to be softened or brightened. A fully saturated color will appear rich, while a less saturated color will appear dull or soft. A value between 0 and 100 is used to represent a color's saturation level.

Value

The final attribute of a color, value, describes the lightness or darkness of a color. The higher the value (also called intensity), the brighter the color will appear. A value between 0 and 100 is used to represent the value or intensity level.

Color Models

Creating colors throughout the visual light spectrum is achieved by combining three primary colors. In lighting, the three colors typically used are red, green, and blue. This combination is also known as RGB. The RGB color model is considered an additive color system. Combining or adding different intensities of red, green, and blue will produce a wide array of hues. If all three colors are combined at full intensity, the color will appear to be white.

Adjusting the saturation of hues produced by the RGB model can be difficult. However, a common approach is the addition of white to complement the red, green, and blue. This combination represents the RGBW color model. Varying the intensity of white in combination with red, green, and blue will result in softer colors, commonly known as pastels.

Incorporating the RGBW color model into an LED is very common. RGBW LEDs are engineered using a four-in-one design that includes a single red, green, blue, and white chip. This four-die design creates a tighter lighting package and allows for better color mixing when compared to four individual red, blue, green, and white LEDs. The intensity of each LED is determined by the amount of current driving each specific color chip.

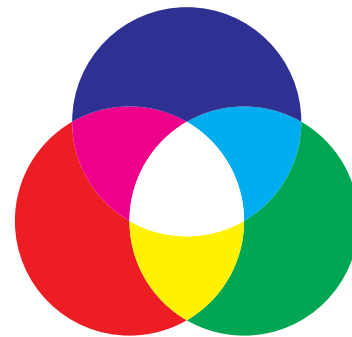
Depending on the application, additional optics, filters, or advanced control systems are often needed to properly mix the colors.



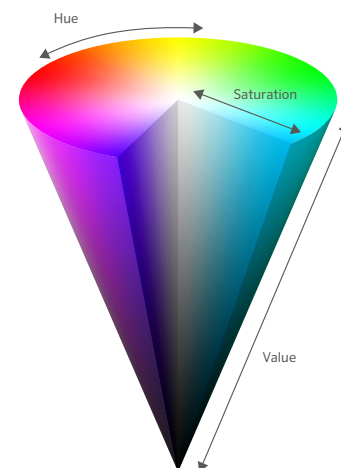
Saturation measures the richness of a color.



Value, or intensity, measures the lightness or darkness of a color.



The RGB model is an additive color system in which combining different intensities of red, green, and blue will produce a wide array of hues.



Hue, saturation, and value determine the appearance of every color within the visual spectrum.

PHOTOMETRICS

The amount of light in terms of perceived brightness to the eye as measured in foot-candles (or lux) can be represented in photometrics charts. Here's a glimpse of the relationship between foot-candles and brightness:

- 10,000 fc = Direct sunlight
- 1,000 to 5,000 fc = Daylight
- 100 fc = Overcast sky
- 10 fc = Dusk
- 1 fc = Twilight
- 1/10 fc = Moonlight

These charts provide critical information about how bright a light source is at various distances from the light source at a defined beam angle. You should always reference photometrics charts so you know how well a particular light will perform in a landscape lighting design.

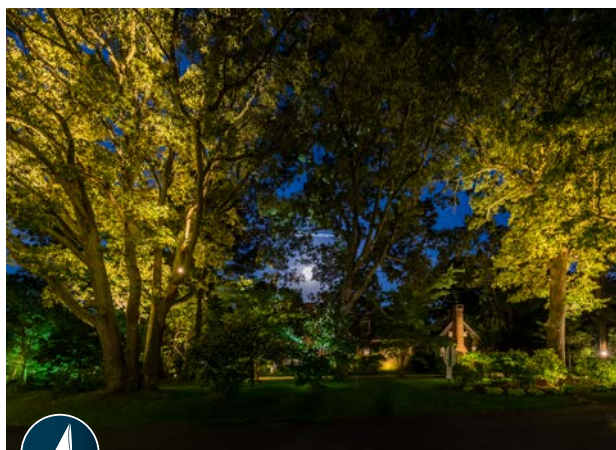
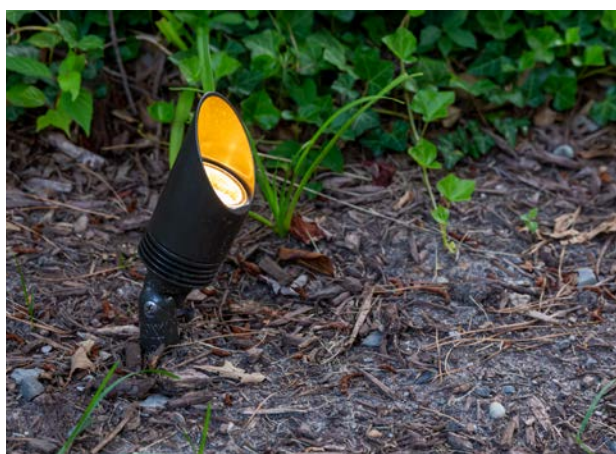
The NP fixture is a popular Designer Series up light from FX Luminaire. The 6 LED version of the NP produces the equivalent of 1.71 fc of light with a 10.8' (3.3 m) beam width at 25' (7.6 m) from the light source.

To apply this information, consider a tree canopy that is about 20' (6.1 m) in diameter and 25' (7.6 m) from the ground. Your goal is to light the canopy evenly. Since it's the focal point of the yard, the tree should be brighter than its surroundings. The fixture's beam width of 10.8' (3.3 m) means that you will likely need three to four fixtures to fully illuminate the canopy. With the center beam at 1.7 fc, you may decide that you want more light at the top of the canopy. If this is the case, add more fixtures and overlay their beam widths, or upgrade to the 9 LED version of the NP up light.

NP 6 LED Illuminance at a Distance

Feet (Meters)	Center Beam	Beam Width	
	Foot-Candles (Lux)	Vertical 19.3°	Horizontal 19.9°
4.2' (1.3 m)	61.6 fc (663 lx)	1.8' (0.6 m)	1.8' (0.6 m)
8.3' (2.5 m)	15.4 fc (166 lx)	3.6' (1.1 m)	3.6' (1.1 m)
12.5' (2.8 m)	6.8 fc (74 lx)	5.4' (1.7 m)	5.4' (1.7 m)
16.7' (5.1 m)	3.9 fc (41 lx)	7.2' (2.2 m)	7.2' (2.2 m)
20.8' (6.3 m)	2.5 fc (27 lx)	9.0' (2.7 m)	9.0' (2.8 m)
25.0' (7.6 m)	1.7 fc (15 lx)	10.8' (3.3 m)	10.8' (3.3 m)

Use photometrics charts to help calculate exactly how many fixtures you need to achieve your desired lighting effect.



NP

LAMP LIFE

Measuring the Lifespans of Conventional Lamps

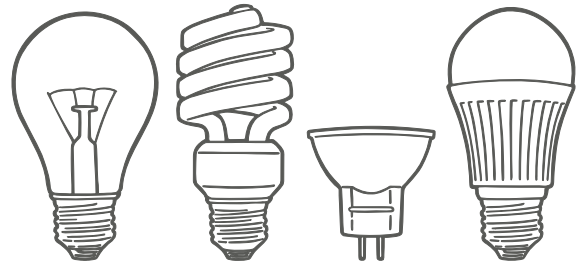
Conventional lamps are assigned an “Average Rated Life” based on manufacturer testing to a median time-to-failure value. The median is the midpoint of the total number of hours for all the tested lamps to fail. As a contractor, you should relamp fixtures in any lighting design when the lamps have reached their Average Rated Life. Waiting until lamps “burn out” leads to customer disappointment and a bad experience with the system.

Traditional lamps — such as incandescents, fluorescents, and high-intensity discharge (HID) — have been used for many decades. Their various modes of failure (e.g., burned filaments, cathode burnout, electrode wear) are highly predictable. Thus, even when a new lamp comes on the market, industry professionals can accurately estimate service life by referencing accepted statistical projections.

Lumen Depreciation in LED Systems

Unlike conventional lamps, LEDs don’t “burn out” (i.e., stop working completely all at once). Instead, failure occurs as the LED gradually dims over time. Without a predictable failure point, manufacturers define LED life as the amount of time it takes for the light to fade to a certain percentage of its original strength. This designation is represented by the letter “L” followed by a numerical value. For example, L70 is the time it takes for an LED to reach 70% of its original light output. There are other ratings, but this rating system is universally accepted as the standard for measuring LED life.

Still, even these numbers are highly variable depending on how and where the LED is operated. Factors that may influence the LED’s life are junction temperature, operating current, luminaire type, and the quality of materials used during manufacturing. These differences make defining an LED’s service life even more challenging since the lamp’s environment can drastically influence its lifespan. Put simply, we can’t determine the service life of an LED without considering its housing and application. This is a major reason why the National Institute of Standards and Technology (NIST) is currently monitoring LEDs in various installations. Their goal is to develop a reliable method for projecting an accurate lifespan for LEDs.



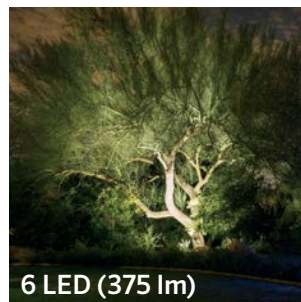
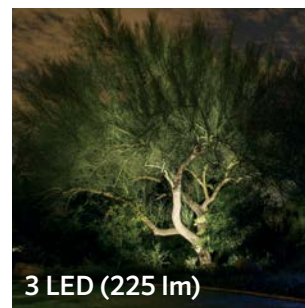
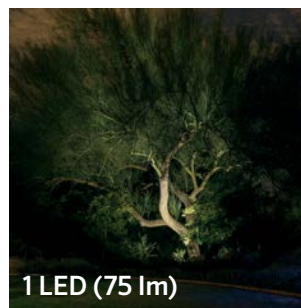
Different lamps have different lifespans in the field.

Dimming

Most incandescent lamps can be dimmed. Many LEDs are dimmable. If the area to be illuminated, such as an outdoor dining space, would be enhanced by including a dimming switch, be sure to specify only light sources that are rated for dimming. Always choose a dimmer that is compatible with the selected light sources.

BUILDING YOUR BUSINESS WITH THE POWER OF LIGHT

As an outdoor lighting professional, it's important to understand the intrinsic properties of light so you can transform landscapes with the power of illumination. From color temperature to photometrics to beam angles, knowing how to interpret and design with all aspects of light helps maximize your ability to deliver a world-class system to every customer. FX Luminaire is here to help guide you to success. Keep reading to learn more about the essential products you need to begin the design process.



As more LEDs are added to a light source, the total output increases. Keep this in mind when selecting the right fixtures for each job.



CHAPTER 3: FINDING THE RIGHT LIGHT

MEET THE FX LUMINAIRE PRODUCT FAMILY

As the global leader in landscape lighting solutions, FX Luminaire manufactures a wide range of traditional and specialty fixtures, transformers, controllers, and accessories for projects of all scopes and budgets. All FX Luminaire products are designed with the highest-quality materials and backed by industry-leading customer support, comprehensive online training, and a commitment to sustainable resource use.

FX LUMINAIRE FIXTURE TYPES

Our energy-efficient lighting fixtures are specially designed to create world-class lighting systems for a range of classic and contemporary applications. Let's take a look at the types of fixtures we offer.

Up Lights

Up lighting adds rich depth and texture on walls, within landscapes, and across outdoor architectural elements. Illuminate adjacent trees and shrubs to create subtle lighting effects within a space. Select varying intensities to develop layers and draw attention to desired features. Use FX Luminaire up lights to accent foliage, create visual interest, and highlight stonework.

In-Grade Up Lights

In-grade up lights allow for creative lighting techniques in areas with high traffic or maintenance needs. Install the fixtures in the ground, flush with the grade. Well lights are a type of in-grade fixture that water can pass through. Direct-burial in-grade lights are fully enclosed so water cannot enter.

Path Lights

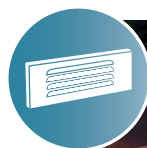
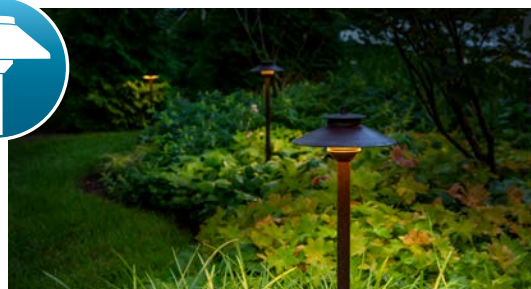
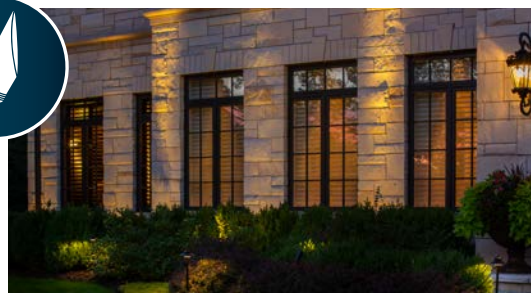
Path lights illuminate walkways, create ambience, increase safety, and highlight landscape features. Use path lighting to draw attention to pedestrian hazards such as grade changes, or illuminate areas that can't be reached by down lighting from trees or architectural elements. FX Luminaire path lights provide unparalleled freedom to create the ideal setting for every project.

Wall Lights

Integrate wall lighting seamlessly into any setting. Install wall lights on ledges, stairs, countertops, and backsplashes to highlight the hardscape textures and illuminate surrounding areas. Use FX Luminaire wall lights to increase safety, define perimeters, and complement architectural elements.

Down Lights

Down lighting provides clean transitions and effective top-down illumination for patios, verandas, gathering spaces, and more. FX Luminaire down lights offer unrivaled optical flexibility and limitless design potential. Use down lights to subtly enhance architectural elements while creating the illusion of additional space. The fixtures effectively mimic natural moonlight in any outdoor installation.



FX LUMINAIRE FIXTURE FAMILIES

Now that we've covered the types of fixtures we offer, let's discuss how we classify them. FX Luminaire offers two low-voltage families: the Designer Series and Standard Series. Fixtures are classified based on material construction, LED technology, performance, and price. This system is designed to help contractors quickly identify common fixtures and create superior lighting packages for any budget. With FX Luminaire, you can expand your business to accommodate any customer with top-quality lighting solutions, from simple installations to complex designs.



FX LUMINAIRE DESIGNER SERIES

The FX Luminaire Designer Series gives lighting designers unparalleled control to create elegant, distinctive designs for every installation. The series includes traditional, modern, and specialty fixtures built with top-quality integrated LEDs. All Designer Series fixtures are compatible with our flagship Luxor technology, which allows you to zone, dim, and add color to individual or groups of fixtures.

The premium configuration of FX Luminaire Designer Series fixtures is due to innovative, built-in PowerBoard™ technology. This LED platform is designed to use less space and pull more heat away from the LED than other types of configurations. The warranty is twice as long on FX Luminaire integrated LEDs than other options, and the performance of the LEDs is significantly higher. Integrated LEDs also have a much smaller footprint, which reduces the size of each fixture and the amount of material used during construction.

Heat Management

Heat management is determined by a fixture's ability to divert heat generated by the LED circuit board to the outside of the fixture. Excessive heat will cause premature intensity drop, color shift, and circuit board failure.

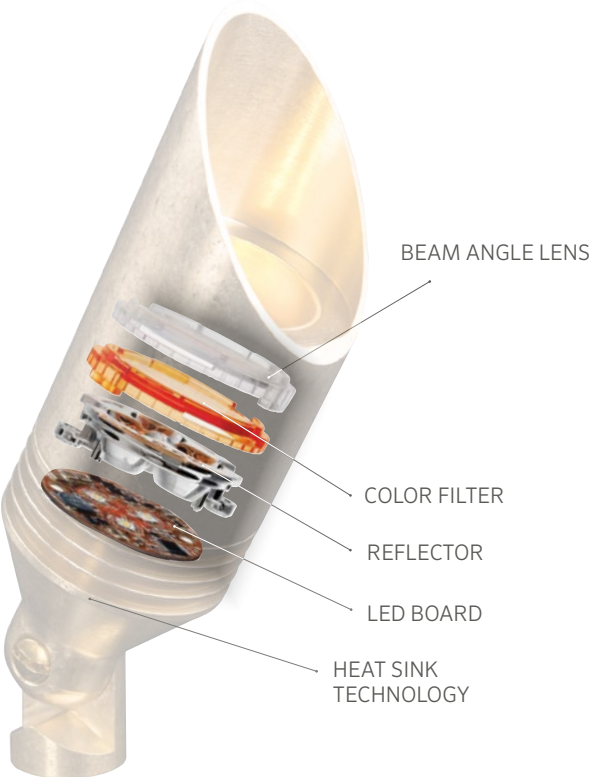
Designer Series fixtures have a thermal heat sink and finned fixture configuration to optimize heat management and ensure long-term performance. All Designer Series fixtures are built with PowerBoard technology, which allows you to easily adjust intensity, color temperature, and beam spread to fit the needs of any setting.



DESIGNER SERIES

Base	Plus	Premium
Popular FB, PL	Popular NP, PB, PM, JB, NL, LE, M-PL	Popular FR, CC, LC, DM, LF, PO-SQ, VE-PS, KG, LP, BQ
Additional Options QZ, QB, TM, QT, PE	Additional Options LC, RW, MS, DE, VE, PS, M-PJ, M-PK, M-PZ, SD, RC, HP-48, SL, VC, ZW, ZC	Additional Options NR, VS, PB, DM, MO, CP, UN, LM, PD, LE, PS, NL, FC, LL, VO, KT

The Designer Series offers the perfect fixture for any application.



Designer Series fixtures are engineered with state-of-the-art technology to transform outdoor living spaces.

Intensity

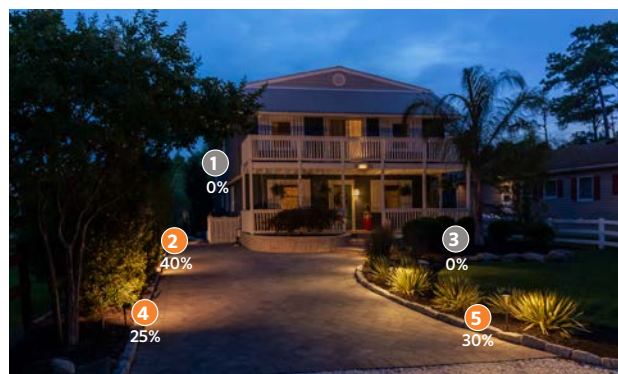
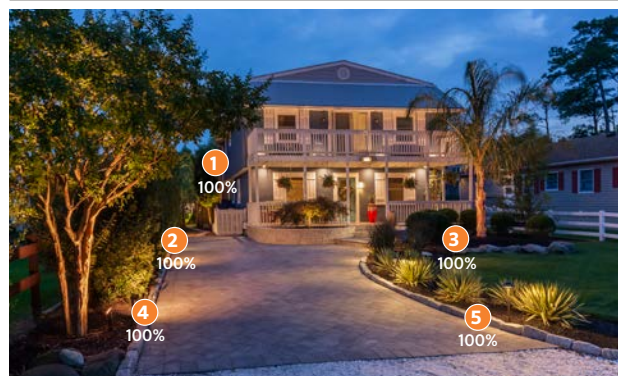
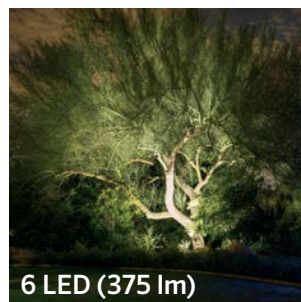
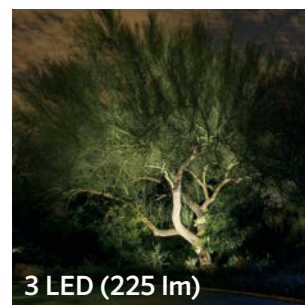
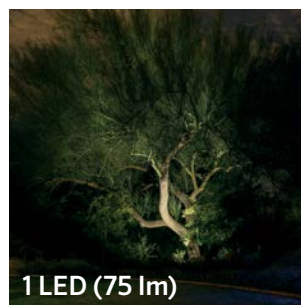
Fixtures are available with different LED configuration options to accommodate the light levels needed. They are available in 1, 3, 6, or 9 LED capacities. As more LEDs are added, the light output becomes more intense.

Zoning

With Luxor technology, you can create up to 250 independently adjustable lighting groups in any lighting design.

Dimming

The Luxor controller can dim all FX Luminaire Designer Series fixtures from 1% to 100%, allowing for maximum design flexibility of the entire lighting system after installation. They are also dimmable with trailing-edge (reverse phase-cut) dimmers.



Use the Luxor controller to zone and dim Designer Series lighting fixtures.

Color Filters

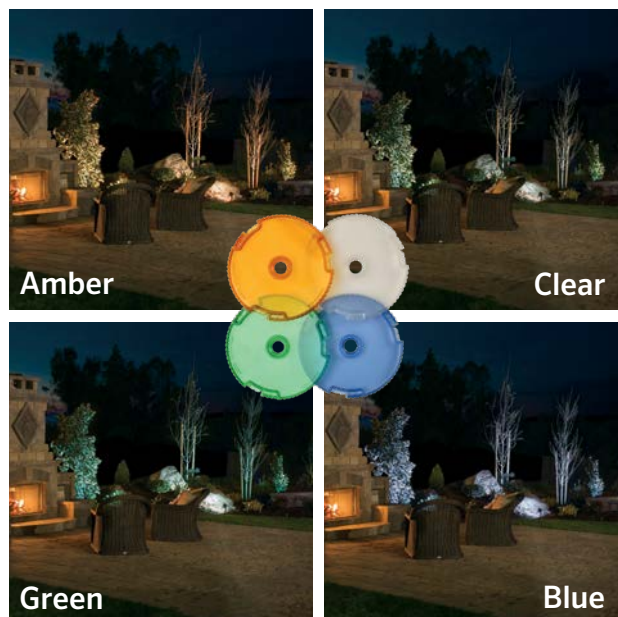
FX Luminaire fixtures generate light that is “white” to the human eye, about 4,000K. Use color filters to change the appearance of the light and ensure desirable effects. With the right filter, you can create a distinct mood for every setting. FX Luminaire Designer Series fixtures come with four color temperature filters to help fine-tune any lighting design: amber, clear, blue, and green.

Use an amber filter for a warm, yellow light, similar to incandescent lamps. Doing so will enhance the natural green of various plant types. Choose the clear filter to soften and diffuse the clean white light. This helps bring out the natural colors in landscapes and building materials. Select the blue filter to cast a cool glow and create dramatic effects in a dormant landscape. Finally, use the green filter to magnify the beauty of foliage in summer, or boost the warmth of autumn colors.

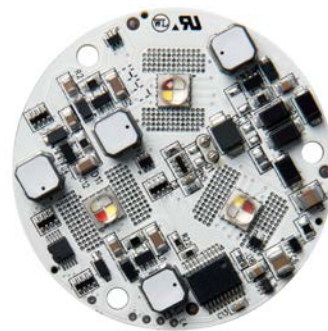
For distinctive looks year-round, adjust color temperature filters to match vegetation and architecture as the seasons change.

Design with 30,000 Vibrant Colors

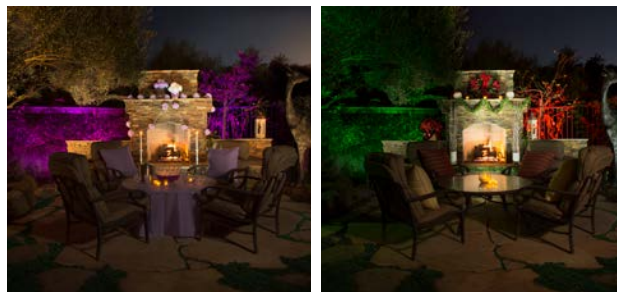
To add color-changing abilities, Designer Series fixtures can be specified with an RGBW LED board. We call these fixtures ZDC fixtures — for zoning, dimming, and color. The boards in ZDC fixtures use a red (R), green (G), blue (B), and white (W) LED to generate up to 30,000 colors with fully adjustable hues, saturations, and intensities. Designer Series fixtures from FX Luminaire have a much wider color spectrum than primary-color LEDs or RGB fixtures from other manufacturers that offer color. FX Luminaire ZDC fixtures include a white LED, which ensures that each fixture can provide a wide range of soft, delicate colors. Thanks to their state-of-the-art technology, flexibility, and color-changing abilities, FX Luminaire Designer Series fixtures are the professional’s first choice to create dazzling lighting displays for holidays, parties, sporting events, and more — or to simply add more color to everyday living.



Designer Series color filters provide transformative effects within a landscape to create different moods.



FX Luminaire RGBW LED boards are engineered for top performance.

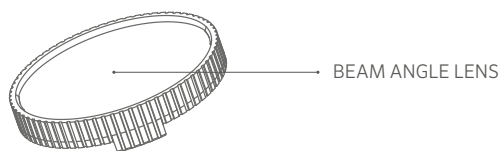


Use ZDC fixtures from the Designer Series to add color to your landscape lighting design.

