Thesaurus.

OFFICE LIGHTING

A guide to *comfort*.

DELTALIGHT

The office is back.

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Context.
TREND REPORT

OFFICE TREND FORECAST

Discover the future themes and trends of office design in our Office Trend Forecast, written by Amy Frearson. Drawing on the latest industry research, plus insight from leading voices in workplace design, it highlights the key trends that are set to change the design landscape of the office both in the immediate future and over the long term.



AMY FREARSON

is editor-at-large for Dezeen, regular contributor Elle Decoration and the Financial Times, and co-author of All Together Now: The Co-living and Co-working Revolution, published by RIBA Books.

"Expectations of how the office should look and function have completely shifted. Although remote working is declining, hybrid working is still the preference of many. That means today's workplace must be more flexible than ever before. Other factors are also at play, such as the rise of Artificial Intelligence, biomorphic design, a growing awareness of inclusivity and mental health issues, human-centric interiors, integration of technology to improve efficiency, and more."



DANIEL WALDEN

is CEO and owner of Cologne-based lighting design studio, a.g Licht. He has worked on over 300 projects and has been a guest lecturer at international architectural lighting design industry events.

"The biggest change is the technology behind the lighting components. Smart technologies, sensors and mobile applications support hybrid working models and flexible working. This means that lighting controls can be responsive to office occupancy. We can use this information to manage spaces more effectively, which can improve energy efficiency."

TREND REPORT
Scan to discover
the complete brochure



ISABEL VAN HAUTE
is founding partner of Coldefy, developing projects at national and international levels for public and private clients.

“Office developers are discovering the benefits of workplace buildings that support the comfort and well-being of occupants. Clients want buildings that can be used in different ways, to provide varying levels of interaction and functionality. If you create good working conditions, people do a better job.”





FILIPPO LODI
is Head of innovation and knowledge management at UNStudio. He leads UNSx, UNStudio’s in-house innovation think tank and experience lab.

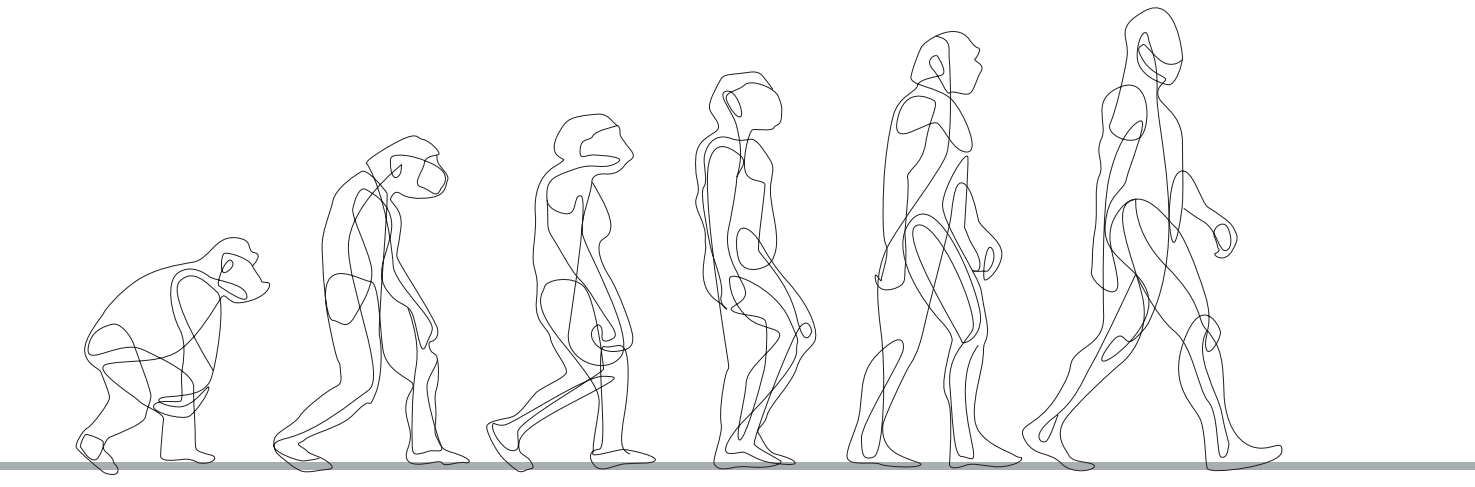
“UNSx uses the term “third space” to refer to the incidental spaces where people come together. UNStudio has been testing out different types of third space in its own offices.
The evolution of such spaces will define the way that offices are planned in the future, with sensor technology playing a crucial role in measuring success. It allows the possibility of a more human-centric dimension to the workplaces of the future. Our advice is to prototype. Design a portion and test it. If it works, then replicate and scale.”

From Working Space to Human Space.

We design for comfort.
Our mission is to complete your vision. When we execute our client's intentions, we turn the conceptual into light. Considering user comfort at every step. That's what drives us.

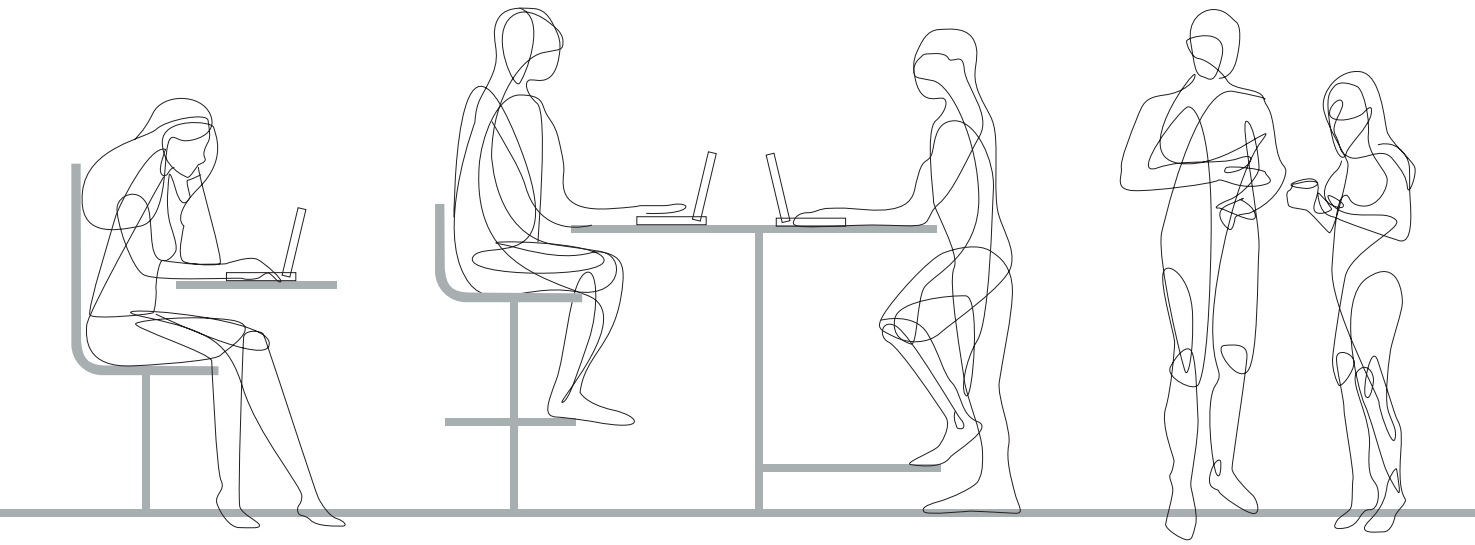
We believe that the purpose of light, whether natural or man-made, is to provide comfort: a sense of ease for the eye and the self, day or night. This is why our product designs not only bear our signature aesthetic, but they're functional, first and foremost. By carefully considering the different components that make up light, we develop our products to provide comfort and stimulate well-being.

As a brand, we like to be a little different and show our trademark in each of our solutions: ingenious volumes, tailored advice, and customized follow-up. We're detail-oriented, right down to this carefully made brochure. We like to take extra care in what we do, even the smallest touches demonstrate our unwavering commitment to the product, team, and you.



HOMO HABILIS HOMO ERECTUS HOMO SAPIENS

The office is back,
but not as we know it.



HOMO OFFICIUM SEDENS

HOMO OFFICIUM ERECTUS

HOMO OFFICIUM SOCIALE

The Deltalight Approach.

Sustainability is more than just a fad.
It's the spirit of the age.

READ MORE
about our sustainability programs

For Deltalight, as a forward-thinking family business, embracing sustainable practices is a natural extension of our company and family values. We are acutely aware of the importance of what each generation passes on to the next.

As the global focus on sustainability continues to grow, so does our own. We are fully committed to building a responsible business where sustainability and circularity are key elements of our operations. To achieve this, we have a no-nonsense, pragmatic plan plan that consists of four programs: decarbonization, a circular economy program, a social foundation program and a sustainability drivers program.

Like many other brands, we are under pressure to offer products that are either repairable or easy to recycle. This pressure has accelerated a shift towards 'design for disassembly', an approach where lighting is made up of modular components that are assembled without glue. This allows items to be taken apart at the end of their life cycle, making them easier to dismantle and recycle. It also ensures that products last longer; when parts become obsolete, worn out or broken, they can be replaced. This circular approach has significantly changed the way our products are currently designed, bringing a flexibility that is even opening new doors.

As a company, we have set ourselves the ambitious target of becoming net-zero by 2050, which means adapting our business practices so that we emit no more greenhouse gases than we remove. Our goal is to reduce direct CO^2 emissions from sources we own or control by 8% per year.

Deltalight also recognizes the great opportunities to do good in the world. We believe that everyone who helps make and market our products deserves a fair chance to succeed. We want everyone, regardless of their background or age, to feel empowered and validated. This is the only way we can offer high quality, high comfort products that have a positive impact on society.

Our Sustainability Drivers Program covers all actions that support proactive social and ecological sustainability throughout the Deltalight value chain. It supports the other programs with control mechanisms to reduce the likelihood of negative environmental or social impacts.

However, the biggest change we see in the market today is the technology behind the lighting components. Smart technologies, sensors and mobile applications support hybrid working models and flexible working. This means that lighting controls can respond to office occupancy. The sensor technology needed to capture this information is already being incorporated into Deltalight luminaires.

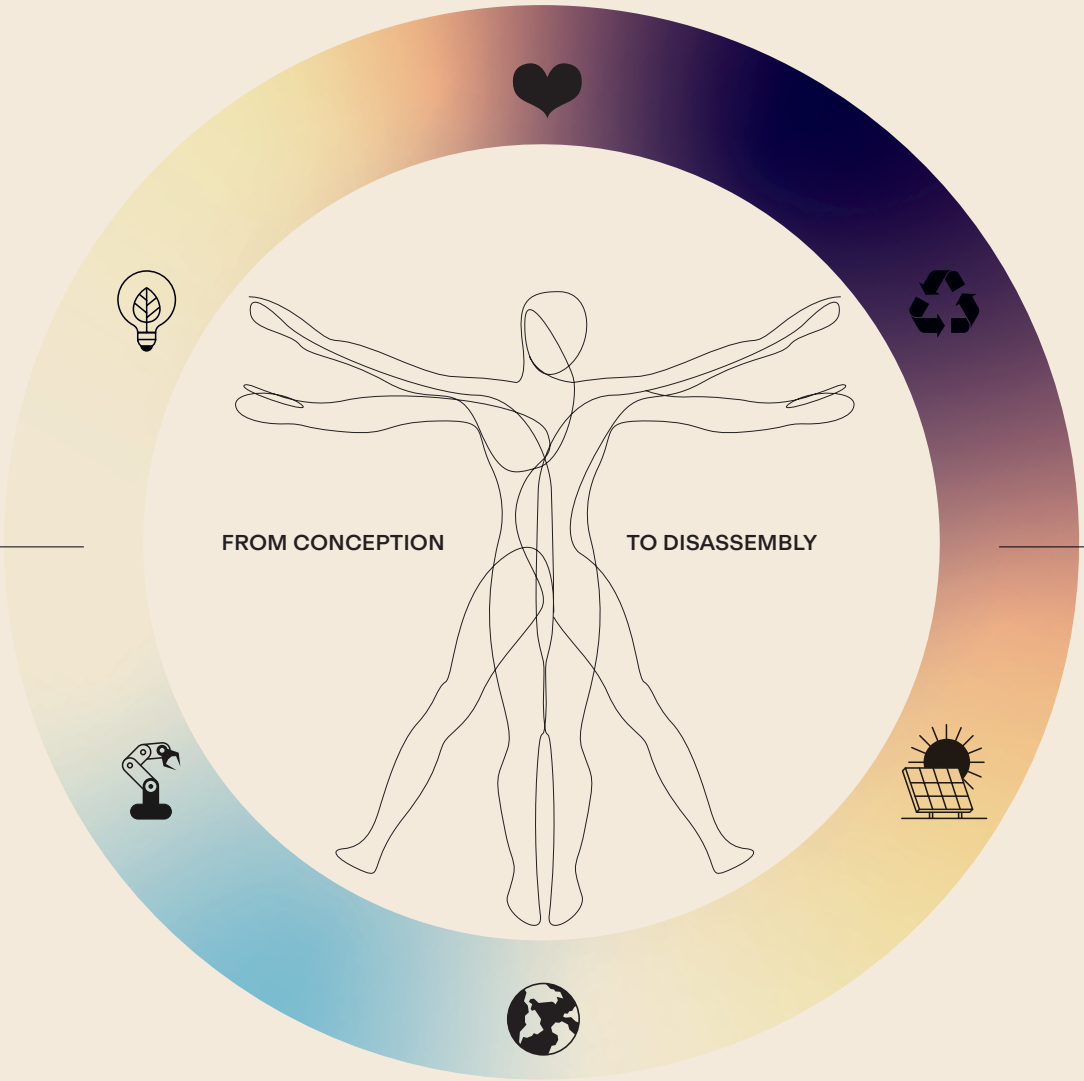
We are excited about the future, about technical evolution, and all the possibilities it will hold, not only for today's generation, but for tomorrow's.

SOCIAL FOUNDATION PROGRAM

This initiative is about building a culture of social sustainability and equal opportunity with respect for the needs of future generations, ensuring that the company, its operations and its products contribute positively to society.

DECARBONIZATION PROGRAM

We aim to achieve net zero carbon operations by 2050, with a significant focus on incorporating energy efficient LED modules into our luminaires as a key strategy in our decarbonization efforts. Our roadmap is to reduce the carbon footprint by 8% per year.



CIRCULAR ECONOMY PROGRAM

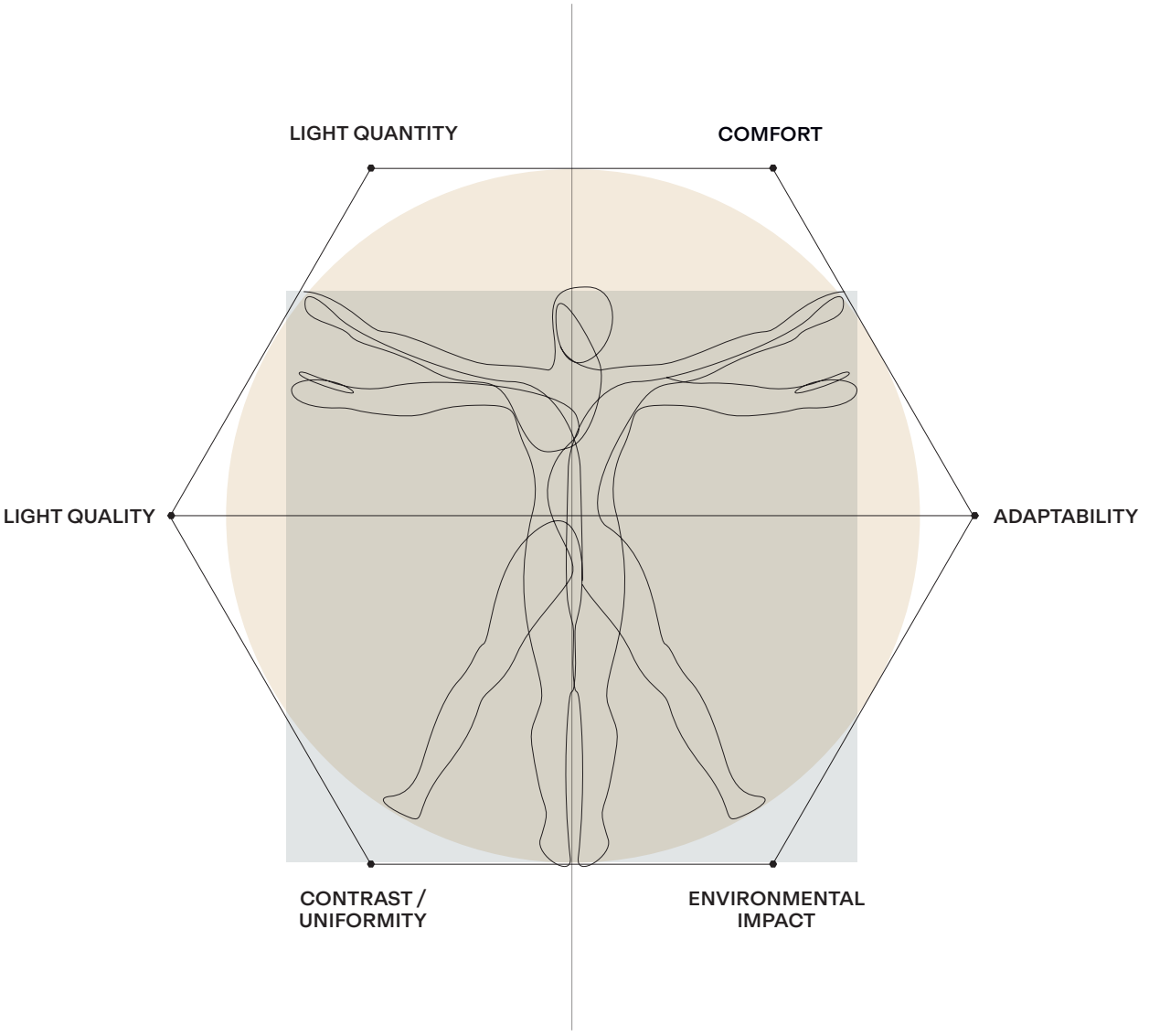
A program focussed on increasing the longevity of our products, improving their recyclability and innovating packaging solutions to minimize environmental impact. We aim to reduce our dependence on finite resources, reduce waste and ensure that our products are part of a sustainable life cycle.

SUSTAINABILITY DRIVERS PROGRAM

We aim to embed a strong sense of ethical and sustainable practices throughout the company's value chain. By focusing on responsible sourcing and conducting business according to high ethical standards, we seek to ensure that every aspect of the company's operations contributes to its overall sustainability goals.

LIGHTING BASICS.

Lighting Basics.



There is no standard recipe
for the proper illumination of a space.
The correct lighting of your project
is the balance between several aspects.

LIGHT QUANTITY

"Light quantity" refers to the amount of light needed to make a specific space well lit according to the international norms present in a particular space or environment.

We will talk about Illuminance. This is a measurement of the amount of light falling on a surface area. It's typically measured in lux (lumens per square meter) or foot-candles (lumens per square foot).

LIGHT QUALITY

The characteristics of light that affect how humans perceive and interact with their environment. Light quality is influenced by factors such as color temperature, color rendering index (CRI) and spectral distribution.

Light quality plays a crucial role in shaping the aesthetics, functionality, and comfort of the spaces to create lighting environments that meet the specific needs and preferences of users while promoting well-being and productivity.

CONTRAST / UNIFORMITY

Uniformity and contrast are two important aspects that influence the visual perception of a space.

Balancing uniformity and contrast are essential to create visually appealing, functional, and comfortable spaces.

COMFORT

Subjective feeling of well-being, ease, and satisfaction experienced by individuals in a given working environment.

Some factors that contribute to workplace comfort are Glare Reduction and Noise Reduction.

ADAPTABILITY

Adaptability in office lighting refers to the lighting system's ability to adapt and respond to changing requirements, preferences, and environmental conditions within the office.

Modern workspaces require lighting systems that can adapt effectively to the evolving needs of the space and its occupants.

Adaptability is a key requirement in office lighting that encompasses mainly flexibility, personalization, and scalability.

ENVIRONMENTAL IMPACT

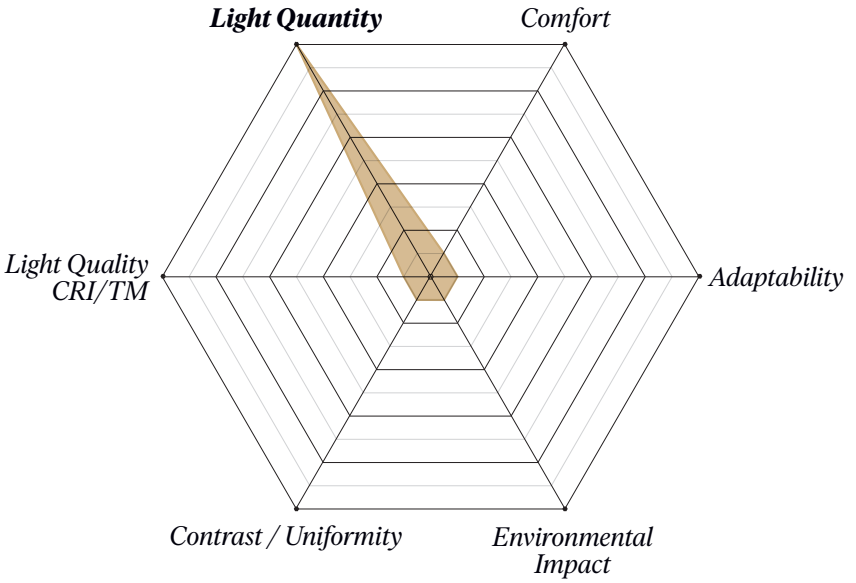
Energy efficiency involves minimizing energy consumption for heating, cooling, lighting, appliances, and other building systems while maintaining comfort and functionality. Strategies may include the selection of efficient lighting fixtures, implementing lighting controls and ensuring that lighting design complies with local energy codes and standards.

By incorporating these energy-efficient lighting design principles and techniques, we can create well-lit and visually appealing spaces while significantly reducing energy consumption and operating costs.

Lighting Basics.

LIGHT QUANTITY

ILLUMINANCE
EMERGENCY



Light Quantity is a crucial aspect of lighting design and plays a significant role in determining **the visual comfort, functionality, and safety of a space.**

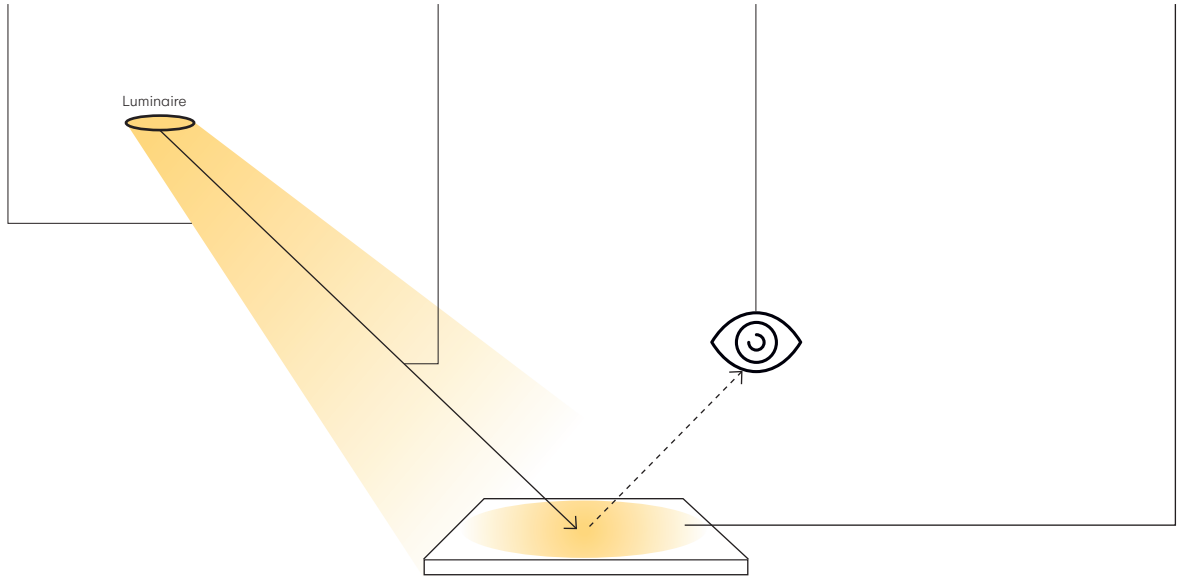
Photometric units are crucial in lighting design, engineering, and related fields. They are used to quantify different aspects of light and its interaction with surfaces.

Φ = LUMINOUS FLUX
Lumen (lm)
Total amount of light emitted by a light source or lighting fixture.

I = LUMINOUS INTENSITY
Candela (cd)
Amount of luminous flux radiating in each direction.

L = LUMINANCE
Candela/ft² (cd/ft²)
Brightness of an illuminated or luminous surface.

E = ILLUMINANCE
Lux (lx) | Footcandle (fc)
Total luminous flux incident on a surface.



VISIBILITY

Higher illuminance levels generally result in better visibility of objects and details within a given space. When there is ample light, it becomes easier to discern fine details and perform tasks that require precision, such as reading fine print, working with intricate tools, or examining minute components.

ACCURACY AND EFFICIENCY

Higher illuminance levels support greater accuracy and efficiency for completing detailed tasks. Whether it's writing, drawing, crafting, or performing intricate assembly work, sufficient lighting facilitates precise movements and enhances overall task performance.

EYE STRAIN

Inadequate lighting can lead to eye strain when attempting to perform detailed tasks for extended periods. Insufficient illuminance forces the eyes to work harder to focus and spot details, potentially causing discomfort, fatigue, and reduced productivity.

SAFETY

Proper lighting is essential for maintaining a safe work environment, particularly in settings where detailed tasks are performed. Insufficient illuminance increases the risk of accidents and errors due to reduced visibility and compromised depth perception.

Lighting Basics.

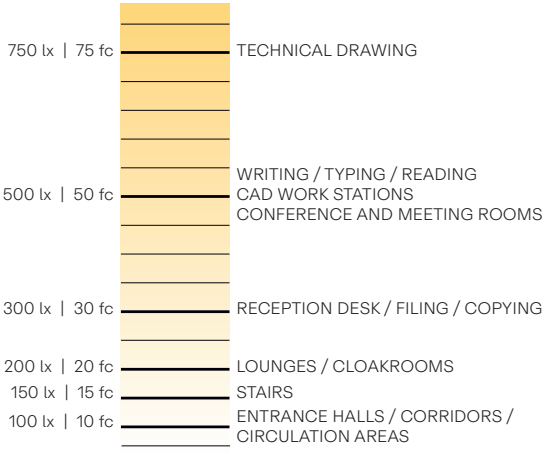
LIGHT QUANTITY

ILLUMINANCE
EMERGENCY

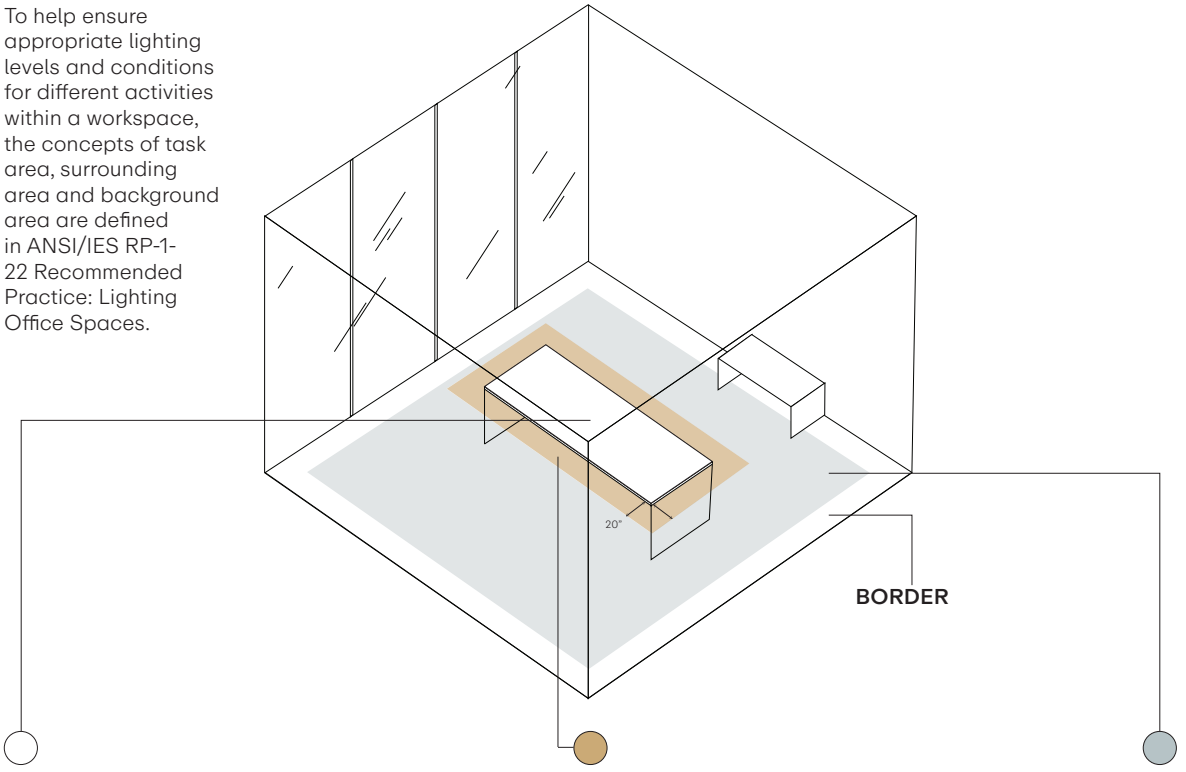
Adequate illuminance levels play a crucial role in supporting the performance of detailed tasks by enhancing visibility, color perception, accuracy, efficiency, and safety. Whether in professional settings, such as laboratories or workshops, or everyday office workspaces, appropriate lighting conditions are essential for optimal task execution and overall well-being.

When is it important to have higher illuminance values?

- visual work is critical to job performance
- errors are costly to fix
- accuracy is of great importance
- task details are of unusually small size or low contrast
- the task is undertaken for an unusually long time
- the task or activity area has low daylight provision
- the worker is visually impaired



To help ensure appropriate lighting levels and conditions for different activities within a workspace, the concepts of task area, surrounding area and background area are defined in ANSI/IES RP-1-22 Recommended Practice: Lighting Office Spaces.



TASK AREA

This refers to the specific area where visual tasks are performed. The lighting should be tailored to provide adequate illumination for the tasks being performed.

SURROUNDING AREA

The surrounding area is the space immediately around the task area, a band of at least 20" around the task area within the visual field. Lighting in the surrounding area should ensure that there are no abrupt changes in light levels or visual conditions.

BACKGROUND AREA

It is adjacent to the surrounding area up to the limits of the space (for larger rooms at least 10' wide) horizontal on floor level. It maintains visual comfort and prevents the workspace from feeling overly dim or cavernous, while also minimizing glare and shadows.

Example
CAD WORKSTATION
TASK AREA $E \geq 50\,fc$
SURROUNDING AREA $E \geq 30\,fc$
BACKGROUND AREA $E \geq 10\,fc$

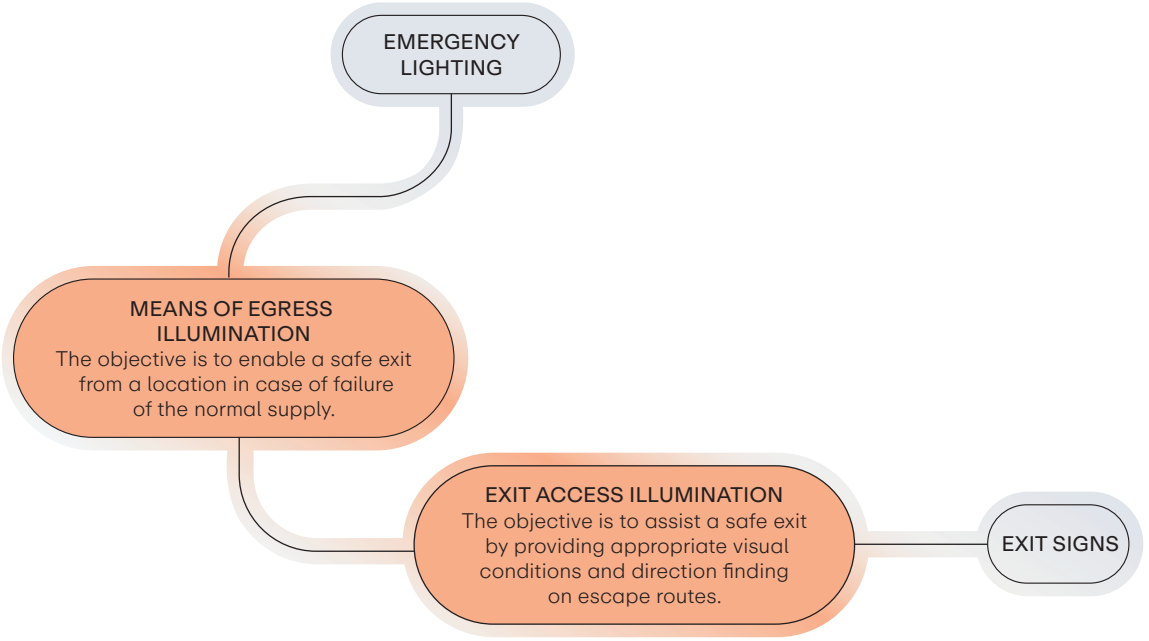
Lighting Basics.

LIGHT QUANTITY

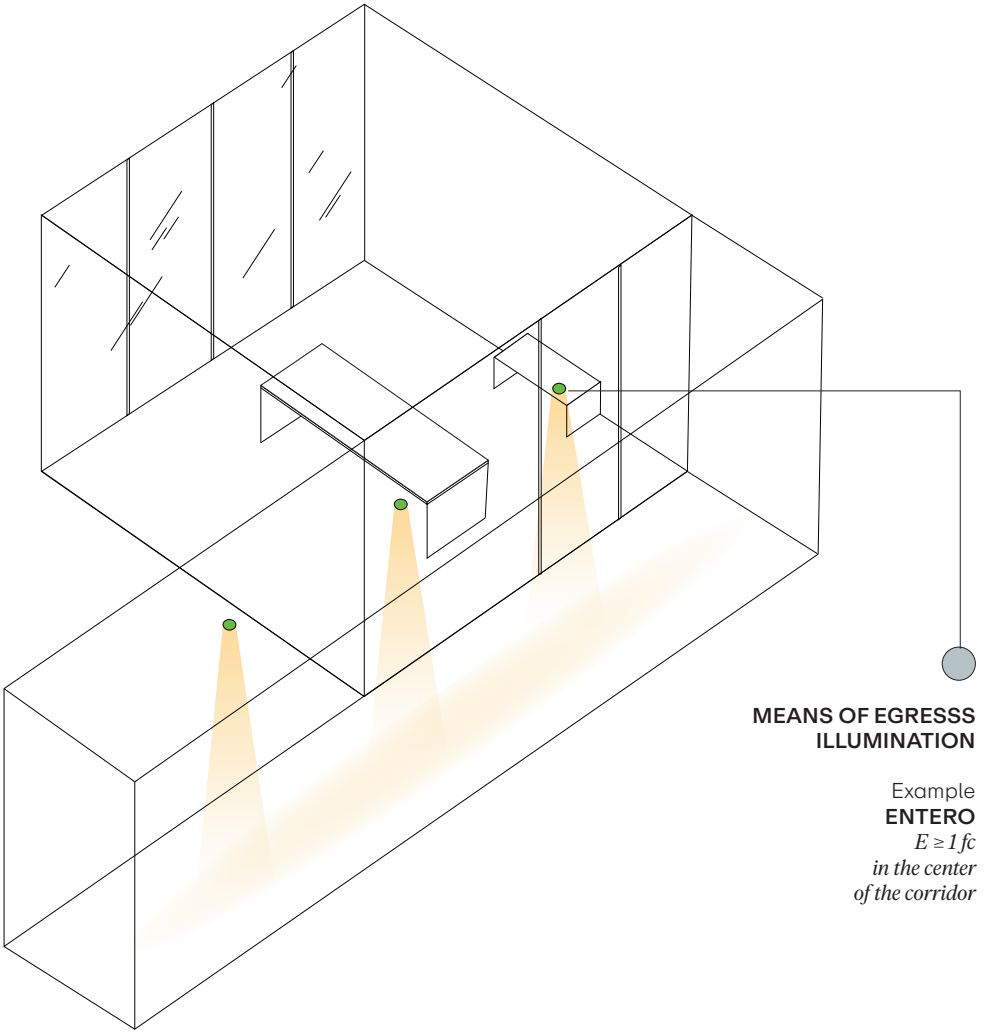
ILLUMINANCE
EMERGENCY

Emergency lighting is provided for use when the power supply to the normal lighting fails and is therefore powered from a source independent of that supplying the normal lighting.

