

HAWORTH collection

Lighting Design Guide



The Transformative
Power of Light

HAWORTH collection

Set the Tone

When lighting is right, it's brilliant. When it's wrong, there's little else you can focus on. Nothing transforms an environment like lighting, and nowhere is that more important than the social and high-impresion spaces that draw people in and reflect your brand. Here are trends, considerations, and inspiration for well-lit spaces.

Talia by Pablo Designs



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Lighting

Basics

The Future is Bright

Nine Trends to Watch

The way we work and live is constantly changing. We're here to help keep up with how lighting affects space design—from trends to research and design recommendations. Here are some advances in lighting to keep your eye on for the future.



Human-Centric

The impacts of lighting on well-being are starting to be documented and will remain the focus of studies. Experiments continue on the effects of lighting on mood, energy level, health, sleep quality, and comfort.



Intelligent

Given every lighting fixture has access to power, we'll see how sensors, Light Emitting Diode (LED) technology, and connectivity will continue to change the way we interact with spaces. Early adopters will choose connected lighting control systems as the infrastructure that enables future applications.



Acoustic

Demand for lighting fixtures that combine noise minimization with highly efficient LED technology will remain a sustainable solution for open-plan and social spaces—with low planning and installation costs, as well as innovative design.



Overscale

With ceilings gaining more importance in design—featuring painted colors that pop and wallpaper—overscale lights overhead will continue to make a bold statement.



Daylight Harvesting

With the emphasis on simplicity of installation, expect to address daylight harvesting (collecting daylight to reduce energy) with new lighting control systems that bring more natural light into a space, meet code, and provide energy savings.



Color Tuning

Interest in tunable lighting and controls will continue as people recognize the value of lighting on employee well-being and user control. Expect programming to support circadian lighting strategies and promote alertness—in addition to matching the color quality of daylight.



Energy Consumption & Code Compliance

Energy consumption continues to influence many lighting design decisions as codes get updated (e.g., the latest constraints of California's Title 24 Building Energy Efficiency Standards), but leading experts believe code stipulations won't deter good lighting design.



Layered

Traditional approaches for applying lighting throughout a space are being replaced with the continued demand for layered lighting, determined by architecture, and supported by LED and intelligent controls.



Art Form

Lighting will be viewed more as a statement piece in the overall design of a space, with fixtures considered an art form. Look for more natural silhouettes and organic forms.

Shedding Light on Good Planning

Determine Purpose

The lighting profession is divided between those who use illumination metrics and predictive analysis to engineer environmental light levels that meet standards, and those who rely on out-of-the-box thinking to achieve innovative design by objective. Prescriptions and creativity can coexist.

Design by Metrics

The purpose of lighting is to enable visual tasks to be performed efficiently and accurately.

Light the task, then the space.

Select the lighting fixture, calculate the requirements, then work the layout.

Design by Objective

The purpose of lighting is to meet or exceed expectations for how lighting influences the appearance of people's surroundings and how it makes them feel.

Light the space, then the task.

Specify the objectives, plan the layout, and then calculate lighting fixture requirements.



More light is not necessarily better. Light quality is as important as quantity.



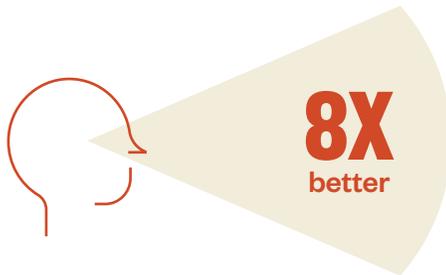
Questions to Ask

- What will the space be used for?
- Which areas need to be highlighted?
- Who will use this space?
- What is the overall mood or ambience desired?

Determine Objectives

Do you need to:

- Enhance visibility of visual tasks or influence the appearance of surroundings?
- Guide people in a desired direction?
- Reveal the detail of art or architectural features?
- Draw attention to displays or warning signs?