Beam Angles

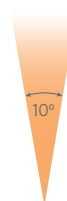
Another key benefit of Designer Series fixtures is they can be easily adjusted in the field. Four beam angle options are available to provide versatility in design. Adjust your lights with narrow, spot, flood, or wide flood lenses ranging from 10° to 60°. Similar to color filters, these laser-cut lenses simply snap onto integrated LEDs. By changing the beam angle on certain fixtures, you can draw attention to specific areas of the landscape and better illuminate the space.

FX Luminaire Designer Series fixtures are purposefully built to give you maximum installation flexibility and more design options. The next-generation heat management system built into each fixture lengthens the life of the LEDs and extends the warranty of the fixtures to an industry-leading 10 years. Of course, to unlock the full potential of these fixtures, they must be paired with a Luxor lighting controller. You will learn more about the Luxor controller later in this guide.



Within the Designer Series, four interchangeable beam angle lenses ensure versatility in design.

**Very
Narrow**



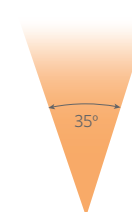
10°

Spot



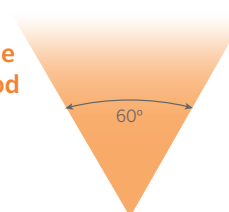
20°

Flood



35°

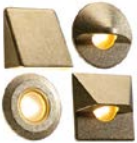
**Wide
Flood**



60°

Change the beam angle lens to determine the effect of the light.

DESIGNER SERIES FIXTURES WITH ZONING, DIMMING, AND COLOR CAPABILITIES

					
FB	NP	FR NR	VS CC	PB	LC
					
CA	CV	DM	JS	RW	PL TM
					
FG	TD	LL	LP	MO	SL
					
LF	PM	M-PL	M-PK	M-PZ	M-PJ
					
NL	PS	SD	DE	JB	ZW
					
VE	RC	KT	KG	FC	HP-48

FX LUMINAIRE STANDARD SERIES

Designed for modest lighting installations, FX Luminaire Standard Series fixtures utilize drop-in LED lamps, such as the popular MR-16 or G4 lamps that you will read about on the next page. These lamps are easy to install, and you can order them with a fixed output, color temperature, and beam angle for quick integration into any landscape. Within the Standard Series, a variety of materials are available depending on environmental needs.

While FX Luminaire Standard Series fixtures offer a lower total cost of installation, their LED engines are more vulnerable to the challenges of heat dissipation than the engines of integrated LED fixtures. Further, Standard Series fixtures offer fewer design and control options.

FX Luminaire Fixture Performance Chart

	Luxor Integrated System	Integrated System	Standard MR-16
			
	DESIGNER PREMIUM	DESIGNER PLUS	STANDARD
Warranty	10 years	10 years	5 years
Color	30,000+ Colors	4 Color Filters	Fixed
Beam Angle	Wide Flood	Interchangeable	Fixed
Control	Zoning, Dimming, + Color	Zoning and Dimming (Color Option)	On/Off
Thermal Management	Global	Global	Local
Lamp Life	55,000 Hrs*	55,000 Hrs*	40,000 Hrs*

* Note: Useful LED life L90 (Avg); Input voltage: 10 to 15 V.



STANDARD SERIES

Base	Plus	Premium
Popular RS, SP-A, WS, BP	Popular MU, TM, MM, MD, C-UL, C-WW, C-PL, C-LL, C-IN	Popular LR, LO, RL, CA, MM, TE, CP, LS, TS
Additional Options DR, DS, PD, CF, UN, RP, FC	Additional Options MP, AL, PL, PM, MD, TS, C-DL, RP, DL-A, CA-A, DM-A, C-WWL	Additional Options MR, PF, PR, SC, CV, DM, TD/FG, GT, DP, DL, SP, GN, GT, BP, CG, CP, LM, UN, PD, VL, CL, TC, FC, RP

The Standard Series offers a range of fixtures to transform any setting.

LED LAMPS

Popular drop-in lamps used in outdoor landscape and architectural lighting are the MR-16 and T3. Both lamps feature a bi-pin design, but the base of each type is quite different. The MR-16 uses a GU base type, while T3 lamps use a G4 base type.

Drop-in lamps have two main benefits. The first is that they are easy to find. The second-most popular reason to use drop-in LEDs is price. Drop-in LED fixtures tend to be more economical at cost per fixture, but lack the heat management and performance capabilities of integrated LED fixtures. Therefore, the warranty is lower (5 years) for Standard Series fixtures compared to Designer Series fixtures.

FX Luminaire MR-16 and G4 Lamps

When it comes to MR-16 and G4 lamps, there are options from many manufacturers. To maximize field life, FX Luminaire lamps are manufactured with materials of the highest quality. Unlike other lamps, ours are designed to withstand harsh outdoor elements and provide top performance in any lighting design. For convenience during installation, our drop-in LEDs are available preinstalled in many Standard Series fixtures. You can also order the lamps individually for retrofits or as replacements, or for installation in landscape lights made by other manufacturers. Let's take a look at FX Luminaire's lamp family.

MR-16 LED

MR-16 LED is available in three intensities, three beam angle options, and two color temperatures. Fully potted, it carries a five-year warranty.

MR-16 Eco LED

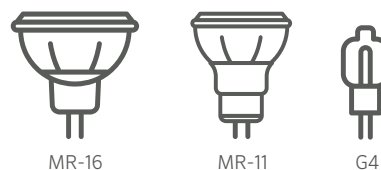
The MR-16 Eco LED lamps provide a simple solution for projects of limited scope and budget. This lamp family provides an economical choice for lighting professionals.

G4 LED

Specially developed with a clear silicone capsule design, the G4 LED replacement lamp comes in a warm 2,700K color temperature and three intensities.

ZD MR-16

When added to lighting fixtures that are controlled by a Luxor controller, ZD MR-16 lamps add zoning, dimming, and Wi-Fi control capabilities to any Standard Series lighting fixture.



Several lamps are commonly used in landscape lighting design.



MR-16 LED

Halogen Equivalent

20	20 W (Actual 4.0 W/4.3 VA)
35	35 W (Actual 5.0 W/5.4 VA)
50	50 W (Actual 7.0 W/7.5 VA)

Color Temperature

W	Warm (2,700K)
S	Soft (3,000K)

Beam Angle

VN	Very Narrow (10°)
FL	Flood (35°)
WF	Wide Flood (60°)



MR-16 Eco LED

Halogen Equivalent

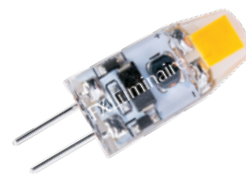
20	20 W (Actual 4.0 W/6.2 VA)
50	50 W (Actual 6.0 W/9.2 VA)

Color Temperature

W	Warm (2,700K)
---	---------------

Beam Angle

FL	Flood (35°)
WF	Wide Flood (60°)



G4 LED

Halogen Equivalent

10	10 W (Actual 1.0 W/1.1 VA)
20	20 W (Actual 1.6 W/1.7 VA)
35	35 W (Actual 2.3 W/2.6 VA)

Color Temperature

W	Warm (2,700K)
---	---------------



ZD MR-16

Technology

ZD	Zone/Dim
----	----------

Halogen Equivalent

35	35 W (Actual 5.0 W/5.4 VA)
50	50 W (Actual 7.0 W/7.5 VA)

Color Temperature

W	Warm (2,700K)
S	Soft (3,000K)

Beam Angle

VN	Very Narrow (10°)
FL	Flood (35°)
WF	Wide Flood (60°)

HOW TO CHOOSE THE RIGHT MR-16 LAMP

To achieve the desired effects within your Standard Series lighting design, you must select the appropriate lamp. Choosing the right FX Luminaire MR-16 lamp is as easy as 1, 2, 3.

1 Choose the wattage



4 W
250–315 lm
20 W equivalent



5 W
200–370 lm
35 W equivalent



6 W
447 lm
50 W equivalent

2 Choose the color temperature



W = Warm (2,700K)



S = Soft (3,000K)

3 Choose the beam angle



VN = Very Narrow (10°)



FL = Flood (35°)



WF = Wide Flood (60°)



CHAPTER 4: LIGHTING CONTROL

THE CRITICAL IMPORTANCE OF POWER AND CONTROL

Today, selecting a landscape lighting transformer is no longer as simple as choosing one with enough capacity to power the installation. Next-generation transformers incorporate advanced control and self-diagnostic capabilities that add a range of benefits for contractors and end users alike. FX Luminaire has a full line of lighting control options ranging from basic on/off needs to advanced wireless management with zoning, dimming, color, and total smart home integration. Let's take a look at the FX Luminaire lighting control lineup and explore the key benefits of each option.

BASIC LIGHTING CONTROL

EX Transformer

The EX transformer is a standard low-voltage lighting transformer. It is designed with a single 15 V output tap and is available in a 150 W capacity. The small capacity and single voltage tap make it ideal for small-scale LED

lighting jobs. The EX provides basic on/off control and is compatible with most plug-in photocells, mechanical timers, and astronomical timers.

PX Transformer

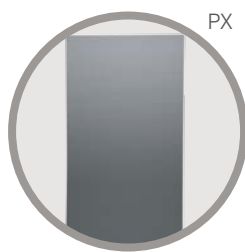
The versatile PX transformer is designed with 11 V, 12 V, 13 V, and 14 V output taps. It is available in 300 W, 600 W, and 900 W capacities. Like the EX, the PX provides basic on/off control and is compatible with most plug-in photocells, mechanical timers, and astronomical timers.

DX Controller

The DX controller is an easy-to-program, low-voltage lighting transformer that offers more control capabilities than the EX or PX transformers. The controller's digital facepack provides built-in astronomical timing and event-based programming options. Astronomical timing allows the controller's sunrise/sunset time to automatically change with the seasons throughout the year. Event-based programming allows you to program four different on/off events throughout the night. The events can be set at specific times (e.g., 7 p.m., 11 p.m., 2 a.m., etc.) or as sunset/sunrise events with optional time offsets.



EX



PX



DX



LUXOR®

Controller	EX	PX	DX	LUXOR
Tap	Single	Multi-Tap	Multi-Tap	Multi-Tap
Manual	■	■	■	■
Programmable	Add-On	Add-On	■	■
Astronomical Timing			■	■
Zone/Dim				■
Color				■
Wi-Fi Control				■
Smart Home Integration				■
Watts	150	300, 600, 900	150, 300	150, 300
Compliance	UL-379 (SS only), UL-1838, CE (SS only)	UL-379 (600/900 only), UL-1838	UL-379, UL-1838	UL-379, UL-1838, CE

ADVANCED LIGHTING CONTROL

Luxor Controller

To unlock the full capabilities of FX Luminaire Designer Series fixtures, you need to pair them with the Luxor controller. When Luxor controls an LED landscape lighting system, lights don't simply turn on and off. They come alive! As FX Luminaire's premium lighting control option, Luxor is the most advanced and flexible low-voltage landscape lighting transformer on the market. It incorporates zoning, dimming, and color capabilities into a single control system using a simple two-wire path installation. Check out the key benefits that make Luxor technology the professional's first choice for next-generation lighting design:

- Zoning control: Turn individual or groups of fixtures on and off at desired times.
- Dimming control: Adjust the intensities of individual or groups of fixtures from 0-100%.
- Color control: Choose from 30,000 vibrant colors for unlimited design possibilities.

- Color palette: Generate and save up to 250 colors for fast, easy access.
- Astronomical timing: Set your location to automatically track sunrise and sunset times.
- Scene/theme creation: Design up to 40 distinctive themes ranging from every-night living to holidays, parties, and special events.
- Event-based programming: Turn custom themes or lighting fixtures on and off as desired throughout the night.
- Calendar-based programming: Ensure that specific programs run only when needed with dedicated date-range programming throughout the year.
- Wireless control: Interact with the controller using iOS® and Android™ devices.
- LAN connection: Conveniently incorporate wireless control using the preinstalled LAN module.
- Smart home integration: Integrate and control Luxor with today's most popular smart home automation systems, including Lutron®, Crestron®, Control4®, Savant®, and ELAN®.

DESIGNING WITH LUXOR

Zoning

Zoning provides total control of individual fixtures or groups of fixtures. The ability to control groups of fixtures allows you to work with homeowners to divide or “zone” their outdoor living space into functional segments. Fixtures can be grouped by location (e.g., front yard or side yard), fixture type (e.g., down lights, path lights, or wall lights), or application (e.g., barbecue area, patio, or fountain).

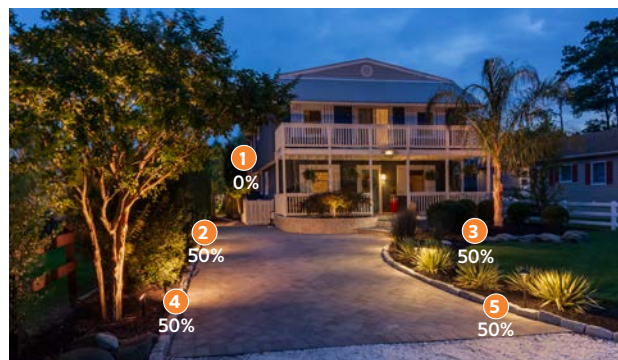
Zone control of different areas, fixtures, or application types can be beneficial when creating scenes throughout the evening as well as during special occasions or activities.

Dimming

Dimming allows the intensity of individual or groups of FX Luminaire ZD fixtures to be adjusted from 0% to 100%. The ability to dim can drastically change the appearance of a particular zone.

Color

Color control allows the color temperature of FX Luminaire ZDC fixtures to be adjusted to match vegetation and architecture. The ability to change the fixture’s hue, saturation, and intensity allows for 30,000 different color options. Color control, in combination with zoning and dimming, further enhances lighting design possibilities.



Zoning allows you to group desired fixtures to simplify control. Use dimming to set the mood for each zone.



Color adds an additional element of visual interest to beautify the scene.

Themes

Themes are a combination of individual fixtures or groups of fixtures set to different intensities and colors to create unique scenes within your lighting design.

- **Every-night theme:** Why should special occasions have all the fun? Set an every-night theme to bring outdoor living spaces to life 365 days a year. To add variety, modify the theme as the seasons change.
- **Emergency theme:** With the right switching option, the emergency theme can be set so all system lights come on simultaneously with a single command.
- **Sports theme:** Light up the landscape to support your favorite sports team. Or illuminate the outdoors with the colors of your alma mater.
- **Seasonal holiday theme:** Christmas, Halloween, Thanksgiving, Fourth of July — these holidays invite you to paint the landscape with dazzling explosions of color.
- **Romantic theme:** Add soft lighting in a special alcove or seating area. With color options available in ZDC lamps, this theme could include down lighting with a gentle red glow for Valentine's Day.
- **Outdoor dining theme:** Illuminating outdoor kitchens and dining areas while muting perimeter landscape lighting will keep guests focused on each other.



Every-night theme



Seasonal holiday theme



Sports theme

TOTAL WIRELESS CONTROL

The Luxor app provides ultimate flexibility and convenience for remote lighting management. With the app, you can adjust fixture intensity and color, create unique themes, and fine-tune your color palette for special occasions — right from the palm of your hand! Thanks to total cloud-based access, you can manage Luxor controllers from anywhere.



Download the Luxor app today!

LUXOR ACCESSORIES

ZD MR-16

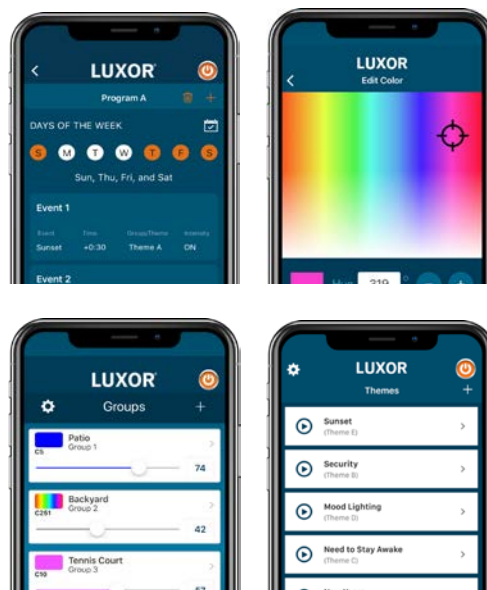
The ZD MR-16 is a convenient drop-in LED replacement lamp that converts incandescent fixtures to energy-efficient LED fixtures. When connected to a Luxor controller, the ZD MR-16 adds zoning, dimming, and Wi-Fi control capabilities to any brand of low-voltage lighting fixture.

Luxor CUBE

With the Luxor CUBE, Luxor can control, zone, and dim almost any brand of dimmable 12 V or 110 V light fixtures. It can also control items that use relay inputs, such as gates and pond pumps, to provide total management of outdoor elements. Choose from three convenient options: low-voltage, line-voltage, or a combined relay 0-10 V model.

CREATE THE ULTIMATE OUTDOOR EXPERIENCE

Control is the brain of a lighting system. Always discuss control options with customers from the start of the project and determine how, when, and where they want to control their lights. No successful lighting system is complete without a power and control option that meets a customer's needs and lifestyle. FX Luminaire is proud to offer the most comprehensive suite of control solutions in the industry to provide endless opportunities for the ultimate outdoor lighting experience.



The Luxor app provides cloud-based remote control of Luxor systems from anywhere using a smart device.



Use ZD MR-16 lamps to add zoning and dimming capabilities to any brand of low-voltage lighting fixture.



For a total smart yard control solution, integrate a Luxor CUBE into your lighting design.



CHAPTER 5: LIGHTING TECHNIQUES

DESIGNING WITH FX LUMINAIRE FIXTURES

Expanding, beautifying, and securing outdoor living spaces with next-generation landscape lighting solutions from FX Luminaire means designing with the power of light. In your lighting performance, you are the director. You must understand the technical and artistic elements of design that are required to create an unforgettable experience.

Remember, landscape and architectural lighting does so much more than illuminate the exterior of a structure or property — it extends usable living space to the outdoors while adding rich visual interest, increasing safety and security, and boosting curb appeal.

Landscape lighting is a simple and profitable service to add to your business. A flawless installation will create happy customers and help your business grow. With a well-designed lighting system, you can give your customers maximum digital control and year-round design flexibility with creative lighting installations that bring nighttime living spaces to life. Now, let's explore the design process.

DISCOVER YOUR PATH TO SUCCESS AT HUNTER UNIVERSITY

Before we continue, we want to reiterate our commitment to the professional channel by introducing you to Hunter University, our no-cost online training portal. Here, you will find helpful video courses and comprehensive training programs to supplement the strategies and techniques presented in this guide. Looking to learn more about lighting trees? Stairs? Control? Building a portfolio? You'll find the tools and information you need to succeed at Hunter University. Some programs offer a professional certificate of achievement for passing all courses with a score of 80% or better.

You can access all Hunter University courses at **training.hunterindustries.com**. Follow this QR code to get started.

Hunter University Online Training



<https://fxl.com/huot>

As you read on to learn more about lighting design, look for QR codes to watch helpful videos that provide detailed information about specific topics. The videos share design tips from real contractors and other lighting professionals.



Learn more design strategies and tips for building your lighting business at Hunter University.

HUNTER UNIVERSITY TRAINING PROGRAMS

FX Luminaire Product Technician Program

This training describes how lighting works and introduces the fundamental components of a lighting system.



<https://fxl.com/fxpt>

Lighting Designer Certificate Program

Learn techniques and best practices for lighting specific areas in a landscape.



<https://fxl.com/fxld>

Luxor Controller Specialist Program

This program covers basic and advanced functions and operations of the flagship Luxor lighting controller.



<https://fxl.com/lcs>

LIGHTING TECHNIQUES

At night, people perceive light in a very simple manner. Light that immediately commands attention is known as focal glow — it fixes our gaze and creates interest. Check out the focal glow as illustrated in the images to the right.

This type of lighting directs attention to the important features in the lighting design: the focal points. In landscape lighting systems, this is the dominant form of lighting. Create focal glow with various techniques, including highlighting, shadowing, and silhouetting.

Light that does not grab our attention is known as ambient luminescence. This soft, subtle, and restful light helps unify elements within a space and serves as transitional or background lighting between focal points. Ambient light creates depth and breadth throughout the lighting design. It also helps homeowners navigate the grounds safely.

When painting a landscape with light, there are a series of fundamental lighting techniques you will use on almost every jobsite. These methods include up lighting, down lighting, path lighting, wall lighting, and lighting water features.



NP, PB, VE

UP LIGHTING: FIXTURES AND TECHNIQUES

Up lighting, or accent lighting, is the general description for several techniques that utilize surface-mounted or recessed fixtures that deliver light upward. Since up lighting is an unnatural form of light, it can produce dramatic effects. It is often used to create focal glow.

However, up lighting can also be overutilized. Be careful not to create glare with your up lighting design choices. Up lighting techniques include the following:

- Highlighting
- Cross-Lighting
- Grazing
- Wall Washing
- Shadowing
- Silhouetting

Up Lighting Design Video



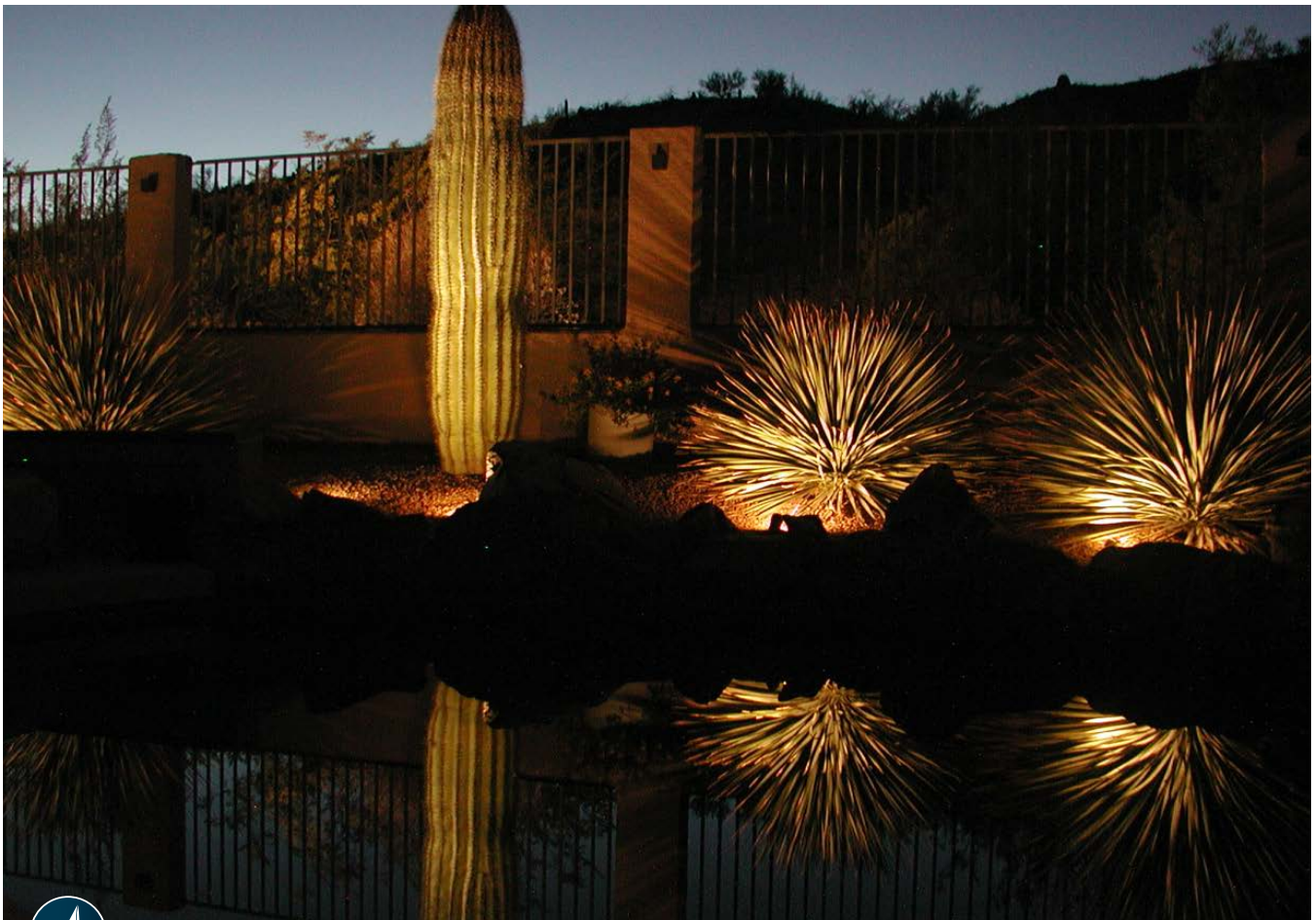
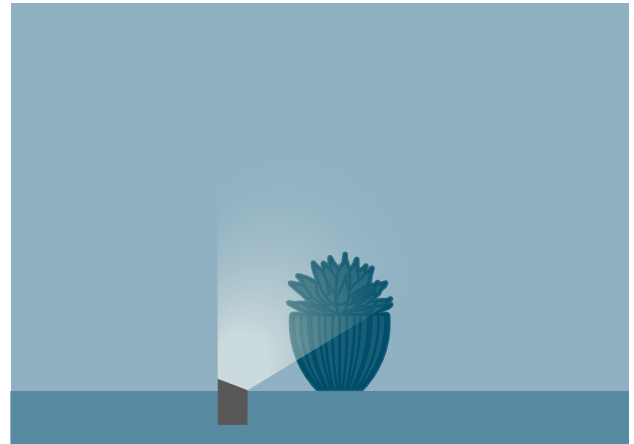
<https://fxl.com/uldv>



RS, FB, NP, FC, KG

Highlighting

Highlighting is commonly used to illuminate a specimen shrub or tree by placing one or more spotlight fixtures at the base of the subject and angling them upward, illuminating both the bark and canopy. You can also illuminate boulders, sculptures, and garden structures with this method. While this approach is useful, be sure not to overuse highlighting in any design. Below are several alternate highlighting effects that, if used, can help add range and sophistication to a lighting project.