Refer to your local building code for minimum requirements that emergency installations need to meet.



Emergency lighting in office environments plays a key role in ensuring safety and providing guidance during power outages.



MEANS OF EGRESSS ILLUMINATION

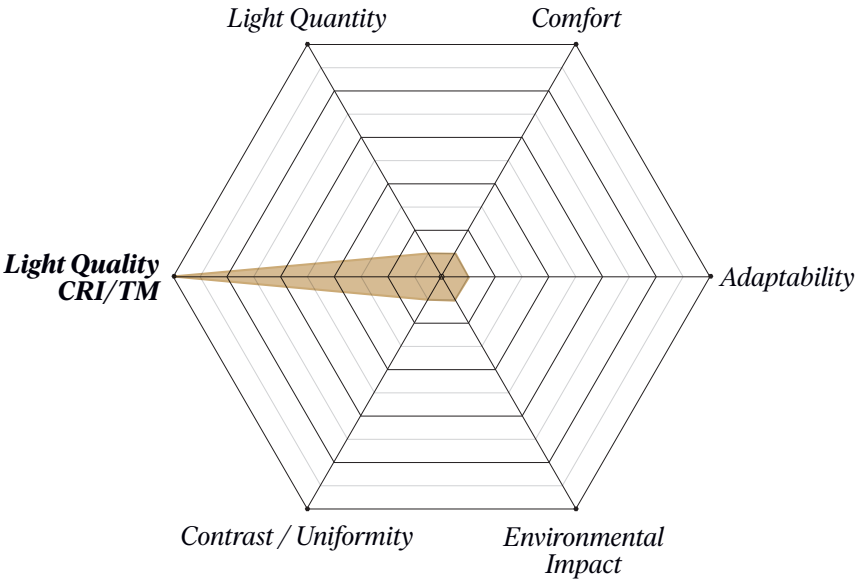
Example
ENTERO
E ≥ 1 fc
in the center of the corridor

Emergency Battery Pack
A key component of an effective emergency lighting system is the emergency battery pack. These battery packs can be remotely installed or can be integrated within the luminaire body and are responsible for providing the necessary power to the emergency lights when the main power supply fails. This way standard luminaires can act as general lighting and as emergency in case of power failure.

Lighting Basics.

LIGHT QUALITY

COLOR APPEARANCE
COLOR RENDERING / LIGHT SOURCES
PHOTOBIOLOGICAL RISK



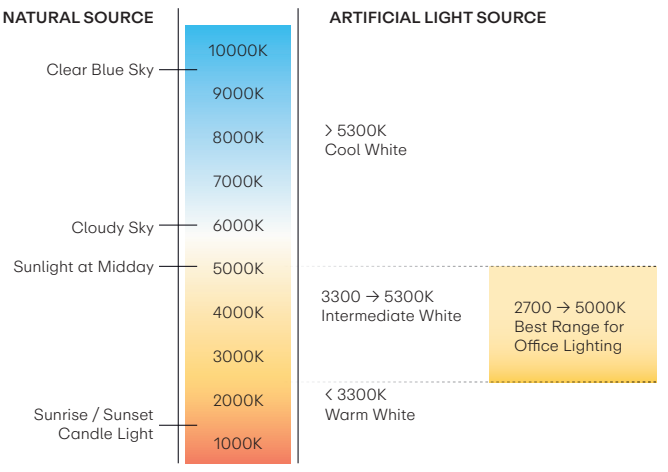
Light Quality plays a vital role in enhancing the functionality and attractiveness of spaces.
It contributes to the workers' well-being and satisfaction.

The color qualities of a near-white light source or transmitted daylight are characterised by two attributes:

- Color appearance
- Color rendering

COLOR APPEARANCE

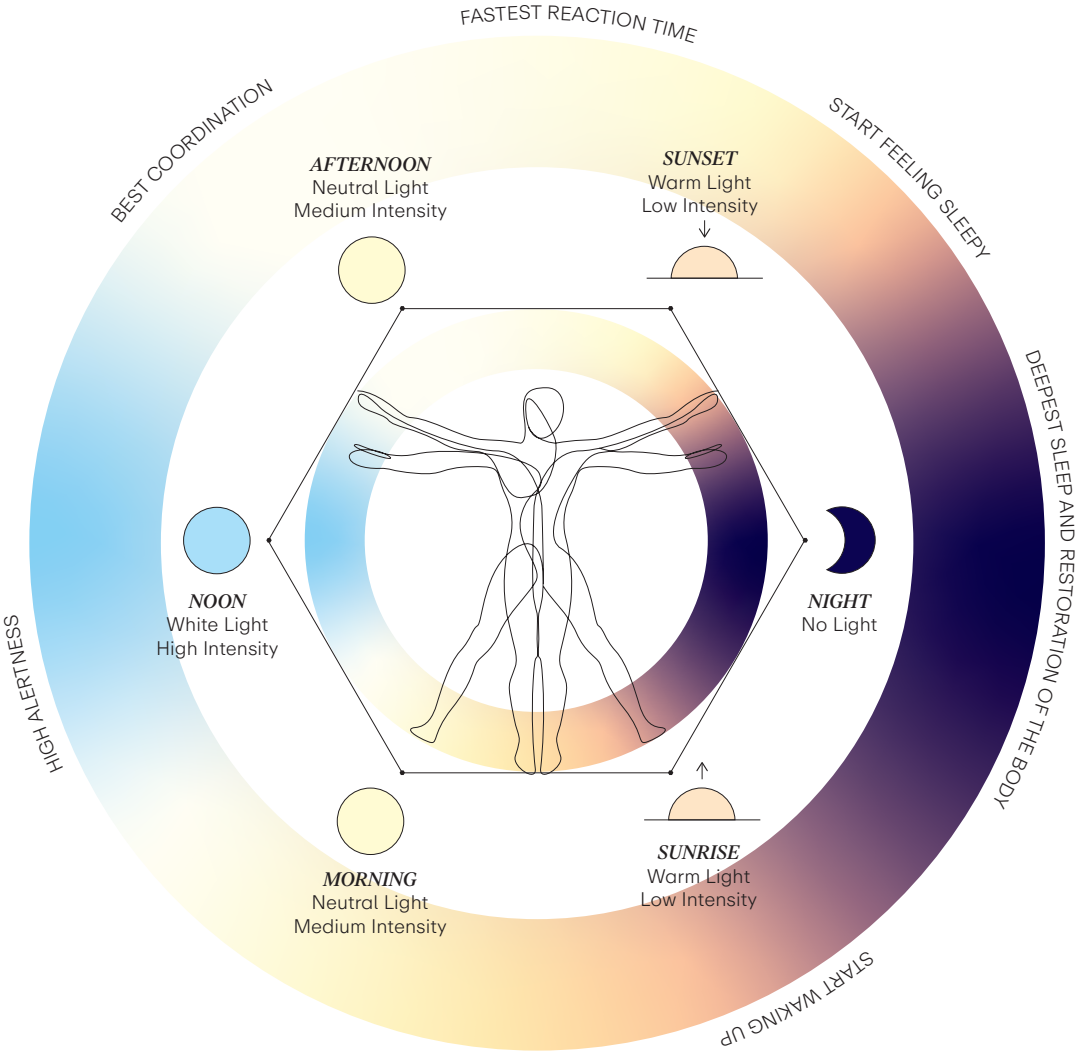
The color appearance of a light source refers to the apparent color (chromaticity) of the light emitted. It is quantified by its **correlated color temperature (CCT).** Color appearance of daylight varies throughout the day. Color appearance of artificial light can also be seen on the diagram to the right.



Lighting Basics.

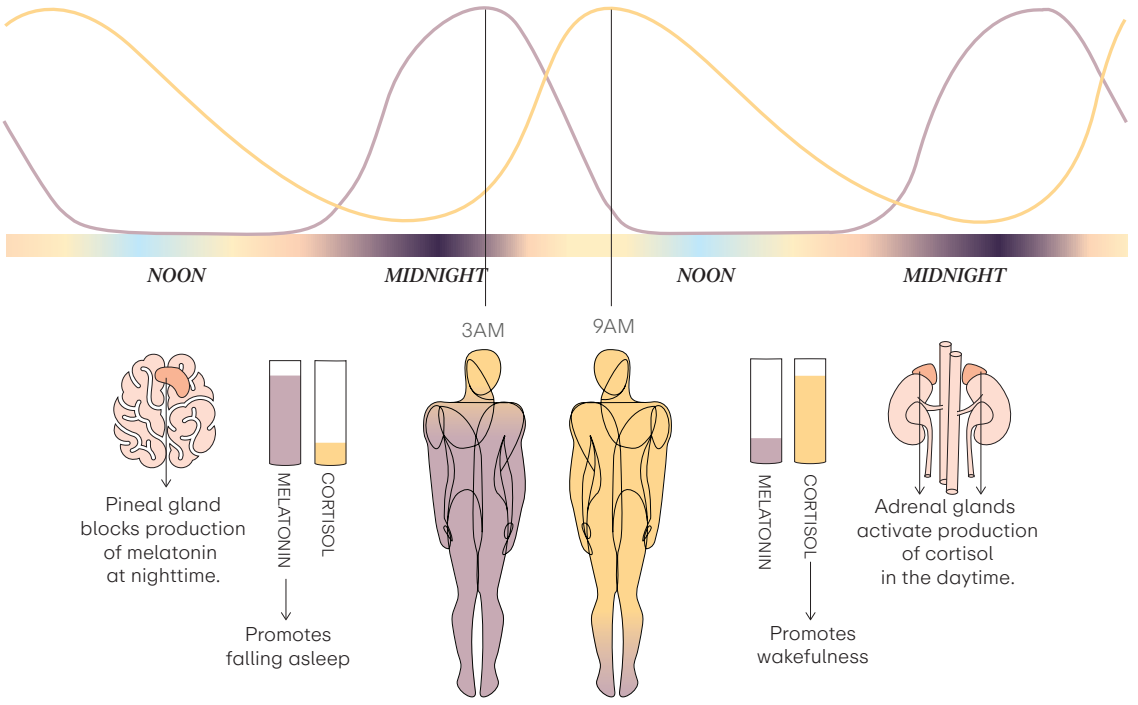
LIGHT QUALITY

COLOR APPEARANCE
COLOR RENDERING / LIGHT SOURCES
PHOTOBIOLOGICAL RISK



HUMAN-CENTRIC LIGHTING

Light has a great effect on humans.
Light stimulates us, and influences our moods and activity levels.
Our physiological response to light depends on the light's characteristics such as color spectrum, intensity, and timing.



CIRCADIAN RHYTHM

The circadian rhythm is a 24-hour internal clock that is running in the background of our brain and cycles between sleepiness and alertness at regular intervals. It's also known as our sleep/wake cycle.

The circadian rhythm allows our body to assign functions based on the time of day, and determine whether or not we should be asleep or awake. Circadian rhythms are how our body knows what time it is.

The brain has a master clock, called the circadian clock. The circadian clock controls the ebb and flow of certain hormones: cortisol (stress regulating hormone) and melatonin (sleep regulating hormone). Cortisol peaks shortly after waking, while melatonin peaks during the middle of the night. They tell all the cells in your body what "time" it is, and therefore what they should be doing. Each cell then sets its own internal clock to the brain's clock.

Lighting Basics.

LIGHT QUALITY

→ **COLOR APPEARANCE**
COLOR RENDERING / LIGHT SOURCES
PHOTOBIOLOGICAL RISK

One of the technological solutions that helps the natural control of the brain clock (and consequently the circadian rhythm) is **Tunable White**. Tunable White lighting systems can replicate the body's natural cycle by adjusting the color temperature of the light emitted.

In the morning and during the day, they can emit a cooler light to promote alertness and productivity.
In the evening, they can switch to a warmer, yellowish light to promote relaxation and prepare the body for sleep.
These systems are beneficial in office environments, especially if there is a lack of natural lighting, and where it is important to maintain a healthy circadian rhythm to improve sleep quality, mood, and general well-being by making sure lighting aligns with our natural biological rhythms.

Deltalight has developed a custom Tunable White solution that integrates two different LED sources:

→ A warm LED 2700K CRI90
to be used at the beginning and end of the working day.

→ A cool LED 5000K with **MLT** (Melanopic Lighting Technology)
to be used in the central part of the working day.
The MLT LED is a specific light source with a high blue-green energy content that is proven to stimulate wakefulness and support a vibrant life. It raises the spectrum of the blue-green light region around 480nm which leads to a 10% higher Melanopic Illuminance, regulating circadian rhythms.

Equipped with **MLT technology.**

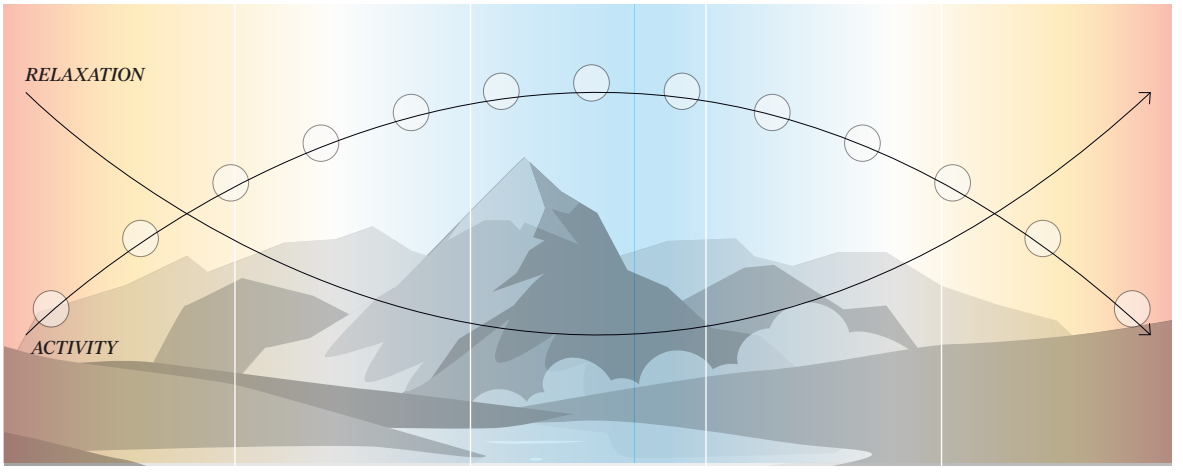


INFORM 40



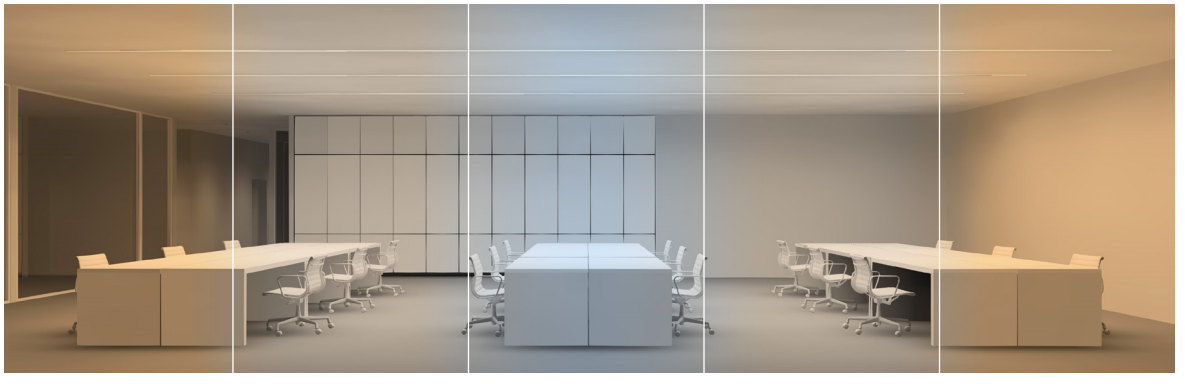
OMNILINER

The combination of Tunable White and Melanopic LED technologies can offer comprehensive lighting solutions that not only provide appropriate illumination for visual tasks but also support human health and well-being by replicating the dynamic qualities of natural daylight and optimizing light exposure for circadian rhythm regulation.



SUNRISE *NOON* *SUNSET*

9:00 11:00 13:00 15:00 17:00



2700K 5000K 2700K

Lighting Basics.

LIGHT QUALITY

COLOR APPEARANCE
COLOR RENDERING / LIGHT SOURCES
PHOTOBIOLOGICAL RISK

COLOR RENDERING

It refers to the light source's ability to show the color of an object 'realistically' compared to a reference source. The two methods used to assess the color rendering abilities of light sources are CRI and TM-30.

COLOR RENDERING INDEX (CRI)

CRI provides a single numerical value (Ra) representing the average color rendering across eight standard color samples (R1-R8).

Although an additional six color samples are measured (R9-R14), they have no impact on a product's CRI rating.

CRI has been the standard method for many years, but it has limitations, including its reliance on outdated color samples and its inability to accurately represent the color rendering of LED light sources.



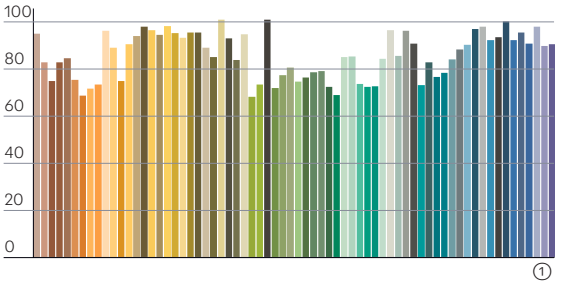
TM-30

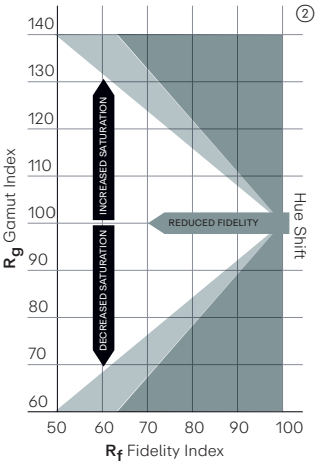
TM-30 is a newer method that provides more comprehensive and detailed information compared to CRI. It's comprised of three primary components:

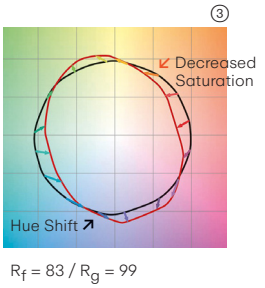
① The **fidelity index** (Rf) is like CRI's Ra but is calculated based on 99 color evaluation samples (CES) instead of 8.

② The **gamut index** (Rg) measures the average shift in saturation of the colors rendered by the light source compared to the reference illuminant, providing additional information about the potential effects of the light source on the perceived vividness of colors.

③ **Color vector graphic** is a representation of where color saturation variation and hue shift occur.

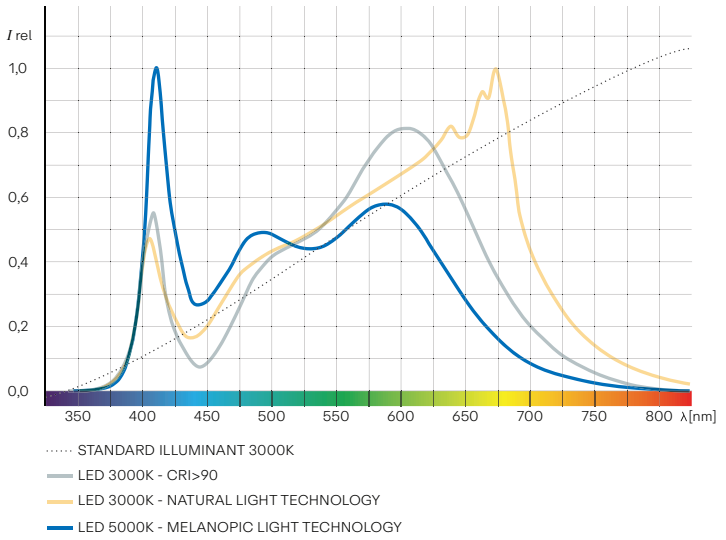


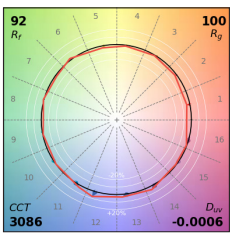
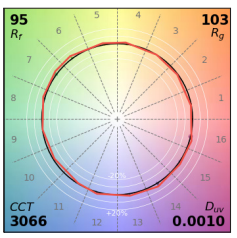




$R_f = 83 / R_g = 99$

The color spectrum of LED lighting is crucial for office environments because it directly impacts the visual comfort, productivity, and well-being of employees. For this reason, our lighting fixtures for the office environment are equipped with a range of different LED sources, allowing us to offer the most suitable solution for each specific customer requirement.



LED sources used in our product ranges for office application 	**Fixed CCT CRI90** LED's with a standard spectrum.	**NLT Natural Light Technology** Natural Light Technology: LEDs with a spectrum that very closely matches that of the sun. This includes a broader spectrum compared to standard LEDs, which is preferable for the human eye and brings out the vibrant colors and an enhanced cyan energy, boosting activity.	**Tunable White 2700K CRI90 5000K MLT** A combination of LEDs with different CCT: 2700K for the warmer white colors, 5000K with integrated MLT for cooler white colors. By merging the colors and playing with light intensity, these products are used to mimic natural daylight throughout the day. The warmer color allows one to relax, while the vibrant cooler color boosts productivity and concentration.
Color Temperature	2700K **3000K** 3500K	**3000K** 3500K	from **2700K to 5000K MLT**
SDCM	3	3	3
Lumen Maintenance	L90/B10 >31900h	L90/B10 >49300h	L90/B10 >60000h
Melanopic Daylight Efficacy Ratio	0.5139	0.5089	0.473 at 2700K 0.886 at 5000K
Efficacy	2700K - 131lm/W 3000K - 138lm/W 3500K - 141lm/W	3000K - 117lm/W 3500K - 120lm/W	2700K - 131lm/W 5000K - 173lm/W
CRI	3000K - CRI>90	3000K - CRI>95	2700K - CRI>90 5000K - CRI>80
TM30	3000K Rf: 92 Rg: 100 	3000K Rf: 95 Rg: 103 	2700K / 5000K Rf: 93 / 85 Rg: 100 / 94



Lighting Basics.

LIGHT QUALITY

COLOR APPEARANCE
COLOR RENDERING / LIGHT SOURCES
PHOTOBIOLOGICAL RISK

SAFETY

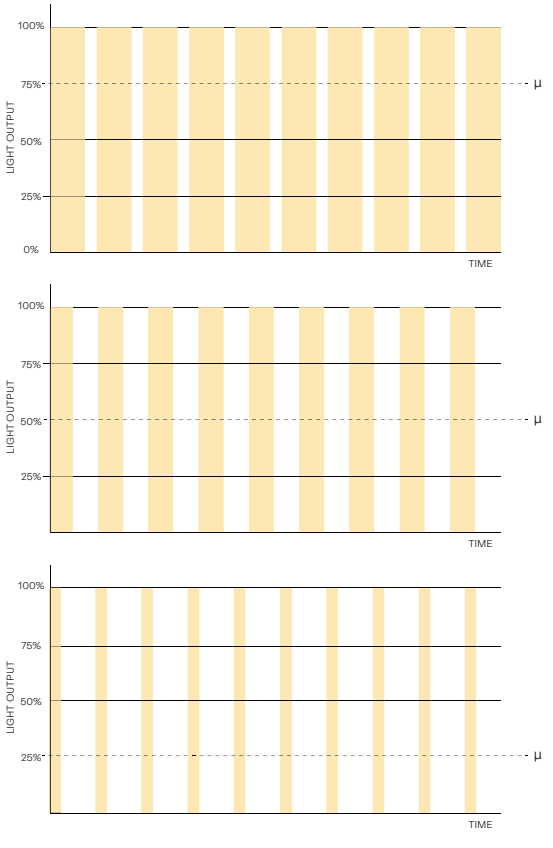
LED light contains almost no light from the ultraviolet or infrared spectrum, and therefore is not dangerous to the skin.

It does, however, provide a high peak in the blue light spectrum which, when looking into a bright light source (for a long period of time), may result in irreversible damage to the retina, the so-called Blue Light Hazard.

Whether the risk is real depends on several factors: luminance of the LED, color temperature, light distribution and distance to the luminaire. When a LED is placed in a luminaire, it is located behind a lens, reflector or diffuser, thus leveling off the luminance.

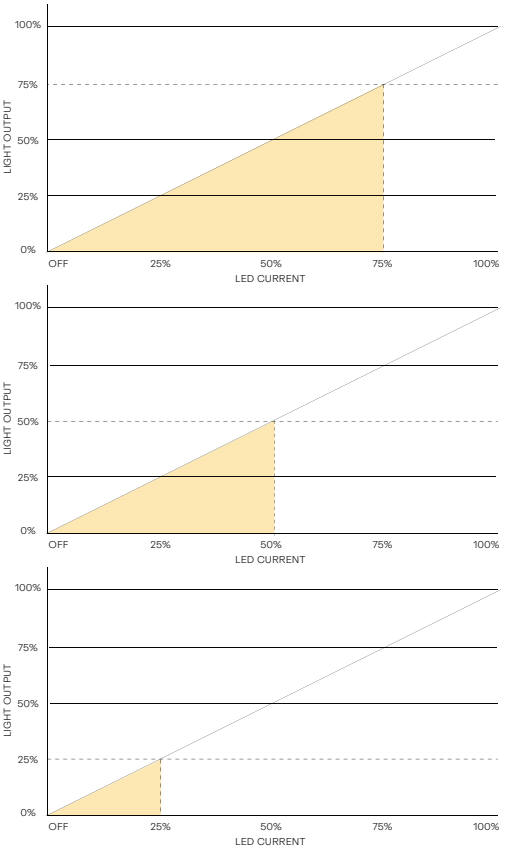
FLICKER VS FLICKER-FREE

PWM
PULSE WIDTH MODULATION
Invisible Flicker / Eyestrain / Health Impact



PWM works by rapidly turning the LEDs on and off. The pulse rate is high enough to prevent the eye from seeing this flicker, and instead a person only sees the average (μ) LED light intensity. However, invisible flicker can have a subconscious impact on well-being.
Example: If the ON & OFF time are the same light output is at 50%.

CCR
CONSTANT CURRENT REDUCTION
NO Flicker

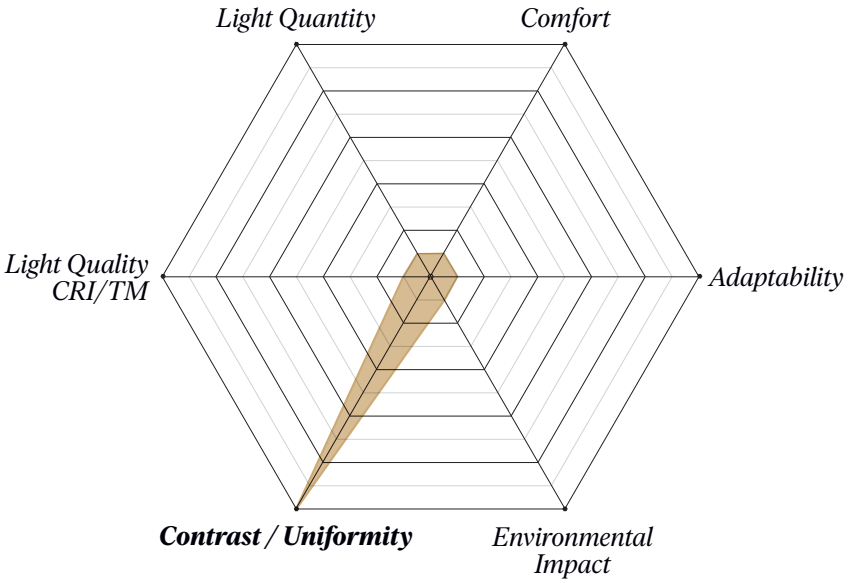


CCR is the simple method of controlling the amount of electrical current supplied to the LEDs. This linear curve has no interruptions so dimming is completely flicker-free.
Example: If the LED current is at 50% light output is at 50%.

Lighting Basics.

UNIFORMITY VS CONTRAST

UNIFORMITY



Uniformity and ***contrast*** are two important aspects that influence the visual perception and comfort of a space; in fact, balancing uniformity and contrast **is essential to create visually appealing, functional, and comfortable spaces.**

UNIFORMITY (U_0)

This refers to the even distribution of light across a given surface or area. Uniformity U_0 is defined as the ratio between minimum and average illuminance (Emin/E).

A good level of uniformity helps to minimize variations in brightness and reduce visual discomfort, which can cause eye strain, fatigue, and difficulty in seeing objects or details.

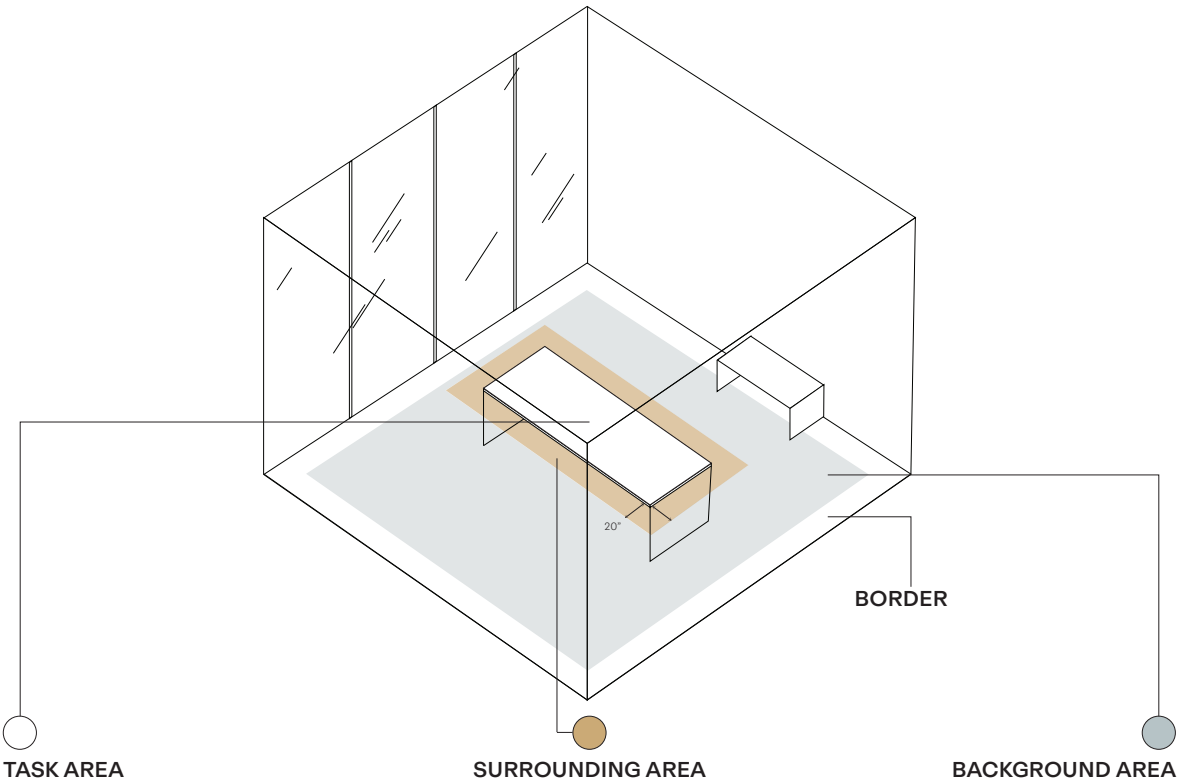
CONTRAST

This refers to the difference in brightness or luminance between adjacent surfaces or objects within a space. It plays a significant role in shaping visual perception, depth perception, and the overall ambiance of the environment.

Controlled contrast can enhance visual interest, highlight focal points, and create depth and dimensionality within a space.

However, excessive contrast, especially when it leads to glare or harsh shadows, can be visually discomforting.

To help ensure appropriate lighting levels and conditions for different activities within a workspace, refer to Illuminating Engineering Society ANSI/IES RP-1-22, Recommended Practice: Lighting Office Spaces.



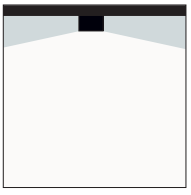
Example
CAD WORKSTATION
TASK AREA $U_0 > 0.6$
SURROUNDING AREA $U_0 > 0.4$
BACKGROUND AREA $U_0 > 0.1$

Lighting Basics.

UNIFORMITY VS CONTRAST

UNIFORMITY

To achieve the desired balance between uniformity and contrast in office lighting, it is often necessary to employ a combination of lighting techniques. Each type of lighting serves a specific purpose and has its own advantages, and is chosen based on the specific requirements and design goals of the space being illuminated.



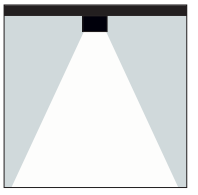
GENERAL LIGHTING

The simplest way to provide overall illumination to a space. With the exception of the ceiling, everything is lit uniformly to ensure that employees have consistent illumination for tasks such as reading documents, working on computers, or conducting meetings.



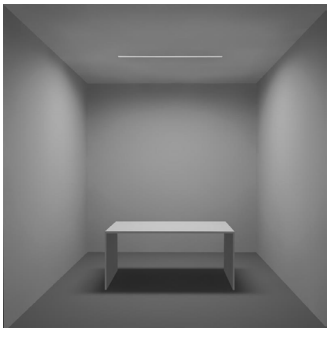
GENERAL LIGHTING UP+DOWN

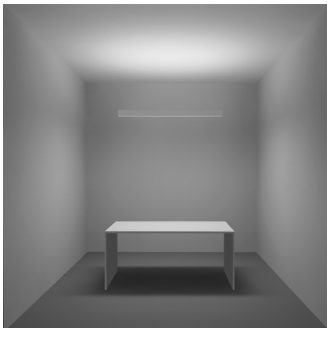
With the addition of the Uplight, it's possible to create a more dynamic lighting effect, creating a softer ambiance and reducing glare.

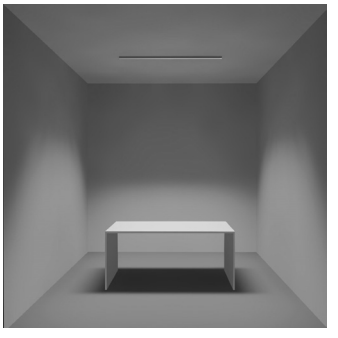


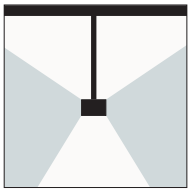
TASK LIGHTING

The use of dedicated lighting fixtures helps to highlight specific task areas within the office, such as meeting rooms, collaborative spaces, or reception areas. This draws attention and adds depth and visual appeal to the workspace. This typology of lighting is brighter and more concentrated than general lighting to provide more focused visibility for the task at hand.



