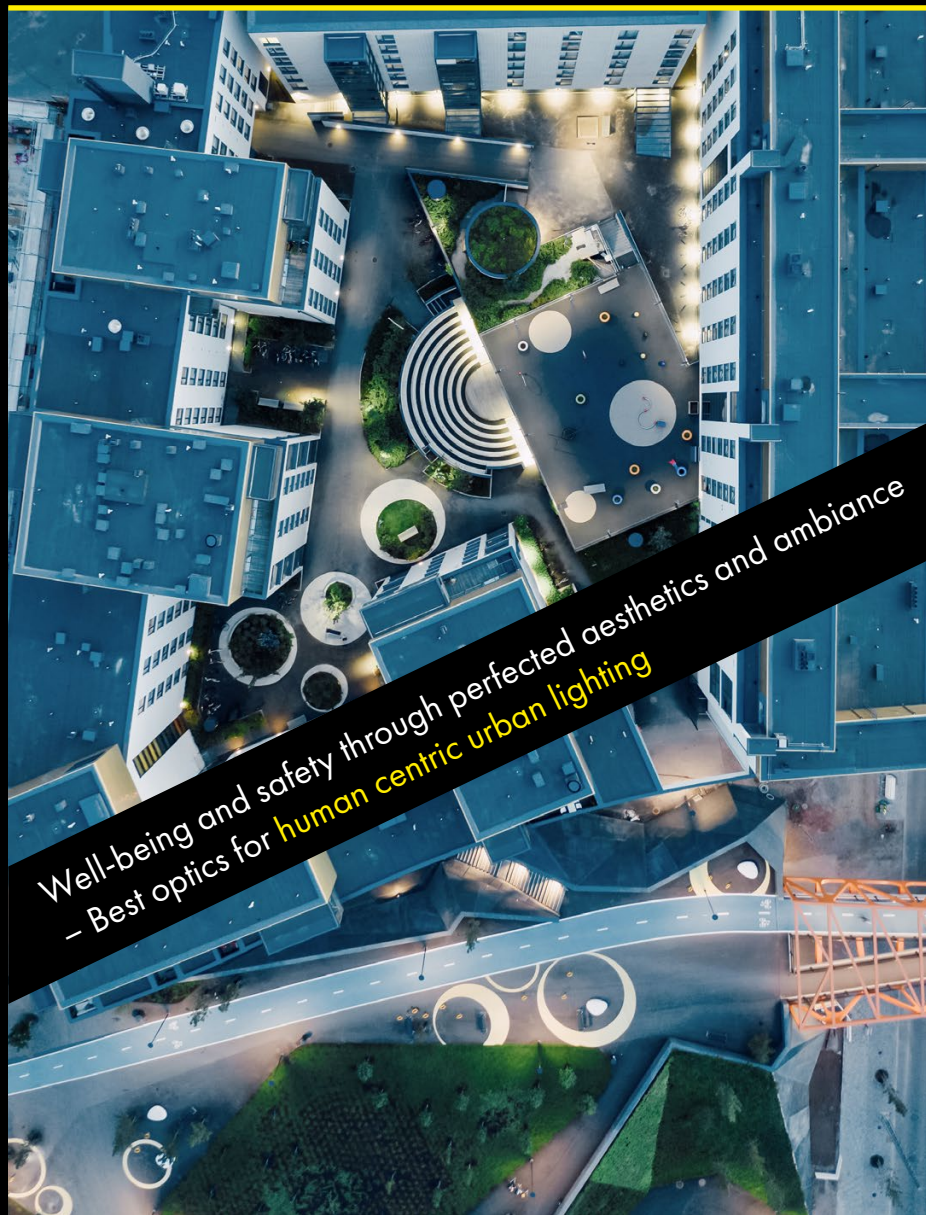


LEDiL

Guide for urban lighting optics

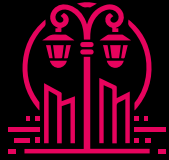
V1-0 / 2024



Well-being and safety through perfected aesthetics and ambiance
– Best optics for **human centric urban lighting**

Good urban lighting is...

...Aesthetics



Aesthetically interesting lighting can create a more pleasant and better looking environment, increase attractiveness, and enhance the value of a city. How historical buildings, important structures, or scenically important areas such as parks, bridges and waterfronts are illuminated, form part of the identity of a city. Highlighting what is unique, using different colours, and being playful with light, can create visually rich environments that influence many.

...Functionality



Clear hierarchies and visual links between different areas ease navigation and help us to orientate in a space. Lighting can direct traffic from residential roads to main roads, point out main cycling routes, activate us to move, and maximise the use of recreational areas. Luminaires that have easy maintenance, the right light distributions, or even some smart features, make a city all the more functional. A comprehensive lighting plan that takes into account all the different areas and their special requirements make the city resonate like a well conducted symphony.