QZ, FB, NP, RS, PB, LC

Cross-Lighting

If the lighting subject is a large canopy specimen tree such as the one pictured, a single fixture will not adequately illuminate it. In fact, if you use only one or two fixtures, you risk creating a flattened “hot spot” on the trunk or canopy. Instead, use a cross-lighting technique by installing several fixtures that light the subject from multiple angles and emphasize its three-dimensional form. Landscape lighting contractors typically use cross-lighting in two ways. The first method is simply cross-lighting the light outputs. The second approach involves lighting two or more sides of the same object. Here, we are referencing the latter method.

Lighting Trees Design Video



<https://fxl.com/lt dv>

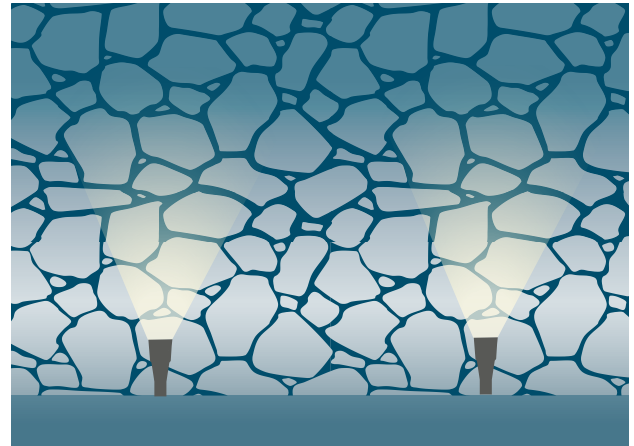


C-UL, C-WW

Grazing

When rough surfaces are illuminated from a distance or with a light source perpendicular to the surface, the texture will visually flatten due to the grazing technique. To bring out a surface's texture with grazing, place fixtures 6–8" (150–200 mm) from the rough wall and skim the light across the surface. This will produce high contrast between what is illuminated and what remains in shadow.

Use the grazing technique on stucco, cultured stone, brickwork, or other rough surfaces. It's also a great method to accent the unique texture of bark on specimen trees.

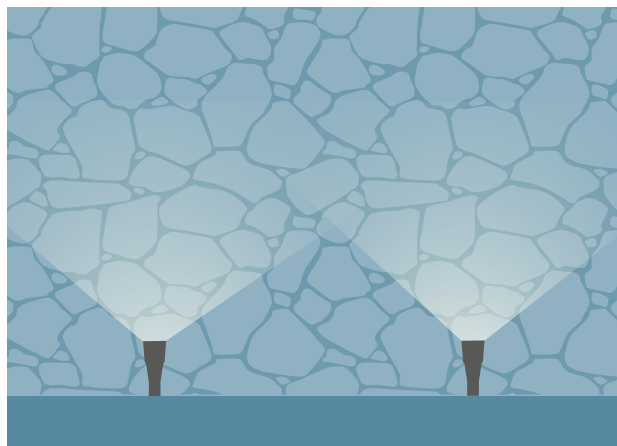


PB, LC, FC, KG

Wall Washing

While grazing brings out the contrast and texture of a rugged surface, wall washing smooths the surface visually. This technique involves aiming light uniformly and evenly across a flat surface to emphasize its flatness. Install wall wash fixtures 12-18" (300-460 mm) from the base of the wall, 4-10' (1.2-3 m) on center, and specified with a very wide beam angle (i.e., 90° or greater). The lens eliminates the scalloped look and feathers light onto the wall to create a consistently smooth lighting effect.

This technique is efficient because it highlights the wall while reflecting a soft, ambient glow onto the surrounding area. If the wall is adjacent to a walkway, the reflected light often provides enough glare-free ambient illumination so pathway fixtures are not needed. This is useful in locations where visible fixtures are not desired or where they could be prone to tampering or damage.

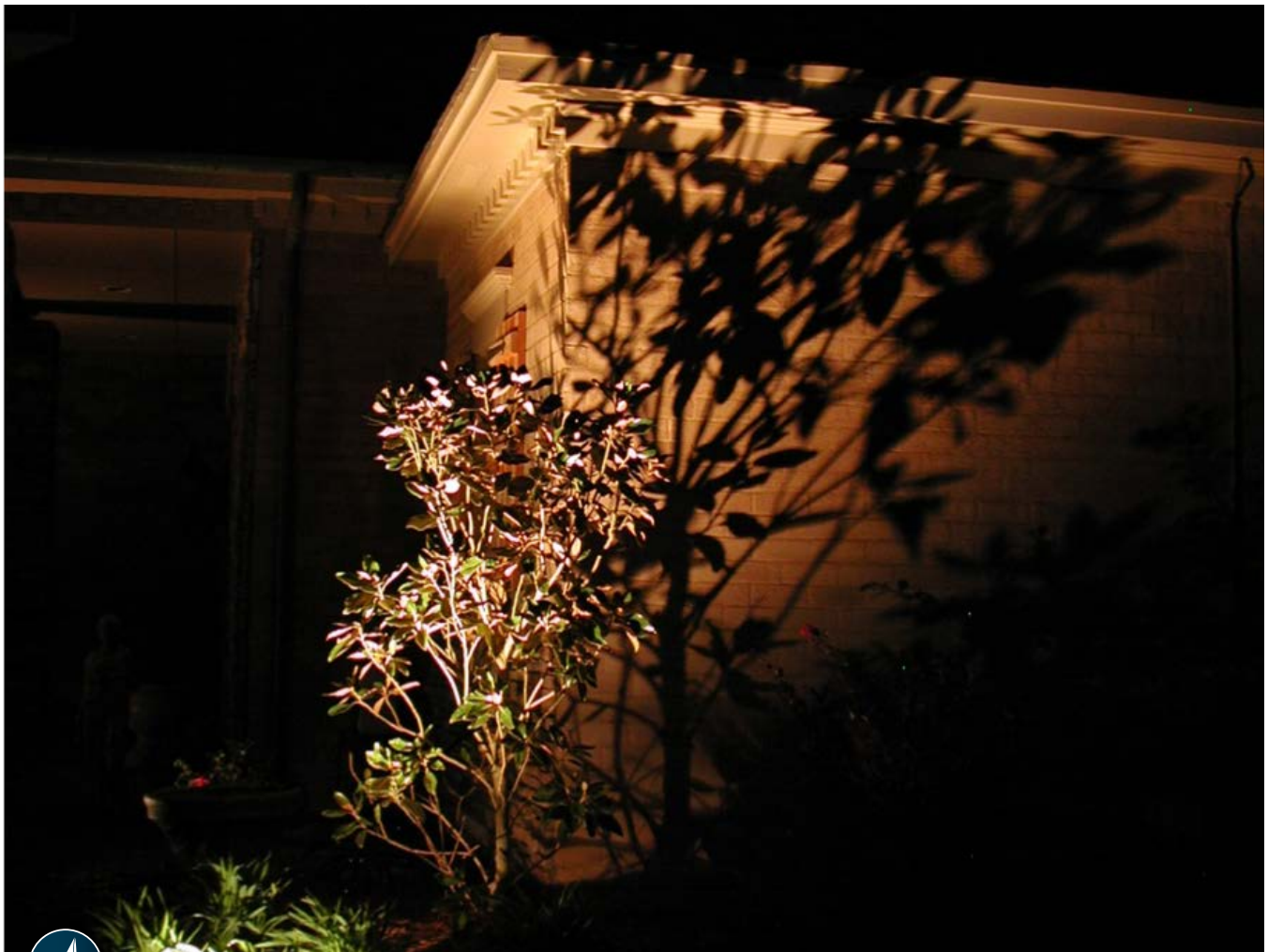
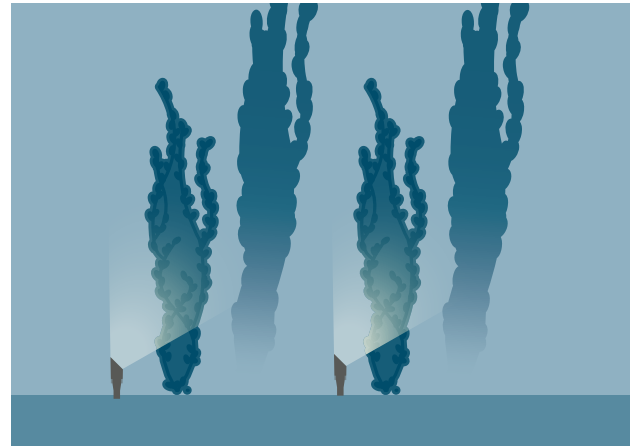


PB, M-PL

Shadowing

Shadowing is a versatile technique created by placing a fixture in front of a plant or any other object that has a tall, flat surface behind it. Illuminating the subject casts dramatic shadows on the backdrop. The closer the light source is to the subject, the larger the shadow will be on the wall.

This effect is particularly useful in immature landscapes commonly found in new construction projects, where small plants and large walls lend themselves to shadowing effects. The technique is fun to use with plants that have an architectural quality, such as large, spiky leaves or interesting branching structures. At night, a slight breeze will enhance the effect as the shadows begin to dance.

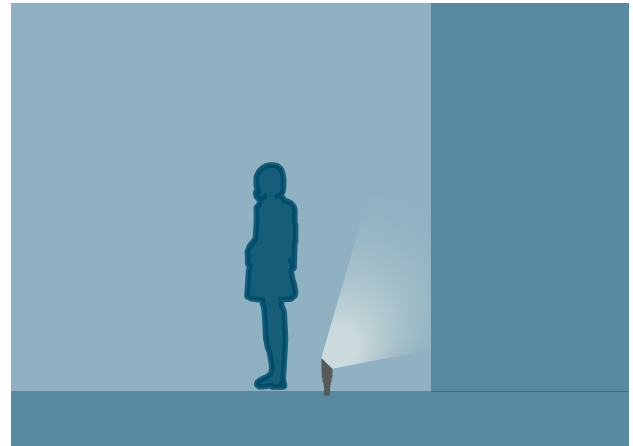


QZ, FB, NP, RS, PB, LC

Silhouetting

Silhouetting is one of the most dramatic up lighting techniques. A silhouette is created when strong light is placed between the subject to be silhouetted and an adjacent wall.

Rather than seeing the highlighted features of the subject, the viewer will see the outline of its darkened silhouette. Use this technique to bring out large, dense specimen plants, statues, or trees with visually interesting branch structures.



PB, LC

POPULAR UP LIGHTS

UP LIGHTS

DESIGNER SERIES		
	NP 3, 6, or 9 LED Aluminum	The NP up light is our most popular and versatile Designer Series fixture with maximum flexibility.
	FB 1 or 3 LED Aluminum	The FB is a smaller version of the NP up light and fits nicely in compact spaces.
	CC 1 or 3 LED Brass	The CC is a premium up light designed with elegance, durability, and with a minimal footprint for small-scale applications.
	VS 3, 6, or 9 LED Brass	Unsurpassed in both elegance and performance, the premium VS up light withstands the harshest environmental conditions.
STANDARD SERIES		
	RS MR-16 Zinc/Aluminum	The RS is our most popular and budget-friendly Standard Series up light.
	C-UL MR-16 Midgrade Brass	The C-UL is a budget friendly and robust midgrade brass up light.

IN-GRADE UP LIGHTS

DESIGNER SERIES		
	KG 3, 6, or 9 LED Brass/Aluminum	The KG is a metal-topped well light with tilt adjustability that can be installed flush in the ground.
STANDARD SERIES		
	FC MR-16 Brass/Composite	The FC is a fully enclosed in-grade fixture with multiple faceplate options.

WALL WASH LIGHTS

DESIGNER SERIES		
	PB 1 or 3 LED Brass/Aluminum	Casting a soft, wide glow, the PB fixture is our most popular Designer Series wall wash light.
	LC 3, 6, or 9 LED Brass/Aluminum	The LC is our premium wall wash fixture for the widest beam spreads and maximum light outputs.
STANDARD SERIES		
	C-WW G4 Midgrade Brass	The C-WW wall wash fixture is our budget-friendly option for soft, subtle lighting.
	C-WWL MR-16 Midgrade Brass	The powerful C-WWL wall wash light helps you stay within budget without compromising on output.

DOWN LIGHTING: FIXTURES AND TECHNIQUES

Down lighting produces the most natural form of illumination because it mimics natural light sources like the sun and moon, which direct light downward from above. Use down lighting to create focal glow on visual points of interest or fill an area with ambient light.

Down Lighting Design Video



<https://fxl.com/dldv>

Fixture Placement

Mount down lights in trees or on structures and direct them toward the desired area or subject. To minimize glare, aim fixtures as close to perpendicular to ground level as possible and no more than 30° from vertical for best results.

Down lights can be challenging to install. For example, when placed in trees, fixtures require regular adjustment to accommodate the growth of the branches and trunk. When down lighting is installed correctly, you can effectively hide the source of light.



DE, JB

Moonlighting

The original down lighting effect, moonlighting is achieved by positioning light sources in trees high above the garden, where they cast diffused light down through the limbs, branches, and leaves. When fixtures are properly placed in a tree canopy, the result is graceful shadow patterns and a pleasing level of even, ambient illumination. To emulate actual moonlight, use a cooler color temperature and/or colored lenses.



NP, LC, M-PL, DE

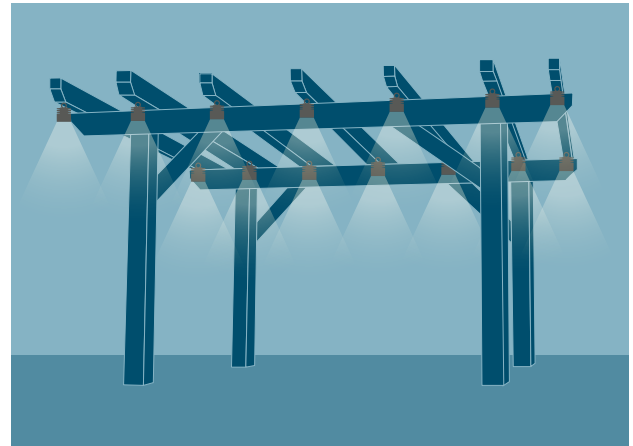
Task Lighting

Down lights are a great solution to illuminate areas used for tasks such as cooking, entertaining, reading, or other outdoor activities that require substantial visible light. Evenly spaced down lights provide a clean spread of light across an area. This technique is commonly used in home design: Most modern homes have recessed can lights installed in rooms. Gazebos, pergolas, pavilions, and arbors are all popular spaces for outdoor down lights.

Lighting Arbors and Pavilions Design Video



<https://fxl.com/lapdv>

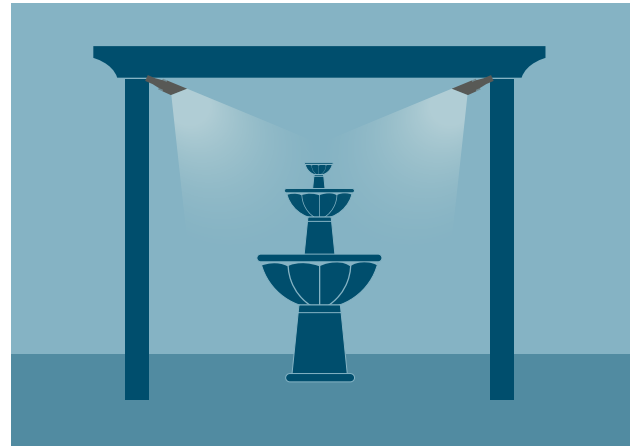


PS, DE, JB

Accenting Garden Art

Statues, boulders, and topiaries are remarkable subjects for down lighting. Trees, trellises, and eaves are excellent places to attach down lights.

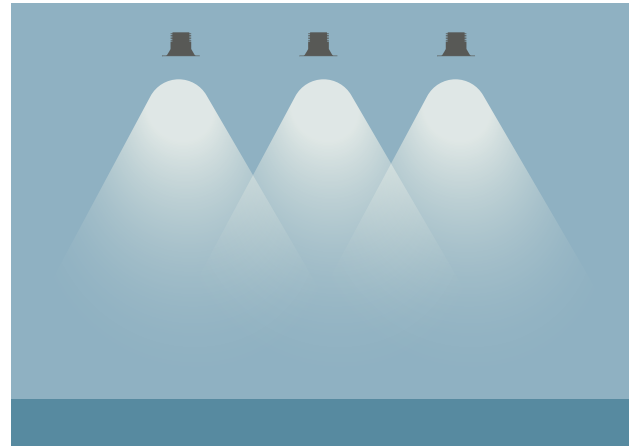
Utilize a remote light source with a very narrow beam angle to embellish garden elements while keeping the source of light undetected.



LL, FB, VE, JB

Scalloping

A less common but highly effective lighting technique is scalloping. Achieve a scalloping effect by positioning fixtures with clear lenses at the base of a wall or in the soffit of a structure to project a sharp elliptical pattern of light. Scalloping helps create rhythm: highlighting repeating elements in the architecture or creating visual interest on a blank wall. Scalloping can also create a silhouetted lighting scene.



RC, VC, PS

POPULAR DOWN LIGHTS

DESIGNER SERIES		
	DE 3, 6, or 9 LED Aluminum	For down lighting at higher light levels, the directional DE down light is our most popular fixture.
	JB 1 or 3 LED Aluminum	The directional JB fixture is ideal for down lighting from trees and structures.
	VE 1 or 3 LED Aluminum	The VE is a hanging pendant light for down lighting from trees and other overhead structures.
	PS 3, 6, or 9 LED Aluminum/Brass	The PS is a top-mounted or pendant down light for overhead task or ambient lighting.
STANDARD SERIES		
	C-DL MR-16 Midgrade Brass	The C-DL down light is ideal for task lighting with surface-mounted applications.
	MD MR-16 Aluminum	The directional MD down light accommodates any downlighting project with flexibility in lamp options and accessories.

PATH LIGHTING: FIXTURES AND TECHNIQUES

Pathways

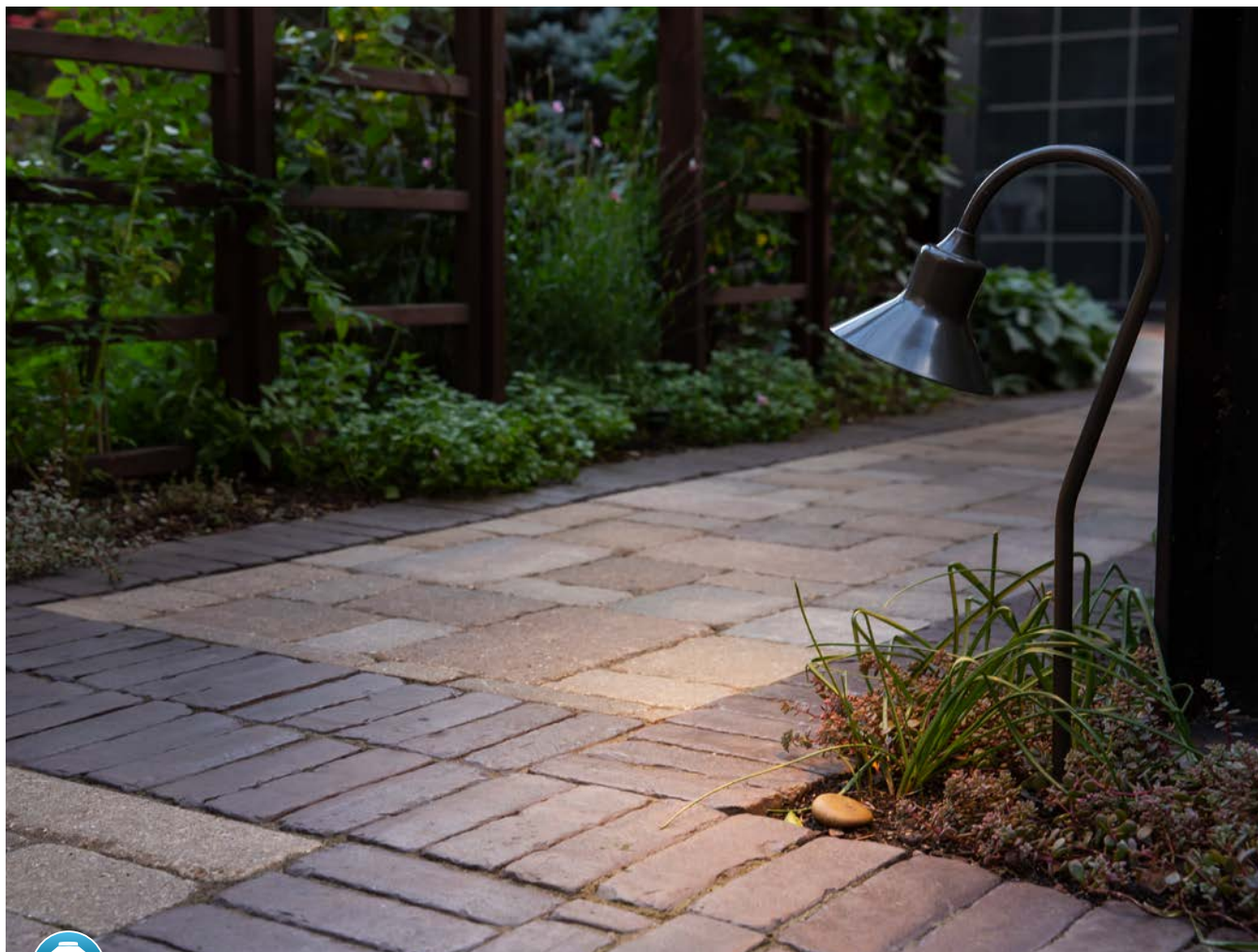
Path lighting is one of the most popular and proven techniques used in landscape lighting design. Use path lighting to help pedestrians safely navigate walkways and entryways or draw attention to hazards such as grade changes or steps. Specify path lights in spaces that can't be illuminated using down lighting from trees, eaves, and other architectural elements or with integrated wall-mounted fixtures.

Proper path lighting specification means using fixtures that blend seamlessly into the landscape during the daytime and deliver top performance once the sun has set. Always choose path fixtures that completely shield the light source from view.

Lighting Pathways Design Video



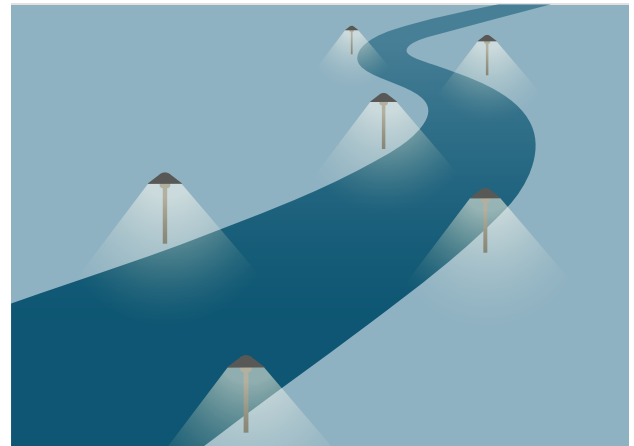
<https://fxl.com/lpdv>



TD, FG, TM, PL

Staggered Path Lights

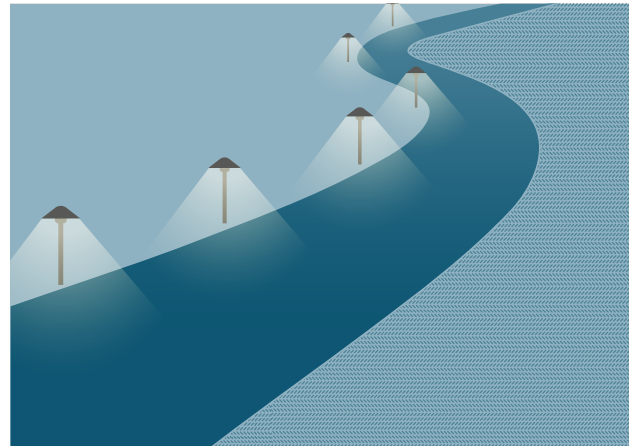
When using path lights to illuminate a walkway, stagger the fixtures from side to side with even spacing between each fixture. This strategy provides an adequate light throw to ensure pedestrian safety as well as visual interest along the path. Lighting a walkway by placing the fixtures directly across from one another can lead to an unattractive runway look and uses more fixtures than necessary. However, there are exceptions to this rule. At times, installing path lights across from each other in wide walkways or at an entryway creates an inviting setting.