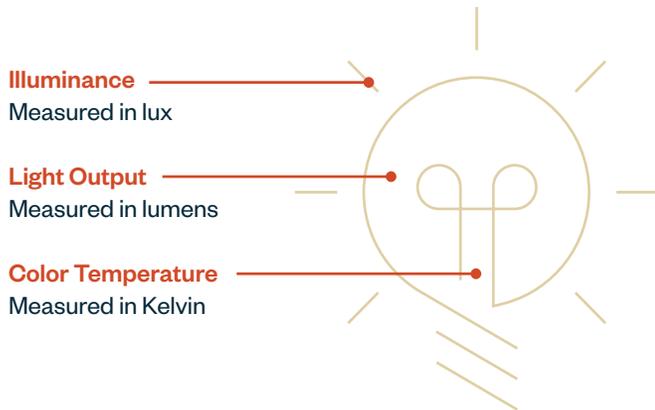
Visual Performance in 20s vs 60s

Did You Know? The older we get, the more light we need to see. Research indicates that the visual performance of those in their 20s is about eight times better than those in their 60s.

Lighting Lingo

Specifications

Whether you need task, accent, or ambient (general) light, it's important to understand the principles of lighting, so you can make the best decisions for your plan.



Certifications

Lighting products typically require certification by a Nationally Recognized Testing Laboratory (NRTL) to meet stringent industry requirements. The two most common certifications in North America are UL (Underwriters Laboratories, Inc.) and ETL (Intertek Testing Services Inc.).





Color Temperature

A measure of how “warm” or “cool” the light emitted by a source is. Comparable to sunlight from sunrise to sunset, expressed in Kelvin (K).



Color Rendition Index (CRI)

A measure of how “realistic” or “natural” an object’s color appears under a light source.



Luminosity

The quantity of visible light emitted by a source expressed in lumens (lm). Simply put: the brightness of the bulb. We use lumens to compare the total amount of light output from a light emitter.



Illuminance

The quantity of light output falling on a surface, expressed in lux (lx). In other words, light intensity. Lux is used to measure the amount of light output in a given area, where one lux is equal to one lumen per square meter.



Luminaire Efficacy

The ratio of light output to the electrical power consumed, expressed in lumens/watt. Think of it like miles per gallon for a vehicle—the higher the value, the more efficient.



Power Consumption

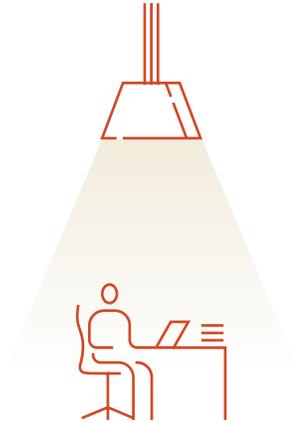
A measurement of energy, expressed in watts.

Color Temperature

Color temperatures over 5,000K are called cool colors (bluish-white), while lower color temperatures (2,700–3,000K) are called warm colors (yellowish-white through red). For example, incandescent lamps have a range of 2,700–3,000K and cast a warmer, more golden light. Fluorescent light sources have a range of 3,000–7,500K+ and cast a bluish-white light. One advantage today's LED bulbs, in addition to their low maintenance, is their ability to render colors in the objects they illuminate better than incandescent or fluorescent lamps do. An LED source may look slightly different in color than its equivalent incandescent Kelvin rating.

Geek Alert

Understanding Kelvin (K), the unit of measurement for color temperature, is helpful since it's used to indicate the comparative color appearance of a light source.



Mellow Yellow

In general, a yellow toned light hue is easier on the eyes.

TIP

Use lamps of a single color temperature, and—ideally— from the same manufacturer. People may not notice specific differences, but they'll sense haphazardness.

Theory to Application

9,000K	8,000K Fog Daylight	7,000K Overcast Daylight	6,500K	5,000K Natural Daylight	4,000K Bright White Light	3,000K Typical Bulb Temperature	2,000K Vintage Filament Bulb Temperature	1,000K Candlelight
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To most accurately replicate natural light, remember that mid-day sunlight is around 5,000–6,000K.