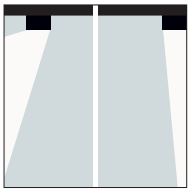






TASK LIGHTING UP + DOWN

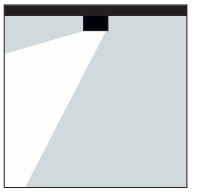
Compared to standard "Task Lighting", with the use of indirect lighting, there will be a reduction of light contrast within the space. This will help to make the illumination uniform on all the surfaces of the room, as well as make it easier to see objects outside the task area.



WALLWASHING / WALLGRAZING

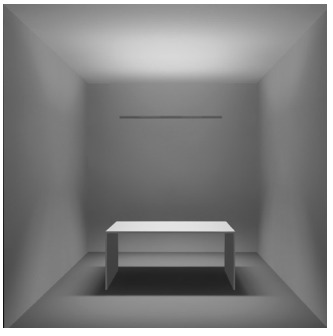
Wallwashing is used to evenly illuminate vertical surfaces with a soft and uniform light. This helps to reduce shadows and can enhance the perception of space in architectural environments.

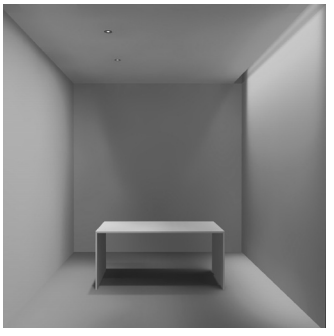
Wallgrazing is used to highlight the structure of a wall by grazing the light across its surface. It creates depth and visual interest, emphasising the material of a wall.

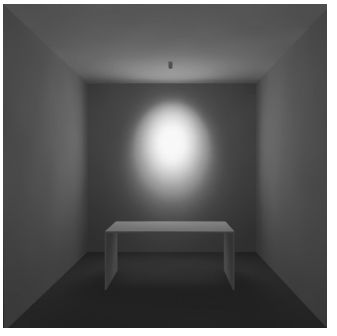


ACCENT LIGHTING

Dedicated spotlights—directional luminaires that produce a concentrated beam of light—allow you to highlight specific objects, architectural features, or artwork, effectively drawing the visitor's attention.



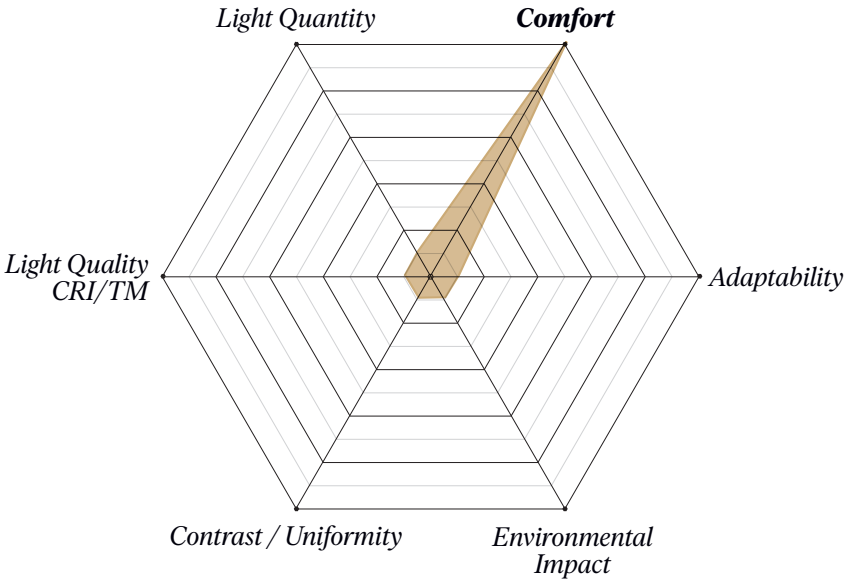




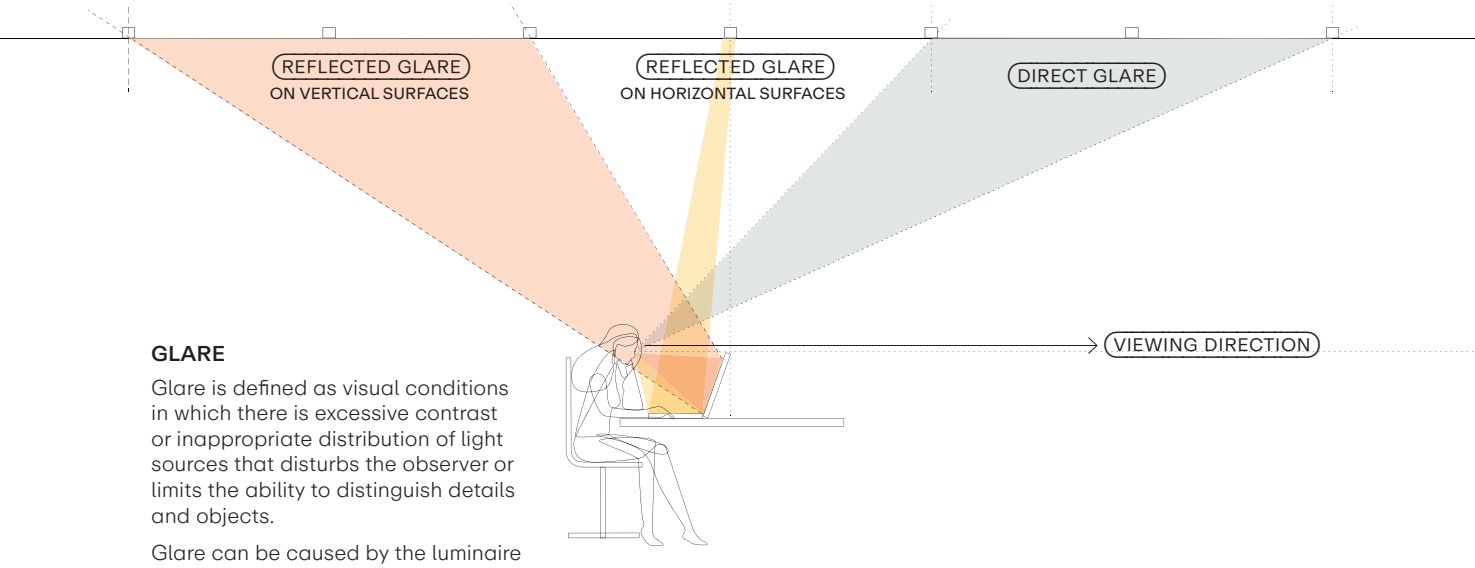
Lighting Basics.

UNIFORMITY VS CONTRAST

UNIFORMITY



Glare control in an office is crucial for creating a comfortable, safe, and productive work environment that supports **employee well-being.**



GLARE

Glare is defined as visual conditions in which there is excessive contrast or inappropriate distribution of light sources that disturbs the observer or limits the ability to distinguish details and objects.

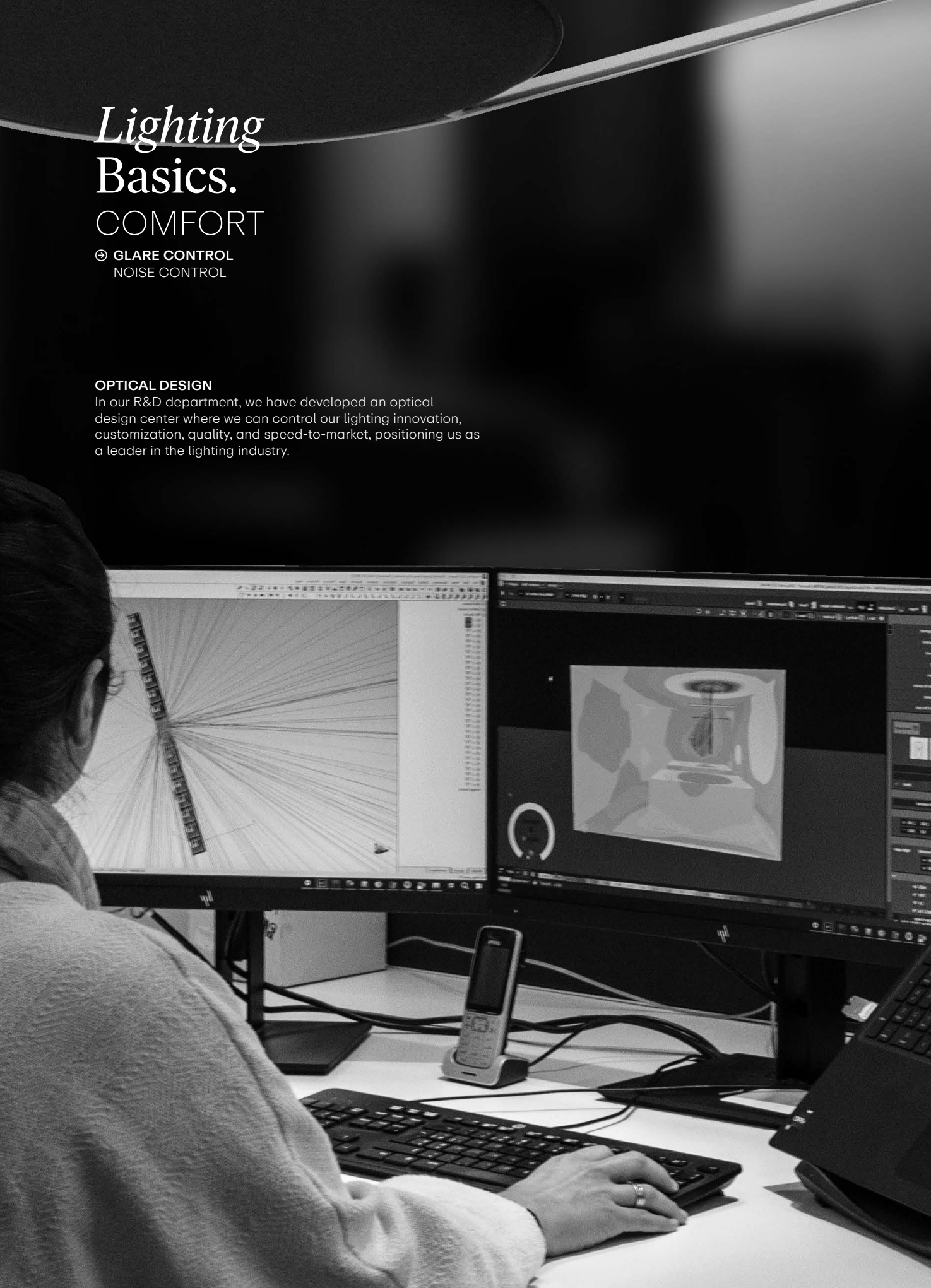
Glare can be caused by the luminaire itself (**direct glare**) or by the reflection of light (**reflected glare**) on surfaces such as desks and monitors. Proper glare control ensures that the office has optimal lighting conditions for different tasks and activities. The most effective way to reduce this glare is by selecting lighting fixtures with good glare shielding (low UGR).

Lighting Basics.

COMFORT

GLARE CONTROL
NOISE CONTROL

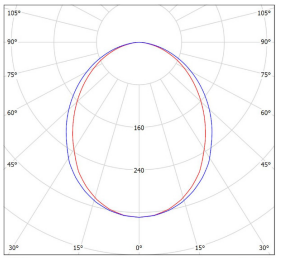
OPTICAL DESIGN
In our R&D department, we have developed an optical design center where we can control our lighting innovation, customization, quality, and speed-to-market, positioning us as a leader in the lighting industry.



OPTICAL SYSTEMS AND UGR

Unified Glare Rating (UGR) is a measure used to quantify the level of discomfort caused by the glare from artificial light sources in indoor spaces and is used to ensure that our lighting installations provide adequate illumination without causing discomfort to occupants due to glare. At Deltalight, we use the CIE (International Commission on Illumination) UGR standard measurement to rate this. A lower UGR indicates less glare and, therefore, better lighting conditions for tasks and activities.

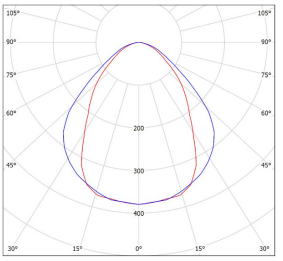




SBL DIFFUSER

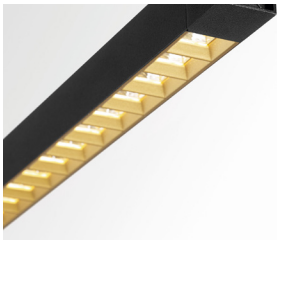
SBL (sandblasted) diffusers provide soft and diffused lighting with enhanced visual comfort and aesthetic appeal, making them suitable for general lighting applications.

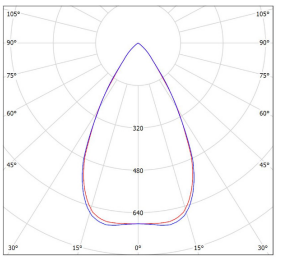




PRISMATIC OPTIC UGR<19

Prismatic optical systems excel at reducing glare and providing uniform illumination throughout the space, reducing the need for additional luminaires.

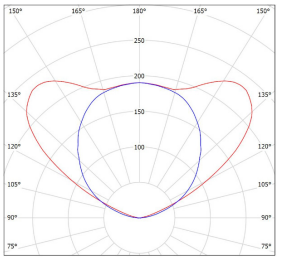




REFLECTOR UGR<16/19

Reflector systems offer precise beam control and are mainly used for task lighting where targeted illumination is needed. They are often used in combination with indirect light to reduce contrast and provide more comfortable ambient lighting.





UPLIGHT BATWING

Batwing distribution (which gets its name from its resemblance to the outstretched wings of a bat) ensures an even spread of light across the ceiling, avoiding over-lit areas. Often used in combination with Task Lighting to achieve a balanced lighting setup that addresses both general illumination needs and task-specific requirements.

Lighting Basics.

COMFORT

GLARE CONTROL
NOISE CONTROL

The integration of lighting fixtures with noise reduction devices is an interesting approach to address both lighting and noise control requirements in office environments, contributing to a more comfortable and productive workspace for employees.

The lighting fixtures serve their primary function of providing illumination, while the acoustic panels absorb sound waves and reduce reverberation in the surrounding environment.

This dual functionality addresses two key aspects of office design – lighting and acoustic comfort – in a single solution.

Deltalight's solution: lighting fixtures with integrated acoustic panels like Soliscape, Zoover and Superloop to combine lighting and soundproofing in the same product in order to reduce reverberation time and increase auditory comfort by cutting down on background noise.

This is one of the most important factors when evaluating the acoustics of a room.

Reverberation occurs when sound waves reflect off of hard surfaces such as ceilings, walls and windows. This can cause echoes and distort sounds.

The recommended reverberation time varies from less than 1 second for an open office space to a maximum of 0.6 seconds for a meeting room.

Integrated acoustic panels



SOLISCAPE



SUPERLOOP PLUS



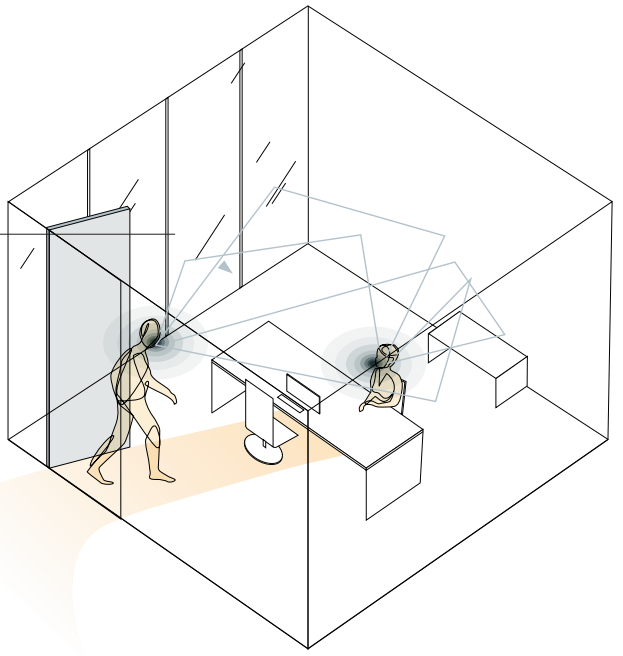
ZOOVER

*The **noise control*** in an office environment is essential for **productivity, concentration, and employee well-being.**

Many factors influence the acoustic qualities and thus the reverberation time within a room: room size, layout and materials all play a part.

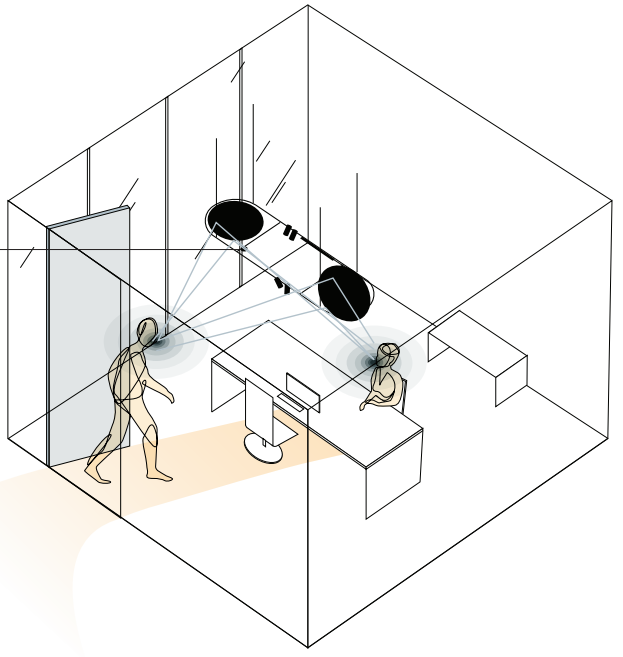
REVERBERATION TIME >3 SEC

Sound Waves reflect off of hard surfaces & cause echoes and distort sounds.



REVERBERATION TIME <1 SEC

Sound Waves are being absorbed by soft surfaces & reduce echoes and distorted sounds.



Lighting Basics.

COMFORT

GLARE CONTROL

NOISE CONTROL



ACOUSTICS
find more
details
online

CERTIFIED TESTING

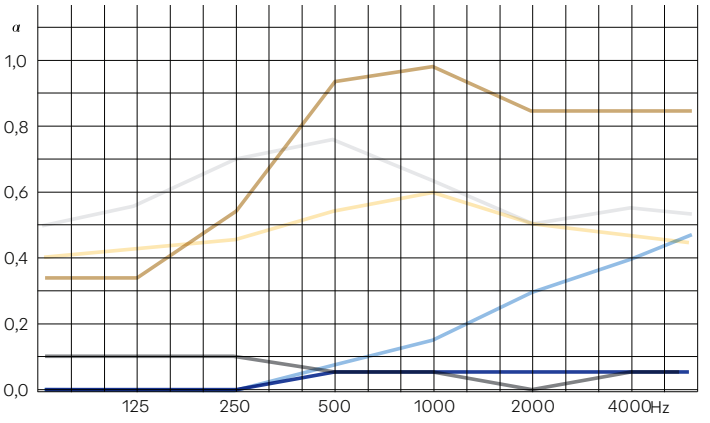
The sound absorption properties of our acoustic solutions are tested in a certified environment: a reverberation chamber that is equipped with microphones. These sound tests are carried out according to the EN ISO354:2003 standard.

After testing reverberation times, a sound absorption area is determined based on this, which allows us to calculate how panels will affect room acoustics.

CERTIFIED TESTING SOLISCAPE

For Soliscape, for example, the tests show that Soli-Shhh panels have a Class A certification for sound absorption with an excellent score of 0.98 out of 1, measured at 1000 Hz.

The panels are made of highly sound-absorbent PET felt, which can be used in combination with additional absorbent material to further reduce disruptive sounds. This all but eliminates reverberation in an indoor space, protecting your ears and minimizing distracting chatter at the same time. Soli-Shhh panels absorb sounds between 500 Hz and 2000 Hz - which are the typical speech frequencies.



Perforated gypsum	0.55	0.70	0.75	0.65	0.50	0.55
Wetfelt Tile	0.40	0.45	0.55	0.60	0.50	0.45
Carpet	0.01	0.02	0.05	0.15	0.30	0.40
Stone / Linoleum	0.02	0.02	0.05	0.05	0.05	0.07
Unperforated gypsup	0.10	0.10	0.05	0.05	0.00	0.05
SOLI-SHH panel	0.36	0.55	0.93	0.98	0.84	0.84

Lighting Basics.

COMFORT

GLARE CONTROL

NOISE CONTROL



THERESIANUM / Vienna (Austria)
Architecture | Architekturatelier Kiener ZT-KEG
Photography Leonhard Hilzensauer

XVIII Century

Reducing noise
in a cafeteria environment
is important to create
a pleasant dining experience
and promote **relaxation and**
socialisation among employees.



2020

Lighting Basics.

COMFORT

GLARE CONTROL

NOISE CONTROL



ARCHITECTURE ARCHITEKTURATELIER KIENER ZT-KEG,
PHOTOGRAPHY LEONHARD HILZENSAUER

LOCATION & HISTORY

In 1746, Austrian Archduchess Maria Theresa founded the Theresianische Academy, converting the summer residence of her father, Emperor Charles VI, the Favorita, into a school.In 2021, the “Theresianum” celebrated its 275th anniversary, making it also the oldest all-day school in Austria.

PROJECT

The large dining room was built in the 17th century and impresses with its architecture and framed portraits of famous 18th century figures . With approx. 180 seats, it can accommodate children from kindergarten, elementary school, high school and boarding school.

Due to the geometry of the room, the building acoustics are very unfavorable. However, Deltalight luminaires used to optimize acoustic elements significantly reduced reverberation, improving the building acoustics.



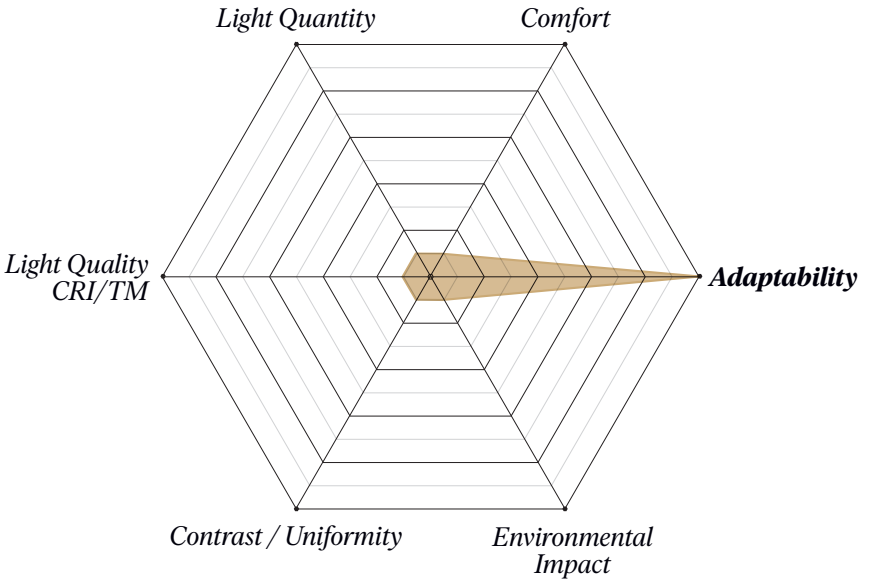


A luminaire in a window axis consists of 4 direct/indirect light strips, 4 spots and 3 acoustic elements. A total of 14 luminaires are arranged along the entire length of the hall. The luminaires are fed via a small, enclosed cable tray along the length of the room from the ends of the hall. The direct/indirect light strips provide uniform illumination of the room. The spots illuminate the stucco and the relief medallions in the vaulted surfaces.

Lighting Basics.

ADAPTABILITY

FUTURE PROOFING
BUILDING INTEGRATION



Adaptability in office lighting
refers to the ability of the lighting system
to adapt and respond to changing requirements,
preferences and environmental conditions
within the office.

Modern workspaces require lighting systems that can adapt effectively to the evolving needs of the space and its occupants

Adaptability is a key requirement in office lighting that encompasses mainly flexibility, personalization, and scalability.





FLEXIBILITY

Office lighting systems must be flexible enough to adapt to changes in the layout or function of the space. A modular lighting setup makes it possible to easily add, remove, or reconfigure the lighting system as the office layout or user needs change.

This might involve incorporating adjustable fixtures or dynamic lighting schemes that can be tailored to specific user or building needs, like smart lighting that interacts with its surroundings or emergency lighting.

PERSONALIZATION

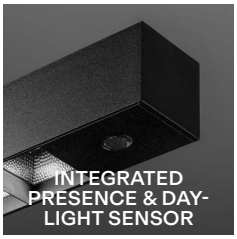
Adaptability implies considering occupant comfort and well-being.

Lighting should be adjustable to suit individual preferences, such as illuminance levels, color temperatures and glare control. This can be achieved with the use of smart lighting controls (dimming, scheduling, sensors...).

Implementing dynamic lighting schemes that mimic natural light patterns makes it possible to have a lighting system that can automatically shift to suit different activities throughout the day. Variations in intensity and color temperature help regulate circadian rhythms.

The ability to choose personal lighting and customize the working environment improves occupant comfort and enhances productivity and well-being.


VOICE CONTROL


INTEGRATED PRESENCE & DAY-LIGHT SENSOR


MODULAR PRESENCE & DAYLIGHT SENSOR


EMERGENCY


INDIVIDUAL PREFERENCE



Lighting Basics.

ADAPTABILITY

FUTURE PROOFING
BUILDING INTEGRATION

A scalable lighting system
with modular fixtures and smart controls
can easily support adaptive lighting schemes,
such as dynamic solutions based on occupancy
or daylight harvesting.



SCALABILITY - FUTURE-PROOFING

Scalability refers to the lighting system's ability to grow or adapt to changes in the working environment, such as expansions, renovations, or layout changes.

Adaptability in office lighting design must also take into account future changes and advances in technology, ensuring that the lighting infrastructure can adapt and evolve over time, reducing the need for costly future replacements or upgrades.

Scalable lighting solutions form the basis on which adaptability can be built. Integration with Building Management Systems (BMS) allows for centralized management and control of lighting alongside other building systems such as HVAC to create a more holistic approach to environmental control. This allows for coordinated adjustments in lighting, heating, and ventilation based on occupancy and usage patterns.

Lighting Basics.

ADAPTABILITY

→ **FUTURE PROOFING**
BUILDING INTEGRATION

There is a growing demand for versatile and flexible lighting systems, such as Soliscape, that adapt to the functionality of the space and its occupants. Every element enhancing the responsiveness and personalization of office environments.

①

3 team members are in a meeting room on a conference call.

LIGHTING

The lighting setup provides full power uplight, downlight is dimmed to 50% to show the faces of the people in the room.

INTEGRATED SENSORS & CONTROL

The system is connected to the calendar of the meeting room and can prepare the room to meet the pre-set ideal temperature and conditions.*

—

Via voice-control, lighting changes to a programmed conference call setting.*

—

Presence detection sensors will switch off the lights when the room is empty.

—

②

3 team members going through a presentation on a monitor

LIGHTING

No uplight, downlight dimmed to 20%, sufficient to take notes at their desk.

INTEGRATED SENSORS & CONTROL

The system is connected to the calendar of the meeting room and can prepare the room to meet the pre-set ideal temperature and conditions.*

—

Via voice-control, lighting changes to a programmed presentatin mode.*

—

Presence detection sensors will switch off the lights when the room is empty.

—

③

1 person explaining at a whiteboard to 2 people sitting at the table.

LIGHTING

Uplight dimmed to 50%, downlight dimmed to 50%, spotlight illuminating the whiteboard.

INTEGRATED SENSORS & CONTROL

The system is connected to the calendar of the meeting room and can prepare the room to meet the pre-set ideal temperature and conditions.*

—

Via voice-control, lighting changes to a programmed whiteboard mode.*

—

Presence detection sensors will switch off the lights when the room is empty.

—

* Preset scenes and voice control are fairly basic functions of most control systems.


1


2

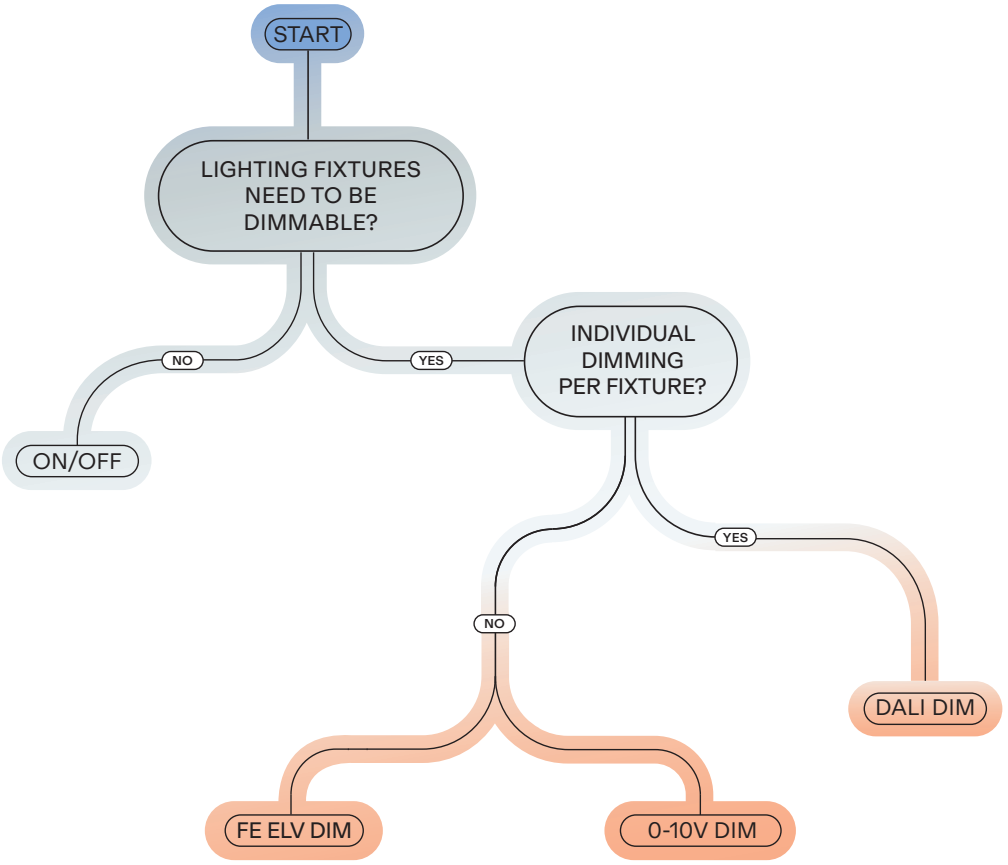

3

Lighting Basics.

ADAPTABILITY

FUTURE PROOFING

BUILDING INTEGRATION



ALL DIMMING OPTIONS CAN BE **WIRELESSLY** CONTROLLED.

-

INTEGRATION WITH BMS (BUILDING MANAGEMENT SYSTEM) CAN BE DONE IN COMBINATION WITH A GATEWAY FOR ALL OTHER DIMMING OPTIONS.

PHASE DIMMING

There are two techniques for phase dimming: falling-edge systems (also called trailing-edge or ELV) and leading-edge systems. In this dimming method, there's an extra device, the dimmer, connected to the main input of the power supply. **No extra control wires are needed**, and you can add it to your existing installation(s). This option allows dimming **down to 20%, 10%, and even 1%** dimming, depending on the type of **falling-edge dimmer** & driver you're using. A few things to consider: blinking may happen when dimming to a minimum, and not all dimmers are compatible with LED. Generally, using a falling-edge dimmer is recommended for LED.

0-10V DIMMING

This system makes for a perfect professional dimming method in the **0-100%** light intensity range and allows you to preset lighting scenes when using automation. It's an **analogue dimming** technology in which a signal is given between 0 and 10 volts or potentiometer (100K linear).

This requires **two control wires** between the power supply and the dimmer, a limited number of power supplies when using a potentiometer, and a **main switch** may be needed to turn the lighting on and off.

DALI DIMMING

Digital Addressable Light Interface (DALI) is a universal standard for **digital dimming** systems and one of the most frequently used, regardless of the project scale. Unlike analogue light settings, it allows you to **dim each device separately**, as each power supply gets an address. This way each device can be controlled independently. The luminaires can also return signals, making it flexible and economical to adjust the lighting. Integration into **building management systems** is quite simple. As a leading company in lighting and a member of DiiA, we embrace new technologies: the transition to DALI-2 was a logical next step.

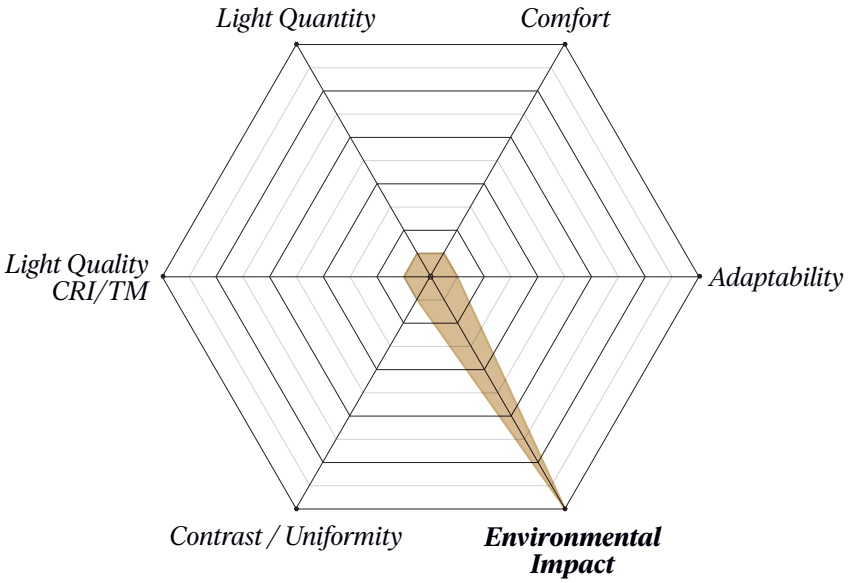
WIRELESS DIMMING

Wireless dimmers offer extensive possibilities for **smart buildings**. CTRL Delta, our wireless dimming technology, allows you to **integrate all kinds of electrical devices** into a wireless network. As a result, lighting can be controlled **via smartphones, tablets, smart watches, push buttons, switches or the Xpress control panel.** Smart control can even be done via existing wall switches without changing the wiring.

Lighting Basics.

ENVIRONMENTAL IMPACT

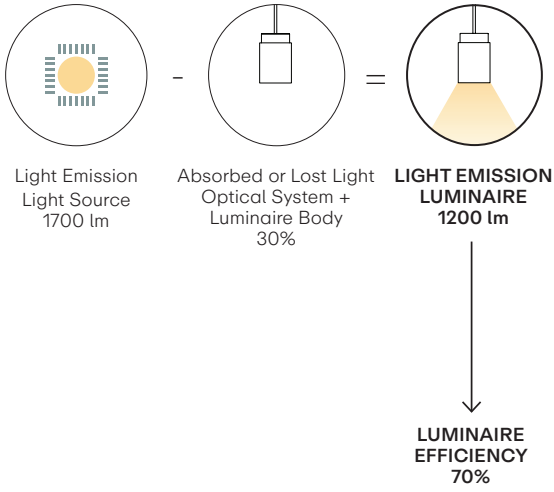
- **PRODUCT EFFICACY**
- LIGHTING POWER DENSITY
- SENSORING
- GREEN BUILDING

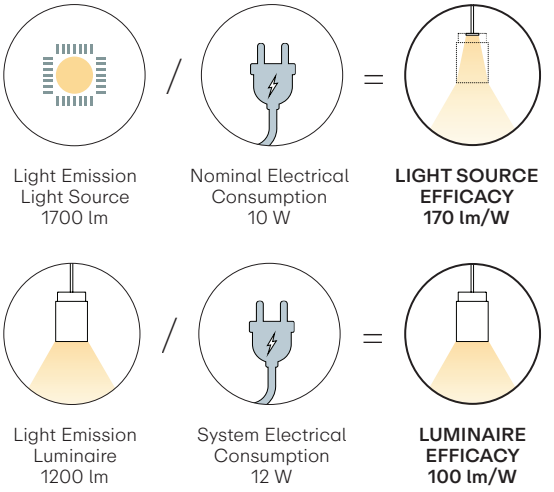


Lighting Fixtures with high ***luminous efficacy*** are not only beneficial for energy savings and cost reduction, they're also in line with **sustainability goals and regulatory requirements.**

EFFICIENCY *VS* EFFICACY

Lighting efficiency and lighting efficacy are related concepts, but they refer to slightly different aspects of lighting systems. Efficiency looks at the overall performance of the system in converting energy to light, while efficacy specifically focuses on the ratio of visible light output to electrical power input.