SP

Single-Row Path Lights

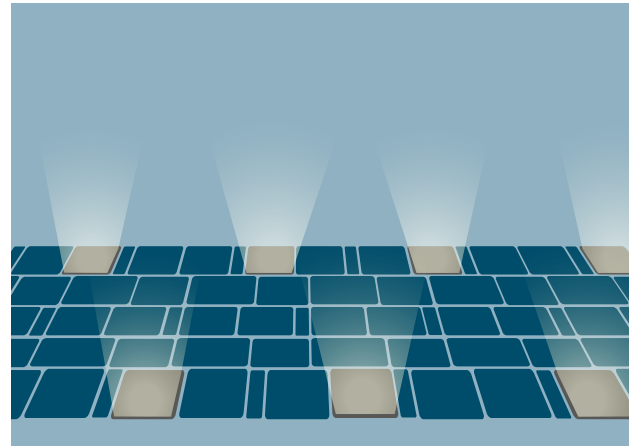
While elegant and effective, path lights can also be a maintenance challenge and trip hazard. A typical rule to ensure effective maintenance over time is to never install a path light directly in turf. However, following this rule can be difficult because pathways commonly border turf. One design-friendly way to overcome this challenge is to remove the turf on one side of the path and install a single-sided row of path lights.



M-PL

Marker Lighting

During the lighting process, you should typically seek to hide most light sources. Marker lights are the exception to this rule. Use them to add artistic elements to your scene, create interesting patterns, and clearly mark areas that guests should be aware of, like pathways or pools. Marker lights are prime candidates for the color capabilities of our flagship Luxor controller.



HP-48

PATH LIGHT SPACING

Generally, path lights look best when evenly spaced across the desired area, especially if it is a straight walkway. Be aware that path lights can cast bright spots and dark shadows on the ground. If the spacing is uneven, these effects will be especially noticeable when a customer walks the path a night. Exceptions to this rule can be made if the path is uneven or natural barriers like trees or rocks are present. In these cases, place the fixtures so they light the obstructions safely, even if doing so alters the balanced spacing.

To determine path light spacing, reference the FX Luminaire photometrics charts available on the specification sheets for each fixture at fxl.com. Spacing recommendations are determined based on traditional lighting needs.

Path Light Considerations

Path lights are often installed in high-traffic areas. To avoid damage to fixtures, place pathway lights 12–18" (300–460 mm) from a walkway. Do not install path lights directly in turf or other areas where frequent maintenance could cause damage.

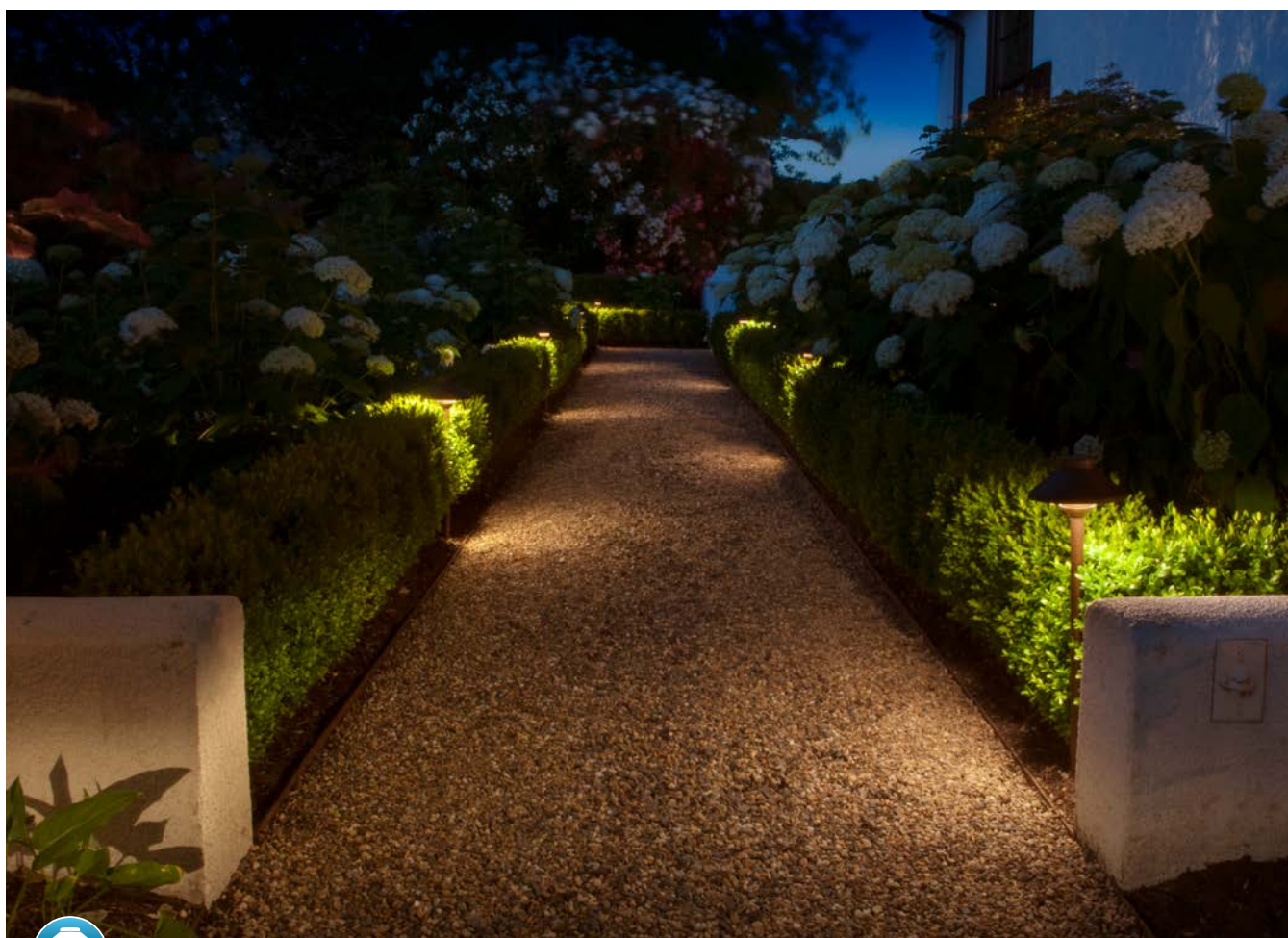


fc	5.0	0.5	0.1
lux	50	5.0	1.0

Recommended spacing for area lights:

9' (2.7 m) for residential applications at 0.1 fc (1.1 lx)

6' (1.8 m) for commercial applications at 0.5 fc (5.4 lx)



JS

POPULAR PATH LIGHTS

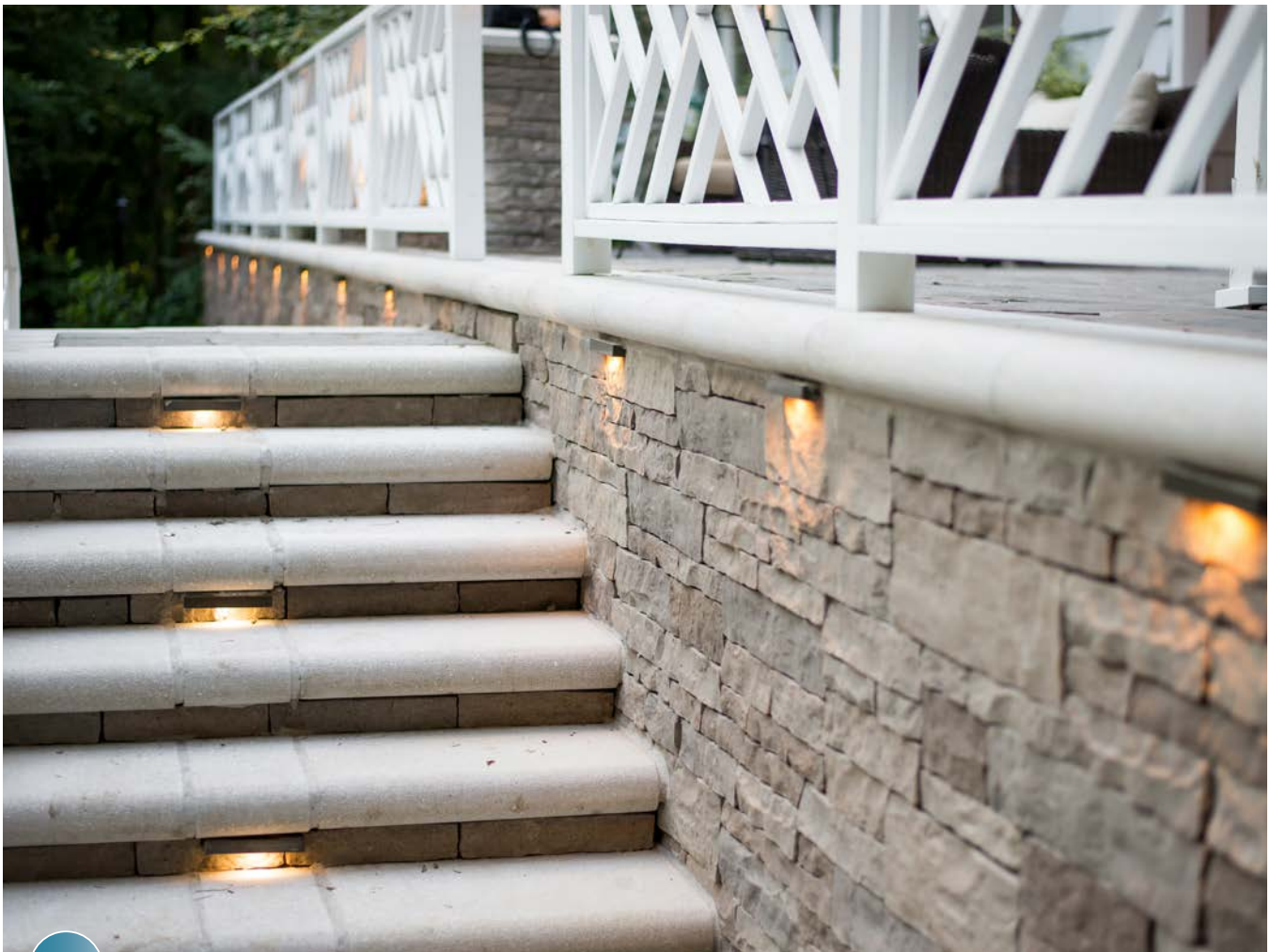
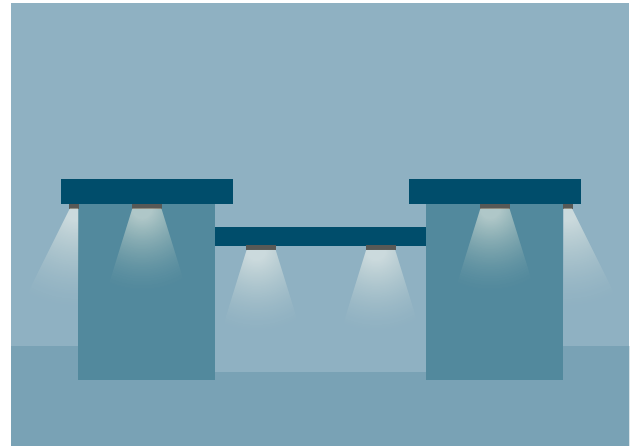
DESIGNER SERIES			STANDARD SERIES		
	JS 1 or 3 LED Copper/Brass	The JS path light's large, classic hat provides effective illumination for wider pathways.		CA G4 Copper/Brass	For illuminating large areas, the timeless CA path light provides ample light.
	DM 1 or 3 LED Copper/Brass	The elegant DM path light adds visual interest during the day and illuminates walkways at night.		SP G4 Copper/Brass	The petite SP path light illuminates gardens and walkways with a small footprint.
	PL 1 or 3 LED Aluminum	The PL offers a stylish presentation and doesn't compromise on shine.		SP-A G4 Aluminum	The SP-A is the budget-friendly version of the SP path light.
	TD 3, 6, or 9 LED Copper/Brass	The TD path light's organic curve suits any architectural style while providing maximum light output at a 45° angle.		C-PL G4 Midgrade Brass	The C-PL is a midgrade brass path light available in a large or petite cap size.
	M-PL 1 LED Aluminum	The modern M-PL path light has minimalist aesthetics and a long, soft light distribution.			
	PM 1 or 3 LED Aluminum	Designed to light walkways and serve as a marker light, the PM is a modern addition to any landscape.			

WALL LIGHTING: FIXTURES AND TECHNIQUES

Wall lights are fixtures that are mounted in or above hardscapes to illuminate outdoor structures. Seamlessly integrate wall lights into any outdoor lighting design to increase safety and define perimeters within a space while enhancing the ambience of the setting.

Ledge Lighting

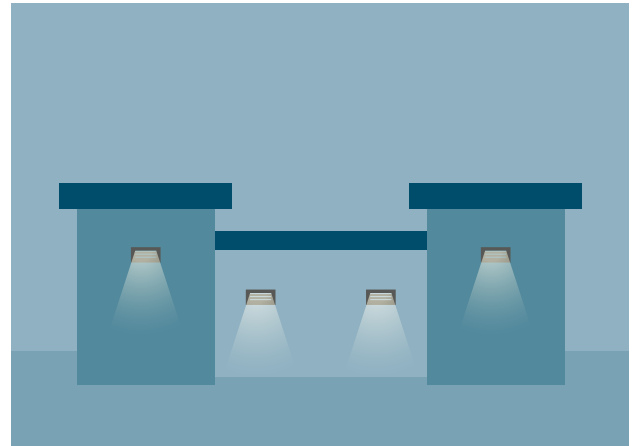
Hardscape elements such as walls, posts, stairs, and fire features are excellent areas for ledge lights because they usually border walking areas. This means you can use them to provide additional safety for users of the space. They also provide great texture for lighting. Ledge lights are sometimes referred to as under-cap lights. These fixtures are generally easy to install in hardscape settings and remain hidden during the day.



LF

Wall Lighting

When you want to illuminate a space adjacent to a wall, use wall lights. The wall provides a sturdy mounting location to light the surface below. A common practice is to use the rule of thirds and install the fixture in the center of the bottom third or on the boundary between the top two-thirds of the wall depending on the throw you want to achieve.



MO

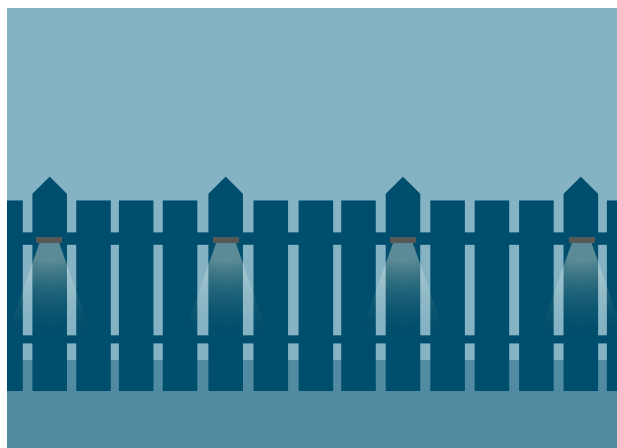
Deck Rails

This technique is designed to cast light down from a railing onto the surface of a patio or deck. Typically, wall lights are installed no higher than 24" (610 mm) above the patio surface to eliminate the potential for glare.

Lighting Hardscapes Design Video



<https://fxl.com/lhdv>



MS

POPULAR WALL LIGHTS

LEDGE LIGHTS

DESIGNER SERIES

**LF**

1 LED
Aluminum/Brass

The LF is our most popular ledge light, offering ZDC capabilities and premium construction.

STANDARD SERIES

**C-LL**

Integrated
Midgrade Brass

The budget-friendly C-LL ledge light offers robust light outputs.

**LD**

G4
Aluminum

The LD is our smallest ledge light with tool-free installation and servicing.

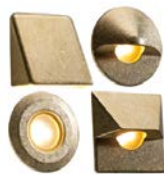
WALL LIGHTS

DESIGNER SERIES

**MS**

1 LED
Aluminum/Brass

The surface-mounted MS is a classic wall light with a soft, circular glow.

**MO**

1 or 3 LED
Aluminum/Brass

With four stylish faceplate options, the MO is ideal for any recessed wall light application.

**LM**

2 LED/G4
Copper

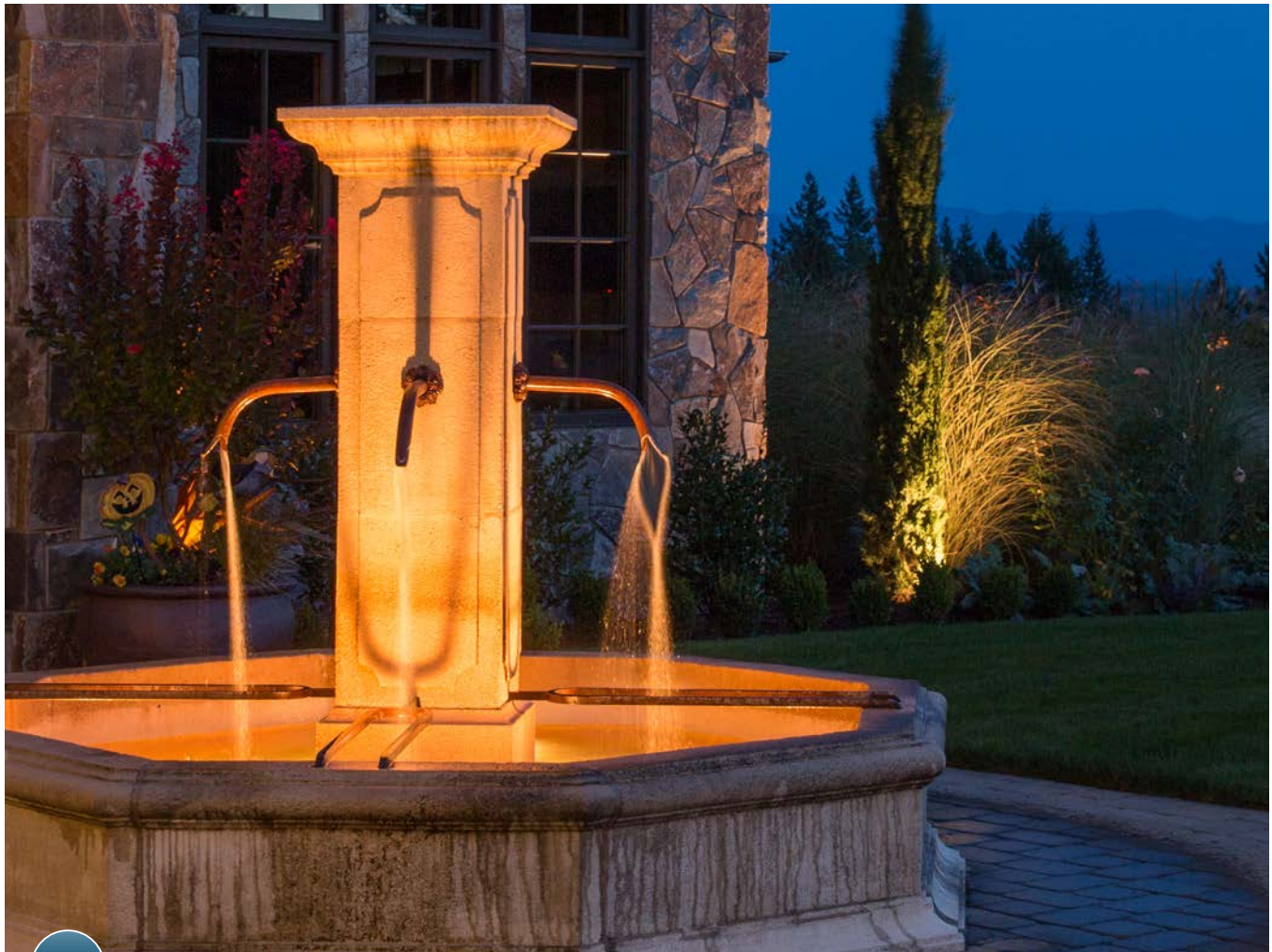
The LM is a traditional, louver-style step light that is seamless to install.

LIGHTING WATER FEATURES: FIXTURES AND TECHNIQUES

Illuminating water features with underwater lights is a popular and fun lighting technique. For best results, the body of water should be exceptionally clear. If the water is murky or contains floating debris, the result may not be visually pleasing. When placing underwater lights, be sure the light source is positioned so viewers don't see it.

Underwater Lighting

Mounting underwater lights in calm bodies of water creates a magical up lighting effect. The light will generally lose 10% of its brightness for each 2" (50 mm) of water submerged. Aim the light at underwater walls or features outside the water such as fountain jets, boulders, or plants.



LL

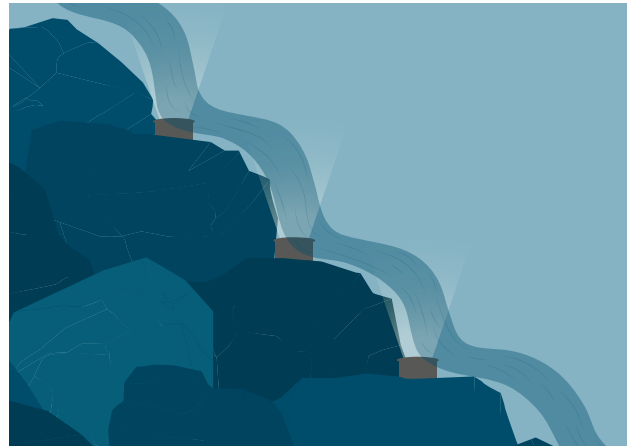
Refractional Lighting

Fast-moving water creates air bubbles. When light shines through moving water, it becomes scattered, creating a dramatic glowing effect. Use this technique on waterfalls, pond jets, fountains, or any turbulent water source.

Lighting Water Features Design Video



<https://fxl.com/lwfdv>

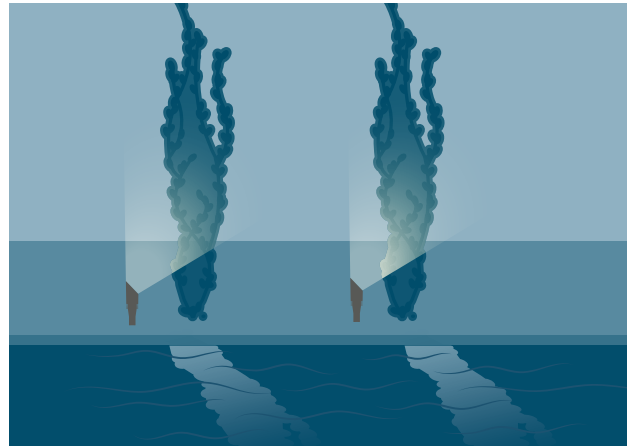


LL, LP

Mirroring

One of the most theatrical lighting techniques used by designers is known as mirroring. This effect is produced by casting light on subjects adjacent to a body of water rather than placing fixtures in the water feature. The dark body of water serves as a mirror of the reflections created by the source of light.

To add a mirroring effect to your lighting design, place up lights or down lights on garden elements adjacent to the body of water.



NP, KG, LC, DM

POPULAR UNDERWATER LIGHTS

DESIGNER SERIES		
	LL 1, 3, 6, or 9 LED Brass	The LL is an adjustable water light that offers versatility, longevity, and top performance.
	LP 1 or 3 LED Brass	The LP is a puck-style underwater light with solid brass construction for maximum durability.

LIGHTING ELEVATION CHANGES

Walkways

For safety reasons, it is always important to illuminate walkways, particularly where there is a change in slope or direction. Do not overlight highly reflective surfaces such as concrete or polished wood as the glare can draw attention from desired focal points in the landscape.



JS, CA, DM, MM, MS, LF, UN, HS

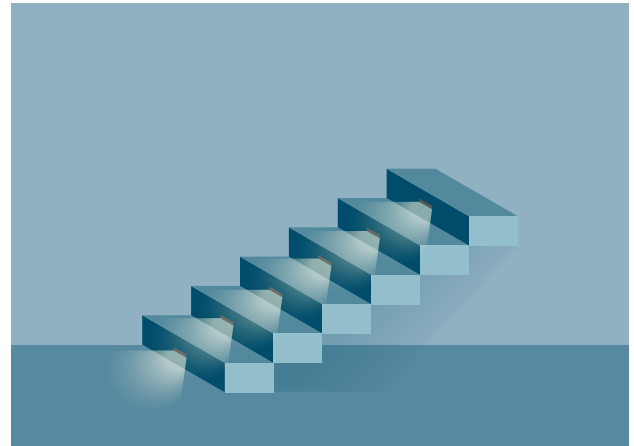
Stairs

To light stairs for safety, aim for lighting that is uniform and rhythmic. Mount fixtures in repeating patterns, under every tread or every other tread, or on an adjacent wall. Stairs can be illuminated from above with down lighting if installed carefully to consider pedestrian shadows and the potential for glare. Often, the best solution is lighting tight to the surface of the stair.