To cool down a room's color, choose a bulb with a temperature close to 4,000K. Standard compact fluorescent bulbs (CFLs) will generally cool down a room, but always double check.

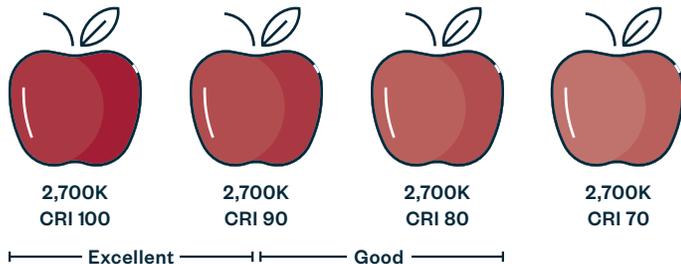
To warm up a room's color, look for a bulb that has a temperature close to 2,700–3,000K. LEDs are a good choice, but all types of bulbs are available in warmer ratings.



Did You Know? The Kelvin scale is named after Sir William Thomson (1824–1907), the Belfast-born engineer and physicist who recognized the need for an absolute thermodynamic temperature scale. He was knighted and raised to the title of 1st Baron Kelvin in 1892 for his extensive work on the transatlantic telegraph.

Color Rendition Index (CRI)

CRI is a numerical scale ranging from 0 to 100 that is used to indicate how a light source will make the color of an object appear to human eyes. The higher the number, the better the color rendering ability. In many cases, this difference is not important. For certain applications, such as illuminating art or comparing fabrics, CRI can make all the difference. Typically, light sources with a CRI of 80 to 90 are considered “good” and those with a CRI of 90+ are “excellent.” Remember: CRI is independent of color temperature.



Did You Know? With a CRI of 80–90, most LED bulbs are not only brighter, but they also provide much more natural-feeling light and accurate color representation.

Luminosity

While there are no hard-and-fast rules for brightness, these recommendations inform planning:

Floors

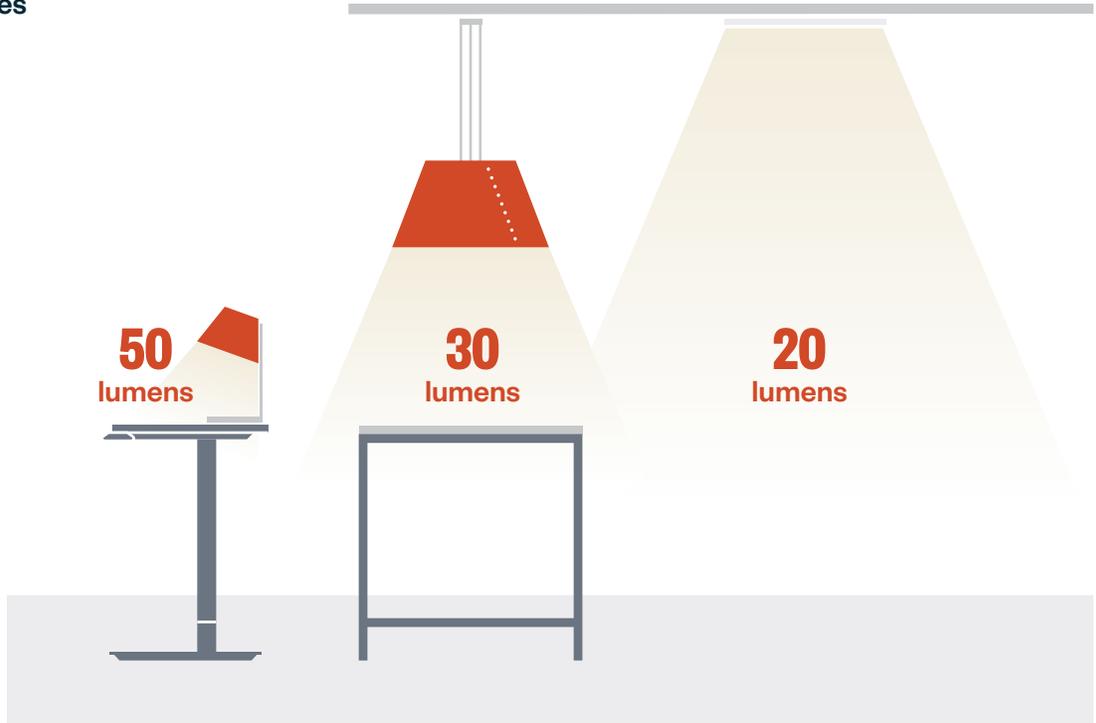
20 lumens per sq. ft.