LUMINAIRE EFFICIENCY

(LOR - Light Output Ratio)

This typically refers to the overall performance of a lighting fixture in converting electrical energy into visible light. It's a measure of how effectively a lighting system utilises energy to produce light.

This includes factors such as the type of light source (incandescent, fluorescent, LED, etc.), the design of the optical system, and any losses in the system due to heat or other factors. The efficiency is usually expressed as a percentage, with higher percentages indicating a more efficient use of energy.

LUMINAIRE EFFICACY

This measures the amount of visible light produced by a lighting fixture for a given amount of electrical power input. It's a measure of how efficiently a light system converts electrical energy into visible light output.

Lighting efficacy is typically expressed in units of lumens per watt (lm/W), where lumens represent the amount of visible light produced, and watts represent the electrical power input. Higher efficacy values indicate that a lighting system produces more light output per unit of electrical power consumed, making it more energy-efficient.

Lighting Basics.

ENVIRONMENTAL IMPACT

PRODUCT EFFICACY
LIGHTING POWER DENSITY
SENSORING
GREEN BUILDING

Luminaires with higher luminous efficacy are important for several reasons:

ENERGY EFFICIENCY
Lower energy bills and lower environmental impact, especially in large-scale lighting applications such as offices.

SUSTAINABILITY
With the global focus on sustainability and reducing carbon emissions, the use of luminaires with higher luminous efficacy contributes to energy conservation and reduced greenhouse gas emissions associated with electricity generation.

COMPLIANCE WITH REGULATIONS
Many countries have regulations and standards aimed at improving energy efficiency and reducing carbon emissions. Using high-efficiency luminaires can help meet these requirements and avoid potential fines or penalties for non-compliance.

Deltalight luminaires are equipped with highly efficient LED sources integrated with optical systems that are designed in-house, making them a more energy-efficient lighting choice.


INFORM


OMNILINER

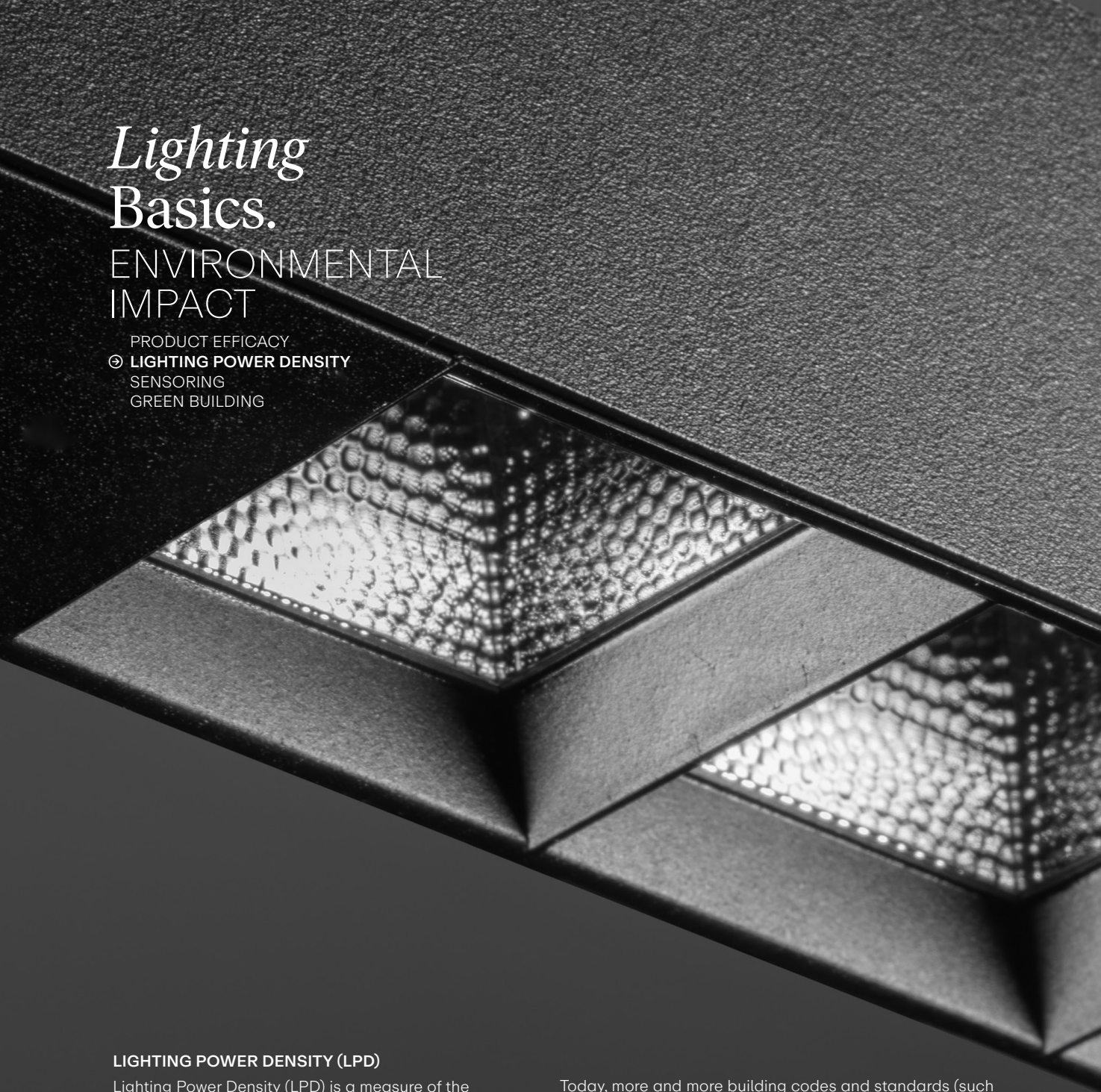

SOLISCAPE


CONFORM


MULTINOVA


ZOOVER

PRODUCT RANGE	LED TECHNOLOGY	UGR	BEAM ANGLE	EFFICIENCY	EFFICACY
CONFORM	Natural Light Technology	<16	67°	70%	70 lm/W
INFORM SQ	Standard White Light	<19	67°	87%	110 lm/W
SOLISCAPE	Standard White Light	<19	67°	87%	112 lm/W
INFORM 40 SQ	Standard White Light Melanopic Light Technology	<16	63°	67%	76 lm/W
OMNILINER LOUVRE	Standard White Light	<19	63°	67%	110 lm/W
OMNILINER PRISMATIC LENS	Standard White Light	<16	63°	83%	120 lm/W
ZOOVER	Standard White Light	<19	110°	73%	96 lm/W
MULTINOVA	Standard White Light	<19	110°	73%	87 lm/W



Lighting Basics.

ENVIRONMENTAL IMPACT

PRODUCT EFFICACY
LIGHTING POWER DENSITY
SENSORING
GREEN BUILDING

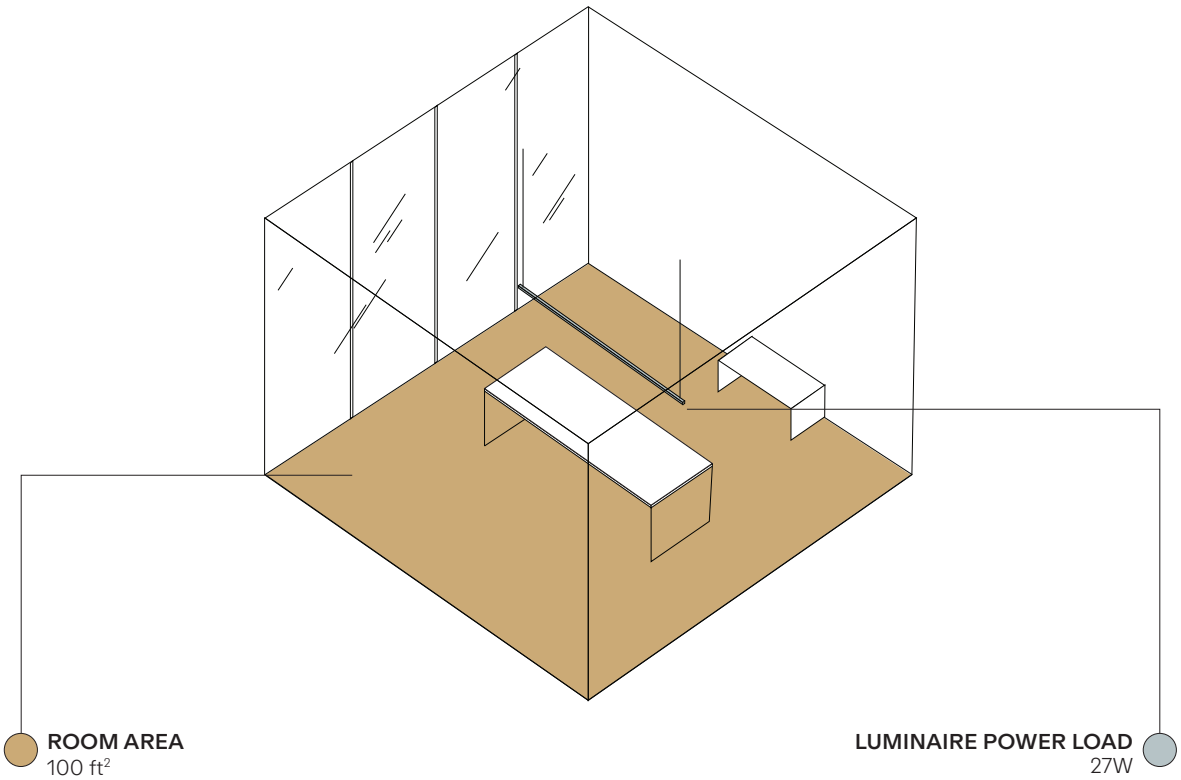
LIGHTING POWER DENSITY (LPD)

Lighting Power Density (LPD) is a measure of the electrical power used by a lighting system per unit area. It is an important parameter for the design and evaluation of building lighting systems because it is directly related to energy consumption and efficiency.

It is usually expressed in Watt / square metre (W/m^2) or watts per square foot (W/ft^2). Lower LPD values indicate more energy-efficient lighting systems.

Today, more and more building codes and standards (such as the International Energy Conservation Code (IECC) and ASHRAE Standard 90.1) specify maximum allowable LPD values for different types of spaces. These standards help ensure that buildings use energy efficiently.

$$\text{LIGHTING POWER DENSITY} = \frac{\text{Luminaire Power Load}}{\text{Area}}$$



ROOM AREA
100 ft²

LUMINAIRE POWER LOAD
27W

HOW TO ACHIEVE LOW LPD VALUES?

⊖ Selecting luminaires equipped with optical systems with high luminous efficacy (lm/W).

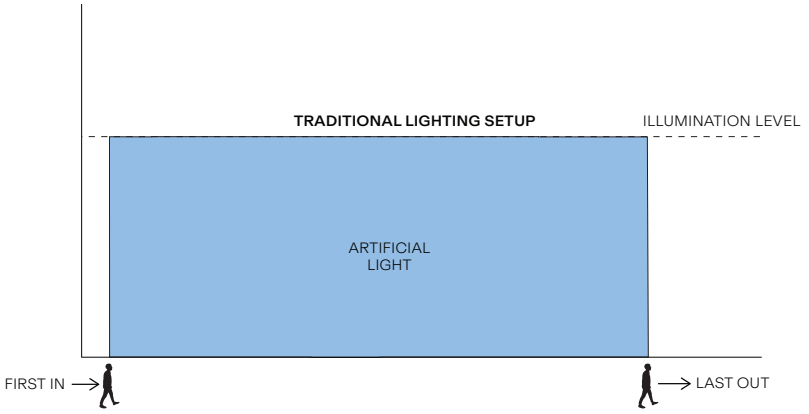
⊖ Adopting task lighting (as opposed to general lighting) provides more focused visibility for the task and reduces the amount of light emitted towards non-working surfaces.

$$\textbf{LIGHTING POWER DENSITY} = \frac{27\text{W}}{100\ \text{ft}^2} = \textbf{0.27W/ft}^2$$

Lighting Basics.

ENVIRONMENTAL IMPACT

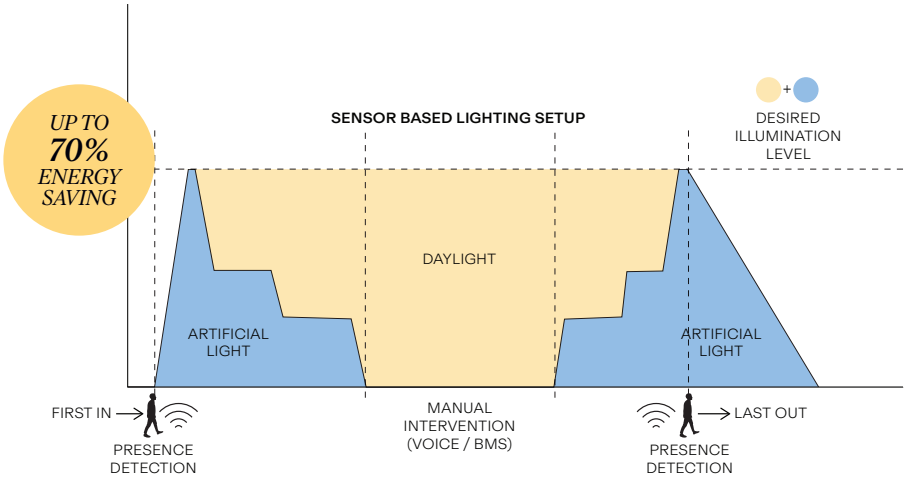
PRODUCT EFFICACY
LIGHTING POWER DENSITY
SENSORING
GREEN BUILDING



SENSORS AND CONNECTIVITY

By incorporating sensors and connectivity into office lighting, we can create a more energy-efficient, comfortable, and responsive work environment for employees, and reduce environmental impact.

Everything can be connected. We can create an environment.





PRESENCE SENSOR

This sensor determines if specific workstations or areas are being used.The information is sent to the lighting control system that will turn on the light when someone enters a room or turn it off when it's vacant or reducing energy waste in unoccupied spaces optimizing energy usage.



DAYLIGHT SENSOR

By incorporating sensors that measure the amount of natural light entering the office, we can adjust the artificial lighting levels based on available daylight.

We can reduce energy consumption while maintaining appropriate lighting levels for tasks.

DELTALIGHT PRESENCE AND DAYLIGHT SENSOR

A DALI sensor in one of our systems provides light control based on motion detection and light levels. For example, you can decide how much light you want to have above a table. The DALI sensor will then automatically adjust the light intensity of the lighting modules over the course of the day without you having to do anything beyond the initial setup.



Lighting Basics.

ENVIRONMENTAL IMPACT

PRODUCT EFFICACY
LIGHTING POWER DENSITY
SENSORING
GREEN BUILDING

WHAT IS GREEN BUILDING CERTIFICATION?

Green building certification is a process that evaluates a building's environmental performance and sustainability. It's a way to measure and verify that a building or construction project meets certain standards in its design, construction, and performance. These standards relate to energy efficiency, water use, indoor environmental quality, materials, lighting, and the building's effects on the site.

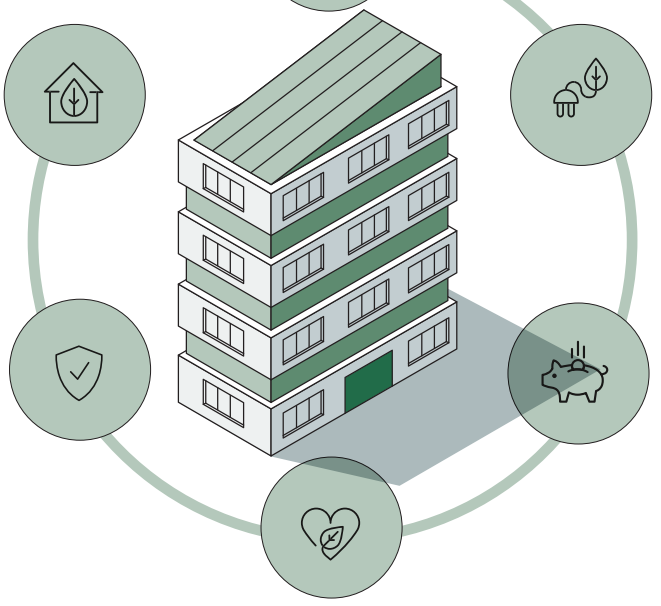
WHY IS ***GREEN BUILDING CERTIFICATION*** *IMPORTANT?*

ENVIRONMENTAL IMPACT

Green buildings reduce the impact on the environment by using less water, reducing waste, conserving natural resources, and improving air and water quality.

HEALTHIER LIVING SPACES

Green buildings often provide healthier living and working environments, as they use materials that are free from harmful chemicals and pollutants.



EENERGY EFFICIENCY

These buildings are designed to use less energy, which can significantly reduce utility costs over time.

MARKETABILITY

A green certification can increase a building's marketability. It can attract tenants and buyers who value sustainability and can potentially increase property values.

REGULATORY INCENTIVES

Green certification can qualify building owners for various incentives like tax benefits or expedited permitting.

CORPORATE SOCIAL RESPONSIBILITY

For businesses, having a green certified building can demonstrate a commitment to sustainability and social responsibility.



Green building certifications promote sustainable development, improve indoor environmental quality, save money, enhance market competitiveness, and align with broader social responsibility.

Lighting Basics.

ENVIRONMENTAL IMPACT

PRODUCT EFFICACY
LIGHTING POWER DENSITY
SENSORING
GREEN BUILDING

The Main Green Building Certifications

There are several globally recognized green building certifications. These certifications vary in specific criteria, geographical applicability and areas of interest, but they all share the common goal of promoting sustainable and environmentally responsible building practices.

Organizations and project teams often choose a certification program that best aligns with the project's objectives, priorities, and geographical context.



INFORM



OMNILINER



SOLISCAPE



CONFORM



MULTINOVA



ZOOVER

BREEAM

Building Research Establishment Environmental Assessment Method

Originated in the UK, BREEAM is a widely recognized green building certification system.

It assesses the environmental performance of buildings based on criteria such as energy and water use, material selection, waste management, and indoor environmental quality.

LEED

Leadership in Energy and Environmental Design

Developed by the U.S. Green Building Council (USGBC), LEED is one of the world's most widely used green building certification systems. It provides a framework for the design, construction, operation, and certification of green buildings in different building types and sectors.

WELL Building Standard

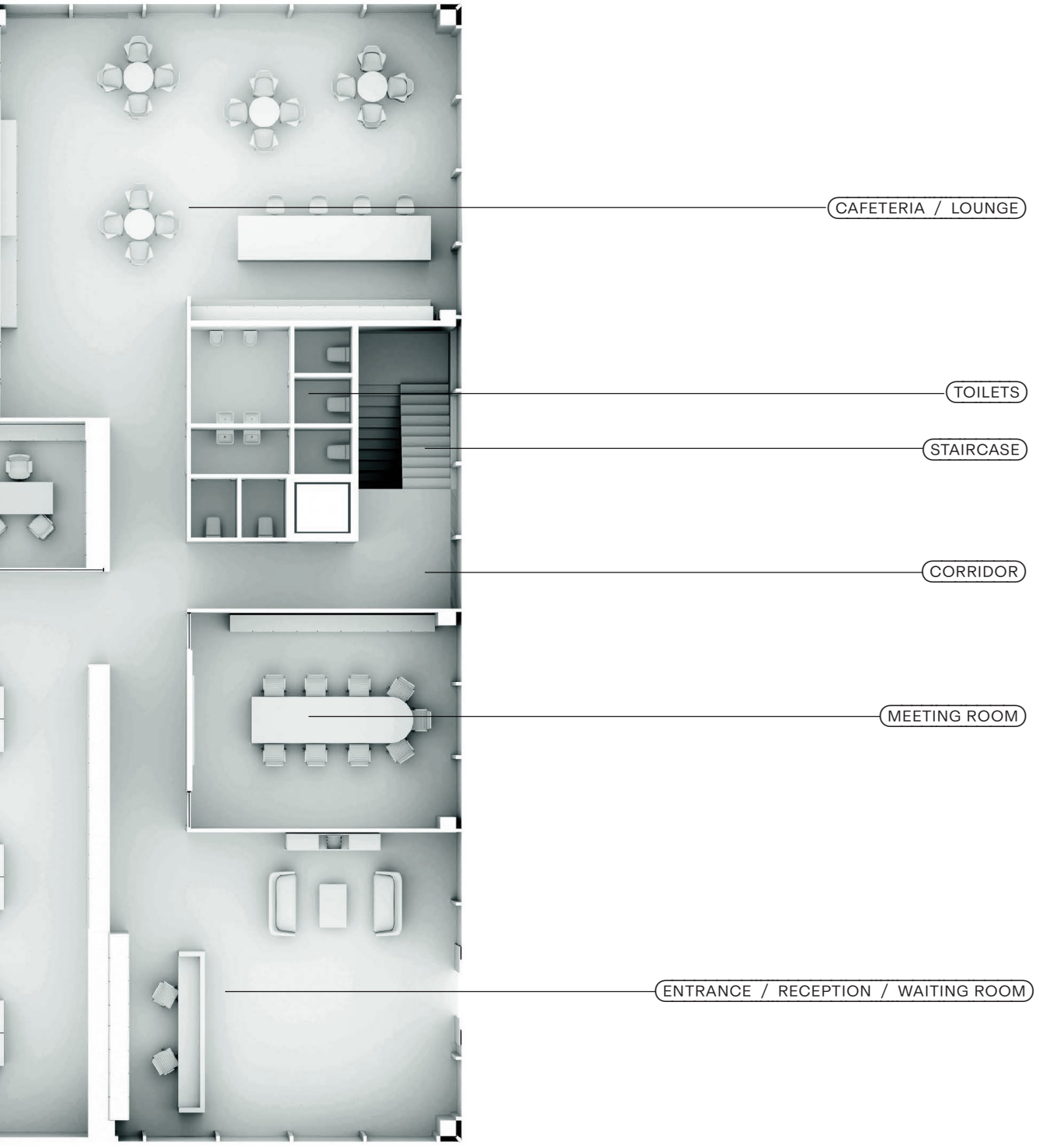
Managed by the International WELL Building Institute (IWBI), the WELL Building Standard focuses on improving the health and well-being of building occupants. It addresses factors such as air and water quality, lighting, thermal comfort, and mental well-being in the design and operation of buildings.

	BREEAM V6	LEED V5	WELL V2
LIGHT QUALITY	CRI>80	CRI>90 TM30 Rf≥78 97<Rg≥100	CRI>90 CRI>80 (R9≥50) TM30 Rf≥78 Rg≥100 -1% ≤ Rcs h1<15%
VISUAL COMFORT (UGR)	UGR<19	UGR<19 700 cd/ft^2 between 45 and 90 degrees from nadir	UGR<16 600 cd/ft^2 at any angle between 45 and 90 degrees form nadir
LIGHTING CONTROL	YES	YES	YES
CIRCADIAN LIGHTING (MELANOPIC)	NO	NO	YES
APPLICABLE PRODUCT			
CONFORM	●	●	
INFORM	●	●	● (40)
SOLISCAPE	●	●	
OMNILINER	●	●	● (LOUVRE & PRISMATIC LENS)
MULTINOVA	●	●	

AR*EA*S.

Identification of the Office Areas.




CAFETERIA / LOUNGE
TOILETS
STAIRCASE
CORRIDOR
MEETING ROOM
ENTRANCE / RECEPTION / WAITING ROOM

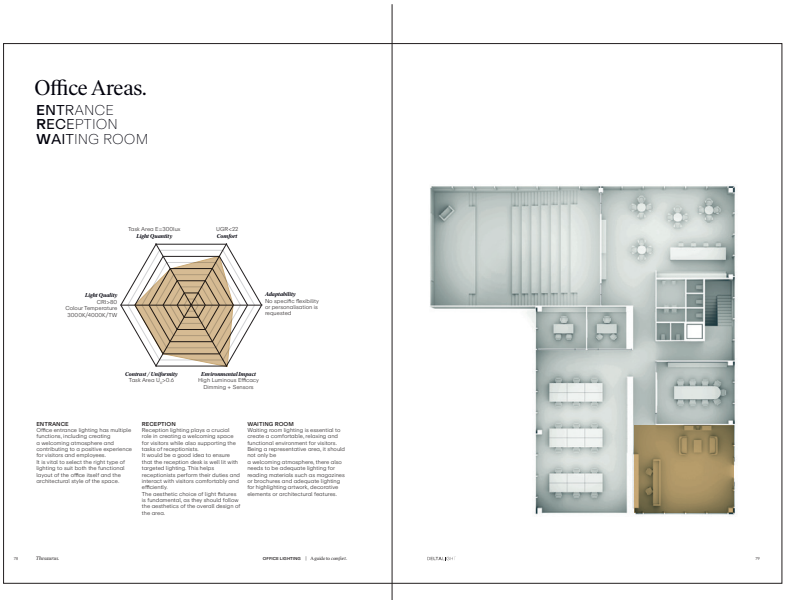
Identification of the Office Areas.

LIGHT THAT FITS YOUR NEEDS

HOW TO READ NEXT PAGES

There are various ways to illuminate every area of an office.
In this brochure, we want to break down every single area and offer you different lighting options to inspire your designs.

In the following pages, we will discuss each area, providing you with a complete explanation of the lighting requirements and the different types of lighting that can be implemented to create different moods.

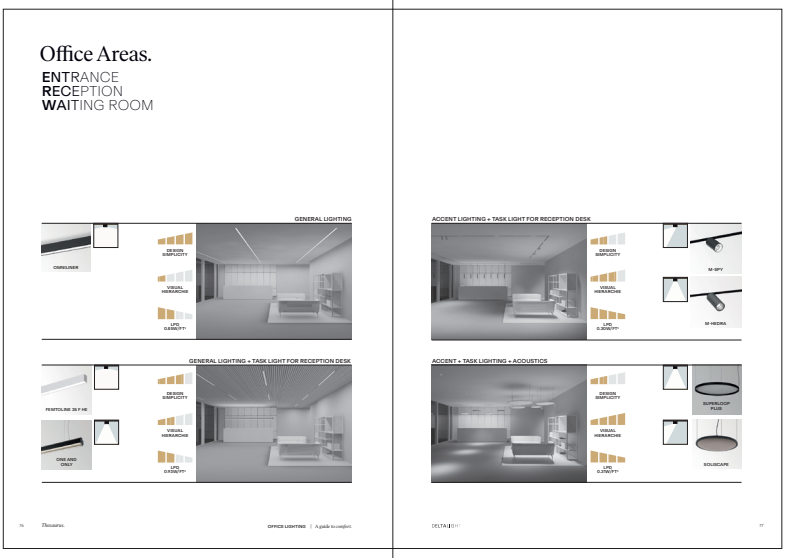


1. LIGHTING REQUIREMENTS

In the previous chapter (Lighting Basics) we selected six aspects of light that we believe are of vital importance for the correct and responsible design of every working environment.

By positioning each aspect of the light on the edge of a hexagon, we can visually represent the importance of each of these six aspects of the lighting system in relation to each individual area of the office.

In the diagram, you can see an example of each area.



2. LIGHTING TYPOLOGIES

Among all the possible lighting solutions, here are four lighting ideas characterised by different moods.

In them, we show how individual areas can be treated differently depending on the perception of the space according to three parameters:

- Design Simplicity
- Visual Hierarchy
- Lighting Power Density

DESIGN SIMPLICITY

The lighting design of a space can be approached in a purely functional manner using fixtures that are simple to both position on a light layout, and mount when installing. That said, more complex and aesthetically interesting compositions can also be created and in this case, the lighting product becomes part of the architecture itself.

VISUAL HIERARCHY

Different lighting techniques can be adopted to achieve opposite lighting effects.

Low Visual Hierarchy: general and diffused lighting (high uniformity) gives equal importance to all elements in a space. A democratic, but flat light.

High Visual Hierarchy: more contrasted lighting enhances every single element of the space by creating more depth perception while building a hierarchy between the different visual areas.

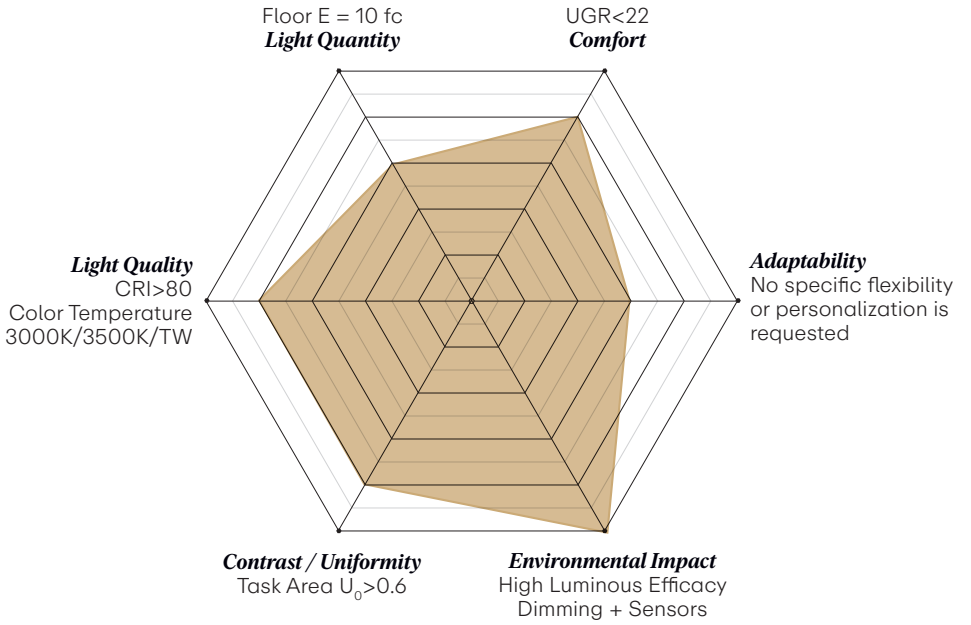


3. REFERENCE PROJECTS

Here's an example of how the four types of lighting can be created using our lighting fixtures.

Office Areas.

ENTRANCE
RECEPTION
WAITING ROOM



ENTRANCE

Office entrance lighting has multiple functions, including creating a welcoming atmosphere and contributing to a positive experience for visitors and employees.

It is vital to select the right type of lighting to suit both the functional layout of the office itself and the architectural style of the space.

RECEPTION

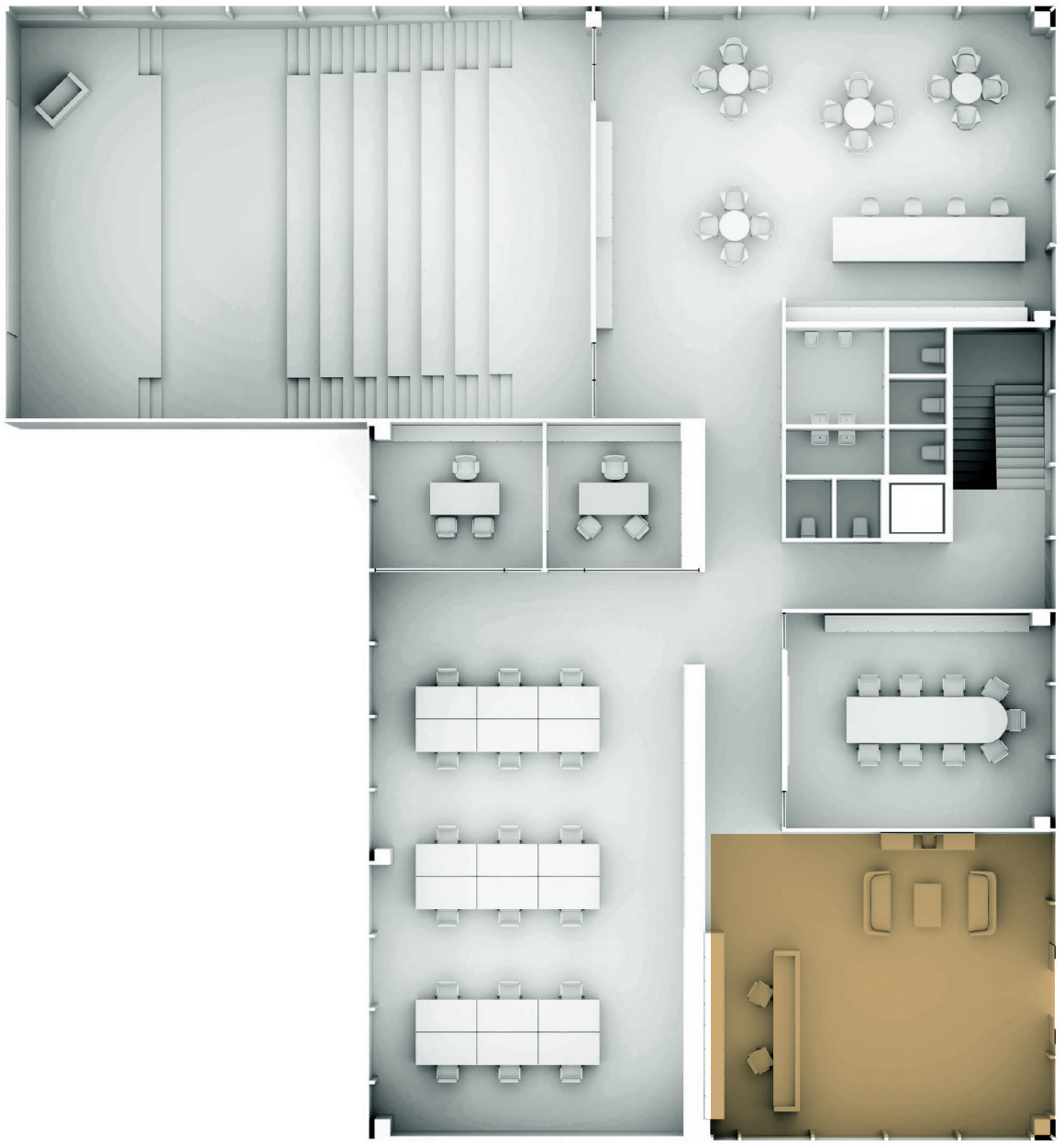
Reception lighting plays a crucial role in creating a welcoming space for visitors while also supporting the tasks of receptionists.

It would be a good idea to ensure that the reception desk is well lit with targeted lighting. This helps receptionists perform their duties and interact with visitors comfortably and efficiently.

The aesthetic choice of light fixtures is fundamental, as they should follow the aesthetics of the overall design of the area.

WAITING ROOM

Waiting room lighting is essential to create a comfortable, relaxing, and functional environment for visitors. Being a representative area, it should not only be a welcoming atmosphere, there also needs to be adequate lighting for reading materials such as magazines or brochures and adequate lighting for highlighting artwork, decorative elements, or architectural features.



Office Areas.