Lighting Stairs Design Video



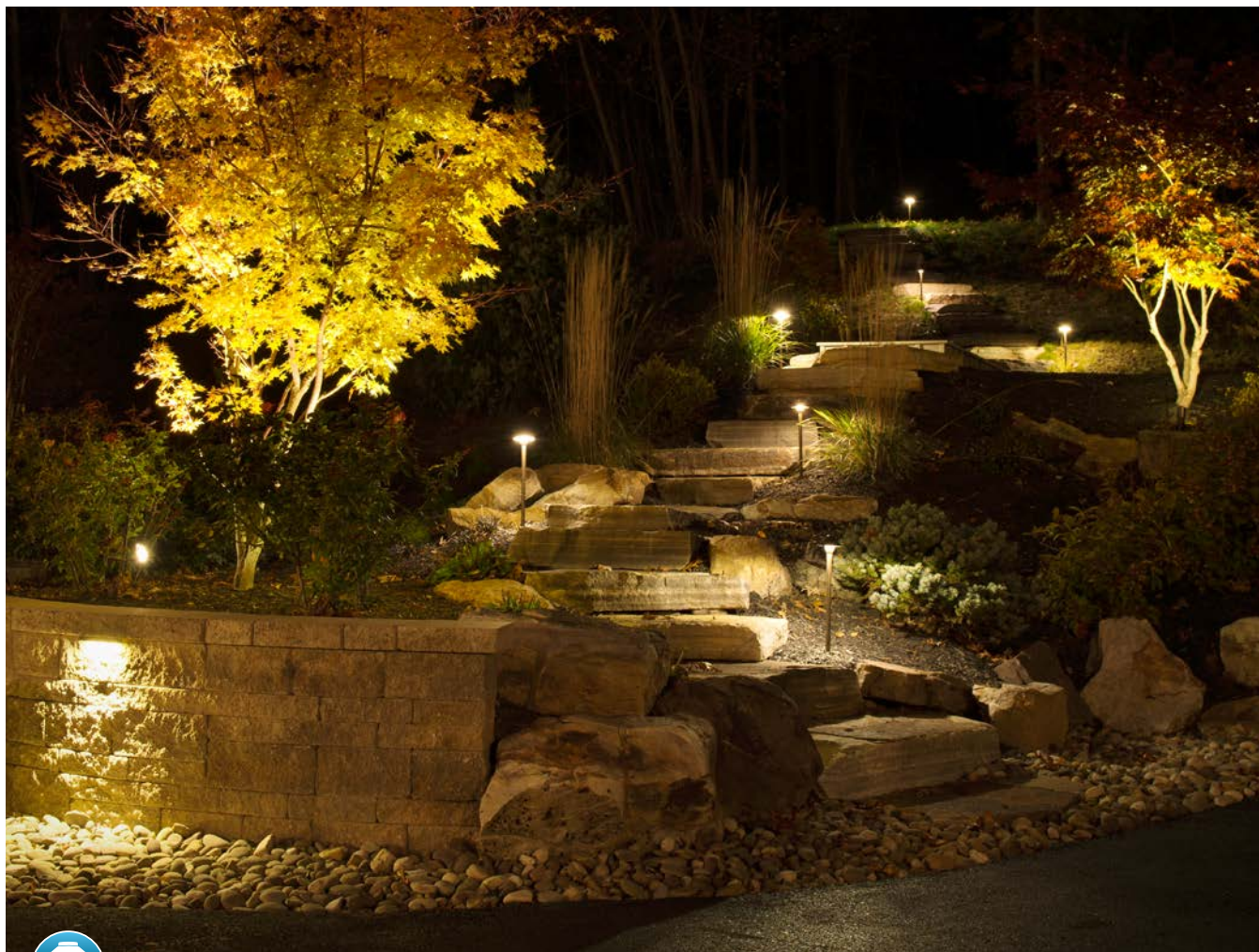
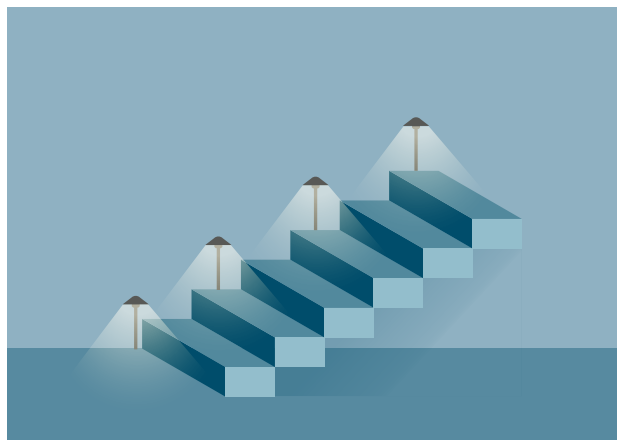
<https://fxl.com/lsdv>



LF

Steps

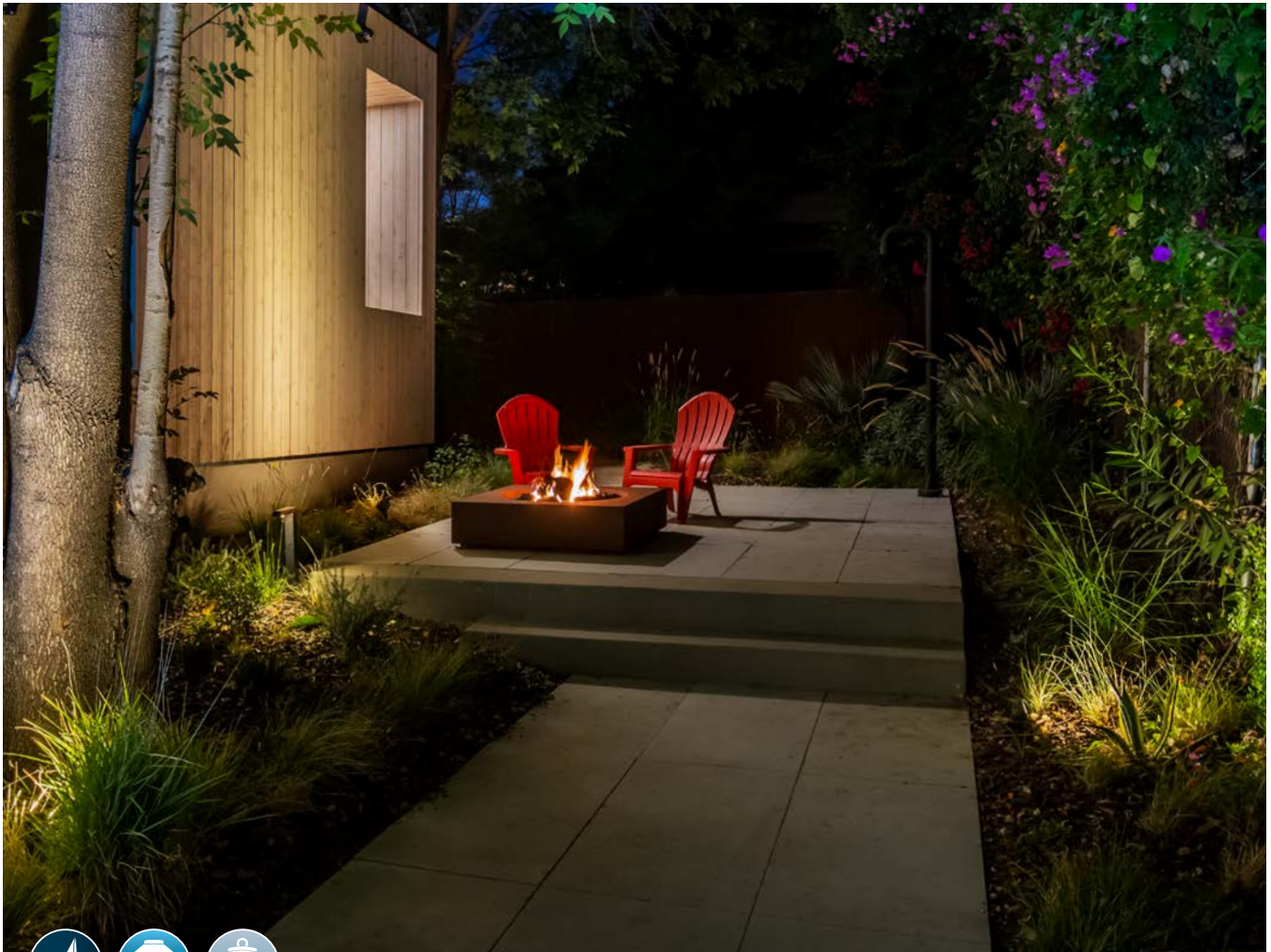
Elevation changes that involve a step or two are often best illuminated with path lights. The light will call out each change in level to safely direct the pedestrian down the path. Pay attention to the stem height of each fixture to disperse light correctly and minimize glare.



SP-A, HC, DM, JS

Down Lighting Stairs or Steps

If a tree or structure is located above the steps, you can use it to conceal overhead lighting. As with all down lighting, install an adequate number of fixtures to avoid dark shadows and minimize glare.



LC, NP, M-PL, DE

FIXTURE PLACEMENT AND EFFECTS

Where a fixture is placed is equally as important as the particular technique used for lighting. Two elements of fixture placement determine the effect of the light: 1) the glare (the brightness of the light), and 2) the beam (the angle and breadth of dispersal).

Placement

Always consider placement of each fixture carefully. If you place a fixture closer to the subject, the light will be more intense, while the total beam width will be narrower. Conversely, if you place a fixture farther away from the subject, the light will be softer and the beam width will be wider. A subtler effect is usually more desirable as it eliminates hot spots and promotes even light distribution within your desired setting.

Beam Angles

Be sure to identify the correct adjustment angle of the fixture in relation to the object or surface to be lit. The angle is the degree at which the light is spread out from the source. The area and direction where the light is most concentrated is known as the beam angle. This area is responsible for about 50% of the light. The remaining 50% is distributed between the field angle (about 15% on each side right outside the beam angle) and the spill angle (about 10% on each side on the outer edge). Choose the right angle to produce the desired effects.

Bordering

Avoid overlapping the beam angle of one lamp with that of an adjacent fixture. Bordering is the effect created by limiting the effects of one beam angle produced by one lamp. For effective bordering, space separation is key.

Adding Depth

Create layers of light in your design (i.e., light objects at close, medium, and long distances) to add visual depth. For example, lighting trees at the property border with the brightest, most direct light will naturally draw the eyes to the space beyond the more subtly lit foreground elements.



Place fixtures within the landscape to create a naturally inviting point of entry for a home.



Bordering effects at the entrance of this home work together with the house lighting in the background to create an elegant yet bold scene.



CHAPTER 6: THE TRANSFORMATIVE POWER OF LIGHTING DESIGN

FROM FUN TO FUNCTIONAL AND EVERYTHING IN BETWEEN

Now that you're familiar with standard lighting techniques, it's time to learn how to use them to create functional, aesthetically pleasing outdoor lighting designs.

The benefits of a properly designed exterior lighting are significant. Foremost, landscape lighting allows homeowners to enjoy their outdoor living spaces into the evening hours. As a contractor, you can selectively use lighting design techniques to choose what should be seen and what should be kept hidden in the shadows. Lighting can transform the simplest garden into a nocturnal masterpiece with layers of beauty and elegance throughout the exterior environment.

Good lighting design opens a creative door that will warmly invite visitors to a front entryway, accentuate colors that may be muted during daylight hours, and provide romantic, ambient moonlighting effects. Landscape lighting will enhance the textural qualities of tree bark, encourage outdoor entertainment, and uncover unexpected treasures throughout the landscape once darkness sets in. To deliver these effects, you must become an expert at design. This way, you can better show your clients why they should pay for the system that you're asking to install on their property. Anyone can learn to install a system, but mastering the artistry of landscape lighting design takes time and effort. As a professional, you will be competing with the status quo, other contractors, and cheap landscape lights offered by mass retailers. Having a strong vision with the confidence to execute a well-designed lighting plan will make you stand out to your clients and help you close those deals.

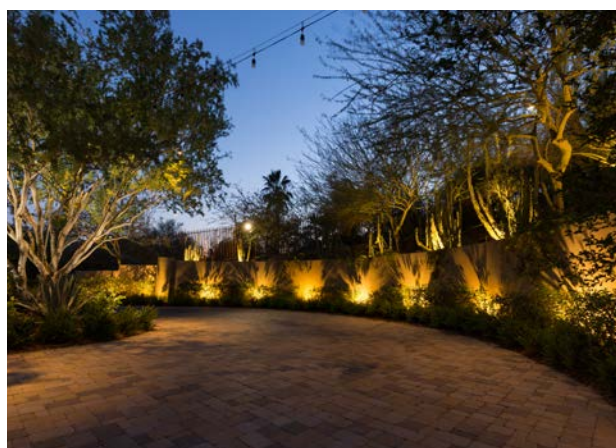
This section provides a solid foundation for you to become a proficient lighting designer. It covers client and site considerations, the design process, and a variety of lighting techniques. Before you can effectively create a lighting design, you must have a strong understanding of the tools you have at your disposal and what they can do. You need to learn the effects created by different lamps and fixtures, and the best way to do that is to see them with your own eyes.

Purchase or borrow an FX Luminaire demo kit if you don't have one. This will allow you to gain firsthand knowledge of various types of lights, see the effects they create, learn what works, and find out what doesn't work. Try color filters and accessories such as baffles. See how different shroud lengths affect the design. Once you start to get a feel for these tools, explore how zoning, dimming, and color can greatly enhance your designs and diversify your palette of options.

Like a theatrical stage, no two landscapes are exactly alike. Hence, there is no single way to illuminate the landscape "stage." Think about all the variables a landscape offers: walkways, entryways, trees, flowerbeds, gardens, boulders, walls, perimeters, sculptures, art, architectural elements, water features, fire features, outdoor dining areas, outdoor kitchens, play areas, and more. The job of the lighting designer is to bring these key "actors" of the landscape stage to life after the sun sets.



Down lights in the trees above cast subtle moonlit shadows.



These properties showcase two distinct lighting design styles: soft and subtle compared to bold and brilliant.

GETTING STARTED WITH LIGHTING DESIGN

The purpose of landscape lighting is to carry the enjoyment of the outdoor environment into the evening hours by adding a new dimension to the home. Good lighting design subscribes to the Rule of Three. As it relates to developing a lighting design concept, the three critical questions lighting artisans need to answer are:

- Why should this particular setting be illuminated?
- What elements in the setting should be illuminated?
- How can you use the power of light to achieve desirable results for the client?

Lighting as Art

Landscape lighting design is more than engineering and electrical science — it is also a highly subjective art. The finished product of the design is largely a matter of personal taste. Some clients prefer soft and subtle lighting, while others enjoy spectacular brilliance. Regardless of personal preferences, your design process should always begin with an understanding of the client's wants, needs, and expectations.



In this example, the house is beautifully illuminated with color to match the pool.

Determining Client Considerations

What motivates homeowners to invest in landscape lighting? It is prudent for you to understand the reasons why a client is seeking a landscape lighting system — or if they don't know, to help them find out. Knowing the exact motivations behind a client's decision to install an exterior lighting system will help you understand the emotional basis for the decision. For example, are they looking for security? Curb appeal? More enjoyment of their outdoor space? All of the above? Exploring the client's expectations will assist you in evaluating the feasibility of the project and determining the best course of action.

Understanding the client's lifestyle will also help you become familiar with the intended use of the spaces to be illuminated. Ask probing questions: Do you entertain outdoors? Are there dark steps or paths where safety is a concern? Is there a specific architectural element that you want to showcase? Who will perform the installation and maintenance of the lighting system? All these questions can be summed up into one key consideration: What does the client want to see at night?

As the lighting designer, you should always consider total energy consumption, light pollution, and the controller that will be used to switch the lighting system on and off. These major factors immediately come into play when you are creating a design plan for how the landscape will be illuminated.

As you grow in your skills as a designer, you will be able to clearly and confidently explain why a client should invest in a landscape lighting system. You will have immediate answers for your client's questions. And you will be ready to begin the process of developing an executable plan to meet the client's needs.

To get to this level, there are a few primary steps you'll follow to provide a solution your client is happy with, and that you are proud of. Let's examine each one so you can become comfortable with the process.

HOW TO INTERVIEW THE CLIENT

The first step is interviewing the client. This process is usually best started on the initial phone call. You must qualify the client to see if she or he is truly a potential customer. Have a list of questions for the client to answer before you set up any in-person meetings. Find out if the expectations are realistic, and determine whether your company can meet them. You don't want to waste your time, or the client's. Having a process and a set script for this initial contact will ensure that all potential customers are handled in the same way. You can adjust the script as needed, but this interaction must be planned from the get-go so you are always in control of the conversation.

Once you've determined that there is potential for a mutually beneficial relationship, set up an in-person interview. Then what? At this point, you should have a thorough list of additional questions to use in developing your design. These questions will help you explore creative possibilities, identify the client's primary objectives, and give you a chance to explain what the client can expect from your company in more detail. Take your time with these questions. Allow yourself to truly know the client's ideas and needs before you ask to tour the property. Understanding the client's desire and expectations is essential before starting any conceptual design work.

Ask the following questions during the initial interview:

- ☐ Is this an upgrade to an existing area or are we beginning an all-new project?
- ☐ What are your expectations with a new project?
- ☐ What is your ideal vision and result?
- ☐ How often do you think you will use the area?
- ☐ Is there power and access at the location to accommodate lighting needs?
- ☐ What are the viewing angles from various parts of the project location?
- ☐ What are the viewing angles from the utilized area?
- ☐ How will people access this area once completed?
- ☐ Is there a need for lighting near the entry points?
- ☐ Are there paths leading to and from the area?
- ☐ How will you use the area at night?
- ☐ Will you use the area passively, or will there be any reason for task lighting?
- ☐ What would make this project a success?
- ☐ Are there any examples of work in the neighborhood that you feel are successful?
- ☐ What are your ideal start and completion dates?
- ☐ Have you done any research on this project?
- ☐ Are there any architectural review committees or a homeowner's association that need to be involved?
- ☐ Have you, or are you going to, speak with other contractors?
- ☐ If so, how will you determine which contractor you want to partner with on this project?

After gaining essential knowledge about the client and the project, you will know if there is a fit between your company and their needs. Once you share how you can meet their request, and show the client examples of your work, you should obtain a verbal commitment to move forward with the proposal process.

IDENTIFYING DESIGN OPPORTUNITIES

In the preliminary stages of the lighting design process, the three most common answers to “why light” are:

- Ambience, aesthetics, and curb appeal
- Functional and task lighting needs
- Safety and security considerations

Understanding how these concepts work independently — and together — to influence the final lighting design will improve your customer engagement and business development skills.

Ambience, Aesthetics, and Curb Appeal

Clients who want a landscape lighting system are making a substantial investment into their homes and outdoor living spaces. Oftentimes, they want their investment to be clearly visible after the sun has set. Enhancing the aesthetic value and curb appeal of their home during the evening hours is one of the primary motivations to add lighting.

Landscape lighting allows clients to enjoy the beauty of the architectural and environmental elements of their home long into the night. With landscape lighting, you can add drama and excitement to the space. You can provide stimulating scenes and create dynamic visual interest that can only be seen during the evening hours.

Exterior lighting adds depth and dimension to the residence and expands the spatial relationship between the home, the garden, and other elements of the landscape. Use your imagination to create striking silhouettes, dramatic shadows, and magnificently mirrored images. Let the viewer discover unexpected elements that are impossible to see during the day.

Functional and Task Needs

Landscape lighting is commonly used to accomplish specific tasks such as illuminating an entryway, highlighting a walkway, or drawing attention to a special tree or sculpture. It can also create a mirror effect off the surface of a pool or water feature, brighten an outdoor kitchen, or light up an outdoor dining area. This is generally referred to as task or functional lighting because it is designed for a specific purpose.

Safety and Security Considerations

An important function of outdoor lighting is to provide safety and security for the residence. Illuminating entries, walkways, steps, and other nighttime hazards as well as providing sufficient light to discourage intruders has long been a strong argument for the design and installation of exterior lighting.

Proper illumination of steps is accomplished by casting light down upon the stairway treads, with a lesser amount of light in/on the risers. This effect creates a slight contrast, allowing for safe passage up and down the stairway. To achieve this effect, the source of light must be positioned slightly in front of the risers.

The Illuminating Engineering Society (IES) Security Lighting Committee researches and develops best practices for lighting to enhance the security of people and property. According to the committee, lighting for home security must have the following aims:

- Provide a clear view of the surrounding area
- Allow for facial recognition at a minimum distance of 30' (9 m)
- Help people avoid criminal threats and/or defend themselves
- Enhance the sense of safety when spending time outdoors

CONDUCTING THE SITE ASSESSMENT

The site assessment should begin even before you physically arrive at the location. Once on the premises, there are additional essential considerations for conducting the evaluation. Let's take a look at each step.

Municipal Codes and Laws

You should research the municipal codes for the area to know if there are any restrictions on outdoor lighting installations. For example, in the state of California, lighting installations must comply with Title 24 regulations for energy efficiency. More than a dozen states have dark sky requirements in place to limit light pollution, conserve energy, beautify the environment, and promote scientific research. Others include the following: wildlife-friendly laws, regulations regarding pool/spa proximity, electrical codes, and other requirements. Knowing this information will help you in your initial discussion, keep you in compliance with the law, and provide you with valuable information as you plan your design.

Pre-Visit Digital Assessment

Use a mapping service like Google Earth™ Pro to find the client's address and preview the site before you visit. At this time, you can also estimate the size of their lot and begin a plot plan to use as your design template. As you look at the property, take notes on potential viewing angles, interesting trees or other objects to possibly light, and anything else that you feel is important.



Use a mapping tool like Google Earth Pro to view the property before visiting the site.

During the Visit

While the client shows you around the site, ask them how they use the property, including viewing angles. This is the time to focus on security, aesthetics, and task lighting.

Once you have an understanding of how the client wants to use the property, as well as the specific functions they desire for lighting, present them with basic lighting options and describe the lighting effects that each will produce.

Based on this assessment, use your existing plot plan or make a simple sketch of the property with scale measurements and note general lighting plans by area. Include items to be illuminated, task lighting opportunities, and power supply considerations. Developing a proper draft plan will help you save significant time and labor later in the design process.

Take lots of notes on the types of materials that will be illuminated, and any architectural features that you want to highlight. Look for areas that may require extra care or additional labor to install, and note the soil conditions you encounter. While you are completing the site survey, take plenty of pictures to capture the colors of surrounding architecture, including accent colors of trim and any stylistic details. This will help you select the correct fixtures based on material, style, and finish. Be sure to mark photo locations on your sketch. The more information you have, the easier it will be to develop a plan that will accurately show your intended layout.

NOW, WHAT TO LIGHT?

Once the purpose of the lighting design is determined and the question of “why light” is sufficiently answered, move forward in the design process by further examining the site. Use the client’s unique lighting stage to identify the wealth of lighting opportunities. The time has come for you to cast the actors.

Site Considerations

During the site analysis phase of the design process, you must identify what to light.

Walkways, pathways, and stairways are always practical subjects to illuminate. The architectural features of the residence can serve as the primary focus. Specimen trees, flowerbeds, sculptures, and statues are also great candidates for illumination. The key is to keep from overdoing the lighting design. As overacting can ruin a good play, it is not necessary or visually pleasing to attempt to recreate daylight by lighting every aspect of the space. Take detailed photos of the property as you walk the site, carefully noting spaces and objects worthy of illumination from different angles.



JS, LF, NP

SITE ANALYSIS

A thorough site analysis will allow you to evaluate and recognize opportunities for your design plan. When assessing the lighting stage prior to creating the plan, note the following:

Determine Viewpoints within the Setting

Pay close attention to where the lighting effects will be viewed. From the street? The sidewalk? A window? As the client exits the rear patio door? Knowing the directions and vantage points where the lighting will generally be viewed will allow you to create a plan that provides maximum effects with minimal glare.

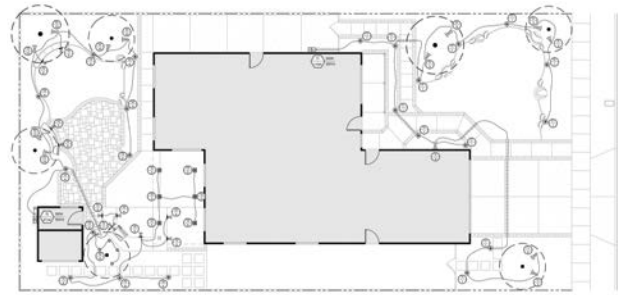
Find the Key Focal Points

Determine the primary landscape or architectural focal point that will be illuminated. Ask the client what they consider to be the key focal point. Follow up with questions to help guide the conversation and narrow down the possibilities. What is the area or object with the highest visual interest? If there is one object visitors must see, what is it? If there are secondary focal points, take note of them as well. However, always remember that you do not want to create visual overload by attempting to highlight too many subjects.