...Sustainability



Shooting light towards the sky not only contributes to the broader problem of energy waste, but causes light trespass and pollution that compromises our circadian rhythm, ability to sleep, ability to see the stars, and much more. Choosing luminaires with good light control, and minimising the blue light spectrum after the sun sets, helps in creating more natural and dark-sky friendly lighting. Lower lighting levels - or turning lights off from certain areas, or for some time - can be used to create more interesting contrast or "dark networks" that protect nature and meet residents' wishes. Long-lasting, energy-efficient, and easy-to-repair or recyclable luminaires reduces costs and our impact on the environment.

...Safety



Good visibility can prevent us hurting ourselves and others. Properly illuminated spaces and environments contribute to a sense of security and enhance overall comfort. Vertical illumination is important for spatial perception, but should be done with the right lighting levels to avoid too strong contrasts. This is especially important in parks with fewer lights, so our eyes don't lose their natural ability to adapt to the surrounding darkness. Luminaire safety means that they are manufactured to withstand the demands of outdoor environments and are also vandal resistant.

Preserve darkness,
and illuminate
what matters.

...increasing well-being.

Why focusing on urban lighting is important

Light has an immense **impact on our everyday lives**. It guides our movements, helps us to orientate in a space, protects us from harm, and makes us feel safe.

The quality and amount of light affects **how well we, and the city, function together** - all year around. Visual links between different areas, the special needs and expectations of different people, and how pleasant and comfortable a city feels, require comprehensive light planning.

In contrast, **darkness is equally important** to us and the lives around us. A city may never sleep, but we need to, while nocturnal animals sleep when it's bright. The right balance between light and darkness makes our surroundings feel **more interesting and healthier** to be in.

We are diverse people living in diverse cities, and **how light dresses a city affects our connection to it**.

More than **80 %**
of the world and more
than **99 %** of the U.S.
and European populations
**live under light-
polluted skies.***



The **Milky Way** is
hidden from more than
one-third of humanity,
including **60 %**
of Europeans and
nearly **80 %** of North
Americans.*

* <https://www.science.org/doi/10.1126/sciadv.1600377>

Urban lighting with LEDiL optics

CORAL-IP

Extremely **precise elliptical beam** for wide coverage and reach
Superior colour mixing with line cluster of discreet LEDs
Easy to install **2K-molded construction** for ultimate optical performance and durability



Light control and va-va-voom for urban and technical applications

An atmosphere and landscape where lit and unlit areas vary and interconnect without compromising functionality and safety is the most sustainable and refreshing environment for us and the nature around us.

VERONICA-MAXI50

Perfect colours for **decorative outdoor lighting**
Easy twist and lock installation with **protection against dust and water**
Fits a range of **readily available housings**



Robust design to transform outdoor areas into creative landscapes

STRADA

Highly **efficient beams** for roadway and tunnel lighting
Standardised **modular solutions** in various form factors
Versions with **ingress protection** against dirt, dust and water



The most versatile platform for efficient road and tunnel lighting

AMBER

Light that **doesn't disturb the nocturnal life** of different species such as turtles and bats
Same **footprint and light distribution** as STRADA/STRADELLA
Amber colour that **blocks ~99 % of blue light** from the LEDs



Eliminate blue light - always warm colours with white light LEDs

BELLA-SQ

Special "half-beams" designed for **uniform bollard lighting**
Ideal illumination of pathways and recreational areas **from low pole heights**
Create pleasant urban environments with **great light control and smooth cut-off**



Half the light, twice the impact for the most efficient bollard lighting

THEIA

Pleasant looking lighting with **low glare even from low pole heights**
Uniform surface luminance **with reduced pixelation**
Ingenious edge-to-edge design that can be linked together with multiple lenses



Low glare area and street lighting for urban environments

How is the city portrayed and what ambiance does it have when it's dark?
The illuminated objects don't have to be the same as the objects highlighted during the day.
Day and night city can be different.

A city should have dark areas to create an interesting contrast with the illuminated areas. Spilling light an unwanted areas like the sky, or the top floors of an apartment building, is not only wasted energy, but also affects our sleep and the ability to view a starry sky. Some areas should even be left dark in order to preserve natural diversity.

Don't shoot for the stars - aim to minimise light pollution

Limit disturbing or unnecessary light to the sky, apartments, and the natural environment.

Light pollution not only affects how we see beyond the horizon, but can obscure important information.

Is lighting always necessary, or does it create more disturbance or unnecessary energy consumption?



Well designed luminaires and the right optics can reduce light pollution and skyglow.

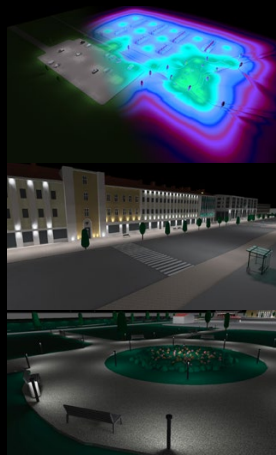
Technical support

- 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

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