ENTRANCE
RECEPTION
WAITING ROOM

GENERAL LIGHTING



OMNILINER

DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.85W/FT²



GENERAL LIGHTING + TASK LIGHT FOR RECEPTION DESK



FEMTOLINE 35 F HE



ONE AND ONLY

DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.93W/FT²



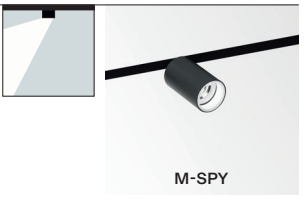
ACCENT LIGHTING + TASK LIGHT FOR RECEPTION DESK



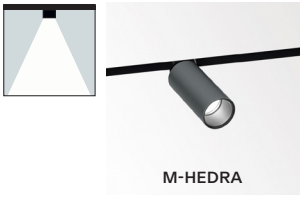
DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.30W/FT²



M-SPY



M-HEDRA

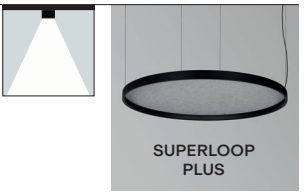
ACCENT + TASK LIGHTING + ACOUSTICS



DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.31W/FT²



SUPERLOOP PLUS



SOLISCAPE

Office Areas.

ENTRANCE
RECEPTION
WAITING ROOM



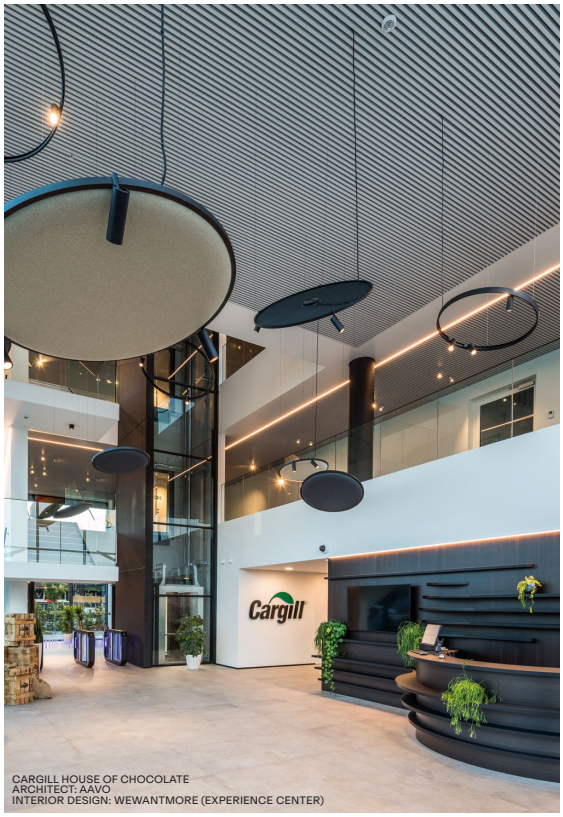
ARCHITECT: GOVAERT & VANHOUTTE,
PROJECT DEVELOPER: GLOBAL ESTATE GROUP

The illumination of entrance, reception, and waiting areas in office spaces is crucial for creating a welcoming, comfortable, and functional environment for visitors and employees.



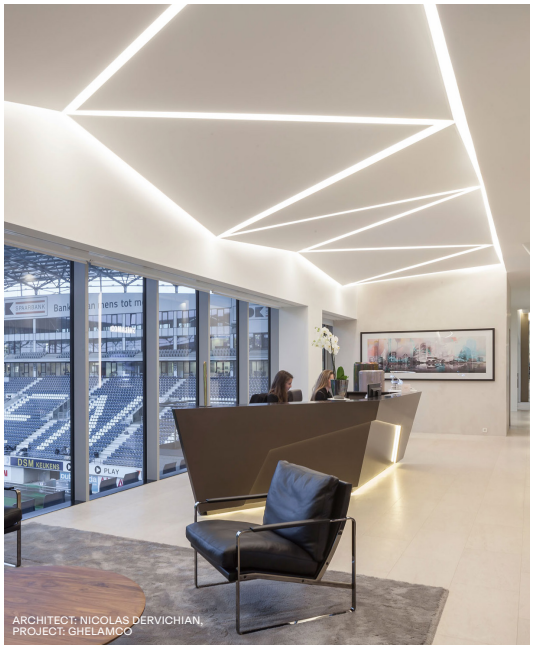
DESIGN PRACTICE: STUDIO TATE
PHOTOGRAPHY PETER CLARK





CARGILL HOUSE OF CHOCOLATE
ARCHITECT: AAVO
INTERIOR DESIGN: WEWANTMORE (EXPERIENCE CENTER)



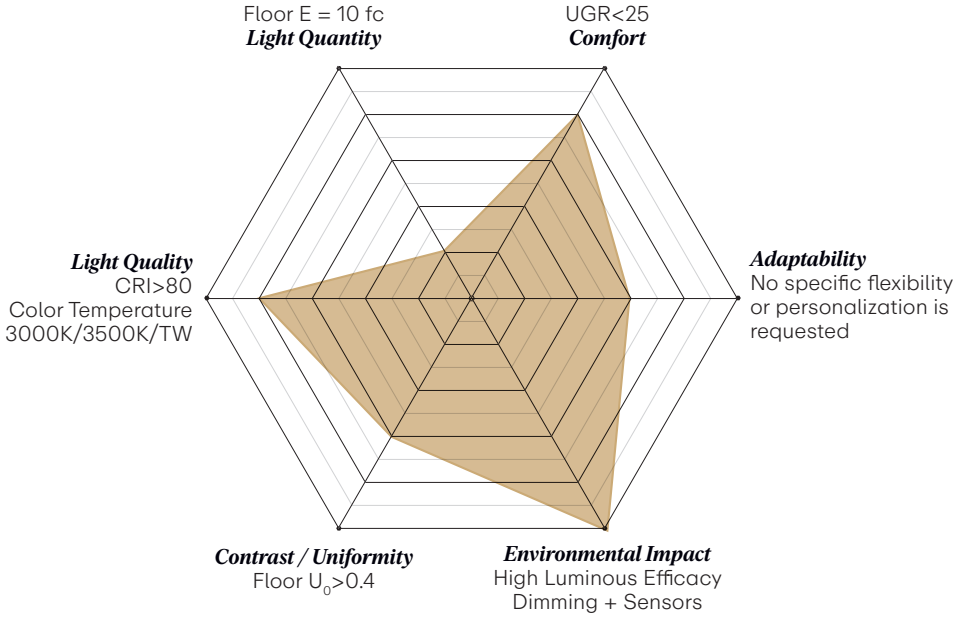


ARCHITECT: NICOLAS DERVICHIAN,
PROJECT: GHELAMCO



Office Areas.

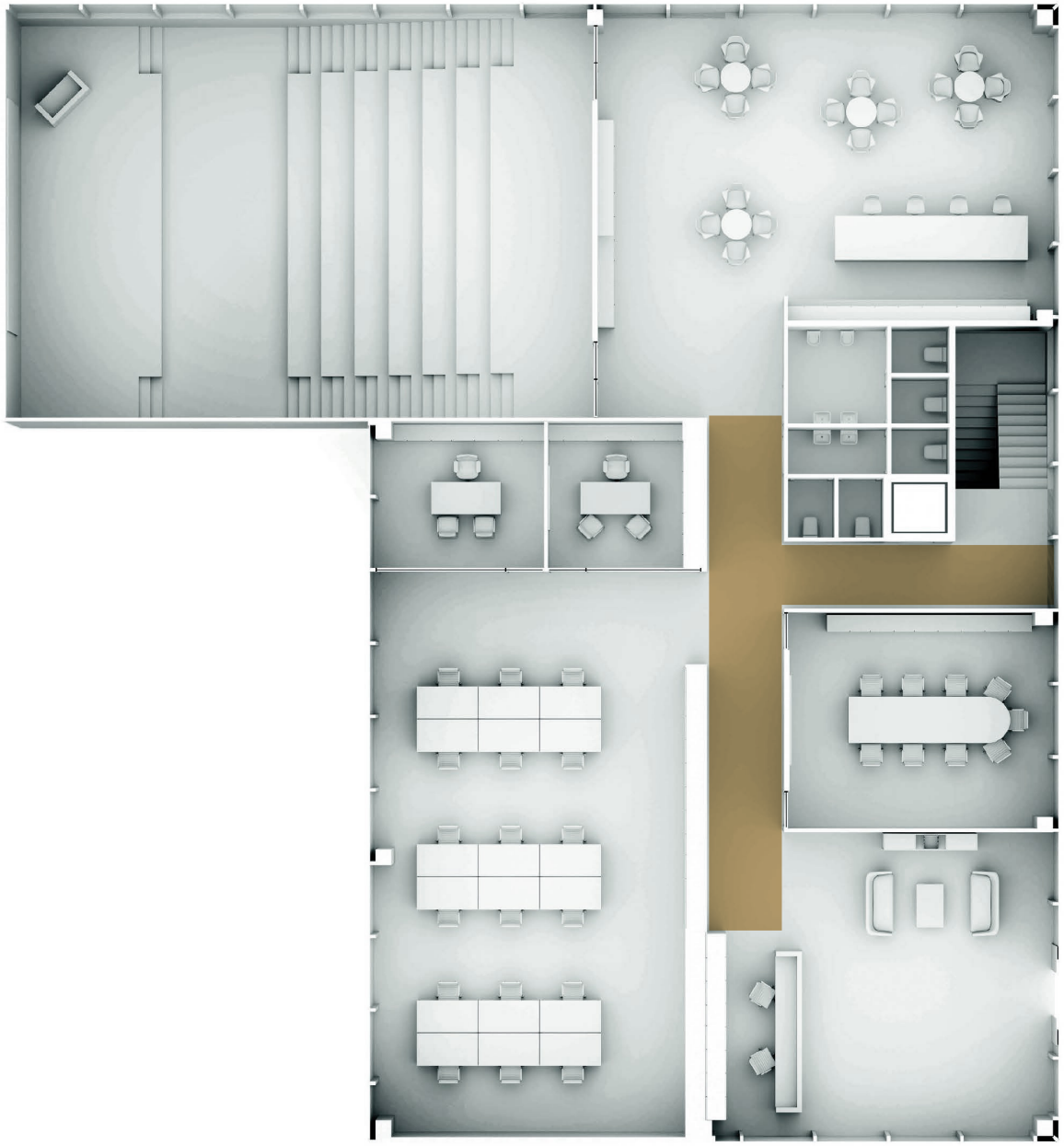
CORRIDORS
CIRCULATION AREAS



CORRIDORS &
CIRCULATION AREAS

Corridor lighting should prioritize functionality, visual comfort, aesthetics, and energy efficiency, creating a well-lit and inviting environment that promotes productivity and enhances the overall user experience.

Well-designed corridor lighting can make it easier to navigate the building and create a welcoming environment while complementing the overall office design and ensuring occupants' safety.



Office Areas.

CORRIDORS
CIRCULATION AREAS

GENERAL LIGHTING (LINEAR)



OMNILINER





DESIGN SIMPLICITY



VISUAL HIERARCHIE



LPD 0.60W/FT²



GENERAL LIGHTING (VERTICAL)



FEMTOLINE TR





DESIGN SIMPLICITY



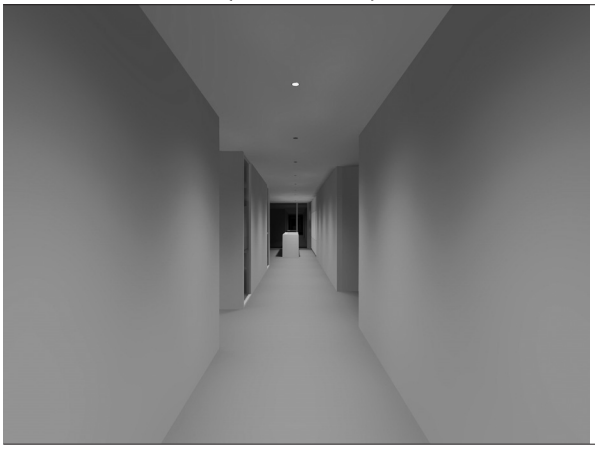
VISUAL HIERARCHIE



LPD 0.95W/FT²



GENERAL LIGHTING (DOWNLIGHT)



DESIGN SIMPLICITY

VISUAL HIERARCHIE

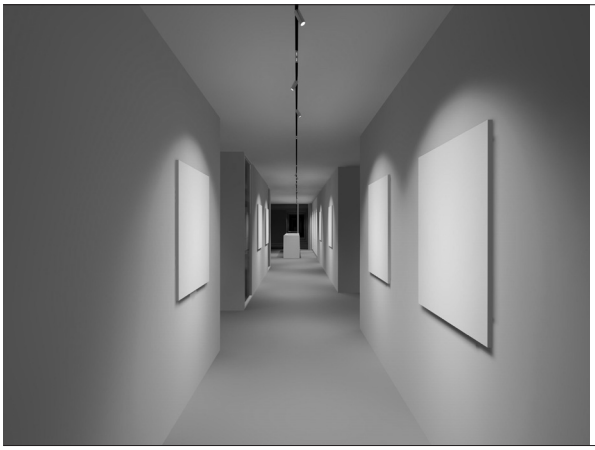
LPD 0.37W/FT²





ENTERO

GENERAL LIGHTING + ACCENT LIGHTING



DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.43W/FT²





M-JUM-OH





M-SPY

Office Areas.

CORRIDORS
CIRCULATION AREAS

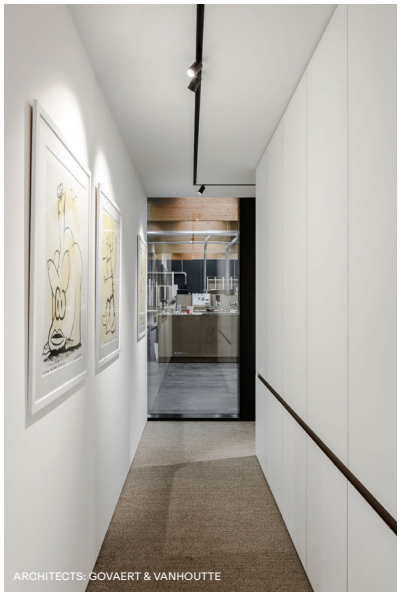


SONNEMANN TOON ARCHITECTS
DAVE PARKER PHOTOGRAPHY

A well-lit, safe, and aesthetically pleasing circulation area contributes to a comfortable and productive work environment for employees and makes a good impression on visitors.

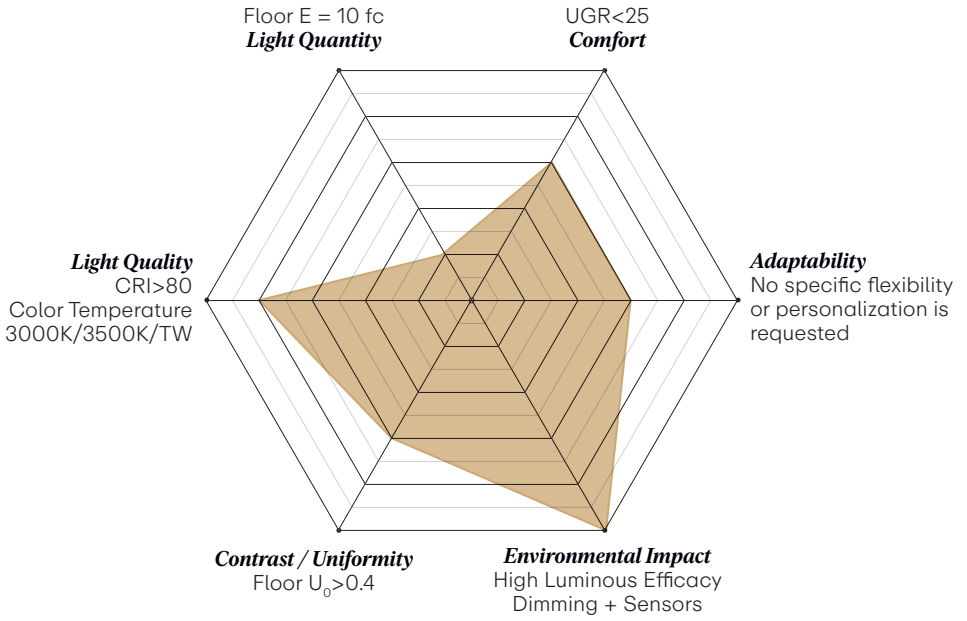

CRAZINESS
DO BIG
TEASING
VIBE
CHALLENGING




ARCHITECTS: GOVAERT & VANHOUTTE

Office Areas.

STAIRS

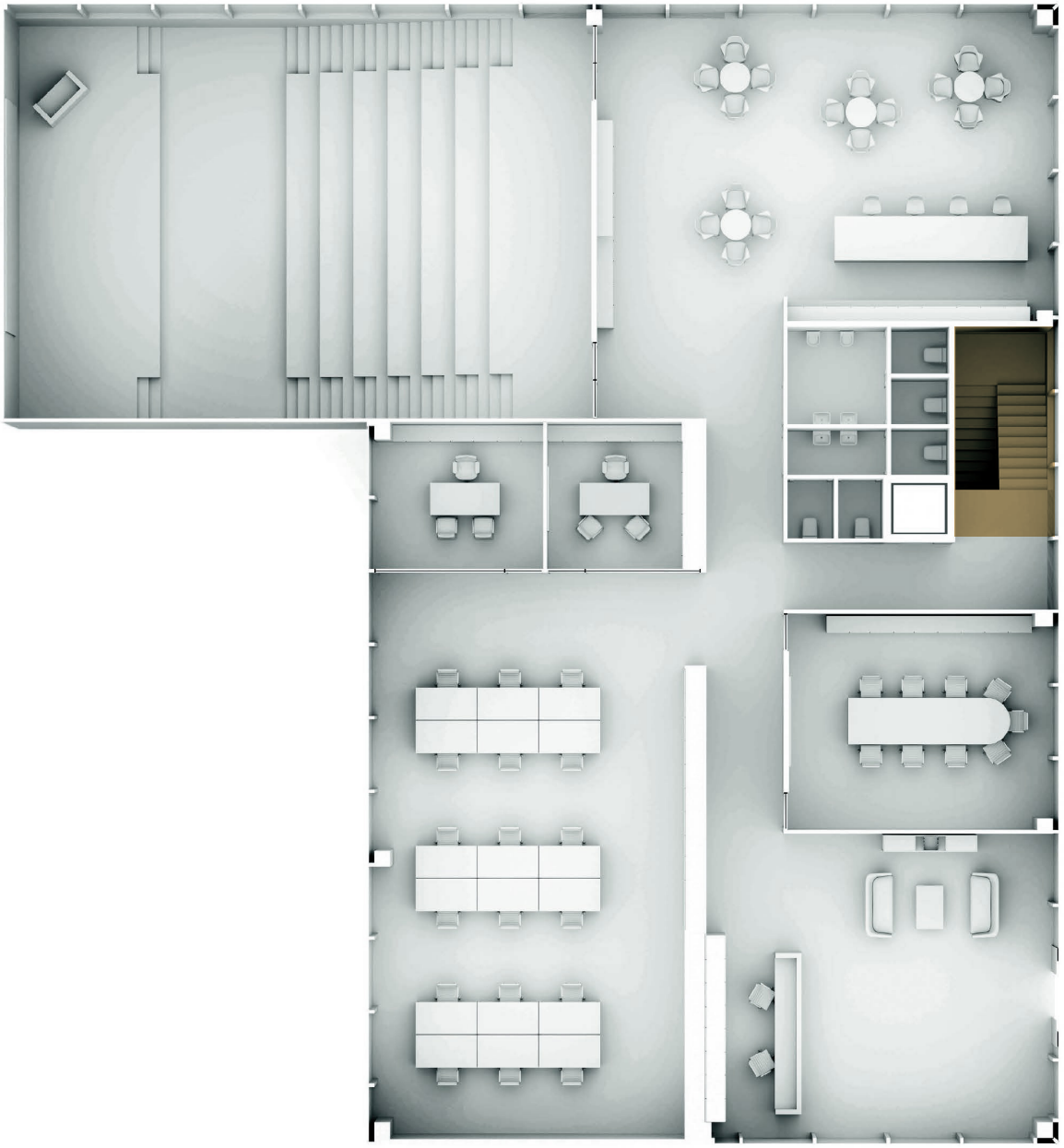


STAIRCASE

Staircase lighting in an office is crucial for safety, functionality, and aesthetics. Adequate lighting ensures that employees and visitors can navigate the stairs safely, prevents accidents, and improves the overall atmosphere of the space.

Important aspects for these spaces are:

- Uniform lighting throughout the staircase to avoid shadows and dark spots that can cause tripping and falling.
- Emergency lighting to illuminate the stairs in the event of a power failure.



Office Areas.

STAIRS

GENERAL LIGHTING (DOWNLIGHTS)



ENTERO



DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.55W/FT²



GENERAL LIGHTING (LINEAR)



OMNILINER



DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 1.18W/FT²



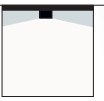
GENERAL LIGHTING (WALL FIXTURES)



DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 1.24W/FT²





MONTUR

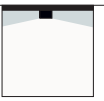
GENERAL LIGHTING (VERTICAL)

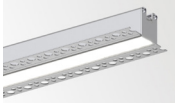


DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 2.10W/FT2





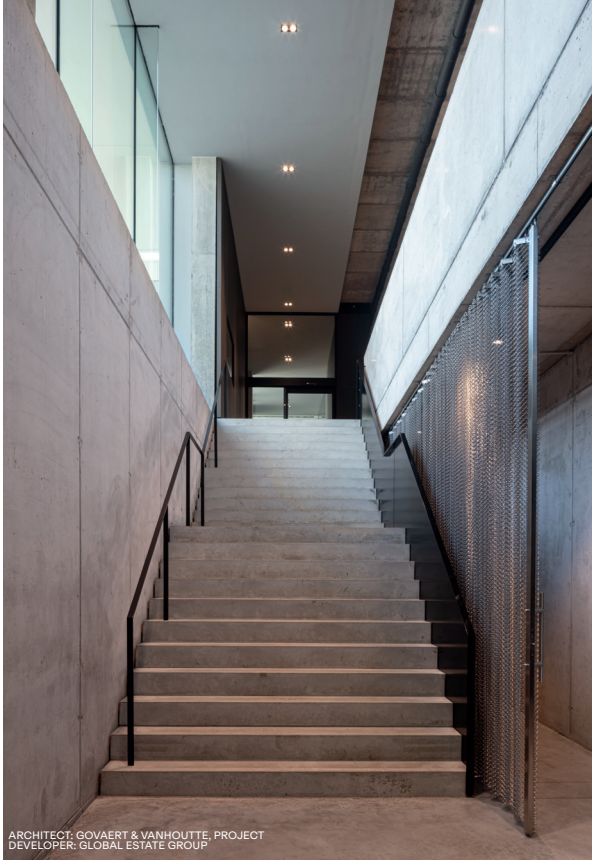
FEMTOLINE TR

Office Areas.

STAIRS



Staircase lighting in an office is vital for safety, functionality, and visual appeal.



ARCHITECT: GOVAERT & VANHOUTTE, PROJECT DEVELOPER: GLOBAL ESTATE GROUP



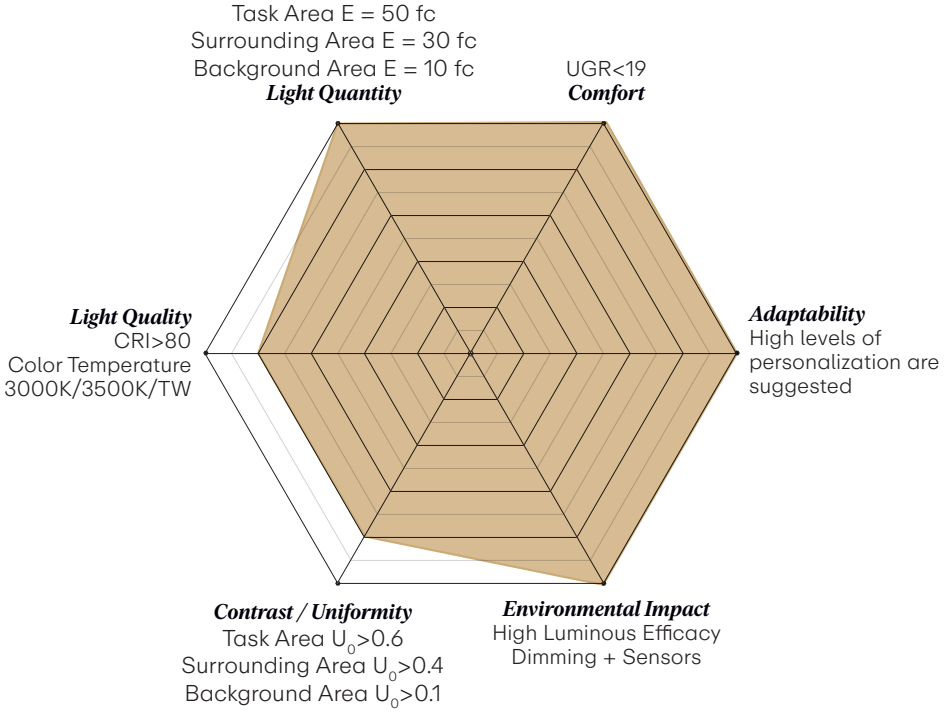
TrainM



CARGILL HOUSE OF CHOCOLATE
ARCHITECT: AAVO
INTERIOR DESIGN: WEWANTMORE (EXPERIENCE CENTER)

Office Areas.

OPEN SPACE OFFICES



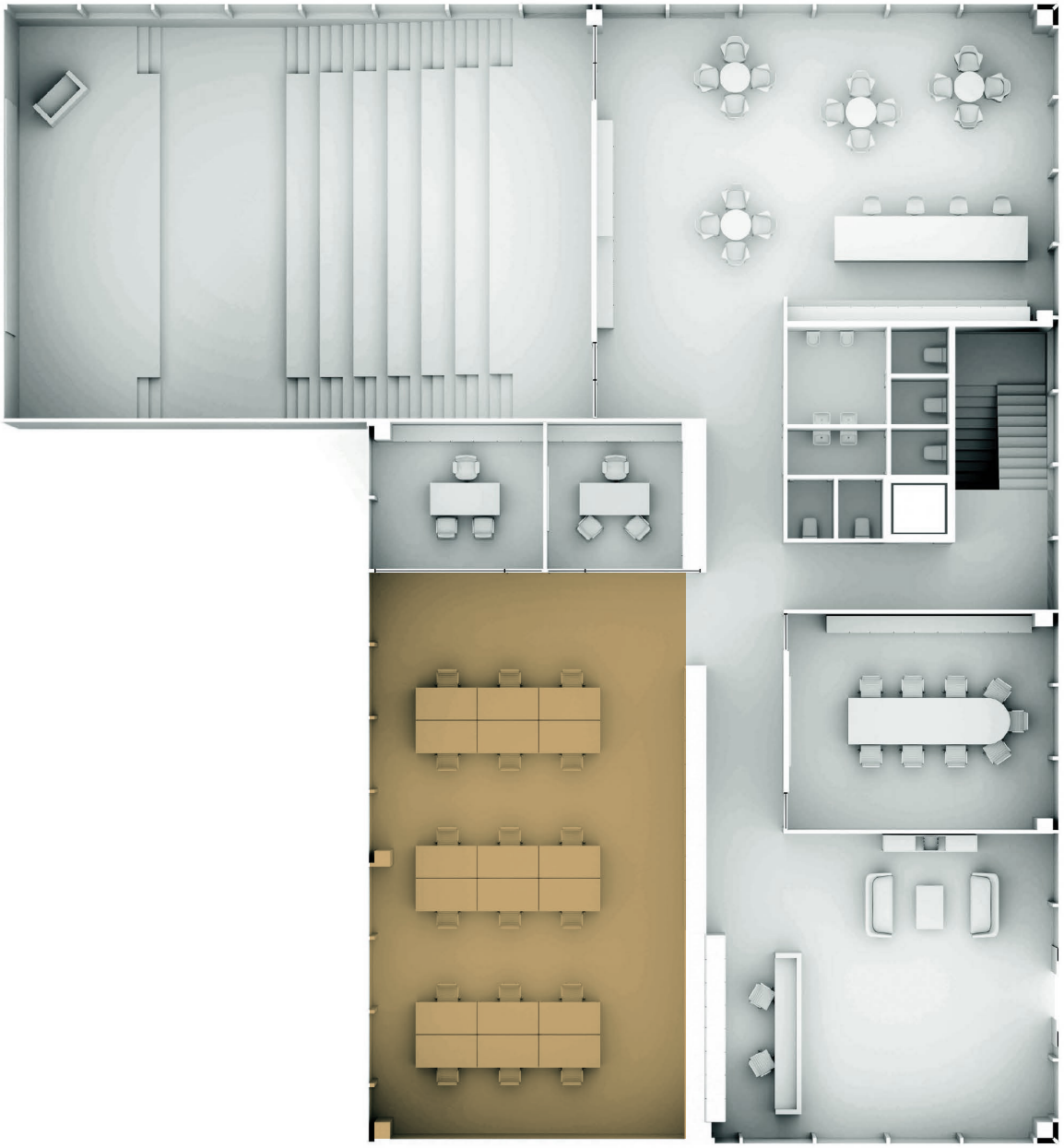
OPEN SPACE OFFICE

By carefully planning and implementing a comprehensive lighting design, an open office space can be transformed into a well-lit, comfortable, and productive working environment.

Adequate lighting can improve employee well-being, reduce eye strain, and create a pleasant atmosphere that is conducive to work.

From this point of view, the integration of natural light is fundamental, not only from the energy saving aspect, but also for improving morale and connection with the outside world.

Furthermore, the possibility of customizing lighting (depending on the time of day or worker preferences) through specific adjustment controls allows for a certain flexibility that is required to adapt to changing lighting needs throughout the day.



Office Areas.

OPEN SPACE OFFICES

GENERAL LIGHTING



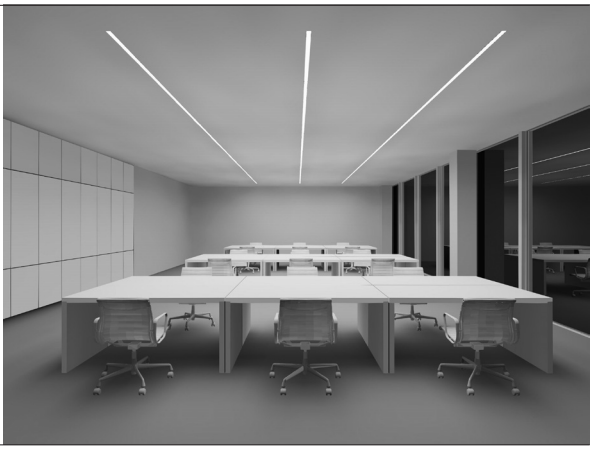
OMNILINER



DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.62W/FT²



GENERAL LIGHTING UP + DOWN



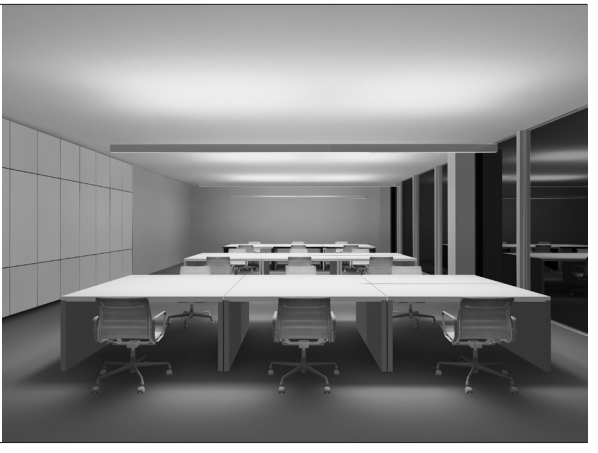
OMNILINER



DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.43W/FT²



TASK LIGHTING UP+DOWN



DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.31W/FT²





INFORM 40

TASK LIGHTING UP + DOWN + ACOUSTIC (SMART SYSTEM)



DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.32W/FT²





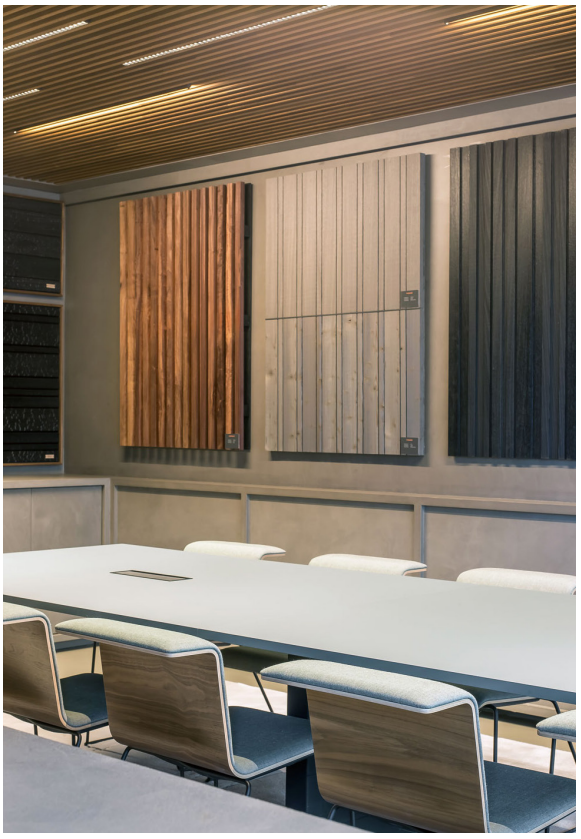
SOLISCAPE

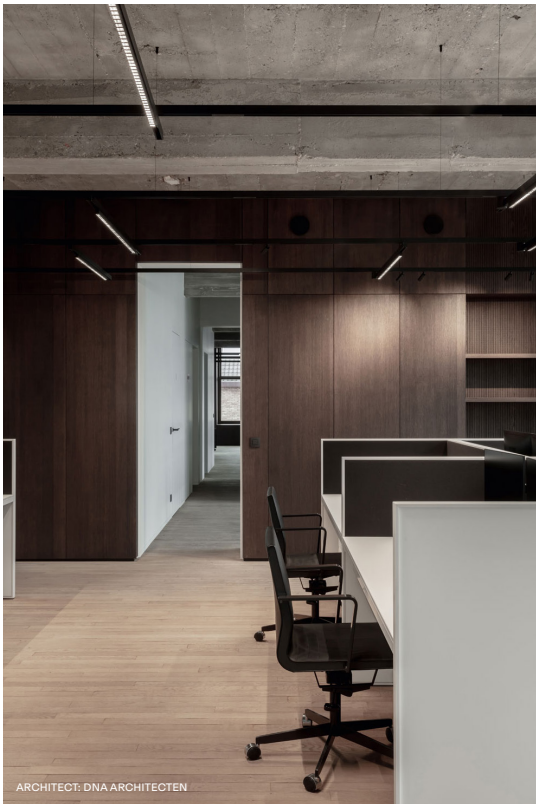
Office Areas.

OPEN SPACE OFFICES



Lighting in an open office is crucial for productivity, comfort, and aesthetics.