Identify Opportunities for Ambient Light

Ambient light is soft illumination that evenly lights up an area. Often used to set the mood for a space, ambient light is perfect for places where people gather or spaces that are frequently used. Patio decks, walkways, outdoor kitchens, and dining areas are excellent subjects for ambient light.

Ambient light sources can illuminate from above with down lights or reflect off walls and ceilings with wall washes.



To assist with fixture placement, carefully note viewpoints within the setting on your plot plan.



NP



NL, JB

Identify Opportunities for Transitional Light

In the evening, landscape lighting can ease the transition from darkness to the brighter interior lighting that people encounter inside a home. Likewise, the eyes must adapt when going from bright interior lighting to the outdoors. Outdoor lighting helps accommodate these factors.

In addition, you can use transitional lighting to soften visual voids between subjects commanding focal glow and areas of ambient luminescence.

Determine the Depth of Field

Depth of field is defined as the distance between the nearest and farthest objects in the field of vision. As it relates to landscape lighting, the depth of field can be expanded or contracted depending on the placement and zoning of lighting fixtures. When surveying the property, determine if the project includes opportunities to add or limit the field of vision. Also, take note of the perimeter of the setting. How far does the depth of field extend?

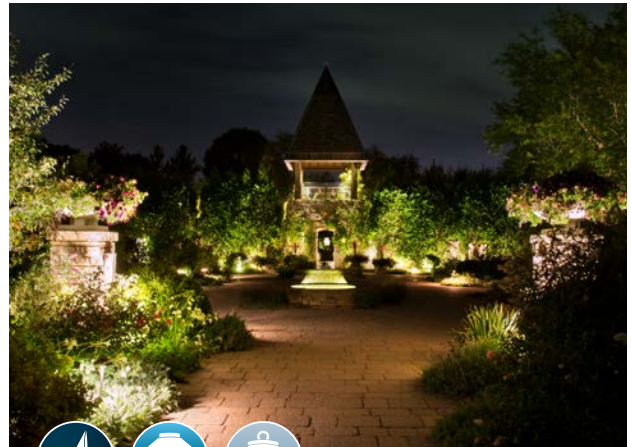
Bright lights in the foreground of the lighting stage will limit the depth of field by creating a visual wall of light. If objects in the middle of the yard are illuminated as key focal points, the eye will have difficulty seeing anything beyond that point. The eye will always gravitate to the brightest source of light.

With the Luxor system, you can create groups of lights and dynamic lighting themes. This allows you to change the depth of field by varying the lighting intensity of subjects throughout the evening.

Lighting Perimeters Design Video



<https://fxl.com/lpedv>



Trees, Shrubs, and Plants

Not all trees, shrubs, and plants make for good lighting subjects. During your site survey, determine which flora might qualify as key focal points. Be sure to take note of flowerbeds, planters, and potted plants as well. Dark-leaved trees such as the magnolia are difficult to illuminate. Airy, light-barked trees like the sycamore make for splendid lighting subjects.

Consider the plant material's texture, color, and eventual full-grown canopy size when surveying the site. Also pay close attention to where potential fixtures will be placed to adequately illuminate the desired landscape features.

There is no better way to determine if a plant specimen can be adequately lit than by setting up an evening demonstration and experimenting with different lighting options.

During the daylight hours, the yucca gets lost among its neighbors in the landscape. By selectively illuminating the desert shrub, stunning visual interest is added to the scene at night.

The final maturity level, or size, of the trees or shrubs to be illuminated within the landscape will determine the number of fixtures and the intensity of each light source. In general, larger trees and plants may need multiple fixtures for proper illumination, whereas smaller plants and shrubs will require less light and fewer fixtures.



Keep in mind that the 15 gal (57 l) specimen tree will one day have a canopy of 30' (9 m) or more. While a single lighting fixture may work today, several years from now the same tree may require two or more fixtures for adequate illumination. Always properly size cables and transformers to accommodate the capacity that will be needed to illuminate the tree over time.



The yucca plant is highlighted with up lights.



Cross-light mature trees with multiple fixtures to illuminate the full canopy at night.

Soften Beam Edges with Frosted Lenses

Fixtures can be equipped with a clear lens that creates crisp shadows and a scalloped design on the wall. A frosted lens mutes shadows and gently feathers the light outward to eliminate the definitive halo of light. When the desired effect is diffused lighting, specify frosted lenses.

Creating Contrast

Lighting design is also defined by the absence of light. Balance the opposite characteristics of light and dark to create an effective lighting theme. For example, shadow gives shape and form to an object. Without shadows, an object will appear flat.

The difference between what is illuminated and what remains in the dark creates visual contrast and gives dimension to the lighting stage. By creating contrast between the lit and unlit parts within a scene, you can bring out the shapes of objects in an interesting way.

Intensity

Specify the lumen output of each fixture to achieve the desired lighting level. The higher the lumens, the more intense the lighting becomes. Use zoning and dimming to manage the intensity of light in designated areas that are used for specific activities. For example, in an outdoor kitchen, overhead task lighting might be switched or dimmed separately to accommodate meal preparation or cleanup.

Pots and Planters

Install fixtures in pots, planters, and urns to protect them from foot traffic and maintenance equipment. Pot lights serve the dual purpose of illuminating a walkway at night and enriching the nocturnal beauty of the planted material.



The up light on the left has a clear lens, while the one on the right has frosted lens.



The focal tree provides a dramatic contrast when illuminated against the dark backdrop of the yard.



CA

Statement Pieces

Statement pieces like works of art, sculptures, and statues are more than beautiful subjects to illuminate — they are often a source of pride for the homeowner. Note all works of art and plan how you will incorporate them into the lighting plan. If there is a flag present, be sure to illuminate it as well.

Boulders and Rock Formations

Place a single fixture in front of a rock cluster or large boulder to create a hot spot and flatten its appearance. To add more depth and definition, use a cross-lighting technique that places one or more fixtures at an angle to generate defining shadows.

Illuminating Textures

To add texture to the lighting design, identify items that have rough surfaces or appealing textures and illuminate these subjects. Casting light upon the spines of a desert shrub, the bark of a redwood tree, or the surface of a rugged rock outcropping will create visual curiosity.

Lighting Specialty Features Design Video



<https://fxl.com/lstdv>



NP, RW



RW



RW

Meditation Gardens

If the site has a quiet spot or private area in the garden, include soft down lighting to create a meditative area for contemplation and relaxation. The scene to the right was down lit from adjacent trees.

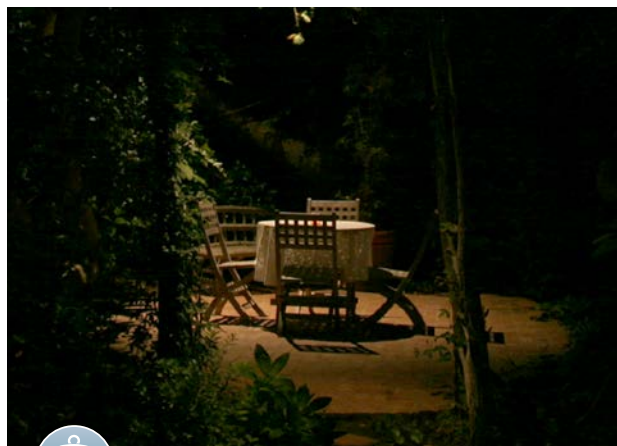
Water Features and Fountains

If the site includes a pool, consider using it as a reflection pond. Include up lighting on adjacent trees or structures, which will be mirrored off the surface of the pool.

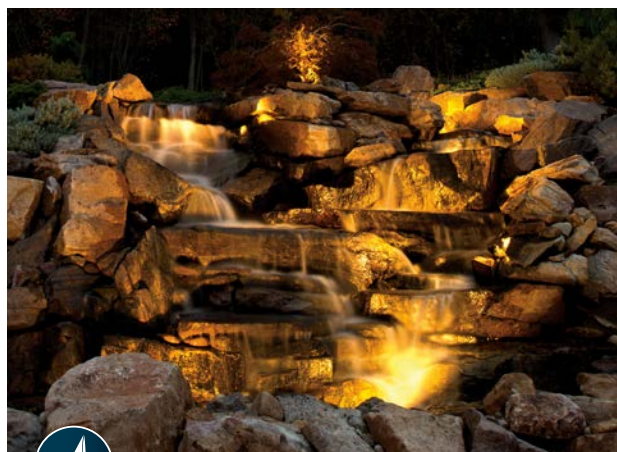
Consider illuminating a waterfall from behind or at the bottom of the cascade. Keep in mind that placing underwater fixtures in murky water is never recommended.

Fire Features

Place fixtures around a fireplace to guide guests to a fire. Use a color temperature of 2,700K for your light source to match the warmth of the fire and help guests adjust to the contrast between the fire and its dark surroundings.



VE



LL



LF

Areas with High Foot Traffic

Nighttime pedestrian safety in walking areas should always be considered when designing a landscape lighting plan.

- Are all paths, steps, and stairs adequately illuminated?
- Is the front entrance sufficiently lit?
- Are there changes in grade or direction that need to be addressed?
- Can walkways be illuminated using down lights or will path lights be required?
- Can the reflection off an adjacent wall from a wall wash fixture provide enough light for safe passage?



NP, JB



NP, LC, TM

ARCHITECTURAL CONSIDERATIONS

Illuminating the Home

The primary focal point is often the residence itself. For most clients, their home is their biggest investment and they want it to shine proudly day and night. During the daytime, homes are showcased by the same sunlight that illuminates every other home in the area. However, a smartly lit home will stand out splendidly in the evening and nighttime hours.

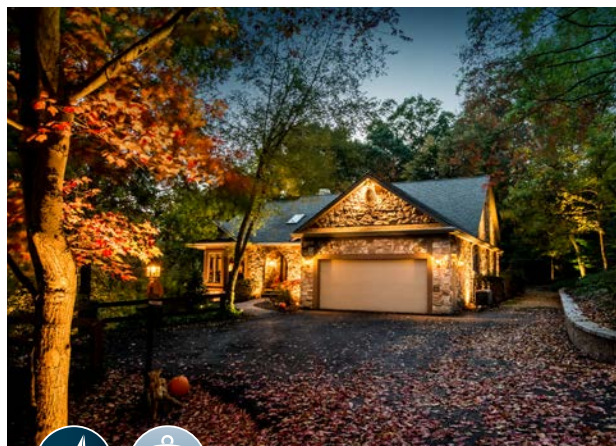
Beyond curb appeal, a well-lit home is more likely to discourage intruders than one sitting in the shadows. Look for lighting opportunities that enhance the structure while increasing security.

Entryways

The entrance to any residential property should be adequately illuminated not only for curb appeal, but for safety and security reasons as well. Conduct an evening site study in addition to one during the day. When doing the evening viewing, take note of how the entry is currently illuminated. Is it adequately lit or could the entryway lighting be improved?

Textured Walls and Columns

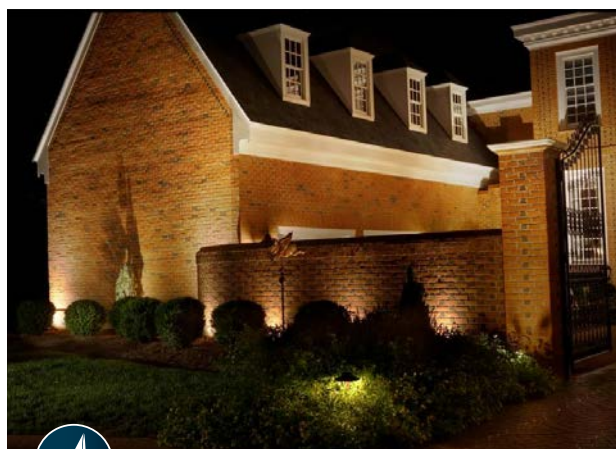
Textured walls, brickwork, stones, and rock columns make for ideal lighting subjects. Take note of these elements when performing your site survey.



NP, DE



NP, PB



NP, PB

Outdoor Dining Areas

Outdoor kitchens and dining areas are popular across the country. If the project includes areas like these — or other areas designated for evening relaxation — be sure to incorporate them into the lighting scheme. Ask your client how and when they use these spaces. Often, you can create different zones that can be switched on and off based on the activity level within the space.

Outdoor Structures

Arbors, outdoor patios, and trellises are prime candidates for down lighting because you can use them to create spacious ambient light. Roofs, eaves, and overhangs provide excellent locations for mounting down lighting fixtures. Make note of these physical elements and how they might be incorporated into the down lighting scheme.

ENVIRONMENTAL CONSIDERATIONS

Seasonal Changes

In many parts of the country, the look and feel of the landscape changes with the seasons. Deciduous trees shed their leaves in the fall, which creates whole new opportunities for lighting. Keep in mind the effects of the seasons when developing the lighting design.



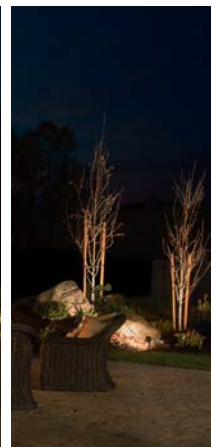
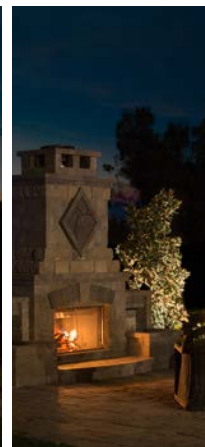
PS



JB, NL



NP



Beautify the Scene with Color

From holidays to special events, changing the color of the light adds a fun vibe to the scene. Install a colored lens on FX Luminaire Standard Series fixtures to alter the color of the light output. If you're using Designer Series fixtures with the Luxor system, you can choose from over 30,000 vibrant hues to create the perfect color scheme for any scene.

For even more dramatic effects, use colored and frosted filters. Blue and green filters, for example, are perfect for emphasizing natural foliage.

Use an amber filter on a fixture shining toward a stone wall, a tree trunk, or the statue of a horse (as pictured below) to add warmth and richness to the scene.

Stonework, sculptures, and hardscape are excellent canvases for using color filters to set the mood.



Use color filters to accentuate the striking hues of evergreen trees.



The tree in the foreground requires a cooler color temperature than the warm stonework in the background.



Changing the color temperature can greatly affect the mood and appearance of an object.

Competing Lighting Sources

You should always visit the project site at night. Doing so will help you identify the presence of competing light sources that could interfere with your lighting scheme. Streetlights and exterior house fixtures such as porch lights are two examples of competing sources that must be considered. In the image to the right, the lighting on the palm is diminished by the glare from the streetlight. You should also determine if your planned lighting design will spill over onto other properties.

ADDITIONAL CONSIDERATIONS

Managing Glare

Glare in landscape lighting is unattractive in all circumstances. Bright light from ill-placed fixtures is not only unsightly — it can create dangerous hazards for drivers or pedestrians. When surveying the project, note any glare problems that could result from incorrect fixture placement, and take steps to prevent them.

To detect glare issues, observe traffic patterns in relation to planned fixture placement areas. Ground-level up lights are particularly subject to creating glare. If you can't change the location or angle, consider using a hex baffle with each fixture to shield the light source from direct view. The client may also have architectural lights on the house (e.g., coach lights) that produce a large amount of glare. As part of your design proposal, you might suggest relamping these fixtures to reduce or eliminate the glare.

Lighting Maintenance

During your site visit, you'll also want to consider the maintenance needs required after installation. Light sources will eventually need maintenance, and some fixtures will need to be relocated as trees or plants grow, or as the outdoor space changes. One of the key benefits of an FX Luminaire Designer Series LED system is the long lamp life of the LED circuit boards. This means happier customers and less maintenance than would be required with incandescent lamps.

ILLUMINATING THE STAGE

Once you've blocked the lighting stage, written the script, and cast each actor in your lighting performance, it is now time to specify how each lighting subject will be treated. At this point, you must decide which lighting techniques to use on each subject as well as the fixture and light source needed to achieve the desired result. Will you use Standard Series fixtures with drop-in lamps, or Designer Series fixtures with Luxor technology?



Be aware of street lights that will compete with landscape lighting.



Prevent undesired glare with proper fixture placement, fixture angles, and shielding accessories.



CHAPTER 7: SPECIFICATION

CHOOSING THE BEST LIGHT SOURCE

When specifying FX Luminaire fixtures for a lighting design, you must choose the type of fixture: Standard Series fixtures with drop-in LED lamps or Designer Series fixtures with advanced integrated LED boards.

Although up-front costs for LED systems are higher than traditional lighting systems with drop-in incandescent lamps, FX Luminaire LED projects are very cost-effective over time. Remember, the main advantages of LED light sources include the following:

- **Energy efficiency:** LED fixtures consume 30–80% less energy than incandescent lamps.
- **High lumen per watt output:** LEDs offer up to 90 lm/W, while incandescent fixtures only offer 16 lm/W.
- **Long life:** Up to 55,000 hours compared to just 2,000 to 4,000 hours for halogen lamps.
- **Upgradable and serviceable:** LED boards are easily field serviceable and upgradable to maintain revenue streams over time.
- **Environmentally friendly:** LEDs do not contain toxic mercury or harmful gases.
- **Affordability:** LED projects cost less than traditional lighting installations over the life of the system.

SPECIFYING FIXTURES

The term “light fixture” can be applied to any light source, including inexpensive disposable solar lights. For best results, always consider fixture technology, design, and construction. FX Luminaire offers a range of fixtures to complement the needs of any setting. Keep reading to learn about key considerations during fixture specification.

Durability

Examine the durability of the materials and construction when specifying a fixture. Will the luminaire stand the test of time when exposed to the elements? FX Luminaire fixtures are made from top-quality, powder-coated aluminum, brass, copper, zinc, composite, and stainless steel. All fixtures are designed to withstand the harsh conditions of exterior environments.

Functionality

Beyond composition, choose fixtures capable of achieving the desired lighting effect. For example, if the homeowner wants the flexibility to incorporate holiday themes with color effects, choose Designer Series fixtures.

Finish

Some fixtures are visible during the day and at night. Always specify fixtures with finishes that blend into the surrounding landscape without drawing attention to the fixture. Select fixtures that are easy to conceal with finish colors similar to their surroundings. FX Luminaire fixtures are available with a range of finishes for the perfect look.

Landscape lighting must withstand the harsh conditions of the outdoor environment from rain, snow, ice, and UV exposure to irrigation, landscaping equipment, and even animals and people. To withstand the elements, FX Luminaire fixtures are made with top-quality metals or composites, treated with state-of-the-art two-layer anodization, and covered with a protective TGIC powder-coat finish to complement any setting.

Standard FX Luminaire powder-coat finishes include Bronze Metallic, Black, Weathered Iron, Sedona Brown, and Desert Granite. Specialty powder-coat finishes include Silver, Almond, White Gloss, and Flat White. Metal finishes include Antique Bronze on copper and brass, Antique Tumbled on copper and brass, Natural Copper or Brass, Nickel Plate, and Stainless Steel. Composite finishes include Camo Bronze and Desert Tan.

FX Luminaire Finish Options

Metals

							
AB Antique Bronze on Copper	AB Antique Bronze on Brass	AT Antique Tumbled on Copper	AT Antique Tumbled on Brass	CU Copper	BS Natural Brass	SS Stainless Steel	NP Nickel Plate

Powder Coat: Standard

				
BZ Bronze Metallic	DG Desert Granite	WI Weathered Iron	SB Sedona Brown	FB Black

Powder Coat: Specialty

			
WG White Gloss	FW Flat White	AL Almond	SV Silver

Composites

	
CB Camo Bronze	DT Desert Tan

Other


DS Dark Slate

FX Luminaire lighting fixtures are available in a range of finish options to provide the perfect look for every installation.

Shielding

Too often, path lights with visible light sources draw our eyes to the glow of the lamp rather than the pathway they're intended to illuminate. This makes glare prevention an essential consideration. When specifying up or down lights that may have glare potential, incorporate fixtures with long shrouds to help shield the light sources from view. Hex baffles and fixture glare shields can also reduce glare by directing light toward the subject and preventing spill away from the primary focus. If necessary, use rocks, plant materials, or other objects to help prevent glare.

Mounting

There are numerous methods available to mount fixtures in any landscape, including spike mounts, deck mounts, tree mounts, and post mounts. Carefully consider the appropriate mount for each application. To see the full range of FX Luminaire mounting options, consult the latest product catalog at fxl.com/product-catalogs.

FX Luminaire Product Catalogs



<https://fxl.com/fxpc>

Supplemental Lenses and Baffles

Sometimes, you may wish to use accessories such as color filters, frosted lenses, hex baffles, beam angle lens inserts, or upgradable LED replacement boards to fine-tune the light output at installation and as the landscape matures. Using accessories is less expensive than replacing each fixture over time.

Color filters will change the color temperature of the light source and alter the effect on the subject. Frosted lenses will soften the light output and eliminate the halo effect. Hex baffles help reduce glare from accent lights.

Finalizing Fixture Placement

On paper, lighting designs should always be considered diagrammatic. Use the plan to specify the general areas where fixtures will be installed but not their ultimate locations. Determine final placement during an evening “aim and adjust” session. Always strive to minimize or eliminate glare while producing the desired effect.

If you place a fixture too close to the subject, you will create an unsightly hot spot. If you place a fixture too far from the subject, the lack of light intensity will negatively impact its appearance.

Fixtures must also be angled properly. For example, an improperly angled up light will miss its intended target. The best way to determine fixture placement is to do it at night when you can see the final results.

SPECIFYING TRANSFORMERS

The transformer is the brain of the lighting system. It provides essential voltage to power the lights. To meet the distinct control needs of every installation, there are many ways to configure a transformer.

Transformers provide power to all lighting fixtures by converting line-voltage current (120 V in North America or 220 V internationally) to low-voltage current (12 V). The capacity of the low-voltage lighting transformer can range from 60 W to 1,200 W. The low-voltage output can range from 12 V to 15 V depending on the number of voltage taps. Transformer capacity sizing, transformer location, and end-user control capabilities should also be taken into consideration when specifying a transformer.

For maximum lighting design flexibility, FX Luminaire offers a range of transformers with various control capabilities, from basic on/off control to all-in-one digital control to advanced wireless control with zoning, dimming, and color.

The FX Luminaire power and control product family includes the EX and PX transformers, DX controller, and flagship Luxor controller. Depending on the model, transformers and controllers are available in stainless steel or powder-coated, galvanized steel finishes, multi- or single-tap configurations, and capacities ranging from 150 to 900 W. All transformers come with an industry-leading 10-year warranty.



DX Controller



EX Transformer

Determining the Control Method

Lighting control is crucial in the overall performance of a landscape lighting installation. Basic control provides basic on and off capabilities via the transformer's circuit breaker. Achieve higher levels of control by adding plug-in timers and external photocells. Both options eliminate the need for the user to manually switch the lighting. Transformer location is also important when using a photocell as the photocell needs to "see" the ambient outdoor light level.

EX Transformer

As our most economical power-and-control option, the EX transformer is perfect for small-scale lighting projects.

The transformer's compact size means it fits comfortably in tight spaces. The EX is available in both powder-coated steel and stainless steel. The powder-coated finish allows end users to paint the enclosure for seamless integration into any setting, while the stainless-steel finish provides maximum protection in harsh environments. Another great feature is the 45° angled terminal blocks, which allow for easy installation.

The EX transformer provides basic on/off control. If additional levels of control are required, the EX is compatible with most plug-in astronomical timers and photocells. It is available in a 150 W capacity.

PX Transformer

As FX Luminaire's original control solution, the PX transformer is one of the industry's most long-standing and reliable multi-tap lighting transformers.

Its robust stainless-steel cabinet provides ample room to incorporate plug-in timer accessories. To simplify field wire installation, the PX's multi-tap terminal blocks are the largest in the industry. The PX provides basic on/off control. If additional levels of control are required, the PX is compatible with most plug-in astronomical timers and photocells. It is available in 300 W, 600 W, and 900 W capacities.

DX Controller

The DX controller provides a reliable, high-quality solution for customers with intermediate on/off lighting control needs. The easy-to-program, multi-tap controller is the only product in its class to bring customers the convenience of all-in-one functionality. As such, there's no need to purchase accessories such as timers or photocells.

Capabilities include manual operation and the capacity to create scheduled programs. The DX also has the ability to configure astronomical timing with sunrise and sunset offsets, based on latitude and longitude for locations in the United States, Canada, and Mexico. The sleek, contemporary DX comes with a large, full-color LCD display that makes installation and configuration a breeze. The optional add-on 9 V battery adapter allows for pre-installation programming, saving contractors time on-site. The DX is available in 150 W and 300 W capacities.

