LEDiL

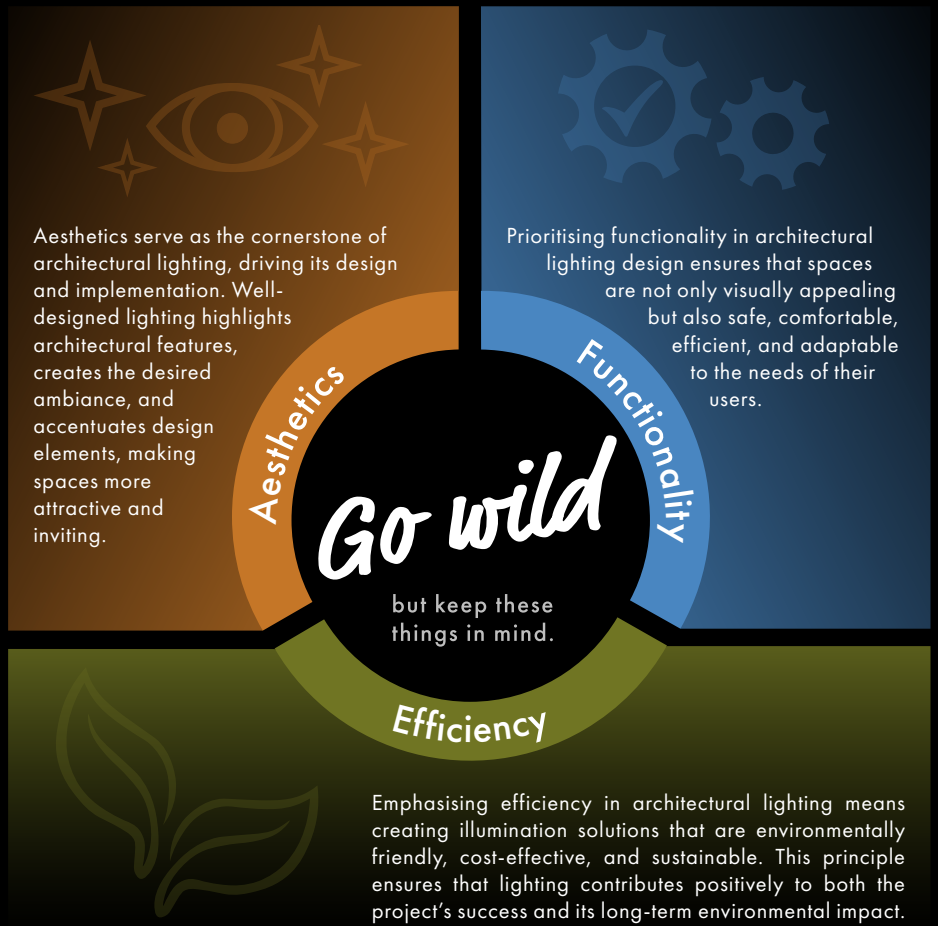
Guide for architectural lighting optics

V1-0 / 2024

Why is architectural lighting important?

Lighting is crucial to how people experience and perceive architecture. Whether through natural daylight or artificial sources, lighting enables us to see and appreciate the beauty of buildings and structures. Lighting adds emotional value to architecture, creating unique experiences for those who occupy the space. Without lighting, architecture would lack its full impact. Light highlights textures, colours, and forms, allowing architecture to fulfill its intended purpose. Additionally, well-designed lighting increases safety and security, ensuring that spaces are not only beautiful but also safe and secure for occupants.

Main principles of architectural lighting



Indoor and outdoor architectural lighting

While indoor and outdoor architectural lighting designs share the same goals, different aspects need to be taken into consideration.

Indoor architectural

Objective

Aims to enhance functionality and aesthetics within interior spaces.

Challenges

Avoiding glare, ensuring uniform lighting, and maintaining energy efficiency.

Key elements:

Layered lighting

Combining ambient, task, and accent lighting to create a balanced scheme.

Colour temperature

Using warm white light (2700K-3000K) for cozy spaces and cool white light (3500K-4100K) for workspaces.

Dimming and control systems

Allowing customization and energy efficiency.

Lighting fixtures

Utilizing a variety of fixtures like ceiling lights, wall sconces, and table lamps based on style and function.

Outdoor architectural

Objective

Outdoor lighting focuses on illuminating exterior spaces, enhancing safety, security, and aesthetics.

Challenges

Compensating for darkness, minimising light pollution, and balancing functionality with aesthetics.

Key elements:

Lighting levels and coverage

Ensuring well-lit pathways, driveways, and entry points.