Tables & Raised Surfaces

30 lumens per sq. ft.

Desk & Task Lighting

50 lumens per sq. ft.



Illuminance

Illumination Categories & Recommended Values

Decorative/Accent Lighting

Public spaces with dark surroundings **20-30-50 lux**

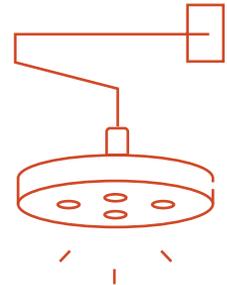
Simple orientation for short visits **50-75-100 lux**

Functional Lighting

Working spaces where visual tasks are performed **100-150-200 lux**

Performance of visual tasks of low contrast or very small size (detailed work) **1,000-1,500-2,000 lux**

Performance of very prolonged and exacting visual tasks **5,000-7,500-10,000 lux**



Did You Know? Most surgical lighting in an operating suite is rated at 100,000 lux.

Smart Lighting: Luminaire Efficacy & Power Consumption

Besides contributing to well-being design principles, modern light controls are also effective in saving on energy use. Just in the last 15 years, vast technological leaps have produced brighter, more efficient LED light sources—up to 90% more efficient than incandescent lamps.

Refer to your lamp's manual to make sure your bulb type is compatible.



LED



**Compact
Fluorescent**



Incandescent



Halogen

Luminaire Efficacy & Brightness

		450 lumens	800 lumens	1,100 lumens	1,600 lumens	2,600 lumens	5,800 lumens
	LED	6W	9–10W	13W	16–18W	24W special high-wattage lamps	45W
	Compact Fluorescent	8–9W	13–14W	18–19W	23W	40W	85W
	Incandescent	40W	60W	75W	100W	150W	300W
	Halogen	29W	43W	53W	72W	150W	300W

Lamp (A19) Bulb Power Consumption & Efficiency

		Price per-bulb estimate	Lifespan when lit 3 hours/day	Watts varies by manufacturer	Lumens varies by manufacturer
	LED	\$1.50+	15,000–25,000 hrs.	9–12	570–830
	Compact Fluorescent	\$1.50–\$7.00	8,000–12,000 hrs.	13–15	740–840
	Incandescent	\$0.41–\$1.00	1,000–2,000 hrs.	60	630–860
	Halogen	\$1.00–\$2.75	985–1,250 hrs.	43	565–750

70%
saved on cost

Did You Know? Research shows that energy usage for lighting is as much as 40% of a building’s total energy consumption. By upgrading to LED technology and an automated lighting control system, you can save as much as 70% on lighting electricity costs.

Good Light, Happy People

Lighting & Well-Being

Lighting strategies can address the intersection of people's needs—physical, cognitive, and emotional—to achieve desired outcomes. In a Haworth research study, workspace characteristics—including lighting—influenced people's feelings of inspiration. When inspired, people are more creative and able to generate new ideas, helping them feel productive and happier at work.

A thoughtful lighting design has many positive benefits, including influencing personal well-being and improving human performance.

68% of employees
complain about the lighting situation
in their offices.