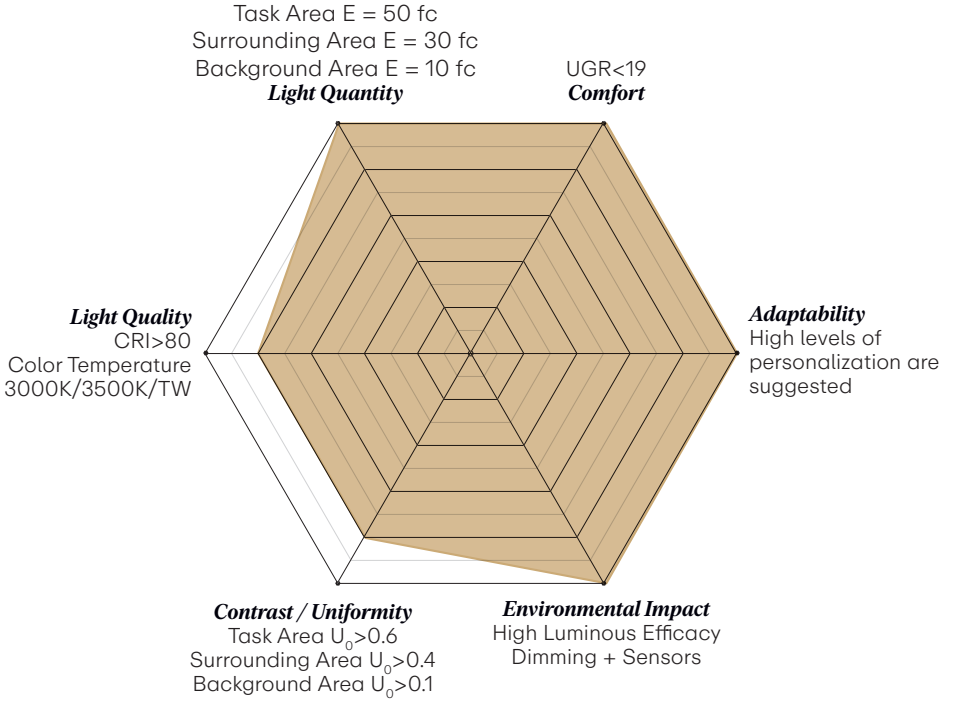



ARCHITECT: DNA ARCHITECTEN


ARCHITECT: MILENA VUKMIROVIĆ DARCH

Office Areas.

INDIVIDUAL **SP**ACES



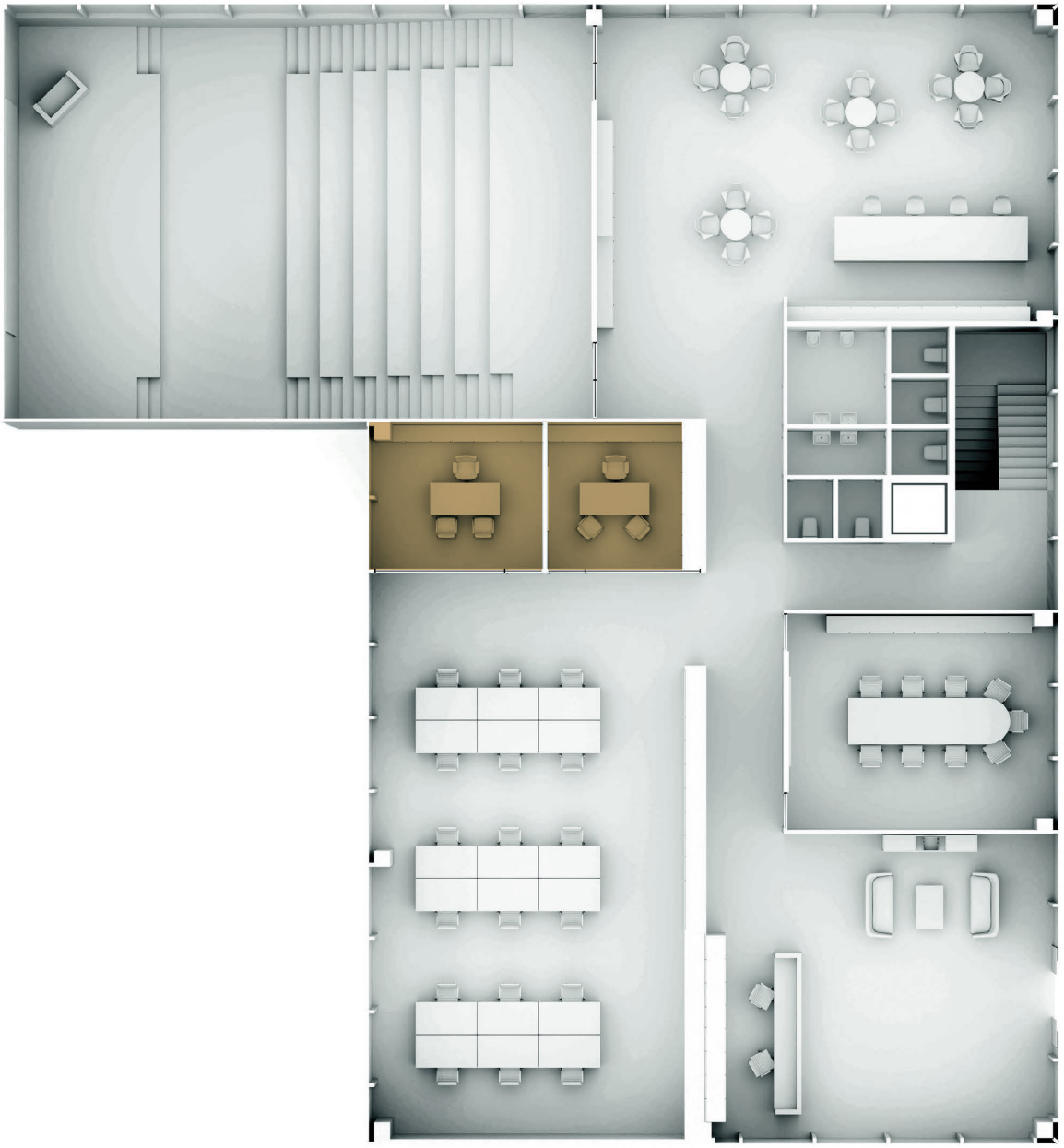
INDIVIDUAL SPACES

In an individual or 'closed' office layout, lighting plays a vital role in shaping the working environment for a particular person.

It's essential to find a balance between functionality and comfort, ensuring that the lighting meets the needs of the worker while being in harmony with the office design.

It's a dynamic and inviting space, usually used by managers or team leaders, where particular attention is paid to the aesthetics and mood of the space, thanks to the presence of artwork and decorative elements. Therefore, in addition to being functional, the lighting needs also to best represent the spirit of the company.

The integration of technology into personalized lighting control can further improve the experience of the user and their visitors.



Office Areas.

INDIVIDUAL **SP**ACES

GENERAL LIGHTING

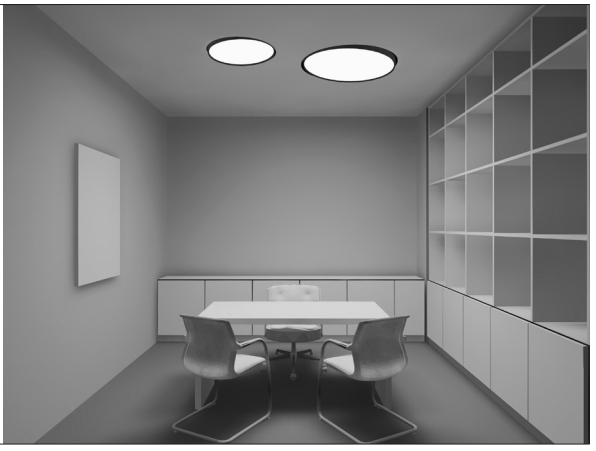




DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.60W/FT²



GENERAL LIGHTING UP + DOWN

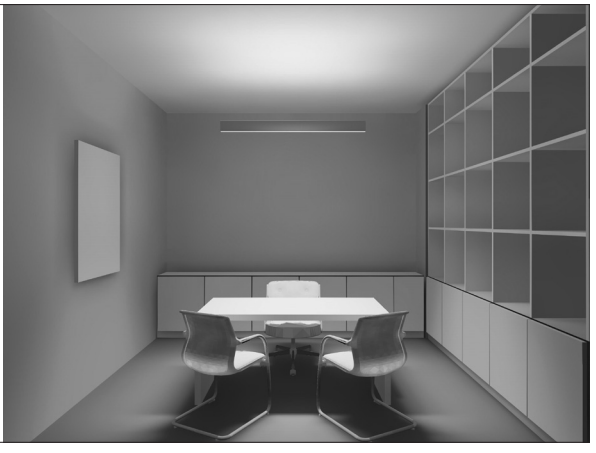




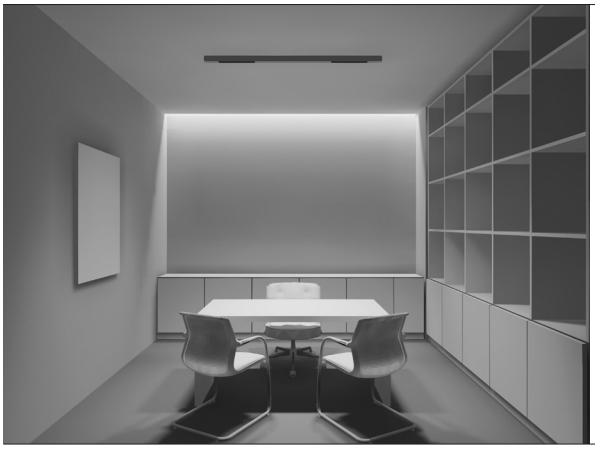
DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.29W/FT²



TASK LIGHTING + WALLGRAZING

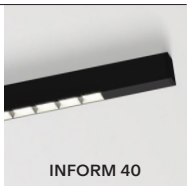


DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.40W/FT²





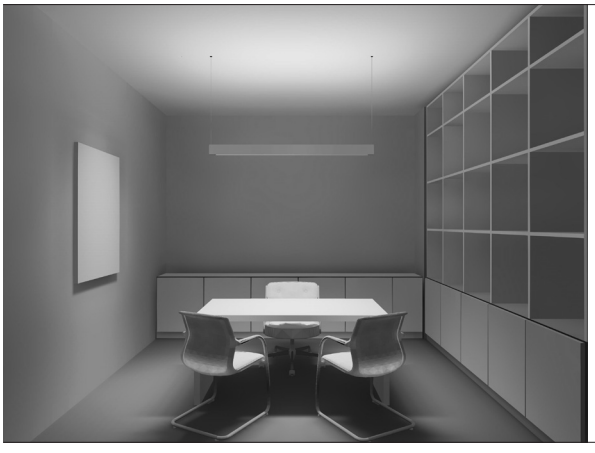
INFORM 40





FTL 35 WG

TASK LIGHTING UP + DOWN + ACCENT LIGHTING



DESIGN SIMPLICITY

VISUAL HIERARCHIE

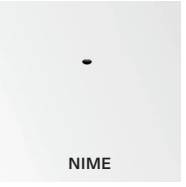
LPD 0.43W/FT²





CONFORM





NIME

Office Areas.

INDIVIDUAL SPACES



A lighting system that considers the worker's needs plays a significant role in shaping the individual office experience.

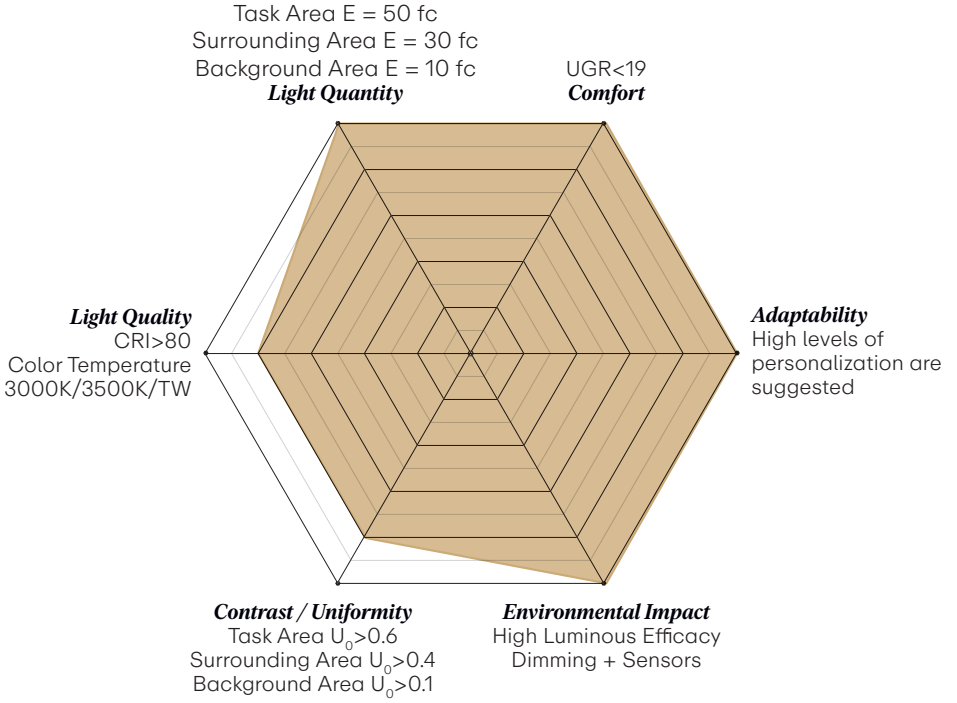

ARCHITECT: DNA ARCHITECTEN





Office Areas.

MEETING ROOM
CONFERENCE ROOM



MEETING ROOM / CONFERENCE ROOM

Lighting in a meeting room is crucial for creating a conducive environment for discussions, presentations, and collaborative work.

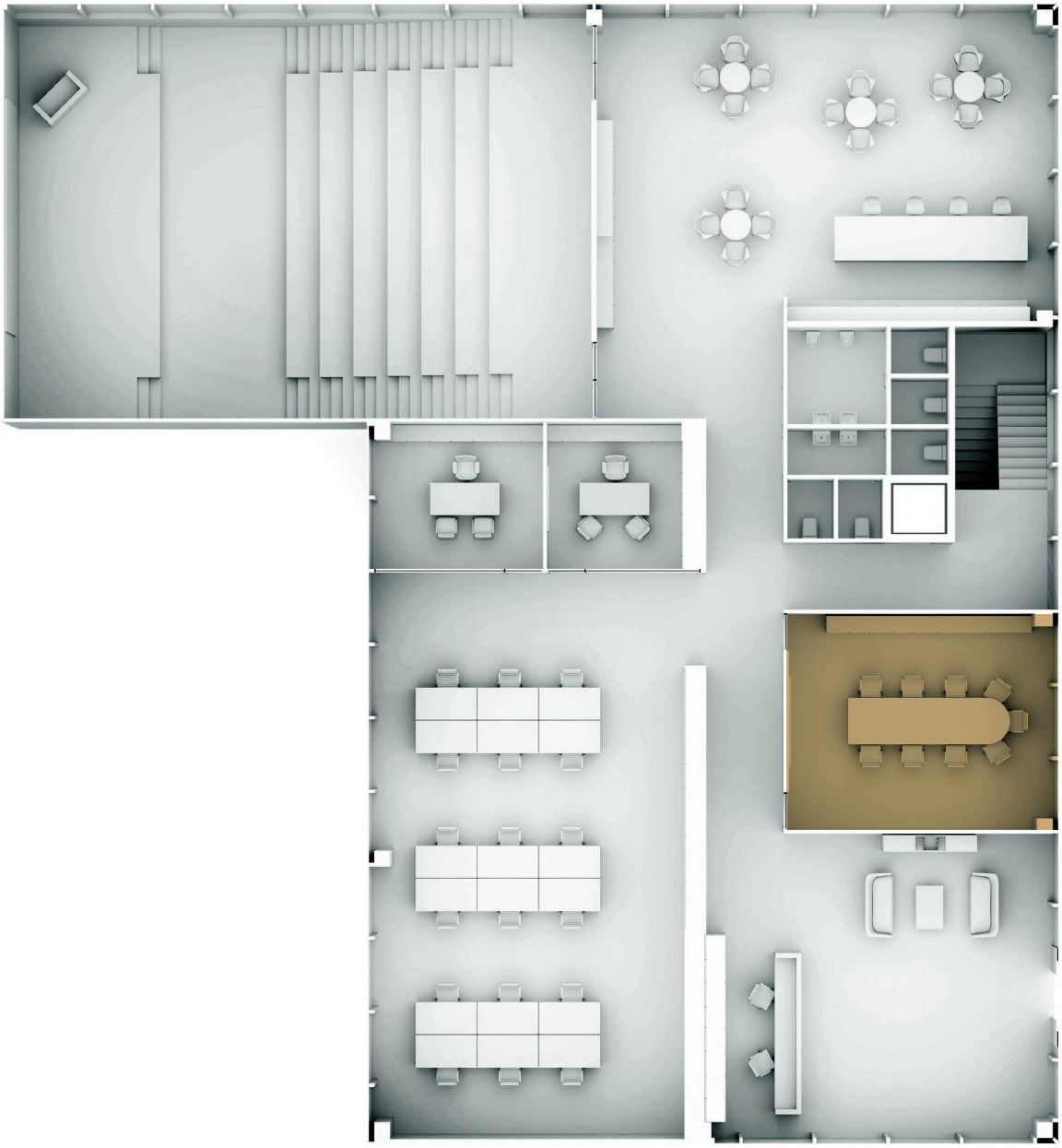
Proper lighting enhances visibility, comfort, and focus, making it easier for meeting participants to engage effectively.

By balancing ambient, task, and accent lighting, and incorporating smart controls and natural light, a meeting room can be transformed into an efficient and inviting environment.

For this purpose, smart lighting systems can significantly improve the functionality of a meeting room.

Automated controls, such as motion sensors and programmable settings, can optimize energy usage and ensure that the room is always well-lit when in use.

For example, lights can automatically dim during a presentation to enhance visibility of the screen.



Office Areas.

MEETING ROOM
CONFERENCE ROOM

GENERAL LIGHTING



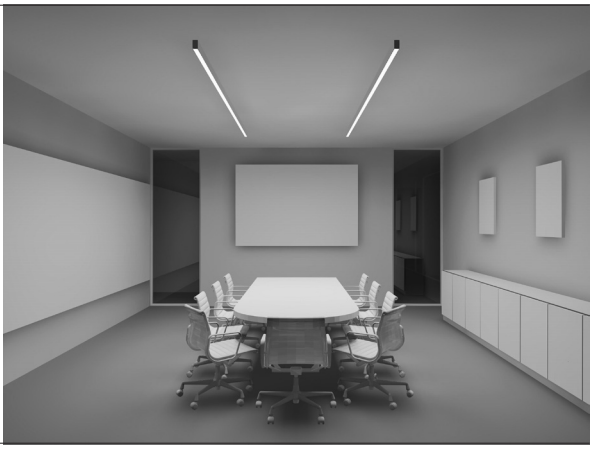
OMNILINER



DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.55W/FT²



GENERAL LIGHTING UP + DOWN



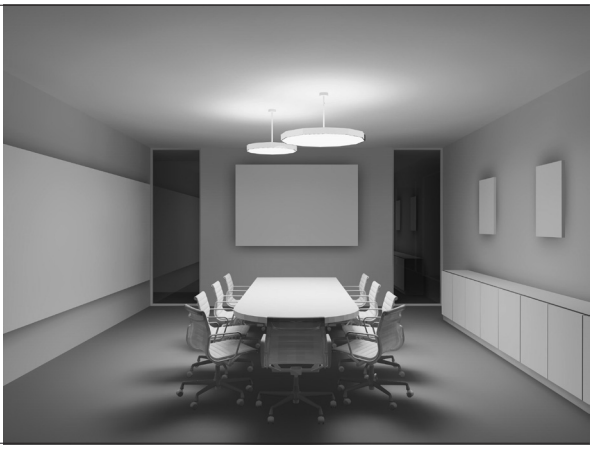
MULTINOVA



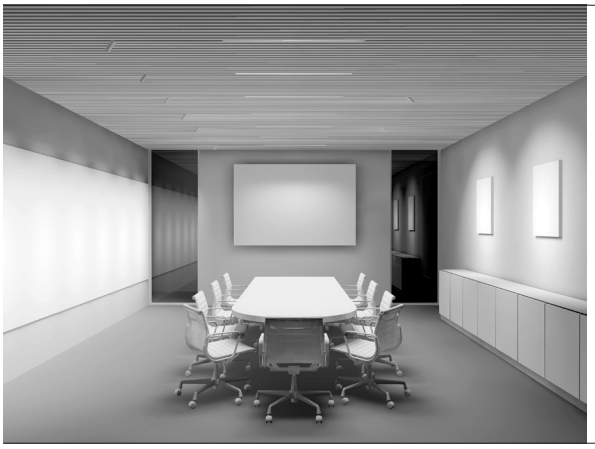
DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.49W/FT²



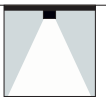
GENERAL LIGHTING + ACCENT LIGHTING



DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.51W/FT²





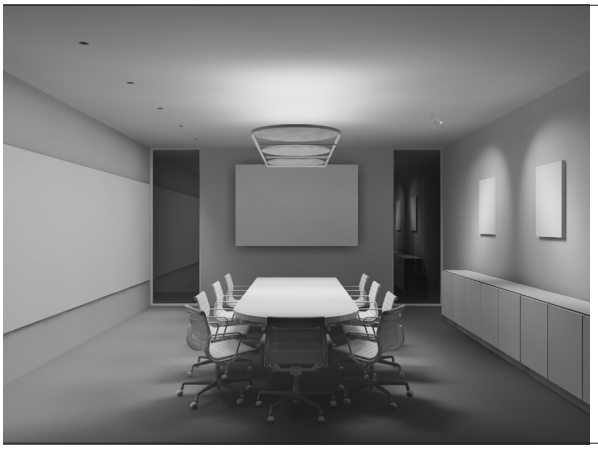
M-LED LINE





M-SPY

TASK LIGHTING UP + DOWN + ACOUSTIC + ACCENT LIGHTING



DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.26W/FT²





SOLISCAPE





ENTERO

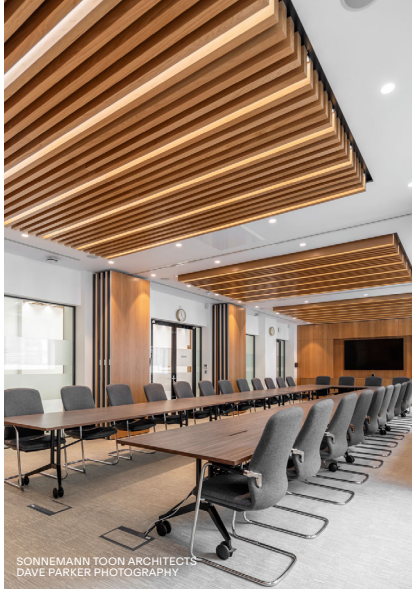
Office Areas.

MEETING ROOM
CONFERENCE ROOM



iON

A well-designed lighting system in a meeting room supports a variety of activities, enhances participants' comfort, and contributes to the overall functionality and appeal of the space.



SONNEMANN TOON ARCHITECTS
DAVE PARKER PHOTOGRAPHY





ARCHITECTURE BOS BÜRO- UND OBJEKTEINRICHTUNGEN GMBH
PHOTOGRAPHY CORNELIS GOLLHARDT

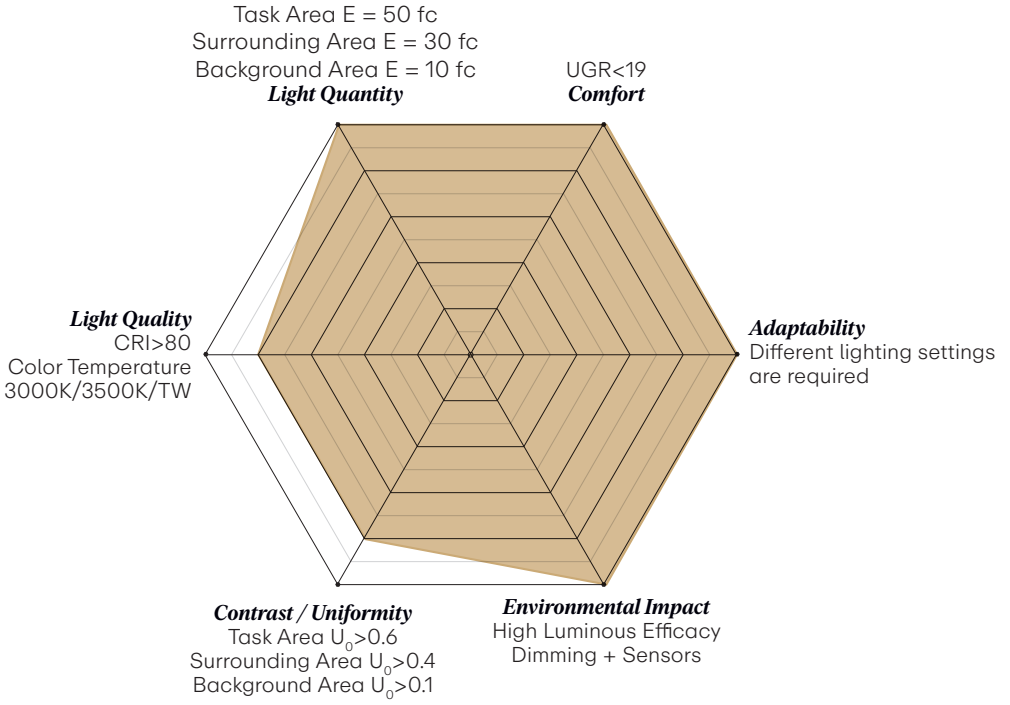






Office Areas.

AUDITORIUM



AUDITORIUM

Lighting in an office auditorium is important for creating an environment that's suitable for presentations, conferences, and events.

The design needs to balance functionality, comfort, and aesthetics to heighten the experience for both presenters and attendees.

Ambient lighting provides the foundation, ensuring the entire space is evenly illuminated.

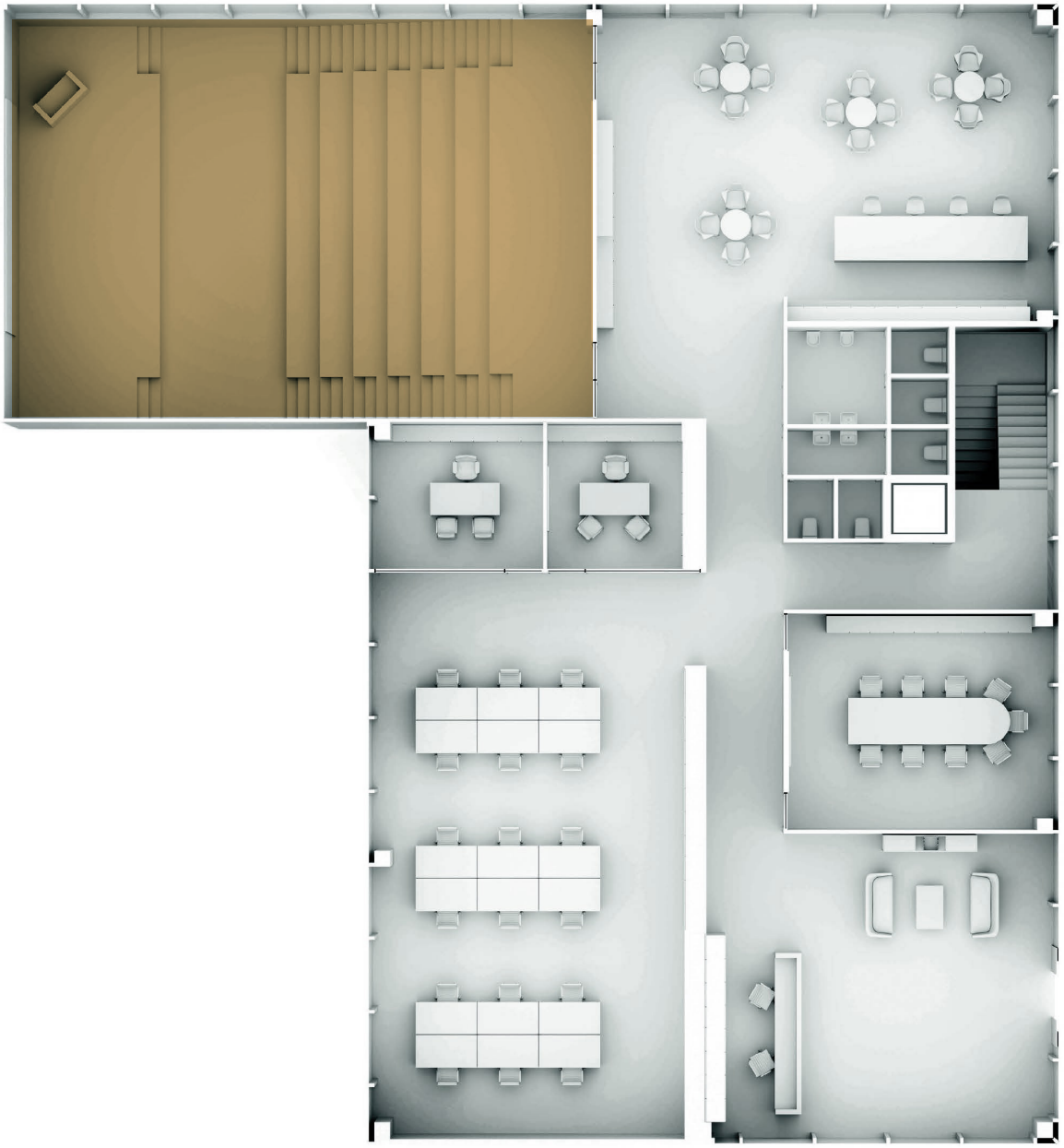
Task lighting is essential for the stage or speaking area, where focused light makes presenters clearly visible and emphasized.

Accent lighting can enhance the aesthetic appeal of the auditorium, highlighting architectural features or creating a dynamic atmosphere.

Smart lighting systems can also be used in this area to significantly improve the functionality of this space.

Programmable scenes can optimize lighting for various scenarios, from full conferences to small meetings.

Overall, thoughtful lighting design supports a wide range of activities, enhances the comfort of all participants, and contributes to the overall functionality and visual appeal of the space.



Office Areas.

AUDITORIUM

GENERAL LIGHTING + DEDICATED STAGE LIGHTING



M-LED LINE



M-SPY







DESIGN SIMPLICITY



VISUAL HIERARCHIE



LPD 0.75W/FT²



GENERAL LIGHTING + AMBIENT LIGHTING



FEMTOLINE



ENTERO







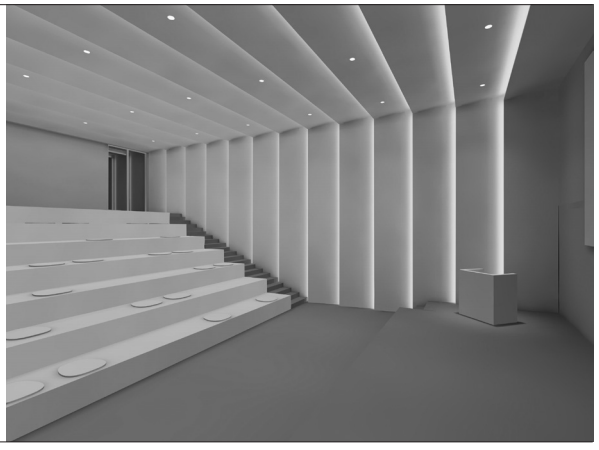
DESIGN SIMPLICITY



VISUAL HIERARCHIE



LPD 1.75W/FT²



GENERAL LIGHTING + DEDICATED STAGE LIGHTING



DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.50W/FT²





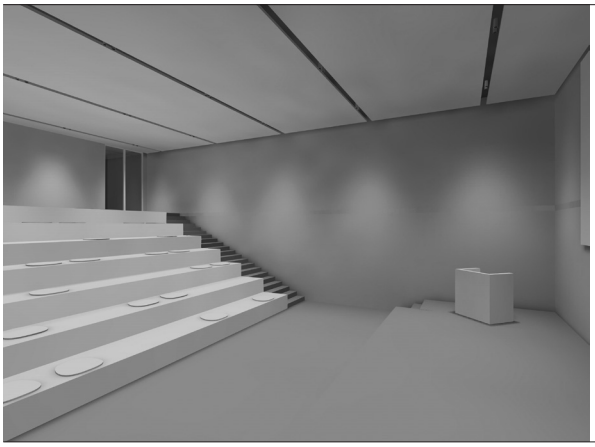
SPY





FRAGMA

GENERAL LIGHTING + DEDICATED STAGE LIGHTING



DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.51W/FT²





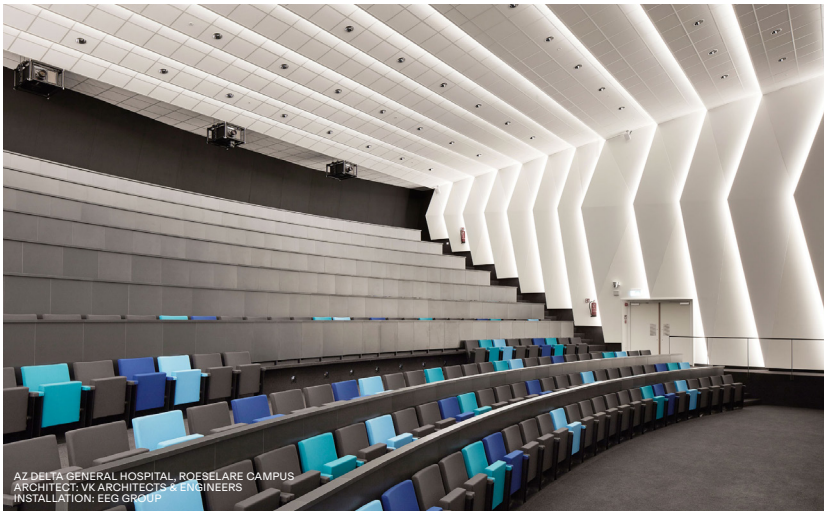
SPLIT-IT PRO + SPY

Office Areas.

AUDITORIUM



By combining ambient, task, and accent lighting with smart controls, the auditorium can be transformed into a versatile and inviting environment suitable for any event.



AZ DELTA GENERAL HOSPITAL, ROESELARE CAMPUS
ARCHITECT: VK ARCHITECTS & ENGINEERS
INSTALLATION: EEG GROUP







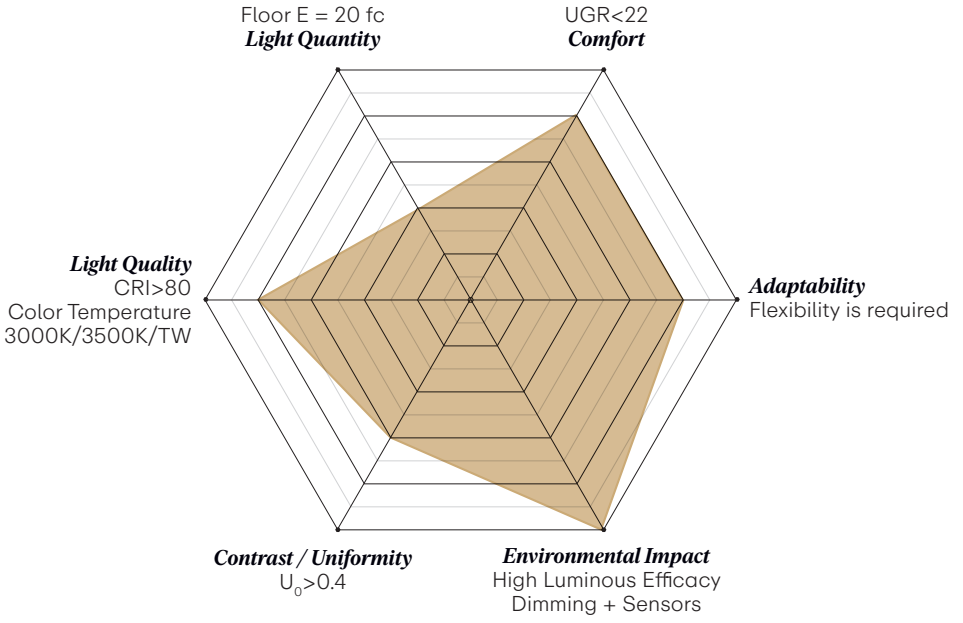
ARCHITECTURE GMP · VON GERKAN, MARG AND PARTNERS ARCHITECTS
RUSSIAN ADAPTATION: JSC SPEECH, MOSCOW
INTERIOR DESIGN: MAXIM RYMAR ARCHITECTURAL STUDIO





Office Areas.