Luxor Controller

The flagship Luxor controller is the most advanced lighting control solution from FX Luminaire. With the power of Luxor technology, the controller can zone and dim individual or groups of fixtures. It also gives users the flexibility to create beautiful scenes with 30,000 vibrant colors. A user-friendly app gives homeowners the ability to adjust light intensity throughout the night and develop up to 40 special themes for parties, holidays, and special events — and since control is cloud-based, users can access their Luxor system from anywhere!

Calendar-based programming capabilities mean every theme can be planned and preset in advance. As FX Luminaire's premium lighting control option, Luxor provides limitless design potential. The controller is compatible with a range of accessories that transform it into a complete control system for outdoor living spaces, including Luxor CUBE devices and Luxor Satellite controllers.

For a total smart yard management solution, the CUBE automates control of entry pillars, carriage lights, bistro lights, holiday lights, water feature pumps, gates, and other items with a relay input. The Luxor Satellite simplifies management of large sites with multiple controllers by providing a single point of control.

Luxor also easily integrates into today's most popular smart home systems. This ability lets homeowners merge their indoor control technology with their outdoor lighting system, providing one-stop management of indoor and outdoor living spaces. Luxor is available in 150 W and 300 W capacities.

Sizing the Transformer

Transformers are categorized by their rated capacity or wattage, ranging from 60 W to 1,200 W. To determine the capacity of a transformer needed on a site, you must determine the total wattage of your lighting system. To do so, sum the total volt-amps (VA) of all lighting fixtures connected. It is important to use VA when calculating transformer consumption since most lamps or LED fixtures consume more power than their rated wattage. To allow for the addition of future lights, or to permit lamps and LED boards to be upgraded over time, do not load a transformer beyond 80% of its rated capacity.

Locating Transformers

All transformers should be located in well-ventilated areas, out of plain sight and away from irrigation spray. Best practice when installing FX Luminaire transformers is to locate them central to the wattage load of the fixtures, thus minimizing the length of cable runs from transformer to fixtures. If the transformer has a power cord, install it adjacent to the 120 V, GFCI-protected receptacle that it will be plugged into.

Sleeving

Finally, take note of where cable runs will be placed to determine if adequate conduit sleeving is present. If not, you will need to tunnel under walkways to accommodate cable runs from both electrical panels to transformers and transformers to fixtures. Where possible, avoid selecting locations that are landlocked by a sea of concrete.

There are many essential considerations for selecting the best transformer for each lighting installation. Whether it's a small, simple project; a large, intricate design; or anything in between, FX Luminaire has the ideal power and control solution to meet your needs.

SIMPLIFY PRODUCT SPECIFICATION AND ORDERING WITH MY LIST

My List for FX Luminaire is a free online tool available at fxl.com that simplifies the product ordering process and helps you better organize design information. The interactive product builders will help you specify fixtures, transformers, and accessories for each project, and add those products to running lists. You can also add notes and installation details to keep track of systems you've designed.

With My List, you can download PDF and Excel files containing product data, quantities needed, and product descriptions for each part number. Then email or take your list — complete with part numbers — to a distributor branch to quickly place your order.

Check out the time-saving benefits of My List:

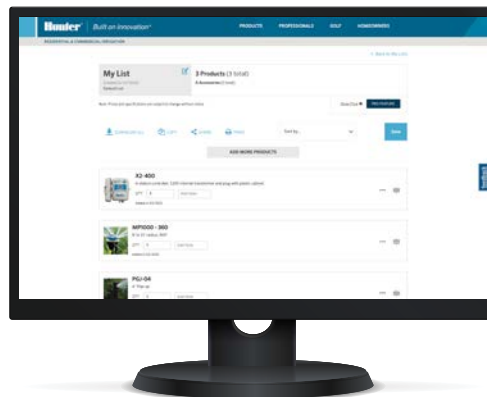
- Share, print, email, or export your list directly to your distributor for faster ordering.
- Quickly discover a range of compatible accessories for each product.
- Download brochures, manuals, spec sheets, and CAD details all in one place.
- Create product packages and copy them in My List for similar projects.
- Access stored lists for every project anytime in the cloud — helpful for future maintenance needs!

We created My List to help contractors save time and labor for every project and ensure accurate and timely ordering. Add it to your professional tool kit today.

My List for FX Luminaire



<https://fxl.com/fxml>



With My List, managing your projects has never been easier! Interactive product builders help you organize products and email your list to distributors for faster ordering.



CHAPTER 8: SUCCESSFUL SELLING

STRATEGIES FOR CUSTOMER ENGAGEMENT

For every FX Luminaire lighting system installation, you must successfully engage your client. In this section, we will cover the best practices for converting a sales lead into a satisfied customer.

The sales process begins with a productive first meeting and proceeds to a detailed proposal to the client. The desired result is a signed contract for a new installation.

We will also cover the key steps in a lighting demo, which can be a helpful tool to show the customer the effects and impact of professional lighting.

THE INITIAL CUSTOMER MEETING

The initial meeting with a new lighting client provides you with an opportunity to plan the scope of the project, inquire about the client's preferences, and see the spaces you will light. To build trust with the client, your priority in the first meeting is to be a good listener. You don't need to start selling right away. Ask thoughtful questions to draw out the client's needs and motivations.

The First Encounter

Open your discussion by asking your customer why they are interested in landscape lighting. Their answer will provide you with a wealth of information on their points of reference, from looking at outdoor lighting designs at other houses to recommendations from an architect or landscape designer to personal research. By starting with this question, you can understand the client's level of knowledge and their overall commitment to the project. With some clients, a specific experience or issue may have driven interest, such as a party where guests had difficulty navigating pathways or a desire to make their new patio more useful after dark. Discovering this buying driver is key to the success of your overall proposal.

Next, ask about expectations for the lighting installation. What does the client want to achieve? Sometimes, the client has clear ideas in mind. Other clients want you to act as their designer and consultant, guiding them to the best outcome. In either case, your best approach is to ask open-ended questions to learn about their likes and dislikes. Here are common questions you should ask:

What impression do they wish to create for visitors?

Sometimes the client will note that the lighting needs to be welcoming or that it should draw attention to specific landscape or architectural features. Other clients will indicate that the emphasis should be placed on private spaces.

Are there specific areas they want lit? The client may point out landscape elements, architectural elements, or other features where lighting is essential. Address these concerns in your proposal. Then use your own insights to point out other features and ask if they should be included in the design. For example: "Those columns add a nice rhythm to the space. Should we light those?"

Who uses the available space after sunset and how do they use it? Determine what activities take place outside that might benefit from lighting, such as entertaining, relaxing, cooking, or sports. Then identify any specific lighting needs as these may lead to specialized fixtures and/or lighting zones.



This ramada and pergola are equipped with task and wall lighting to draw homeowners to the area.



Illuminate the front of a home to beautify the property and make it safer to access and use.

DIVE DEEPER

What atmosphere should the lighting create? Customers may find it difficult to verbalize the effects they want from landscape lighting. A good technique to understand their preferences is to ask them to use adjectives to describe how they want the lighting to look.

Words like “subtle” or “natural” imply lighting that is softer, indirect, and without glare. Designs with this approach emphasize natural elements in the landscape, place less emphasis on the architectural structures, and use an overall low level of light.

Words like “showy,” “impressive,” or “fun” imply lighting designs that have dramatic shadows and variable colors. This type of lighting fully illuminates structures and provides plenty of ambient light for outdoor activities.

Often, the customer’s own choices in architectural design, landscape features, and lifestyle can guide you to the type of ambience you should create with your plan.

Are there safety, security, or wayfinding considerations? Ask about the need for perimeter lighting as well as lighting of pathways, steps, and entries. While these areas might seem obvious, bringing them into the conversation creates an important and tangible reason to install lighting.

Understand the client’s basic preferences on lighting levels and fixtures. Some clients prefer to have all light sources hidden, while others like visible decorative path lights. Ask whether the existing exterior lighting fixtures — such as sconces and coach lamps — are used and if these should be accounted for in the design. Inquire about the need for dimming and color. Adding these characteristics allows the lighting to be changed dynamically, creating vastly different effects from the same fixture layout.

Determine the views from interior spaces into the landscape. Use these viewpoints to design beautiful vistas from interior seating areas out into the landscape. Identify large windows where sightlines outside are interrupted due to lack of adequate exterior lighting.

Finally, consider how the system should be zoned and controlled. Today’s lighting systems naturally incorporate various levels of light and different scenes to provide the user with more flexibility and a better experience. Explain these concepts to the client and ask how they want to control various groupings of lights. Then determine how lighting should be switched on for each zone: manually, with a timer, using a photocell, or via advanced digital control.



Bright focal points shine in front of a dramatic, high-contrast wall with fixtures intentionally spaced farther apart.

Know the Client's Budget

Always ask the client how much they want to spend on lighting. Bringing up this issue early in the process gets you on the same wavelength with your client and allows you to tailor your design proposal to their expectations.

Clients sometimes have no idea what to budget. If they don't have a budget in mind, give them general guidelines for what good lighting will cost and verify that they're prepared to spend that amount. Most clients who have made investments in their home and landscape will not be surprised at the cost, particularly when it is offered as a personalized design service by a professional contractor.

Remember that a percentage of prospects will make decisions purely based on price. You can often tell when a customer is a "price shopper" by their behavior during the quoting process. Decide quickly how much time to invest. In these instances, it's often better to exit gracefully and move on to other prospects. You won't be able to talk these folks out of their natural bias.

Think About Design Phases

If the total cost of lighting is likely to exceed the client's budget, try presenting the solution as a series of phases. Prepare a plan that lights the areas of highest use or priority first, and then adds on subsequent phases. Once a homeowner begins enjoying lighting in one area of their landscape, they will want the benefit in other areas as well.

Think carefully about how to plan for phased expansion during the initial proposal. For example, it often makes sense to put down the main wiring runs during the first phase. This has the dual benefit of eliminating future disruption to the landscape and starting the client down the path of commitment to the additional phases.

Selling Spotlight: Effective Lighting Demonstrations

Most contractors find that lighting demonstrations are an essential part of the sales process and offer them as part of nearly every consultation. Decide in each circumstance whether a lighting demonstration is likely to propel the sale or distract from the process. Demonstrations are an investment of your time and expertise, so always plan them carefully.

An effective demonstration will help the client become comfortable with lighting effects and illustrate the impact that lighting creates within a portion of the landscape. Here are some essential considerations for planning a lighting demo:

- Aim to light one area of the landscape well with approximately 10 fixtures, for a maximum demo time investment of two hours.
- Make certain the homeowner is available to discuss the demo area once the lights are in place.
- Use Luxor technology if possible so you can add zoning, dimming, and color to the demonstration. Including Luxor in the demo even if it is not something the client initially plans to install can lead to an upsell or reinforce the benefits for a future upgrade proposal.
- If possible, leave the installation in place for several days to give all members of the client's family — and the neighbors — an opportunity to appreciate the lighting. If the client moves ahead, you'll have a reference point to engage others in the neighborhood.



Work with your FX Luminaire distributor or contact your local sales rep for demo kit opportunities. Choose a Designer Series kit with a Luxor controller or Standard Series kit with an EX transformer.

MAKE YOUR PROPOSAL

Once you have developed your lighting design, it's time to present it to the customer. Depending on the complexity of the project, your design might be a basic sketch of fixture locations. For more expansive projects, you will likely prepare a more complex plan. In either case, the plan or schematic will be a useful tool to guide the client through your proposal. Be sure to bring it with you.

During a sales presentation, you may be tempted to talk about the solution: the fixtures that will be placed in each location, the number of zones, and the installation process. That is important information, but it ignores how customers make decisions. Customers want to be equally convinced by results and benefits as much as they want to know how they will be achieved.

Many customers need to be reminded of the full menu of benefits lighting can add to their landscape: beauty, security, safety, curb appeal, and the extension of usable nighttime living space. Often, they're familiar with lighting because they've observed it at the homes of friends and neighbors. But they haven't thought through all the value.

When you're making your final proposal, be sure to clearly summarize each benefit. Think back to the specific desires the client had in your initial meeting. What were the most important priorities and expectations? What did they like or dislike about other installations they had seen?

Consider the big-picture goals that will be achieved by the installation. Mention each of these in your presentation to the homeowner, in order of their significance to the overall lighting plan, with the most important element discussed in the final part of the presentation.

Lighting makes the landscape more useful after sunset. Clients who have decks, patios, outdoor kitchens, or pools will have more time to use these amenities with proper lighting. They can enjoy more of what they love: entertaining, relaxing, and taking part in family activities.

Lighting creates a beautiful atmosphere. Few things can create ambience or set a mood within a landscape better than lighting. Discuss how the client's wishes for atmosphere will be achieved. Make particular note of how different scenes, light levels, and color combinations can dynamically alter the outdoor experience.

Lighting promotes safety and security. It keeps people safe as they move through the landscape by preventing falls and other injuries. It creates a well-lit environment to discourage intruders. Be sure to point out how your lighting design eliminates potential problem areas like dark spots or trip hazards.

To emphasize how you have achieved the client's goals, tie your proposal to your initial meeting. Refer back to that conversation and point out how you are meeting their objectives with your design. It is often helpful to make a list of the priorities from the first meeting and discuss each one in your final presentation.

Show a Portfolio and Samples

Help clients visualize lighting effects by showing them your portfolio of past projects or other photos of lighting installations. Doing so will validate your experience and help each client understand different lighting concepts and techniques. If you're recommending specific fixtures, bring samples.

Decide on the Best Approach

Some contractors like a "walk and talk" approach when discussing the lighting proposal, where you guide the client throughout the landscape, explain how each area will be lit, and show where fixtures will be placed.

For some clients, presenting at a table indoors can work as well. To decide the method that works best, take cues from your initial meeting with the client and consider the breadth of points you will need to cover to make an effective presentation.

Present your designs using a phased "good, better, best" approach, including tiered and phased pricing options if applicable. It's important to offer choices without overwhelming the customer and causing indecision. Always carefully explain and differentiate these aspects in your presentation so the customer understands them.

Manage Questions and Objections

During the selling process, customers will ask questions and raise objections to clarify information and make sure the proposal meets their needs. What often differentiates a good salesperson from a mediocre one is his or her ability to effectively manage objections.

Objections often arise because of deficiencies during the sales process. Price objections may occur because the customer's budget was not well qualified or because the value of the installation was not well articulated.

Questions are a powerful tool for you, the contractor. Ask questions to get to the root of an objection. Use thought-provoking queries that get customers to do their own analysis. For example, if the client claims another brand is cheaper, ask them why, followed by a pause. The customer will list out reasons. These reasons often get taken to heart because the customer arrives at them individually. Further, questions can help you understand the customer's position and identify the true objections.

Avoid argumentative responses with lots of facts, figures, and data. Wrong answers begin with the word "but" and follow with a recitation of information to counter the customer's concerns. A long speech from a contractor certainly means you're not listening.

Keep the focus on the big picture. Many objections will be about minute details. Reframe the conversation. What does the prospect want to accomplish? How will this decision support the bigger goals?

Consider reframing using an analogy. For example, if you're selling to a client who has invested in other areas of the landscape, show why being consistent in investing in lighting is a wise decision.

Finally, be prepared. Make a list of the most common objections you hear. Develop a strategy for each so they don't derail you.

Define Next Steps

During the presentation, use "trial close" phrases to gain insight on the client's willingness to move forward. Common strategies include asking about the timing ("If we move forward, would you be comfortable starting on the 29th?"), the fit of the solution to their needs ("Did I account for everything in my proposal?"), or final feedback ("Tell me your thoughts."). If the customer is stalling or needs more time, ask simply, "What should we do next?"

Secure the Order

Always formalize your agreement with the customer in writing. Include your scope of work, timeline, payment schedule, contact details, and other important information. A solid agreement helps next steps proceed in an orderly fashion. It also helps you avoid the potential for future misunderstandings.



SUCCESSFULLY MARKETING YOUR SERVICES

There's no "one size fits all" marketing strategy for landscape lighting businesses. What works for you may be the wrong choice for another contractor. Your strategy will depend on factors unique to your business: your mix of services, your geography, your target audience, and more.

Whether you're a newcomer to landscape lighting looking to build a new clientele, or a well-established lighting contractor seeking to grow, this section provides a framework to guide your marketing efforts.

The Importance of Marketing Strategy

There's a temptation to think about marketing strategy as selecting the right tools, such as websites, advertisements, or social media. These are often the buzz words that come to mind when we think of marketing. Or they're the things that agencies and salespeople tell us that we need.

As you learned, it makes no sense to buy a dozen random fixtures and use a trial-and-error approach to create a lighting design. Similarly, good marketing begins with a strategic plan rather than a list of tactics.

Start by defining your company's brand, value proposition, and how you relate to your selected audience. Once you have a solid foundation, you can select the most effective marketing tools to generate real results.

Create Your Brand

A brand is more than your logo and company name. It's a statement of promise: what your company does and how you do it — and most importantly, why your customers should care. As your key differentiator, your brand sets you apart from your competition.



Take a look at this sample marketing piece. When you see this branding, what comes to mind?

Good branding accelerates customer knowledge and trust. When it's easy to understand what you do and why you do it, customers naturally connect.

Branding is directly related to your reputation. Strong branding puts you in control of your message and how customers think of you. Weak branding causes customers to see an imperfect picture, so they miss out on your unique advantages. A common symptom of branding deficiency is when a customer says, "I didn't know you offered that."

To define your brand, answer these questions:

- What do you want your company to be known for? Be as specific as possible.
- Who is your ideal customer?
- What is your preferred project type?
- What are your company's mission, vision, and values?
- What is your company's personality?
- Why should clients trust you?
- What is your unique story?

Using these answers, develop a solid positioning statement for your company that promotes your unique strengths, key benefits, and competitive advantages.

A good technique to help you hone your messaging is an "elevator pitch," a concise message about your company that can be delivered in 30 seconds. The pitch is a commercial about who you are, the type of work you do, and how you can meet the needs of your customers. Make it memorable by focusing on what sets you apart. Ask yourself: If you could choose to have your customers remember you for one thing, what would it be?

Communicate about your brand consistently with words and graphics that reinforce your professionalism. Create a brand standards guide that includes your logo, slogans, colors, and other elements. Then use it to guide the development of your marketing communication materials.



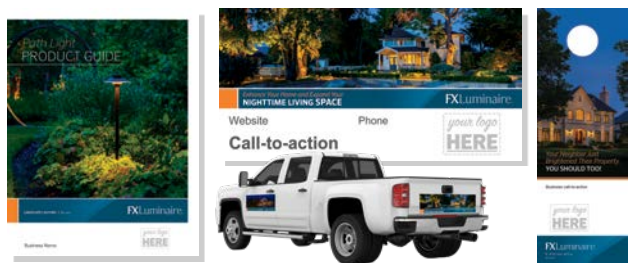
BUSINESS TOOLS FOR PROFESSIONAL CONTRACTORS

At FX Luminaire, we're dedicated to helping you grow your business with the best tools and support in the industry. You can build your own branded marketing materials for free at fxl.com/professionals.

Customizable marketing materials include:

- Door hangers
- Homeowner brochure
- Postcards
- Product guides
- Truck magnets
- Why FX brochure
- Yard signs

Beyond marketing support, we also offer a range of other tools, from sample lighting plans and CAD legends to our handy voltage drop calculator, which lets you customize design aspects such as wire gauge and run lengths between fixtures. Get started today!



FX Luminaire Marketing Materials Templates



<https://fxl.com/fxmm>

UNDERSTANDING TARGET CUSTOMERS FOR LANDSCAPE LIGHTING

Demographics and Characteristics

Not all landscape lighting customers and projects are the same, but there are a few patterns that emerge when studying customer profiles. Here are some common characteristics to consider:

- **Purchase triggers:** Lighting is often installed alongside other landscape projects like new outdoor living spaces and pools. If you don't offer these services, consider partnering with another business that does. In equal measure, lighting can often be installed at a later date after a large purchase, so be sure to follow up with clients who did not purchase a lighting system with the initial installation.
- **Maturity of landscaping:** Properties with mature trees and bigger landscapes provide more opportunities for lighting.
- **Property value:** Naturally, more elaborate lighting installations are sold at higher-value houses or in neighborhoods where homeowners make large investments in landscaping.

Preferences and Motivations

Avoid making the mistake of confusing your own personal preferences with those of your client. Set aside each point of view and aim to understand the needs of your customer. While you might think something is superfluous or luxurious, your buyer may see it as essential. Always frame your thinking from the customer's perspective.

Here are some considerations that are important to many landscape lighting clients:

- The installation matches their vision and will hold up over time.
- The system increases safety, adds security, and creates beautiful aesthetics.
- The system is easy to use and does not require lots of extra time or effort to manage.
- The result will deliver the desired impact among primary users and with visitors.
- The design complements the property with a timeless design.

BUILDING CREDIBILITY AND TRUST WITH POTENTIAL CLIENTS

While consumers trust their physicians and accountants, they tend to report lower trust of home service contractors. Unfortunately, the actions of a few dishonest and sloppy operators have impacted the overall reputation of the profession. Recognize that new clients may have been burned in the past by other contractors. Always work to show your firm is different.

Educate clients on your credibility and credentials to help them overcome their fears and build trust. Here are some valuable tools to introduce your company:

- **One-pager:** Create a summary of your company's credentials, qualifications, and experience. Include certifications, training, past experience, design awards, activity in trade groups, and other relevant information. Attach this document to your quote.
- **Website:** Most prospects will review your website before they reach out to you. If your website is out-of-date or appears unprofessional, clients may have a negative first impression. This extends even to the technology used to build the site. For example, will it display properly on the client's tablet?
- **Brochure:** Invest in a professional brochure that presents the benefits clients will gain by working with you. Include pictures of your best projects. The brochure could also be formatted as a presentation folder to contain your schematic and quote. When you can't meet with all decision makers, your brochure becomes a silent salesperson.
- **Photos:** Gather a portfolio of high-quality photography of your projects. Obtain signed releases from clients to use the photos. Assemble the images into an album or portfolio for show-and-tell during your presentations. You should also include your best images on your website.

These tools reinforce your professionalism and, by extension, justify your professional rates.

How to Find Customers

Referrals from current clients are the best way to find new customers. Most lighting contractors get a majority of their new clients through referrals and word-of-mouth advertising. The reason is simple: When a contractor does great work, word travels fast. Many consumers seek the advice of friends, neighbors, and family members to decide which professionals to hire. To encourage more referrals, use this simple formula:

1. Earn referrals by doing highly professional, remarkable work and providing memorable service.
2. Ask current clients for referrals by mentioning that you're looking for new projects. Include a referral section on your website and customer comment cards.
3. Communicate regularly with past clients. Send messages to welcome the season, recognize special holidays, and commemorate anniversaries. Visit to drop off a small gift. Call and ask, "What else can we do to better serve you?"

Never bribe customers for referrals. Most customers refer professionals because it makes them feel good. Offer a note of thanks, a gift card, or extra service to thank a customer for telling their friends about you. There's no need for pushy incentives.

Referrals from Partner Organizations

You should aim to build relationships with other professionals so they can refer clients to you. Identify a list of target companies (e.g., landscapers, pool contractors, general contractors, landscape architects, high-end garden centers) and ask each if they would be willing to refer their landscape lighting inquiries to you. Leads from these sources can be very valuable because their customers are already on the path to making complementary purchases. Be sure to supply each partner with promotional materials such as brochures and business cards to make the connection. In return, you can refer clients to these professionals as well.

Connect with Neighbors

Send a crewmember to place door hangers at homes adjacent to your current projects. A 5-cent hanger could lead to a \$10,000 sale. Alternatively, send letters of introduction to the same houses with your services and contact information clearly labeled.

MARKETING YOUR BUSINESS ONLINE

The vast majority of prospects are going to spend time on your website. Make sure that all content is current, your contact information and services are clearly provided, and the overall design is professional. Include links to your social media pages. Show the results and benefits of your work. Detail the different types of projects you've completed.

Capture Leads with Search Engine Optimization

Showing up on the first page of search results is an essential goal for every business. Improving your search standing begins with understanding how prospective customers might look for you. What keywords or phrases would someone enter into the Google search box to find a company like yours?

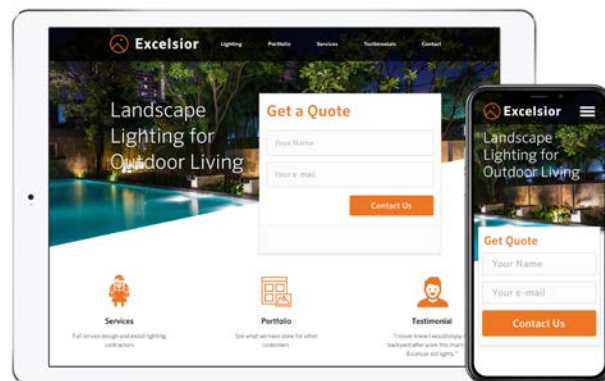
For broad search terms like “landscaper,” it is difficult for a small business because you're competing with many companies for placement in the search results. A more specific search phrase (and one that's more likely to be searched) such as “Cleveland landscape lighting contractor” has a greater chance to land you on the first page of results.