Durability and weather resistance

IP, IK solutions

Landscape and architectural lighting

Highlighting natural features and architectural details.

Energy efficiency

Consider how much light is needed, could be dimmed or even turned off for a period of time.

Downlighting

Directs light downwards, providing focused and unobtrusive illumination for general, task, and accent lighting in various spaces.

Stair lighting

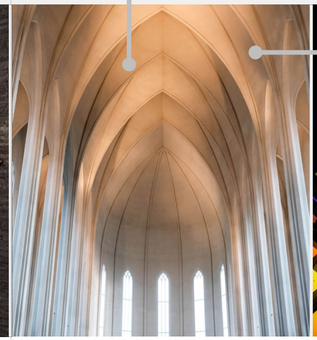
Enhances safety and aesthetics by illuminating stairways, making them easier to navigate and preventing accidents.

Uplighting

Directs light upwards to illuminate walls, ceilings, or features, creating dramatic effects and enhancing space perception in both indoor and outdoor settings.

Decorative lighting

Serves both functional and aesthetic purposes, adding style and personality to a space while providing illumination.



Window lighting

Uses fixtures around windows to enhance natural light, highlight features, and create ambiance.

Colour mixing lighting

Combines different light colors to create various hues and effects, enhancing ambiance and visual interest in a space.

Wall-grazing / Wall-washing

Wall-grazing highlights textures with close-up lighting, creating dramatic effects.
Wall-washing uniformly illuminates walls from top to bottom for an even glow.

Floodlighting

Uses high-intensity lights outdoors to illuminate large areas or architectural features for enhanced visibility and security.

DARCY

Versatile Dark Light optic for superior and comfortable lighting.

Downlighting

DALINE, LINDA-10

Elegant miniature linear optics tailored for diverse architectural lighting needs.

Downlighting | Uplighting | Wall-washing | Wall-grazing

AMY, YASMEEN

Low-profile wall- washing and oval beams. Versatile COB optic with exclusive narrow beams.

Downlighting | Track lighting | Wall-washing | Up- & floodlighting

LEIA

Extremely narrow beam for creative lighting.

Decorative lighting | Wall-grazing

FLARE

Free-form lenses with a wide horizontal beam.

Decorative lighting | Wall-grazing

CORAL-IP

Extremely precise elliptical beam with superior colour mixing and durability.

Window lighting | Colour mixing lighting | Wall-grazing

VERONICA-MAXI50

Robust design to transform outdoor areas into creative landscapes.

Colour mixing lighting | Floodlighting

GABRIELLA

RGB and tunable white colour mixing lenses.

Colour mixing lighting

DAHLIA

Highly powerful ingress protected linear platform with 120 closely spaced lenses.

Floodlighting | Colour mixing lighting

VERONICA, HEIDI, EMILY

Easily sealable optics for challenging environments and outdoor lighting.

Decorative lighting | Wall-grazing

TINA, LISA, LEILA, LAURA

Single optics for standalone or cluster use, with various beams, diameters, and flexible fastening.

Decorative lighting | Floodlighting | Wall-grazing

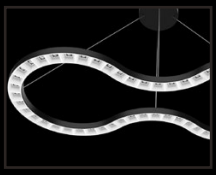
Types of fixtures

Luminaires, or light fixtures, are essential components in both indoor and outdoor architectural lighting. Here are six of the most common luminaire types:

Indoor

Recessed (downlights)
Unobtrusive general lighting

Track
Flexible accent lighting



Pendant
Suspended fixtures with decorative element

Wall scones
Direct and ambient lighting

Outdoor

Floodlights
High-intensity broad-beamed lights for large area illumination

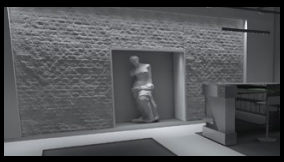
Wall-mounted
Functional and decorative lighting

Pathway and bollard
Low-height fixtures, often with a downward-facing light source

In-ground
Recessed lighting fixtures set in the ground level

Technical support

- Simulations to show optic performance in real applications
- Guides and tips for installations
- Thermal analysis for luminaire designs



Contact our tech support experts:

Global
tech.support@ledil.com

North America
tech.support.us@ledil.com

LEDiL

www.ledil.com

Ledil Oy
(Headquarters)
Joensuunkatu 7
FI-24100 SALO
Finland

Ledil Inc.
228 West Page
Street Suite D
Sycamore IL 60178
USA

Ledil Optics Technology (Shenzhen) Ltd.
#405, Block B, ShenZhen Casic Motor Building, No.7
LangShan #2 Road, Hi-Tech Ind. Park(N.), Nanshan
District, Shenzhen, 518057
P.R.China