LOUNGES
CAFETERIAS
BREAK AREAS



LOUNGES / CAFETERIAS / BREAK AREAS

Lighting in lounges, cafeterias, and break areas in an office is essential for creating a welcoming and relaxing environment where employees can unwind and recharge.

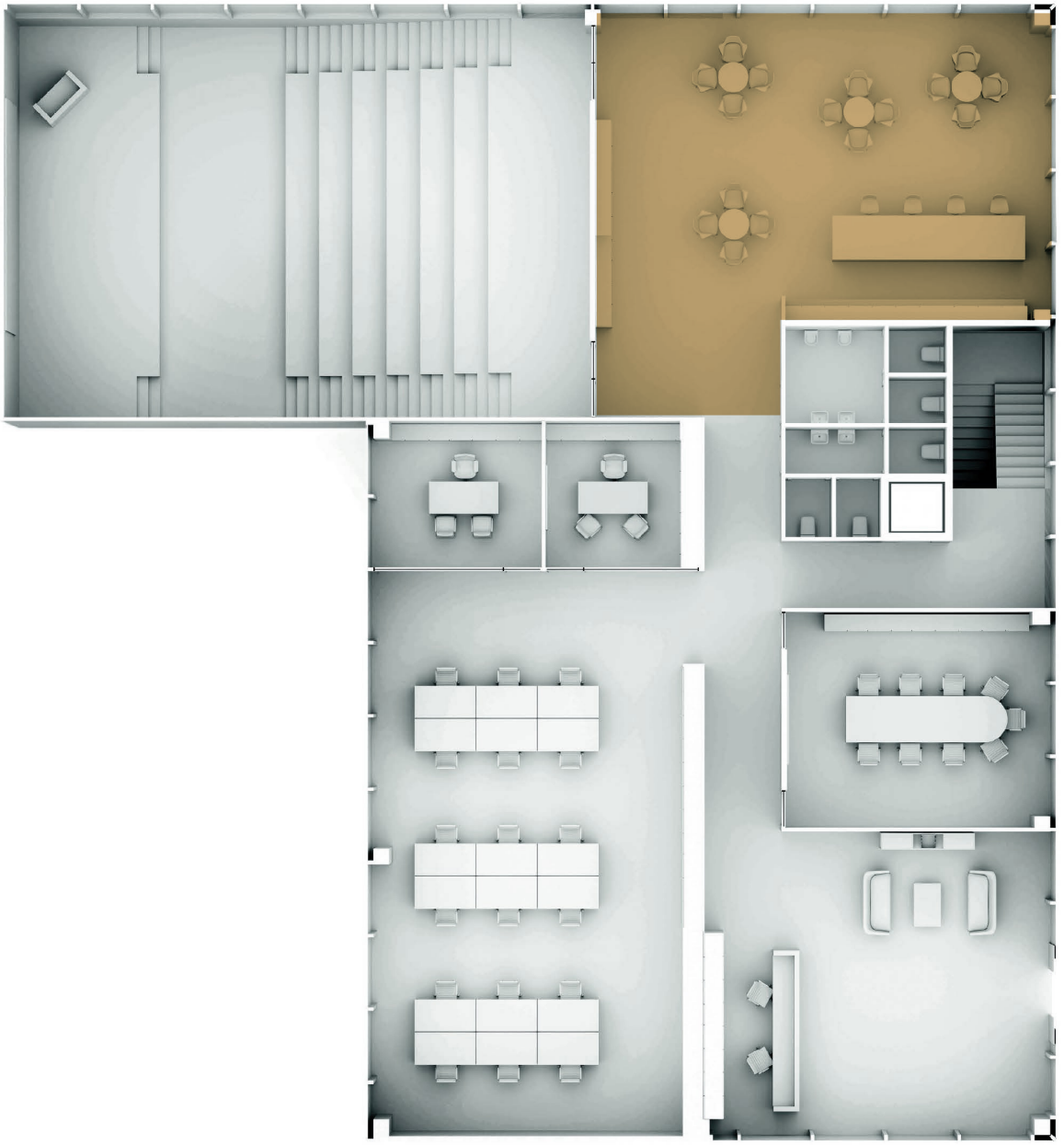
The lighting design in these areas should prioritize comfort and ambiance while also being functional. The color temperature can be warmer to create a cozy atmosphere that encourages relaxation and social interaction.

Multiple lighting techniques can be used simultaneously to strengthen different aspects: while general lighting provides general illumination, task lighting is important for food preparation or reading, and accent lighting can add a decorative touch, highlighting architectural features, artwork, or plants, contributing to a more vibrant and engaging space.

Furthermore, smart lighting controls can enhance the flexibility and efficiency of these spaces.

Dimmable lights allow for adjustments based on the time of day or the specific use of the area, and presence sensors can ensure that lights are only on when the areas are in use, saving energy and reducing costs.

Overall, by combining ambient, task, and accent lighting with natural light and smart controls, these areas can become a vital part of the office, promoting relaxation and well-being among employees.



Office Areas.

LOUNGES
CAFETERIAS
BREAK AREAS

GENERAL LIGHTING



OMNILINER



DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.95W/FT²



GENERAL LIGHTING UP + DOWN



SUPERLOOP SLIM



DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.74W/FT²



GENERAL LIGHTING + DECORATIVE PENDANTS



DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.31W/FT²





DOT.COM





CUPPA

TASK LIGHTING + DECORATIVE PENDANTS



DESIGN SIMPLICITY

VISUAL HIERARCHIE

LPD 0.42W/FT²





SHIFTLINE WITH M-SPY





M-GIBBO

Office Areas.

LOUNGES
CAFETERIAS
BREAK AREAS



CARGILL HOUSE OF CHOCOLATE
ARCHITECT: AAVO
INTERIOR DESIGN: WEWANTMORE (EXPERIENCE CENTER)

Proper lighting design for lounges, cafeterias, and break areas in an office creates a comfortable, inviting, and functional environment enhancing the visual appeal and contributing to the overall satisfaction and productivity of the workforce.

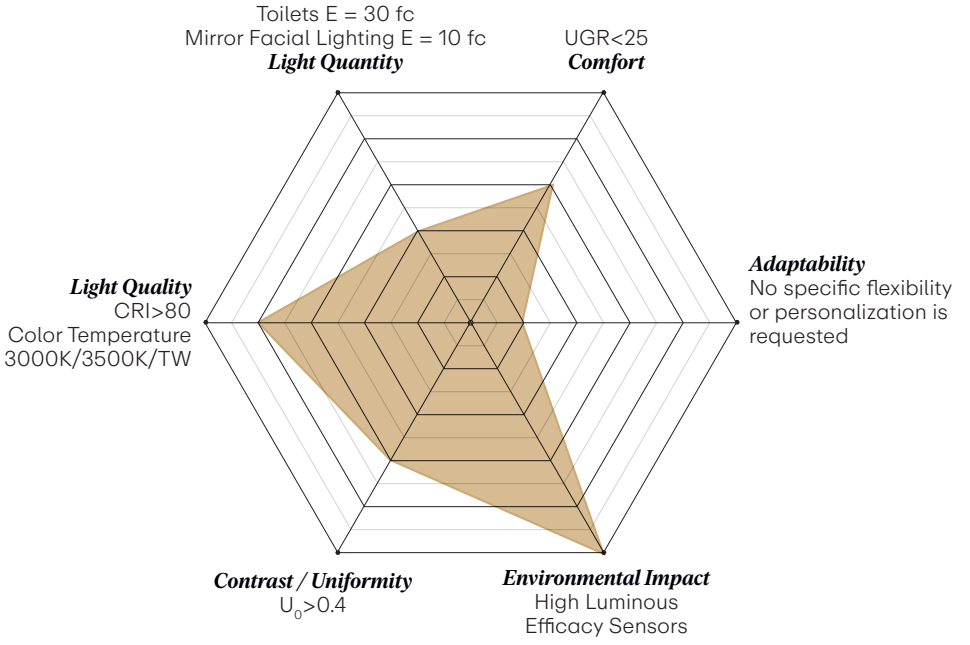



ARCHITECTURE BOS BÜRO- UND OBJEKTEINRICHTUNGEN GMBH
PHOTOGRAPHY CORNELIS GOLLHARDT


ARCHITECTURE BOS BÜRO- UND OBJEKTEINRICHTUNGEN GMBH
PHOTOGRAPHY CORNELIS GOLLHARDT

Office Areas.

BATHROOMS
TOILETS



BATHROOM

Lighting in an office bathroom must be both functional and aesthetic, ensuring a comfortable and safe environment. Ambient lighting forms the foundation ensuring even distribution of light throughout the space, minimizing shadows and creating a bright and clean atmosphere.

Presence sensors are quite crucial to improve energy efficiency and user convenience. Motion sensors can automatically turn lights on and off, ensuring the bathroom is only lit when in use.

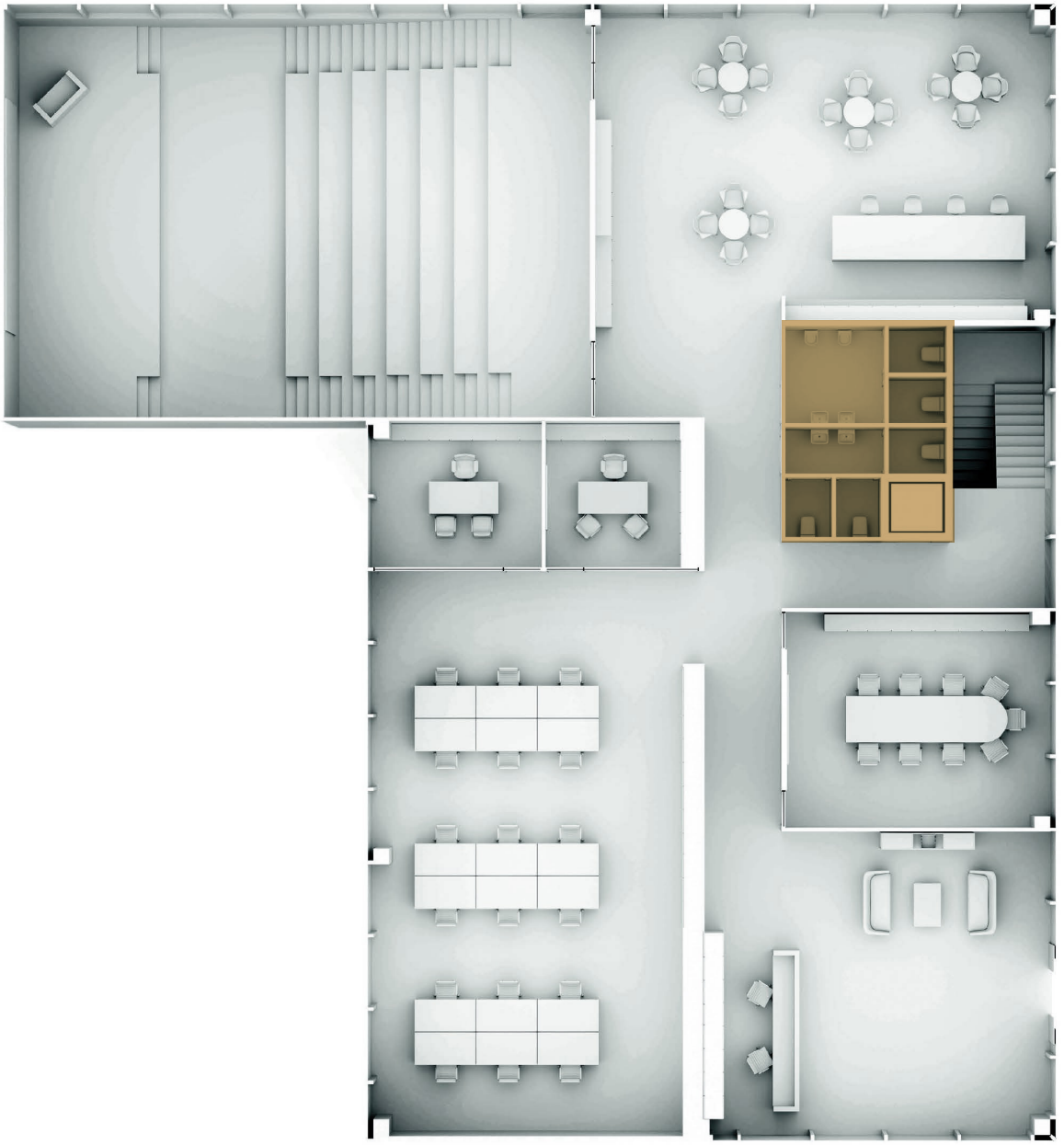
MIRROR

Specific lighting is essential for the mirror area to facilitate grooming activities. This can be provided by diffused lighting fixtures mounted frontally to the illuminate the face, as these reduce shadows on the face and provide sufficient and soft light.

TOILET

Lighting of the toilet is essential for safety, functionality, and comfort.

Proper illumination is necessary to facilitate personal hygiene, navigation, and maintenance, while also creating a clean and pleasant environment.



Office Areas.

BATHROOMS TOILETS

MIRROR: INDIRECT LIGHTING + GENERAL LIGHTING (DOWNLIGHTS)



SHELFLINE 18





ENTERO





DESIGN SIMPLICITY



VISUAL HIERARCHIE



MIRROR: INDIRECT LIGHTING + GENERAL LIGHTING (DOWNLIGHTS)



FEMTOLINE





DEEP RINGO





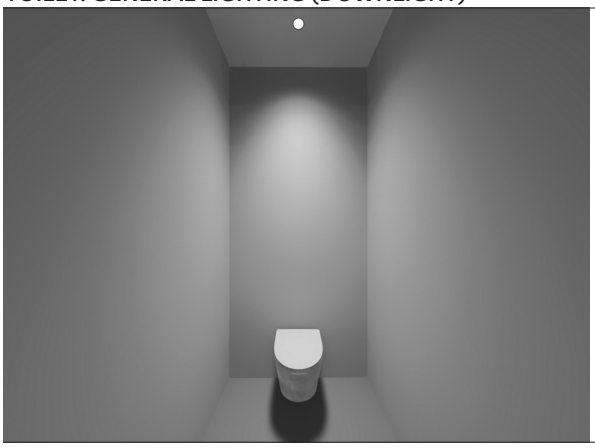
DESIGN SIMPLICITY



VISUAL HIERARCHIE



TOILET: GENERAL LIGHTING (DOWNLIGHT)



DESIGN SIMPLICITY

VISUAL HIERARCHIE





DEEP RINGO

TOILET: GENERAL LIGHTING (DOWNLIGHT) + AMBIENT LIGHTING



DESIGN SIMPLICITY

VISUAL HIERARCHIE





CONNECT





NIME

Office Areas.

BATHROOMS
TOILETS



NINA MAYA INTERIORS
PHOTOGRAPHY NICOLE ENGLAND

The bathroom needs be perceived as a well-lit, efficient, and clean space for all users.


VILARTE






WWM





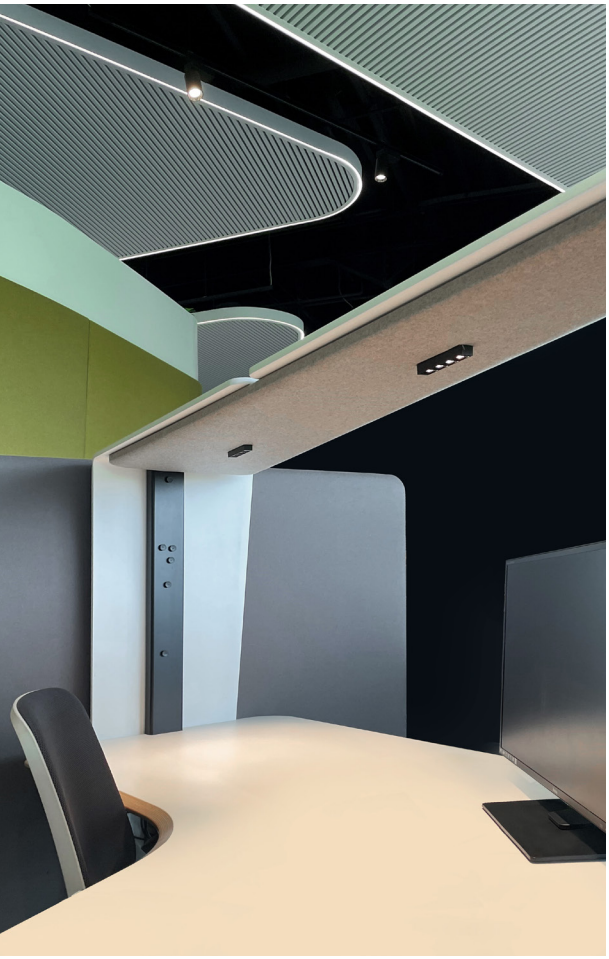

BNP-ARCHITECTEN
INTERIOR DESIGN: CRENEAU INTERNATIONAL

Office Areas.

(UN)CONVENTIONAL SOLUTIONS

Traditionally, offices consisted of assigned desks and cubicles with little room for flexibility or privacy. The rise of the need for more collaborative and adaptable work environments drove the adoption of new solutions to maximize office space, reduce costs, and foster a culture of collaboration and mobility, while improving employee satisfaction, and better accommodating diverse work styles.

Today, the transition to new concepts (such as flex desks and soundproof pods) highlights the evolving nature of workplace design: what was once unconventional and experimental has now become mainstream.





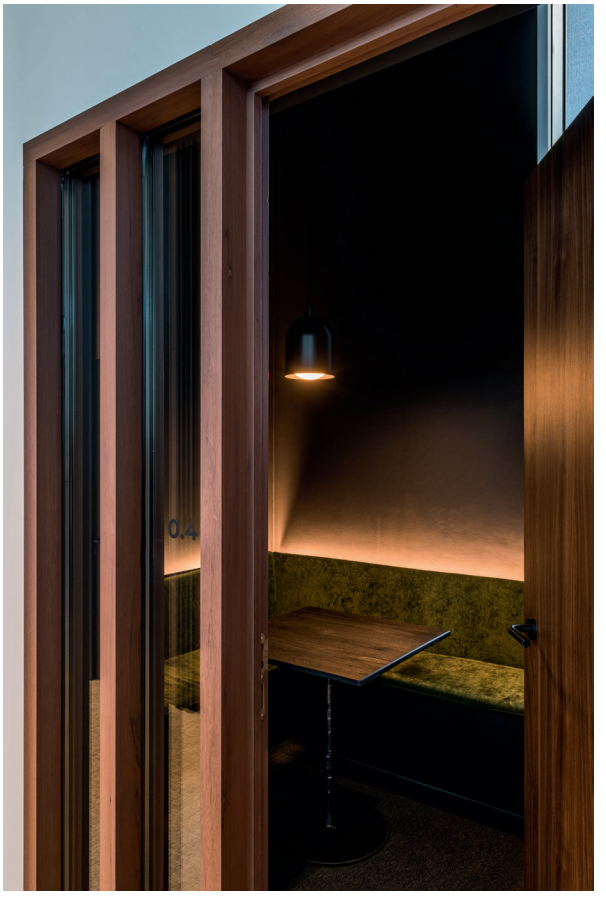
GODDEERIS OFFICES, BHOOM CREATIVE DESIGN UNIT & DDM ARCHITECTUUR.
PHOTOGRAPHY LENZER

FLEXIBLE DESKS are increasingly popular in modern office environments.

They offer various benefits, including increased collaboration and better space utilization. Employees do not have assigned desks but can choose any available office workspace since all of them are equipped with essential tools (monitors, docking stations, adjustable chairs) to accommodate different users.

Often the employee has the possibility to move the desk according to their personal or professional need or mood. For example, moving their desk closer to the windows to get more natural light or moving the desk close to another colleague they need to work with, encouraging team collaboration.







SOUNDPROOF PODS are an excellent solution for creating private and quiet spaces (equipped with comfortable seating, good lighting, and ventilation) within an open office environment.

They offer a place for focused work, confidential conversations, or taking calls without disturbing or being disturbed by the surrounding activities.

CASES.

WeWantMore Studio
ANTWERP



WEWANTMORE DESIGN STUDIO, ANTWERP (BELGIUM), PHOTOGRAPHY LUC ROYMANS


FOR
EXTRA
ORDINARY
CHEFS
ONLY

WeWantMore Studio
ANTWERP

"WeWantMore" is a design studio in the center of Antwerp, Belgium that specializes in branding and interior design.

WeWantMore believes that a well-designed workspace not only enhances productivity, but also contributes to a positive company culture and overall job satisfaction.

As a design studio, the vision behind their new workspace was to enhance collaboration, inspire creativity, and celebrate their achievements.

This new workspace is a testament to their commitment to creating an environment that fosters teamwork and individual focus, while also prioritizing the team's well-being. Their design philosophy centers around three core goals: igniting collaboration, sharing inspiration, and cultivating a sense of pride in their work.

The ground floor is the social space where they welcome people, informally interact, have internal events, and celebrate wins.

To make the space even more dynamic, they also rent it out as a co-working space with different people dropping by from time to time to work on their own projects.

The open staircase with screens showcasing their work brings the guests to the first floor where they do what they do best: design.



EVENT AREA



RECEPTION - BAR

LOUNGE



STAIRCASE + MEETING ROOMS



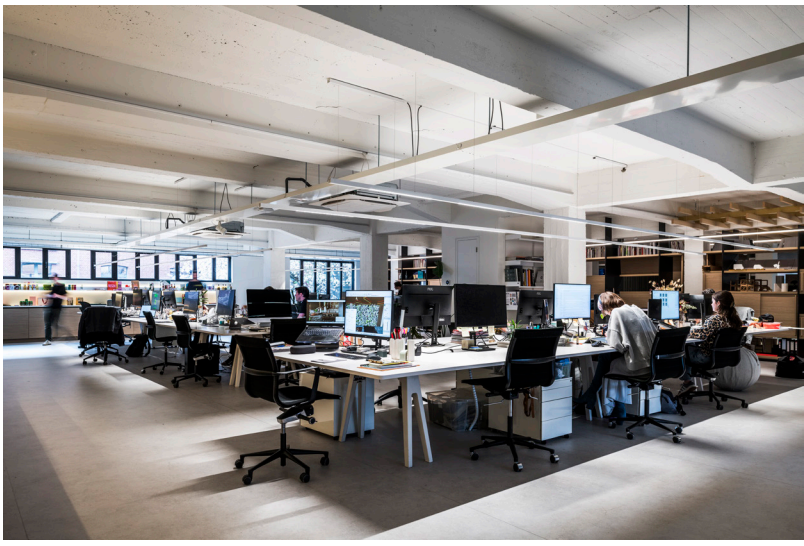
WeWantMore Studio
ANTWERP

The new studio layout features open, collaborative spaces that encourage spontaneous interactions and brainstorming among team members.

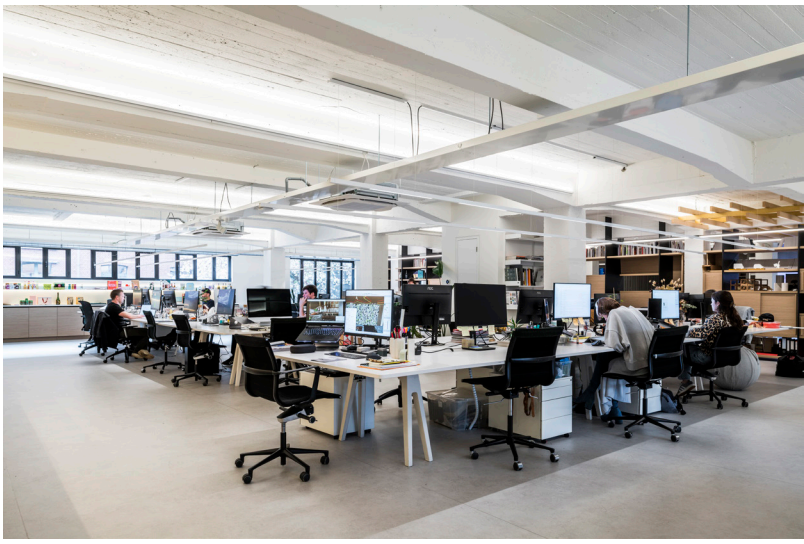
Great attention was paid to the indirect lighting of the ceilings for different purposes: to highlight the building's architectural structure, provide a general lighting base for the entire office, and make the ceiling appear higher. Furthermore, in combination with dedicated desk lighting, different lighting scenes can be achieved to suit different functions and times of day.



OPEN SPACE
Only Up Light



OPEN SPACE
Only Down Light



OPEN SPACE
All switched On



The sustainably driven sample library invites people to share informal moments together or be in focused discussions surrounded by textures, materials, and colors.

SAMPLE ROOM
UP light +
Display light for Library



SAMPLE ROOM
Only Down Light



SAMPLE ROOM
All Switched ON

WeWantMore Studio
ANTWERP

Carefully curated design elements, sustainable materials and circular choices reflect the company's dedication to environmental responsibility, ensuring a healthy and inspiring workplace.

In addition to fostering creativity and collaboration, the new office space is designed to support the health needs of the team.

Ergonomic furniture, ample natural light in combination with adaptable lighting, and green spaces create a comfortable and invigorating atmosphere that makes it more appealing to work at the office than at home.

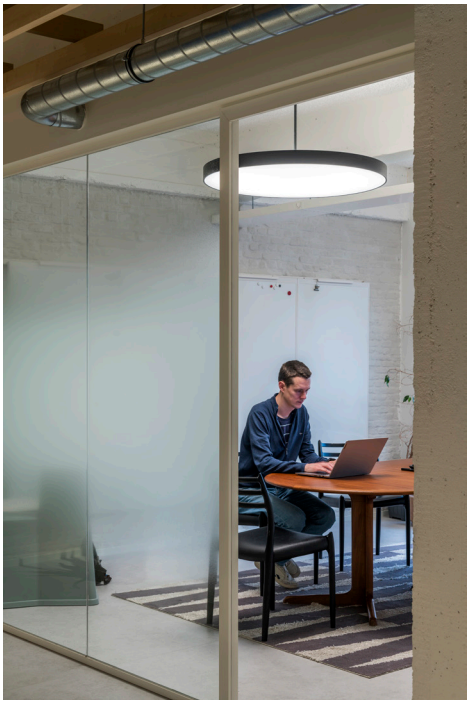


BOARD ROOM





CORRIDOR



MEETING ROOM

MEETING ROOM



MEETING ROOM



WeWantMore Studio
ANTWERP



KITCHEN



KITCHEN





BATHROOM



BATHROOM

Mallol Arquitectos
PANAMA



ARCHITECT MALLOL ARQUITECTOS, LIGHTING BY LED LIFE PANAMA



Mallol Arquitectos
PANAMA

'Mallol Design House won "best offices in America" in the Working category at the 2017 Archmarathon.'

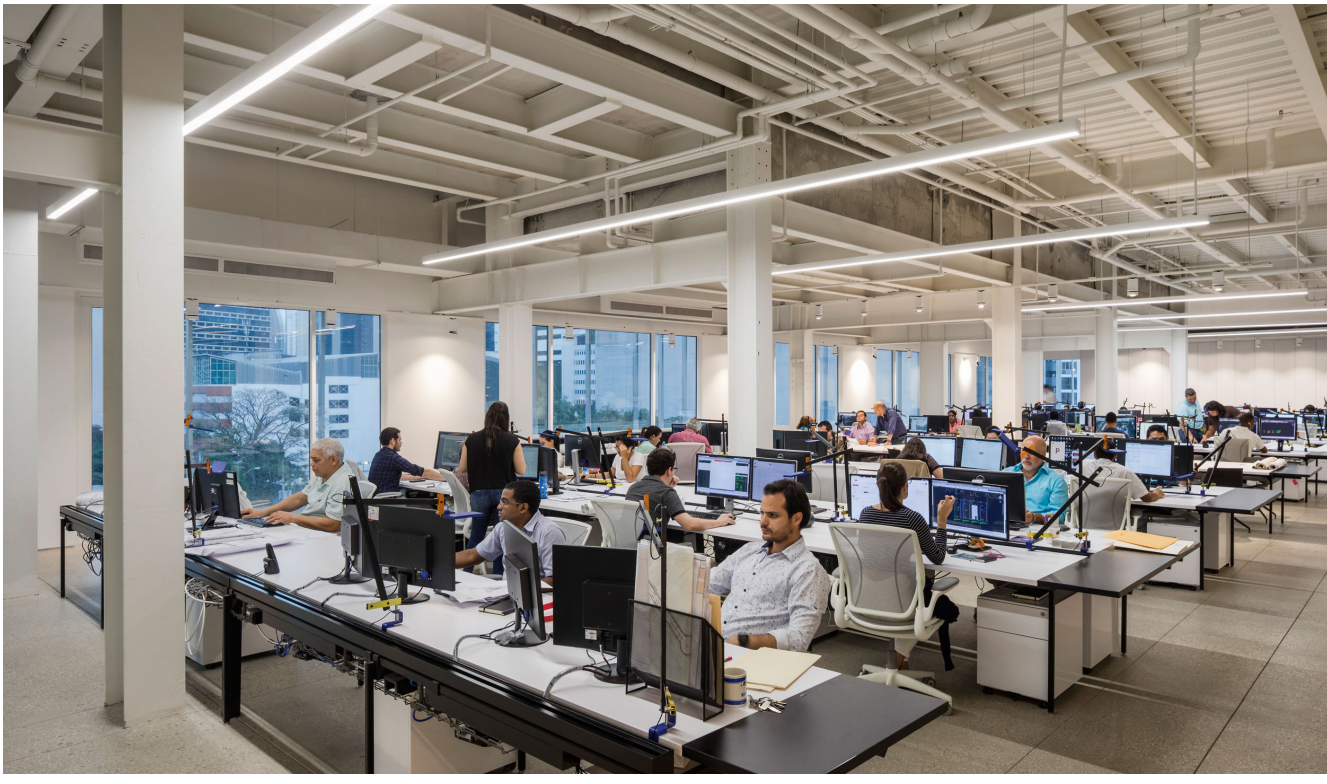
The Mallol Design House building is located in the heart of Panama City. Built out of a seven-story hotel, they used recycled steel for the structure of their new architectural studio; using concrete, glass, & wood to allow the bare structure to shine through, transforming the space and creating synergy.

The philosophy of the project was that the original space foster the creation of a new space to answer a diversity of needs.

The predominantly white color was used to evoke light, amplitude, and reflection, resulting in open, bright, and flexible multipurpose spaces without hierarchy. This allowed for more fluid communication, continuous creativity, and collaboration, stripping the building to the most essential task of ARCHITECTURE design.

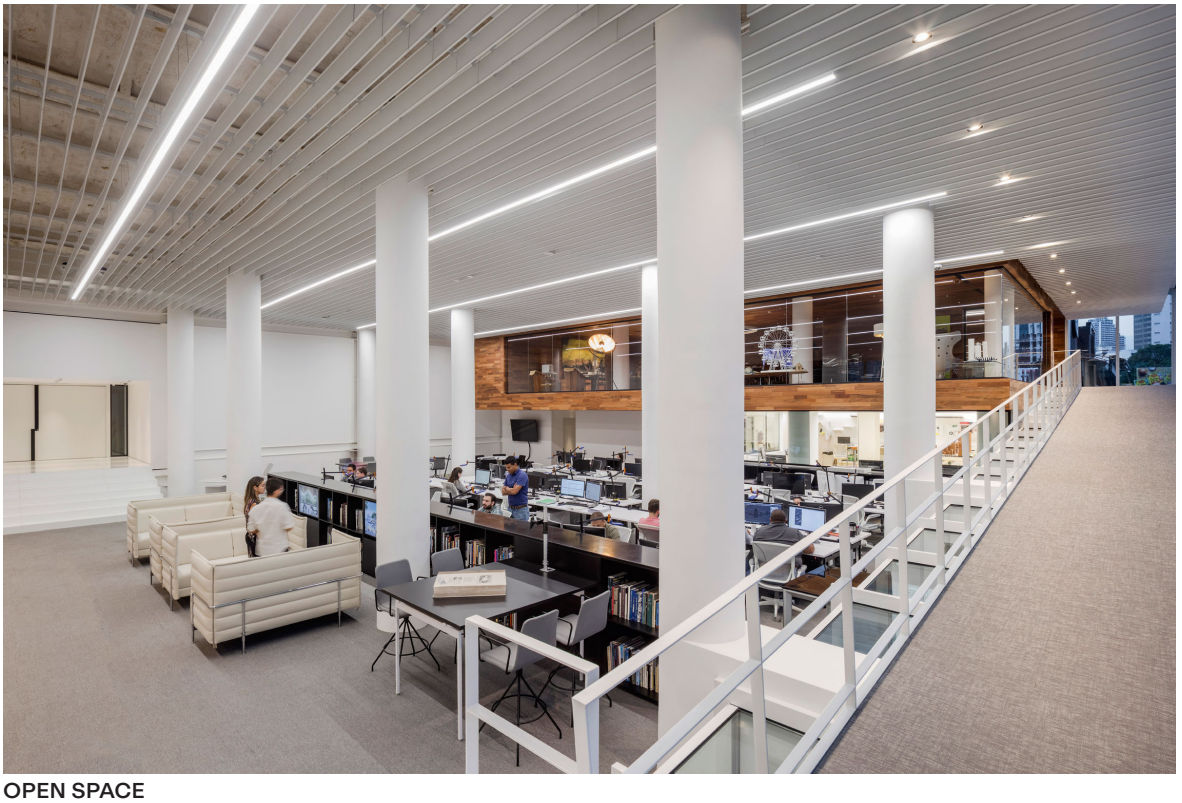
It has: 11 open offices and 5 private meeting rooms; an auditorium with a 48-person capacity, equipped with the highest technology for acoustics and audio-visual tools; a terrace where the cafeteria, a botanical garden, and swimming pool are located for the enjoyment of the studio's collaborators and visitors; a library on the top floor; and an outdoor amphitheater. All these spaces are available to collaborators as well as to community activities.