Optimizing your website for interaction with search engines like Google is called search engine optimization, or SEO. It is neither a one-step process nor is it something you can do once. It involves the structure of your site (including page titles, tags, and keywords), the creation of valuable and fresh content, credibility factors like inbound links, and much more. For many small businesses, SEO is difficult and time consuming. Don't rely on hearsay or “quick fixes.” Buy a book on the topic or hire a pro to help you map a successful strategy.

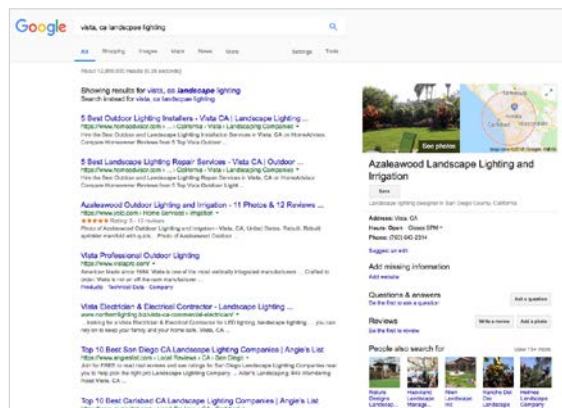
Target Customers with Google AdWords

If you're looking to quickly generate targeted leads, you should strongly consider Google AdWords pay-per-click advertising. Pay-per-click allows you to place ads on search engines (usually Google) that are triggered to display when a searcher makes a specific query. If the searcher clicks on your ad in the search results, that person is taken to your website. You pay for the click.

Pay-per-click is fast to set up, incredibly effective at generating leads, and provides real-time data on results. It's easy to start, but not quick to get right. You need the right keyword phrases and geographic targeting. Improper setup can lead to an inefficient and costly program. To get this right, Google offers free tutorials or you can engage an expert familiar with the landscape industry.



Your website needs to look good and lead a prospect into contacting you for a consultation.



Devise a search engine optimization strategy for your business to help customers find you on the first page of Google search results.

Purchasing Leads through Referral Sites

Referral and review sites like HomeAdvisor, Angie's List, Nextdoor, Yelp, and Google My Business provide a range of information about contractors. These sites typically charge you based on the number of leads you receive. They can be a fast way to start gathering leads and practicing your sales and bidding skills to land new jobs. They also put increased power in the hands of consumers to praise excellent service, share their experiences, and provide feedback – both positive and negative.

You must be aware of and engaged with what clients are saying about your business online. If your company shines on these sites, it can be a path to steady calls from high-value leads. Top-rated contractors get the most phone calls, with customers arriving pre-sold after reading comments from other satisfied clients.

Most reviews you receive will be positive, but those that aren't can help you address past mistakes and/or improve your services. In some cases, you may be able to make amends with an upset customer and get them to reconsider their negative comments.

Encourage satisfied customers to write reviews by sending an email with links to review sites after every completed project. Let customers know how important their feedback will be to the community and how valuable it will be for your continued success. You can never have too many good reviews.

 Angie's list

 Google My Business

 HomeAdvisor

 Nextdoor

 yelp

Drive Customer Engagement with YouTube

Online video-sharing platform YouTube is now the No. 2 search engine (behind Google, which integrates YouTube into its search results). This is a promising way to reach new audiences and educate potential clients. Develop video content with the needs of your audience in mind. Avoid marketing-heavy “company commercials.” Instead, share examples of your work or provide practical advice that can help clients make more informed decisions about landscape lighting. Site walk-throughs of finished projects are an excellent way to build a video portfolio. Videos help future clients find you and read your reviews.

Measure Your Marketing Investments

How do you know if your marketing is working? Many electronic marketing platforms now come with built-in statistics tools. You can see how many people clicked on your Google ads, count “Likes” on Facebook posts, and more. However, these numbers don't tell you if sales objectives are being reached or whether your message is resonating with buyers. Exposure is a measure of marketing activity, but not the only data point that should be considered. As a professional contractor, you should know:

- Is the marketing tool generating sales leads?
- What is the cost per lead?
- What percentage of the leads generated turn into profitable sales?

To answer these questions, use a lead screener. This is a simple form that is completed each time a prospective customer contacts your company. It gathers essential general information, including how the customer heard about you. By tracking how the customer learned about your company (e.g., saw your truck, referred by a friend, found you online), you will know which marketing tools are generating results. You can then track how many of these leads turn into sales.

If you know how many customers find you as a result of different types of marketing tools, you can calculate your cost per lead for each category of advertising. Divide the total cost of the advertising by the number of leads it generates. For example, a \$3,500 advertisement that results in 20 inquiries has a cost per lead of \$175. Compare the relative costs per lead for each advertising tool to help allocate your budget more efficiently.

Once you know cost per lead, dig deeper to explore if different types of leads are more likely to convert to profitable sales. Some tools generate many leads at a lower cost, but the lead quality can be poor.

LANDSCAPE LIGHTING MARKETING AUDIT WORKSHEET

Successfully growing your business means that you need effective tools, sales processes, and business practices. This audit worksheet will help you evaluate your marketing efforts to ensure you have what you need for your company to grow.

Branding

Audit your marketing materials to ensure they each have proper branding. All too often, contractors produce marketing materials that leave potential leads confused about the services the company provides or how to contact the business. Don't let this happen to you! Check your website and marketing materials to be sure they have the following:

- ☐ Your logo and company name
- ☐ What your company does, your tagline, and a clear call to action
- ☐ How your customers can contact you

Printed Marketing Materials

The following checklist includes recommended materials to help your business find new leads and close sales. Take an inventory of your marketing materials and be sure you have these critical customer engagement tools:

- ☐ Business cards
- ☐ Company uniforms
- ☐ Door hangers
- ☐ Lawn signs
- ☐ Marketing handouts
- ☐ Postcard mailers
- ☐ Truck magnets or wraps

Website

Look closely at your website. Be sure it contains the following information to help potential customers understand the services you provide and how to reach you:

- ☐ Homepage that answers in text:
 - What services you perform
 - What locations you serve
 - How to contact you
- ☐ Lead contact form or contact number. Make sure it's easy to see on every page using any device.
- ☐ Portfolio or images of projects and types of landscapes that you light up.
- ☐ Customer reviews and testimonials.
- ☐ A clear statement of what potential customers can expect and why they should do business with you.
- ☐ Submit your company to Google My Business at google.com/business.

Search Engine Optimization

Perform the following steps to conduct a pulse check on your internet presence:

- ☐ Google "landscape lighting installers" and similar terms in your territory.
- ☐ Determine what websites and competitors are listed on the first page of results.
- ☐ Did your company come up on the first page? If not, you need SEO work or paid Google ads.
- ☐ Are you in Google Maps? If not, submit your company to Google My Business.

Social Media for Lead Generation

Create a plan for qualifying leads through social media. Be sure to consider these essential platforms:

- ☐ Angie's List
- ☐ Facebook
- ☐ HomeAdvisor
- ☐ Houzz
- ☐ Instagram
- ☐ Nextdoor
- ☐ Twitter
- ☐ Yelp

Make sure to develop a company policy on how to respond to bad reviews if you participate on social sites.

PRICING A LANDSCAPE LIGHTING JOB AND PREPARING THE QUOTE

To consistently generate a fair profit on your jobs, you must adopt an accurate process for estimating costs and planning your profit margins. Pricing involves significant risk for a contractor. Too high and you don't win the project. Too low and you risk losing money. Contractors who don't have a reliable estimating method will lose money on jobs. These contractors work very hard, but are left puzzled when they are left with so few profits at year-end.

Be careful with shortcuts. Some contractors are tempted to use "rules of thumb" or multipliers to take the skill out of estimating. For example, a contractor might set an installed cost per fixture. While tempting in its simplicity, a shortcut like this only works sometimes, typically with simple projects. These multipliers cause profit loss when the company takes on larger or more complex jobs. Multipliers do a poor job of accounting for all the extra labor required.

Adopt a confident estimating process that reviews and details all the costs and adds factors for recovery of overhead and profit. If you follow a sound procedure, you will arrive at a fair price that will both win the job and sustain your business. The process steps are:

1. Make a list of all the materials needed and calculate their purchase costs.
2. Determine labor requirements for tasks in hours and apply your hourly labor rate.
3. Include all equipment and subcontractor costs.
4. Apply factors to recover your overhead costs and ensure a healthy profit.

Determining Material Costs

Begin by adding up the purchase costs of everything you need to complete the installation, including wire, fixtures, transformer(s), controllers, conduits, splices, and any other materials. Typically, you can use the plan or sketch of fixture locations to gather accurate and complete information.

- Count each component, taking note of the part number, finish, or other specifications for each. Inaccuracy in noting the correct model numbers, costs, and accessories can cause you to order the wrong product or incorrectly capture your cost.
- Measure the length of wire runs by cable size. Don't forget vertical distances to reach lights in trees or gutters. Measure the lengths of all necessary conduits and sleeves.
- Read the notes and specifications for details on the controls and other components to be furnished and capture their costs.
- Multiply the number of components by the cost from your supplier to arrive at a summary of your total material cost.

How to Calculate Labor Costs

Every hour each laborer is involved with the job — from drive time to post-job cleanup — should be accounted for in your job costs.

The labor costs of a landscape lighting project are calculated in hours per task. The overall job is broken into specific component tasks such as installing fixtures, wiring the transformer, and running cable. Each task is assigned a labor rate based on actual time spent in the field. When a task changes in complexity, apply a different labor rate. For example, there will be several different labor rates assigned to installing fixtures related to their placement:

- **Ground-mounted fixtures**, including unboxing, wiring, and placement: 20–30 minutes each
- **Tree- or structure-mounted fixtures** reachable only by ladder, including unboxing, wiring, mounting, and adjusting: 1 hour each
- **Gutter-mounted fixtures or down lights mounted at heights greater than 12' (3.7 m)**, including unboxing, wiring, and mounting: 2 hours each

Similarly, wire installation will command different rates for different conditions:

- **Wire installation, stapled in place** under mulch beds: 200' (60 m) per hour
- **Wire installation, slit-trenched** using a lighting spade and cable placer: 30' (9 m) per hour
- **Sidewalk sleeving**, 4–5' (1.2–1.5 m) walkway: 2 hours

Don't forget other important tasks that can significantly impact the total labor hours from one job to another:

- Hanging and wiring transformers
- Cutting concrete, wood, or other hardscape materials to install wiring
- Fine-tuning of the system, including after-dark surveying and any needed fixture adjustments
- Programming the controller, including theme designs and color schemes
- Pruning of tree branches, shrubs, and plants to allow proper light dispersal throughout the setting
- Daily travel time to and from the project
- Total daily cost of crew supervision before, during, and after visiting the project site

Contractors observe and analyze their team's performance on multiple jobs to build a database of standards. The most successful contractors know exactly how much time each task requires. We've suggested some standards in this chapter, but you should modify them to your experience.

In addition to job costing, labor estimates provide your crews with measurable productivity goals for the project. Tracking actual performance against estimated hours is a valuable measure of efficiency and serves as a feedback loop to your estimating accuracy. When tasks take longer than planned, a project can quickly lose profitability. Tracking provides an early warning system.

Your labor rate should account for the fully burdened rate for the worker, including their rate of pay plus labor burden costs (e.g., FICA, FUTA, SUTA, WCI, GLI, vacations, holidays, PTO, insurance, and other relevant costs). These costs can add 20% or more to the wage you pay the worker. Some companies also allocate overhead costs to labor rather than applying a factor to the overall job. Work with your accountant to see if this method would be wise for you.

Equipment Costs

Typically, installation of FX Luminaire landscape lighting projects is not equipment intensive. In some cases, specialty equipment is needed. Add all equipment costs according to their specified hourly rate. Specialized equipment includes:

- Trenching, cable pulling, or boring equipment
- Lifts for installing tree- or structure-mounted fixtures
- Heavy-duty concrete or wood saw for properly cutting wire runs into hardscaping

Subcontractor Costs

If you need an electrician to run additional line-voltage circuits or a tree-climbing crew to install down lights, don't forget to include these costs in your pricing worksheet.

Planning for Profit

Once you calculate all material, labor, and equipment costs, add them together to get the total cost for the project. Next, you will add factors to cover overhead, including selling and general administrative costs of operations. Finally, you will add profit — the return on the business investment.

A common way to manage profit is with a targeted gross margin. Gross margin is calculated as the selling price, less the costs for material, labor, and equipment (often called the “cost of goods sold”). Gross margin percentage is calculated as the gross margin divided by the selling price. For residential landscape lighting installations, you should plan for a 40–50% gross margin. For projects that require a high level of design and installation skills, typical gross margins range from 50–60%.

Pricing Options and Upgrades

If advanced landscape lighting features are not included in the base proposal, you should always offer them as an option. Showing the client options is essential for three reasons. First, listing options makes your proposal thorough and complete. You have carefully considered all the client’s needs. Second, because your estimate is thorough, there is less chance that another contractor might present a solution that you had not considered. Often, the addition of options helps differentiate your proposal. Third, clients always consider all options that are presented. Sometimes they decide to add the additional features rather than regretting not buying them later. As a result, you enjoy both a more satisfied client and a more profitable project. Other times they will remember the options and plan to add them at a later date.

To present options on your proposal, use the “base plus add” approach. First, begin your estimate with the base system’s scope and price. Next, make a list of the potential options that could be added to the base system. These could be upgraded fixtures, advanced Luxor controls, or other enhancements. For each option, calculate a price. Then prepare a menu of options with the name of the option, a description of the scope of benefits, and the net cost to the client.

For example, an extra zone of lights to illuminate a modern sculpture would be listed as:

- Add \$1,200 for four fixtures to enable nighttime enjoyment of statement sculpture, lit for emphasis on wood texture

Include two to three upgrade options on each proposal. Learning to think about options will make you a stronger contractor in project design, client satisfaction, and earning of profits.

Pricing: Good, Better, Best

For some projects, consider offering different levels of equipment for basic and more advanced features. Pricing tiers (often referred to as “good, better, best”) help the client see varying levels of value and the trade-offs between each.

These packages allow customers to select the option that best fits their needs and budget. Different pricing tiers prevent the buyer from simply dismissing your single-price bid as either too high or too low, since there are an array of prices and options to consider. Clients tend to gravitate toward the middle-priced option, so plan accordingly if you use this pricing approach.

Pricing by Phase

A similar approach can be used to divide the project into modules or phases. Clients can spend their current budget on the base phase(s) and complete additional phases when timing and budget permit. A phased approach helps strengthen the relationship between client and contractor, which yields positive benefits for maintenance services and referrals.

Presenting Your Price to the Client

Be careful in how you talk about your price. What you say makes a difference. State your price clearly and succinctly. Words like “suggested,” “best,” and “asking” before the word “price” signal a negotiation rather than a well-calculated quote. Simply state the price for the project.

Avoid setting the stage for objections to arise. Skip statements like “I want to earn your business on this project,” “Maybe we can work something out,” or “This may seem like a lot.” Words like these make you seem uncertain and create an opportunity for objections.

Don’t focus on component parts. You’re aiming to sell an entire project to create a big-picture result. Clients can fall into the trap of focusing too much on fixture counts. They become tempted to look at line items as ways to reduce cost. The integrity of the project is lost when the client focuses on reductions and substituting “bargain bin” components.

Closing the Sale

Attract customers by sharing your fundamental beliefs. As a landscape lighting contractor, you may want to focus on form and function, beauty and design, and usability and transformation. Customers don’t buy the “what” — they buy the “why.”

Effective lighting design comes from understanding the needs of the customer, properly reviewing the site, and having the right knowledge and experience to confidently place each light. With advanced, field-proven lighting solutions from FX Luminaire, you can back up the “why” and justify your price with the most trusted products in the industry.

Throughout this guide, you learned the essential requirements of lighting design, proven lighting techniques, and strategies for building your business. It’s time for you to use these skills to bring nighttime living spaces to life.

A PARTNERSHIP FOR BUSINESS SUCCESS

Thank you for taking the time to read this guide. We gathered this information over years of consultation with industry experts in lighting design, contracting, business development, and product manufacturing. We believe every time you review this material you will find new ideas to grow your business. We appreciate you choosing outdoor lighting solutions from FX Luminaire, a member of the Hunter Industries family of companies. As always, we strive to be more than a manufacturer, but also your trusted partner. If you have feedback or questions, reach out to your local FX Luminaire sales rep and keep the conversation going. Now let’s get to lighting!

Hunter®
FXLuminaire®

GLOSSARY OF COMMON TERMS

6061 aluminum alloy: An alloy that has a great balance of strength, machinability and corrosion resistance. Many FX Luminaire products are made from this material.

Ambient light: Lighting throughout a space that produces general illumination.

Ampere (amp): Unit to express the flow quantity of electricity. Analogous to gallons per minute. Abbreviated as A.

ANSI code: ANSI stands for American National Standards Institute, the regulatory agency that develops standards for performance, dimensions, and safety. ANSI-coded bulbs can be identified with a nationally recognized three-letter naming system, indicating that they meet ANSI standards.

Baffle: An accessory created to prevent light from producing glare at certain angles.

Ballast auxiliary: Unit used with high-intensity discharge (HID) lamps to provide the power to start the lamp and regulate the voltage, current, and waveform while it is in use. A ballast is required for each HID lamp.

Brightness: A negative term associated with glare-producing luminaires.

Candela: The basic unit of measurement of luminous intensity from a light source in a specific direction. Abbreviated as cd.

Circuit breaker: A switching device that can be manually operated that automatically opens (switches off) when more than the rated current passes through. Generally rated in amps. A typical residential 120 V circuit breaker is 15 or 20 A.

Color temperature: An expression of light source color or whiteness, stated in units called kelvin. Warmer (more yellow) light has a lower color temperature and cooler light (more blue) has a higher color temperature.

Conductor: A metallic material, such as copper, that has low resistance to electrical flow. A circuit must have at least two conductors.

Down lighting: This is a general term that describes a group of effects resulting from placing the illuminating source above the target area. This technique can be used to light specific landscape elements, pedestrian areas, or large spaces for safety, security, or recreation.

Efficacy (efficiency): A measure of how many lumens a lamp produces per watt consumed.

Fixture: The general term for any luminaire.

Flood lighting: Indiscriminate lighting of an area usually associated with security or utility functions.

Fluorescent: A low-pressure lamp with a phosphor coating that transforms ultraviolet (UV) energy into light. Although efficient, they are physically very large.

Foot-candle: A unit of measurement of luminescence. Abbreviated as fc. For reference, an office desktop computer typically has 50–75 fc of light falling on it if lit from overhead fluorescent lamps. A primary focal point tree in a residential garden should have about 5 fc on it.

Gauge: A measurement of electrical conductor (wire or cable) size. The lower the number, the thicker the cable. For example, 8-gauge cable is twice the size of 12-gauge.

Glare: A negative term describing uncontrolled light that produces discomfort to the viewer.

Ground: A non-current-carrying metallic connection to earth. All 120 V circuits must be grounded; 12 V circuits do not require grounding. The green wire on a 120 V circuit is typically the ground.

Ground fault interrupter (GFI): A device that detects abnormal current patterns and shuts off power. GFIs are always required on outdoor circuits.

Halogen: See “Tungsten-halogen lamp.”

Hard light: Light that produces very high contrast, such as the grazing effect.

High-pressure sodium lamp: An HID lamp that uses sodium vapor to produce light with a distinct yellow color. Used widely as streetlights.

Hot: The conductor or surface that has voltage present. A hot and a common or neutral creates an electrical circuit. Usually color-coded as the darker of all wires.

Illuminance: The amount of light striking a surface or object, measured in foot-candles.

Incandescent lamp: A lamp that produces light when electricity heats a tungsten metal filament.

Kelvin: A temperature scale used to determine the color of light. Abbreviated as K. For example, 4,000K is white light; a higher number is a cooler lamp, a lower number is a warmer lamp.

L-70: L-70 is 70% (30% depreciation) of initial lumen output and is specified as end-of-life using LM-80 test standards.

Lamp: The technical term for “light bulb.”

Lamp life: Lamp life is rated in hours of operation. If lamps are rated for 4,000 hours at 12 V, it means that at 4,000 hours, 50% of the lamps are still working and 50% are not.

LED: Acronym for light-emitting diode. LEDs can last more than 50,000 hours. They are very durable and produce less heat than incandescent lamps.

Low-voltage lighting: A general term given to a lighting system powered by a step-down transformer that reduces a 120 V power input to a 12 V output.

Lumen: The unit used to describe the amount of light that illuminates a 12" x 12" surface from a source that is 12" away. Abbreviated as lm.

Luminaire: The technical term for “lighting fixture.” A complete lighting unit consisting of a lamp holder, lens, and adjustable components.

Lux: Another way to measure luminescence. Abbreviated as lx.

Neutral: A conductor that is common to other circuits and carries no current.

Ohm: A measurement of electrical resistance that causes voltage loss in circuits. Abbreviated as Ω .

PAR lamp: Parabolic aluminized reflector lamp or sealed beam lamp. Generally used for auto signals or headlights.

Path lighting: The most visible source of lighting equipment comes from path lights. Path lighting should be used to draw attention to pedestrian hazards such as grade changes or illuminate surfaces that can't be reached by down lighting or wall-mounted fixtures.

Patina: A thin greenish layer, usually basic copper sulfate, that forms on copper or copper alloys, such as brass, due to corrosion.

Powder coating: A completely dry finishing process that uses finely ground particles of pigment and resin that are electrostatically charged and sprayed onto FX Luminaire products. The result is an attractive, durable, high-quality finish.

Quality of lighting: A description of the aesthetic appearance of an illuminated environment indicating the use and control of light sources.

Reflectance: A measure of the amount of light that is reflected after striking a surface. Smooth, light-colored surfaces have a high reflectance.

Resistance: A measurement of the restriction of the free flow of electrons in electrical conductors. Copper has a low resistance, which makes it a good conductor. Glass has a high resistance, which means it's a good insulator.

Short circuit: An unwanted flow of current between two conductors that causes the circuit breaker to trip.

Shroud: An opaque element that shields a light source from direct view at certain angles.

Task lighting: The function of providing illumination for specific purposes, such as recreation or utility.

Transformer: An electrical device used to step down 120 V current to 12 V in low-voltage lighting systems. A transformer provides roughly $\frac{1}{10}$ of the input power.

Tungsten-halogen lamp: A type of incandescent lamp containing a tungsten filament within a pressurized quartz envelope that is filled with halogen gas. Also referred to as a quartz or halogen lamp. The halogen gas recycles the burned off tungsten particles back onto the filament to dramatically extend the lamp life.

Up lighting: A description for several lighting techniques that use surface-mounted or recessed fixtures aimed upward. This creates a dramatic effect that establishes attention and creates focal points.

Volt: Unit to describe the electrical force that causes current to flow. Abbreviated as V. Analogous to PSI in hydraulics.

Volt-ampere: A measurement of electrical potential. Abbreviated as VA. Volts x amps = watts. The wattage ratings of most transformers are expressed in VA.

Watt: Unit of electrical consumption. Abbreviated as W. Wattage should not be confused with light output; light is expressed in lumens or foot-candles. For example, heat lamps consume a lot of wattage but produce little light.

Xenon lamp: A lamp that is more efficient, produces less heat, and lasts up to four times longer than conventional halogen lamps.

NOTES

[illegible]

Apple and the Apple logo are trademarks of Apple Inc., registered in the U.S. and other countries. App Store is a service mark of Apple Inc. Google, the Google logo, Google Play, and Google Earth are trademarks of Google LLC. All other trademarks are property of their respective owners.

FXLuminaire

A Hunter Industries Company

Our mission is to create the most energy-efficient lighting products in the world while maintaining the highest level of quality and reliability. In every instance we will back our innovations with the unwavering support our customers need to succeed.



Gregory R. Hunter, CEO of Hunter Industries



Gene Smith, President, Landscape Irrigation and Outdoor Lighting

Website fxl.com | Customer Support +1-760-744-5240 | Technical Service +1-760-591-7383

USA HEADQUARTERS

1940 Diamond Street
San Marcos, CA 92078 USA
T: +1-760-744-5240

MEXICO MANUFACTURING

ISO 9001:2015 Certified
Calle Nordika #8615
Tijuana, B.C., Mexico C.P., 22640
T: +52 664-903-1300
F: +52 664-903-1325
E: infolatam@hunterindustries.com

EUROPE

Avenida Diagonal 523, 5o-2a
Edificio Atalaya
08029 Barcelona, Spain
T: +34 9-34-94-88-81
E: infoeurope@hunterindustries.com

AUSTRALIA

Suite 7, 202 Ferntree Gully Road
Notting Hill, Melbourne, Victoria 3168, Australia
T: +61 3-9562-9918
F: +61 3-9558-6983
E: infopacrim@hunterindustries.com

MIDDLE EAST

P.O. Box 2370
Amman, 11941, Jordan
T: +962 6-5152882
F: +962 6-5152992
E: info.me@hunterindustries.com

CHINA

B1618, Huibin Office Bldg.
No. 8, Beichen Dong Street
Beijing 100101, China
T/F: +86 10-84975146
E: infochina@hunterindustries.com