OPEN SPACE





CONFERENCE ROOM



OPEN SPACE

Mallol Arquitectos
PANAMA



LOUNGE



LOUNGE





Mallol Arquitectos
PANAMA



CANTEEN



Formo Bio
GERMANY



ARCHITECTURE & LIGHTING DESIGN SUSANNE PHILIPPSON,
PHOTOGRAPHY MARVIN SCHWIENHEER

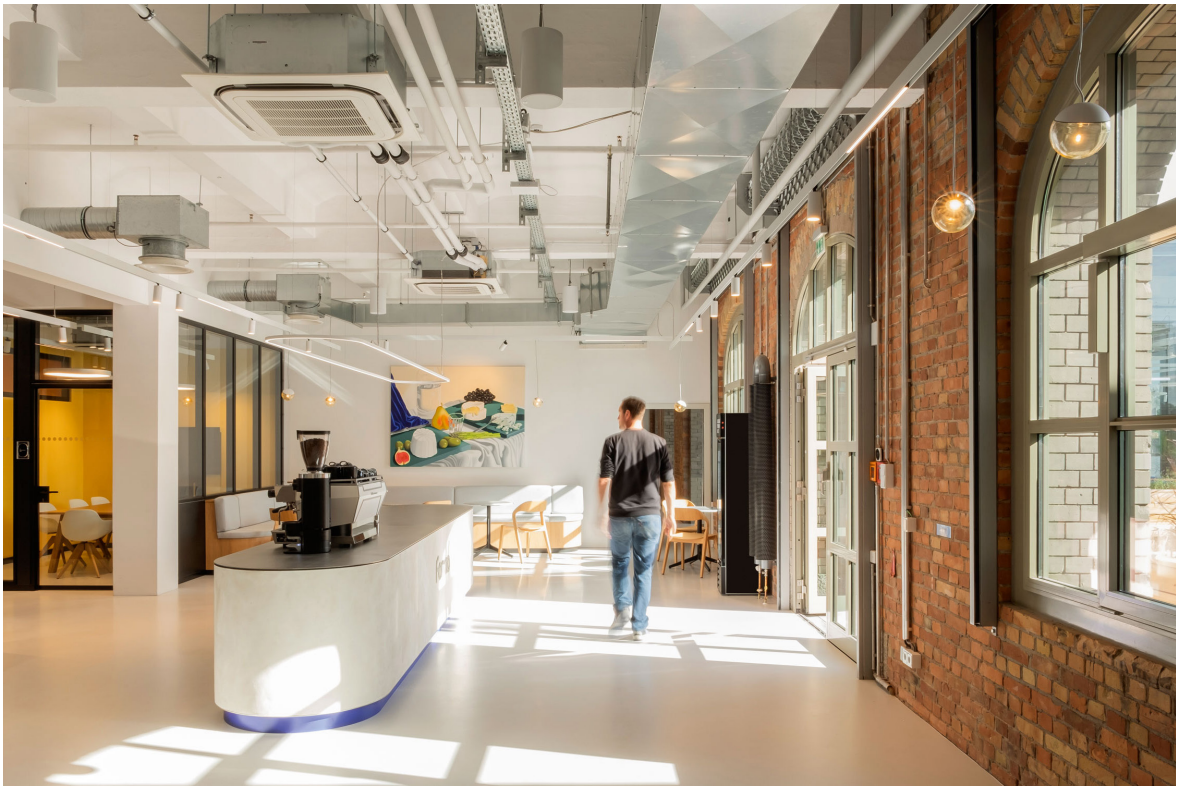


Formo Bio
GERMANY

Based on the holistic rebranding concept by Amsterdam creative agency Forpeople, German start-up Formo uses a historical warehouse building located on the bank of the Spree river in Berlin not only as a space to showcase its work, but as sort of a second home for employees. At the end of the workday, employees enjoy sticking around to have a beer and sometimes even invite friends or family members.

Moreover, as the manufacturer of non-dairy cheese products made from fermented proteins, Formo's Berlin headquarters are expected to act as a link between teams at other Formo sites. As Formo expects future changes in their culture and size, the company wants to be prepared. Therefore, flexibility has been key in developing the interior design concept.

To this end, the team of Potsdam-based interior architecture company Susanne Philippson was able to fundamentally revise Forpeople's preliminary designs and implement them. Through the design of a furniture, interior, and lighting concept, the ideas were technically achievable. For the "Future Kitchen", Forpeople had envisioned a particularly cool, technical and futuristic lighting atmosphere. But Formo wanted an additional function: warm muted lighting at the day's end to allow employees to wind down. With tunable-white LEDs and a bus control system, Susanne Philippson was able to bridge the gap between Forpeople's cool design idea and Formo's staff requirements.



CAFETERIA



CAFETERIA



CAFETERIA

LOUNGE



Formo Bio
GERMANY

With a focus on lighting technology, the Soliscape system was a perfect fit for this project. Nonetheless, the idea to implement this lighting system throughout the space was born from a design idea. On its website, Formo visually explains the technical background of its vegan cheese production, which uses the fermentation processes of microorganisms to create milk proteins. “Graphically, this process is presented by numerous 3-D bubbles with docked on balls, which I visually associated with the Soliscape modules”, Susanne explains.

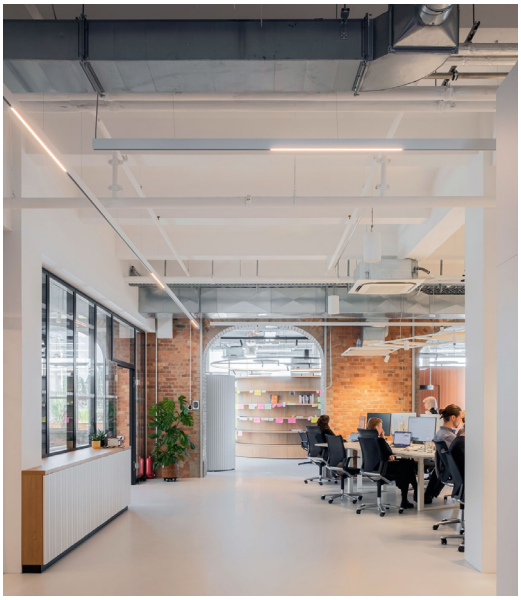
“The use of many Soliscape modules in the space abstractly builds the bridge to the many holes in cheese.” Thus, the initial idea for the lighting design had emerged.

“As the company stands for this food, it was quickly obvious that the concept basically had to be round”, Susanne continues.

Moreover, the system’s great flexibility and sound absorption, which is of great importance due to the high, exposed ceilings and lots of glass, worked in Soliscape’s favor. The idea was presented within two minutes and understood just as quickly. In addition to its original function as a lighting solution, Soliscape has become a distinctive design element in open office spaces and semi-public areas. Above all this, the system is a “mood maker”, as it can create the most diverse lighting atmospheres.



OPEN SPACE



OPEN SPACE



OPEN SPACE



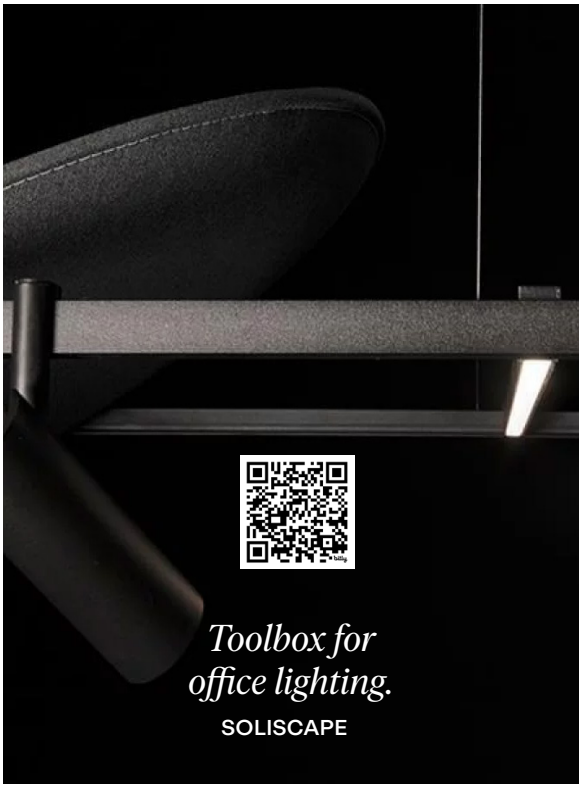
MEETING ROOM

PRODUCT.

Product.

DESIGNED FOR OFFICE

SELECTION OF PRODUCTS
PRODUCT INFO
SUGGESTED INSTALLATION HEIGHT
HOW TO CHOOSE



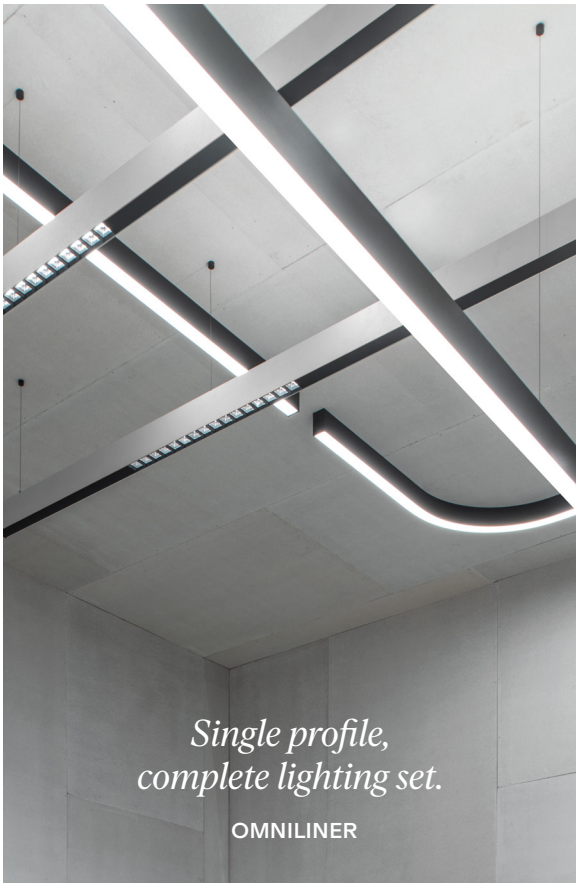






A refined working tool.

INFORM



Single profile, complete lighting set.

OMNILINER



(Form & function)²

ZOOVER



Visual comfort & natural light.

CONFORM

Product.

DESIGNED FOR OFFICE

SELECTION OF PRODUCTS
PRODUCT INFO
SUGGESTED INSTALLATION HEIGHT
HOW TO CHOOSE

	INFORM		
	INFORM SQ	INFORM R	INFORM 40 SQ
LIGHT EFFECT			
DOWN	●	●	●
DOWN-UP	●	●	●
UP			●
SPOT			
OPTICS			
18°			
20°			
30°			
45°			
63° - UGR<19			●
67° - UGR<16	●		
71° - UGR<19		●	
SANDBLASTED			
PRISMATIC			
PRISMATIC LENS 63° - UGR<16			
COLOR TEMPERATURE			
2700K	●	●	
3000K	●	●	●
3000K NLT [1]			
3500K	●		●
3500K NLT [1]			
TUNABLE WHITE 2700K - 5000K MLT [2]			●
TUNABLE WHITE 2700K - 6500K			
SOFT DIM 3000K - 1800K			
CRI			
>90	●	●	●
>95			
>98			
CONTROL			
REMOTE POWER SUPPLY	●	●	
NON-DIM	●		
FE ELV DIM			
0-10V DIM	●	●	
DALI DIM			●
WIRELESS DIM			
INSTALLATION			
RECESSED TRIMLESS			
RECESSED WITH TRIM			
SURFACE MOUNTED	●	●	●
SUSPENDED CABLE	●	●	●
SUSPENDED ROD			
LOW / MAIN VOLTAGE TRACK	●		
OTHER			
PRESENCE & DAYLIGHT SENSOR			●
ACOUSTIC NOISE REDEUCTION			

[1] NATURAL LIGHT TECHNOLOGY
[2] MELANOPIC LIGHT TECHNOLOGY

OMNILINER	SOLISCAPE	CONFORM	MULTINOVA	ZOOVER
●	●		●	●
●	●	●	●	●
●	●			
●	●			●
	●			
	●			
	●			
	●			
	●	●		
●	●		●	●
			●	
●			●	
	●			●
●	●		●	●
	●	●		
●	●			
	●	●		
●				
			●	
	●		●	
●	●		●	●
		●		
	●			
	●			
●	●		●	
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●			●	
●			●	
●	●	●	●	●
●			●	
●	●	●		
	●			●

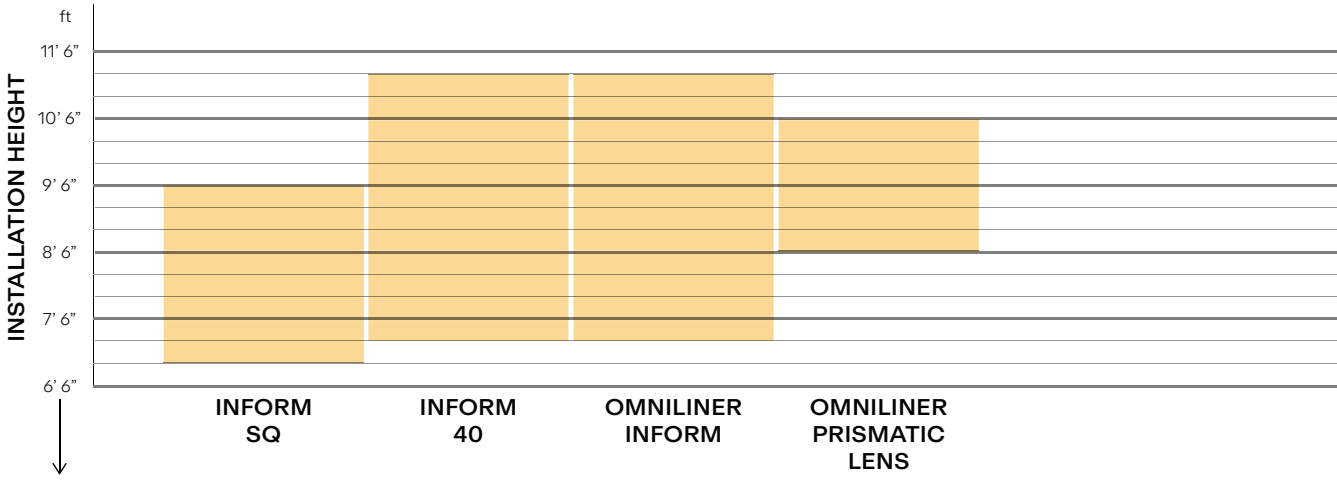
Product.

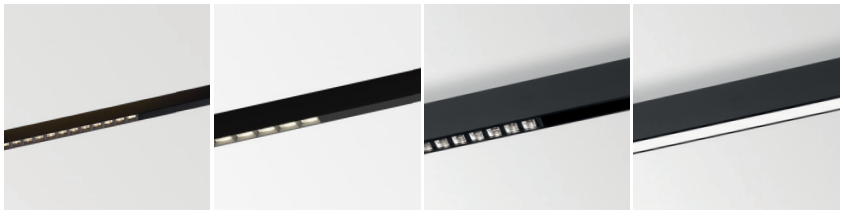
DESIGNED FOR OFFICE

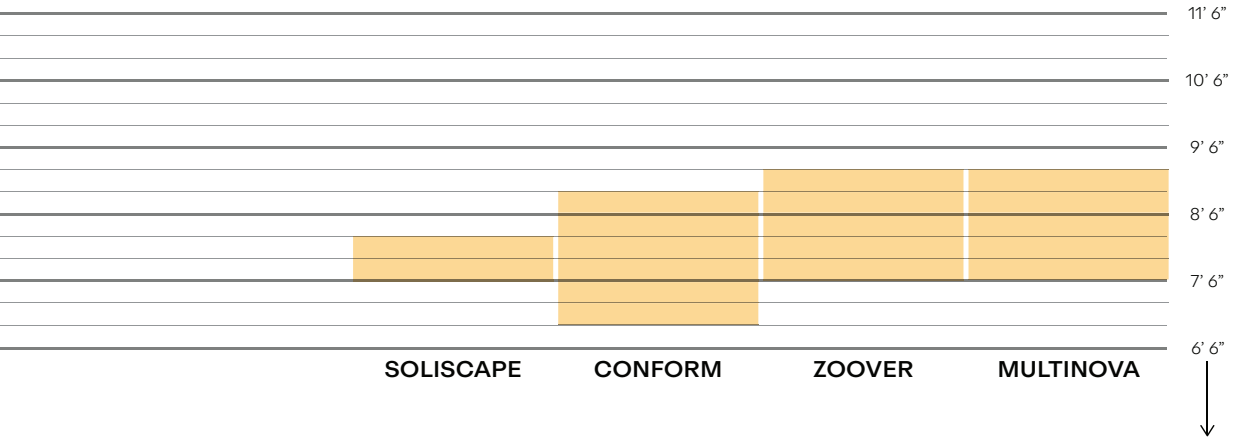
SELECTION OF PRODUCTS
PRODUCT INFO
SUGGESTED INSTALLATION HEIGHT
HOW TO CHOOSE

The installation height of light fixtures plays a crucial role to ensure optimal performance and comfort within a space.

The suggested height for installation varies based on the characteristics of the fixture itself depending on factors such as size, light diffusion capabilities (optical system) and power output of the fixture.






11’ 6”
10’ 6”
9’ 6”
8’ 6”
7’ 6”
6’ 6”
SOLISCAPE
CONFORM
ZOOVER
MULTINOVA



Product.

DESIGNED FOR OFFICE

SELECTION OF PRODUCTS
PRODUCT INFO
SUGGESTED INSTALLATION HEIGHT
HOW TO CHOOSE

START

LIGHT

\+

INTEGRATED ACOUSTICS

NO

YES

LINEAR LIGHT

NO

YES

MULTINOVA



MADE TO MEASURE

NO

YES

OMNILINER



NATURAL LIGHT TECHNOLOGY
CRI95

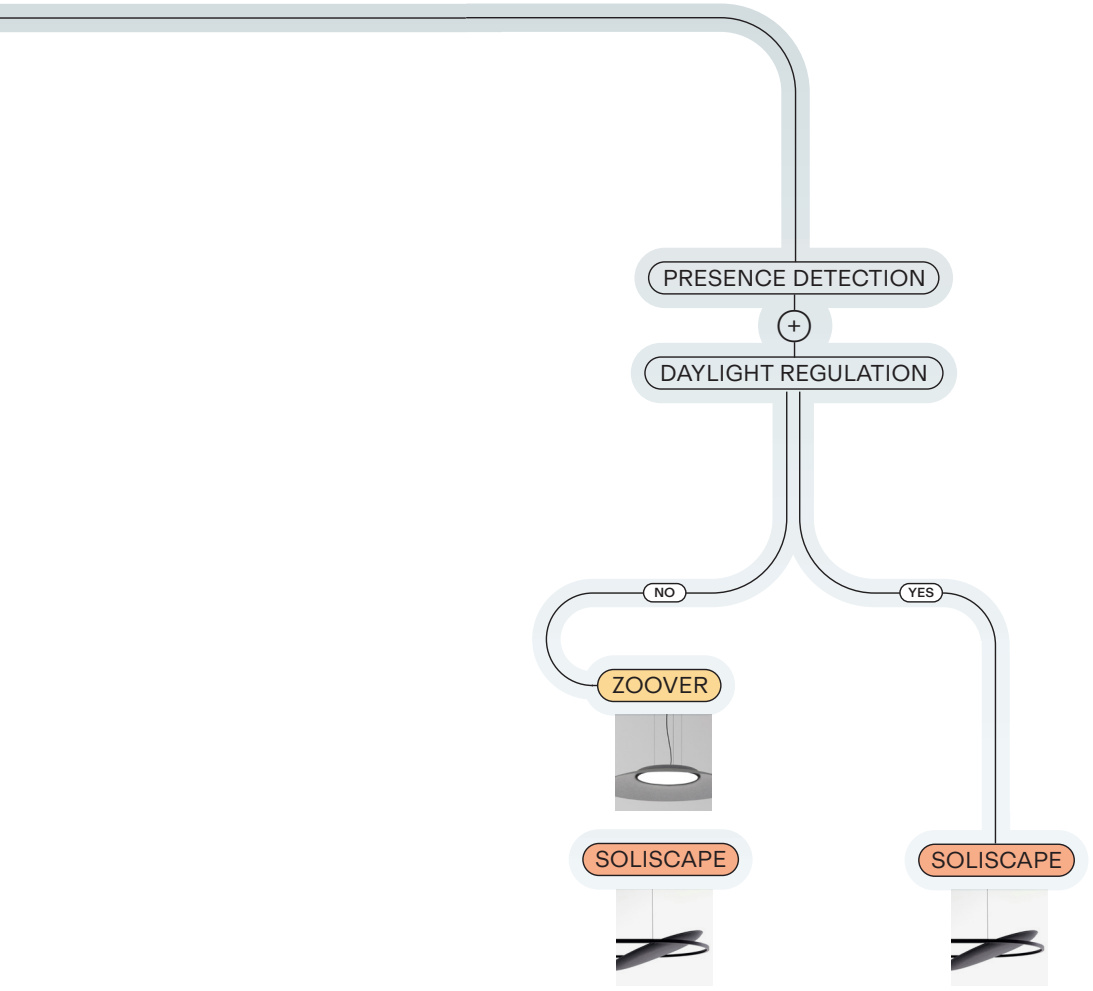
CONFORM



FIXED CCT CRI90 -or-
TUNABLE WHITE 2700K CRI90 5000K MELANOPIC LIGHT TECHNOLOGY

INFORM





● PRESENCE DETECTION AND DAYLIGHT REGULATION POSSIBLE

Product.

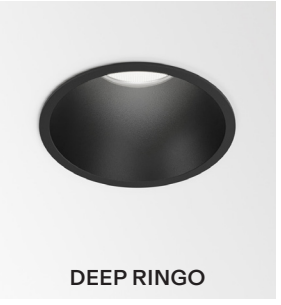
PORTFOLIO

FINISH YOUR PRODUCT SELECTION

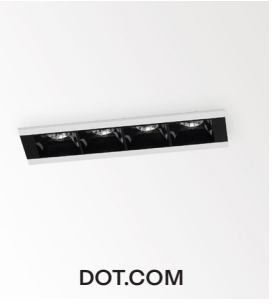
Interior
CEILING
RECESSED



CARREE



DEEP RINGO



DOT.COM



ENTERO



GRID



HALOSCAN



IMAX



NIME



PLAT-OH!



REO



SPY

Interior
CEILING SURFACE


BOXY


DOT.COM


GRID


HALOSCAN


HEDRA


MULTINOVA


NEEDLE


OBIN


OCTAV


ODRON


SPY


SUPERNOVA


XY180

Product.

PORTFOLIO

FINISH YOUR PRODUCT SELECTION

Interior
CEILING
SUSPENDED


BOXY XL R C


CUPPA


GIBBO


HEDRA C


HIGH PROFILE


LASS-OH!


MILES


ONE-AND-ONLY


PUNK C


SOIREE


SPY C


SUPERLOOP MDL


SUPERLOOP SBL


SUPERNOVA


SUPER-OH!

Interior
WALL
RECESSED / SURFACE


BACKSPACE


CONNECT


GALA


HELI


HIGH PROFILE


INLET


LOGIC


MONTUR


OONO


ORBIT


TIGA


TOPIX


VISION

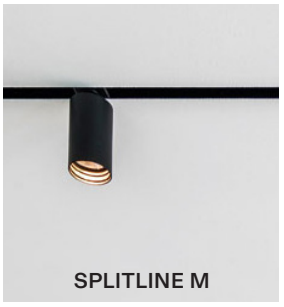

WALKER II W

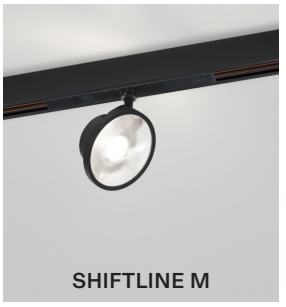
Product.

PORTFOLIO

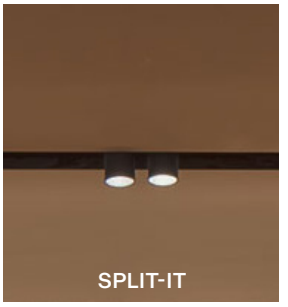
FINISH YOUR PRODUCT SELECTION

Interior PROFILES

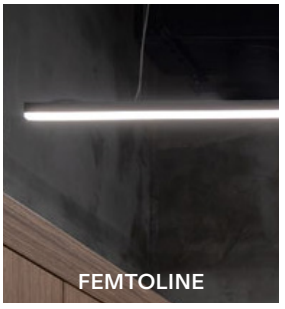


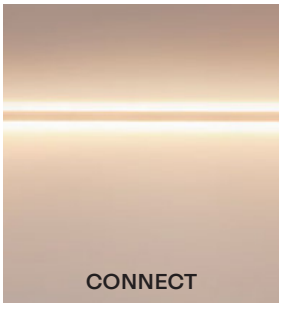


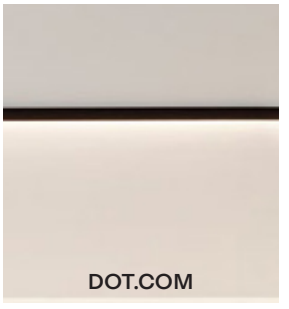






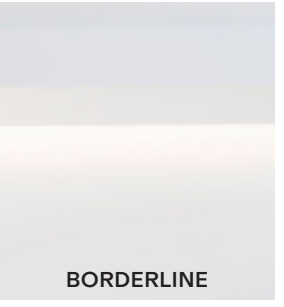


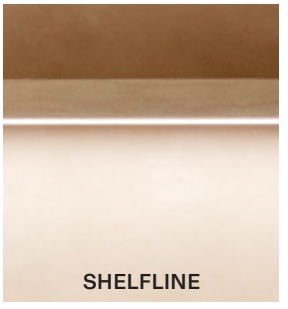












	SPLITLINE M	SHIFTLINE M	SHIFTLINE	SPLIT-IT PRO	OMNILINER	FEMTOLINE	CONNECT	DOT.COM	ONE-AND-ONLY	TAGLINE	BORDERLINE	SHELFLINE
INSTALLATION												
CEILING RECESSED TRIMLESS	●			●	●	●		●		●	●	
CEILING RECESSED	●				●	●				●		●
CEILING SURFACE		●	●		●	●		●		●		●
CEILING PENDANT		●			●	●			●	●		
WALL RECESSED TRIMLESS	●					●				●	●	
WALL RECESSED	●				●	●				●		●
WALL SURFACE		●			●	●	●			●		●
LIGHT DISTRIBUTION												
DIRECT	●	●	●	●	●	●	●	●	●	●		●
INDIRECT				●	●				●		●	
DIRECT-INDIRECT		●			●	●			●			
VOLTAGE												
MAIN VOLTAGE					●				●			
LOW VOLTAGE	●	●	●	●		●	●	●	●	●	●	●
LINEAR OPTICS												
SANDBLASTED OPAL	●	●			●	●	●		●	●		●
PRISMATIC (LENS)					●	●						
CLEAR												●
LOUVRE UGR<19	●	●			●							
LINEAR GLARE CONTROL						●						
WALLWASH	●	●						●				
WALLGRAZER						●						
MODULES												
SPOT MODULES	●	●	●	●	●							
DOWNLIGHT MODULES	●	●										
PENDANT MODULES	●	●										
CONSTRUCTION												
LINEAR	●	●	●	●	●	●	●	●	●	●	●	●
CORNERS	●	●	●	●	●	●		●		●	●	
CURVES	●	●			●							
X CONNECTION	●				●							
T CONNECTION	●				●							
EXTRA												
WIRELESS CONTROL	●	●	●	●	●	●	●	●	●	●	●	●
PRESENCE DETECTION					●							
DAYLIGHT REGULATION					●							

GLOSSARY.

Luminous Intensity
Amount of luminous flux radiating in a given direction
Unit: Candela (cd)

Luminous Flux
Total amount of light emitted by a light source or lighting fixture
Unit: Lumen (lm)

Luminance
Brightness of an illuminated or luminous surface
Unit: Candela/ft2 (cd/ft2)

Illuminance
Total luminous flux incident on a surface
Unit: Lux (lx) | Footcandle (fc)

Task Area
Area where visual tasks are performed

Surrounding Area
Space immediately around the task area.

Background Area
Area adjacent to the Surrounding area up to the limits of the space on floor level.

Means of Egress Illumination
Lighting that enables a safe exit from a location in case of failure of the normal supply.

Exit Access Illumination
Lighting that assists a safe exit by providing appropriate visual conditions and direction finding on escape routes.

CCT
(Correlated Color Temperature)
Body temperature of a thermal radiator which serves to describe its light color.
Unit: Kelvin [K].
The lesser the numerical value the redder; the greater the numerical value the bluer the light color.

Tunable White
Tunable White lighting systems can replicate the body's natural cycle by adjusting the color temperature of the light emitted (2700K-5000K).

MLT
(Melanopic Light Technology) LEDs with a higher content of cyan energy in their spectrum, proven to boost activity and focus, and in turn improve productivity and learning. Its wider spectrum makes the eye more responsive and reduces eye strain.

NLT
(Natural Light Technology) LEDs with a spectrum that very closely matches that of the sun. This includes a broader spectrum compared to standard LEDs, which is preferable for the human eye and brings out the vibrant colors and an enhanced cyan energy, boosting activity.

Color Rendering
It refers to the light source's ability to show the color of an object 'realistically' compared to a reference source.

The two methods used to assess the color rendering abilities of light sources are CRI and TM-30.

CRI
(Color Rendering Index)
CRI provides a single numerical value (Ra) representing the average color rendering across eight standard color samples (R1-R8). Although an additional six color samples are measured (R9-R14), they have no impact on a product's CRI rating.

CRI has been the standard method for many years, but it has limitations, including its reliance on outdated color samples and its inability to accurately represent the color rendering of LED light sources.

TM-30
It is a newer method that provides more comprehensive and detailed information compared to CRI.

It comprises of three primary components: fidelity index (Rf), gamut index (Rg) and the color vector graphic.

SDCM
(Standard Deviation of Color Matching)
It is a measure used to describe the color consistency of light sources.

SDCM is represented in MacAdam ellipses, which describe the boundaries within which the color variation is considered acceptable. The smaller the number of steps, the tighter the color consistency.

Lumen Maintenance
Lumen maintenance refers to the ability of a light source to maintain its luminous output over time. It is indicated with 2 values:

The "L" value indicates the percentage of initial light output that the light source will maintain over a specified period.

The "B" value is a statistical measure that indicates the percentage of light sources that fall below the specified lumen maintenance level before the end of the designated time period.

Example: "L90/B10>60000h" means that after 60,000 hours of operation, 90% of the LED units will still be emitting at least 90% of their initial light output, while 10% may have fallen below that level.

MDER
(Melanopic Daylight Efficacy Ratio)
It is a metric used to assess the effectiveness of a light source in stimulating the non-visual, biological responses in humans, particularly those regulated by the circadian system.

The melanopic response is primarily influenced by light exposure, particularly by wavelengths in the blue part of the spectrum. This response plays a crucial role in regulating various physiological functions such as sleep-wake cycles, alertness, and mood.

MDER is calculated by comparing the melanopic efficacy of the light source to its photopic efficacy (the effectiveness of light in stimulating the visual system).

Flicker
Flicker in lighting refers to the rapid and often unintentional variations in the intensity of light output. It can be visible (perceptible to the human eye) or invisible (not directly noticeable but potentially affecting health and well-being).

Flicker can be caused by fluctuations in the power supply, the type of light source, or the method used to control the light intensity. The two main methods of controlling light intensity are Pulse Width Modulation (PWM) and Constant Current Reduction (CCR).

PWM
(Pulse Width Modulation)
PWM is a technique used to control the brightness of a light source by rapidly switching it on and off at a high frequency to prevent the eye from seeing this flicker.

However, invisible flicker can have a subconscious impact on well-being.

CCR
(Constant Current Reduction)
CCR, also known as analog dimming, involves reducing the current supplied to the light source to control its brightness. This method provides a continuous and steady flow of current, which directly reduces the light output without switching it on and off. This dimming typology is completely flicker-free.

Uo
(Uniformity)
It is defined as the ratio between minimum and average illuminance (Emin/E).

UGR
(Unified Glare Rating)
UGR is a measure used to quantify the level of discomfort caused by the glare from artificial light sources in indoor spaces. A lower UGR indicates less glare and, therefore, better lighting conditions for tasks and activities.

Reverberation
Reverberation in acoustics refers to the persistence of sound in an enclosed space after the original sound source has stopped. This phenomenon occurs due to the multiple reflections of sound waves off surfaces such as walls, ceilings, and floors.

Luminaire Efficiency
(LOR - Light Output Ratio)
This typically refers to the overall performance of a lighting fixture in converting electrical energy into visible light. It's a measure of how effectively a lighting system utilises energy to produce light. The efficiency is usually expressed as a percentage, with higher percentages indicating a more efficient use of energy.

Luminaire Efficacy
This measures the amount of visible light produced by a lighting fixture for a given amount of electrical power input. It's a measure of how efficiently a light system converts electrical energy into visible light output.

Lighting efficacy is typically expressed in units of lumens per watt (lm/W), where lumens represent the amount of visible light produced, and watts represent the electrical power input.

Higher efficacy values indicate that a lighting system produces more light output per unit of electrical power consumed, making it more energy efficient.

LPD
(Lighting Power Density)
It is a measure of the electrical power used by a lighting system per unit area. It is an important parameter for the design and evaluation of building lighting systems because it is directly related to energy consumption and efficiency. It is usually expressed in Watt / square meter (W/m^2) or watts per square foot (W/ft^2). Lower LPD values indicate more energy-efficient lighting systems.

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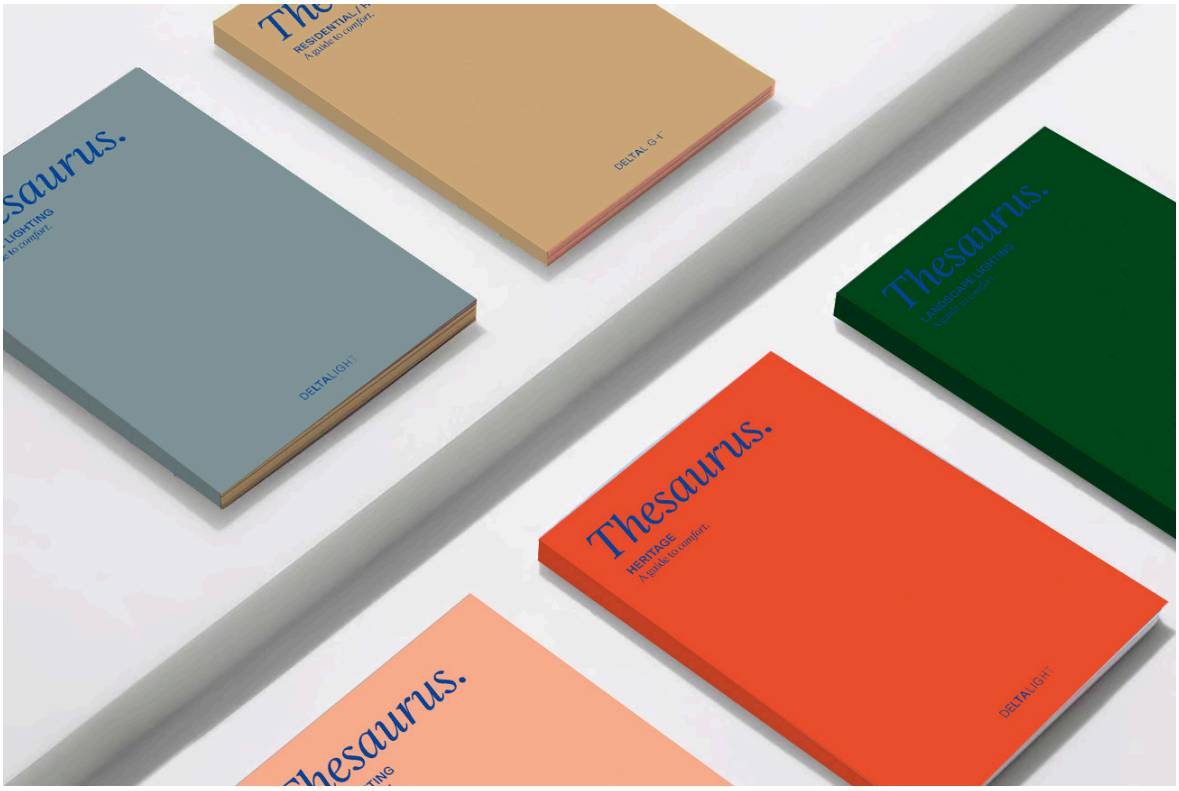
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Thesaurus from the Greek Thesauros,
a dictionary or encyclopaedia but also a treasury.



This is our Thesaurus, our treasure, our guide to comfort from the point of view of light.
A publication that aims to be your reference guide to any and all information and knowledge related to lighting.

OFFICE is the first of five books that will be released in the coming months and in which we will cover different fields and industries and how they use light in architecture for optimal results.
Explore our collection of Thesaurus to discover the perfect lighting solutions that align with your aesthetic and needs, and we'll make sure every corner of your space is perfectly lit.

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