Contour by Pablo Designs

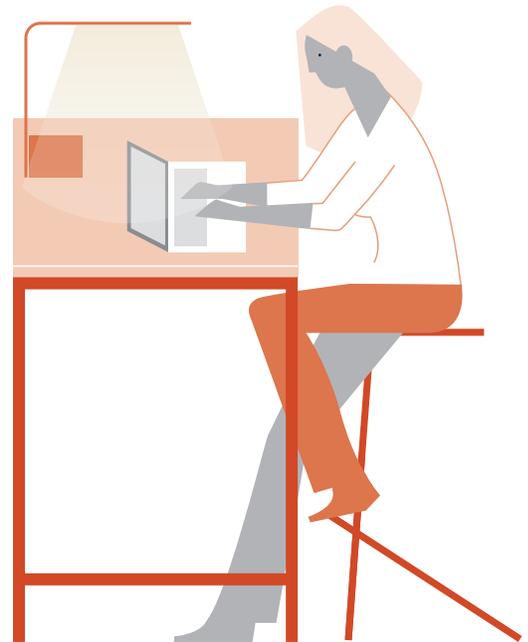
Personal Control

We expect more from our work environments than ever before. In addition, control over our personal workspace is empowering, which can lead to a happy and engaged workforce. In a research study, those with control of their lighting source were able to spend more time on difficult tasks and performed tasks that require sustained attention more accurately.

Something as simple as light control can enhance the user experience by enabling variation of brightness (through dimming ability) and position (through arm adjustment).



Don't locate fixtures and switches in hard-to-reach locations. If it's hard to get to or not intuitive, it probably won't be used.



Natural Light

Think about how many hours we spend indoors—for many of us, it's 90 percent of our time. Research confirms the importance of natural light and its positive effects on well-being. It aids our circadian rhythms (our own built-in clocks) to be in sync with our local environments. A properly lit workplace with both natural and artificial light is essential for optimal effect.

Natural light is proven to provide energy, vitamins, and a more regular sleep cycle—and that's not all. Access to natural light has one of the largest impacts on how valued employees feel at work.

Did You Know? Natural light improves mental health, helps lower stress, and lifts moods. The ideal option is to use a window or skylight in combination with artificial light.

Optimum lighting can improve productivity by up to **20%**

People Performance

Circadian rhythms are regulated by environmental signals, most importantly, the 24-hour, light-dark cycle. Patterns of light and dark promote synchronization of the body's "biological clock" with the local time on Earth.

Without this synchronization, research has shown that people may experience negative long-term effects that impact neurobehavioral performance and sleep, and are at a higher risk for cardiovascular disease, diabetes, and certain forms of cancer.



Light & Sound

Part of the equation to happy and healthy workspaces involves finding the right lighting and creating the right balance of acoustics. Based on science, acoustic lighting is growing in popularity because it combines these two important benefits. When creating acoustic lightscapes, consider the data behind lighting solutions that reduce noise and absorb sound.

Depending on what's happening in the space, look for acoustic light fixtures that perform well, based on the type of tone(s) in the space. To create a better acoustical environment and reduce reverberation time (echo) in a room, lighting products can address the following tones and noise distractions in a space:

Low Tone

Long wave – Low frequency (50–250 Hz)
e.g., heating systems, ventilation, elevators, copy machines



Mid Tone

Mid-length wave – Speech frequency (250–2,500 Hz)
e.g., speech, vowels, consonants



High Tone

Short wave – High frequency (2,500–12,000 Hz)
e.g., ringtones, typing sounds, clicking sounds, kids





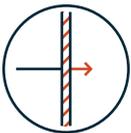
Absorption

Sound waves are absorbed by any “acoustically soft” material they encounter. Sound is energy and, in order to stop this energy from propagating, absorptive panels are used to convert it into heat through friction. The absorption coefficient of a product will determine the level and quality of absorption. With lighting, absorption can be achieved through various types of lampshades and fixture designs, as well as strategically placing acoustically soft wall or ceiling elements.



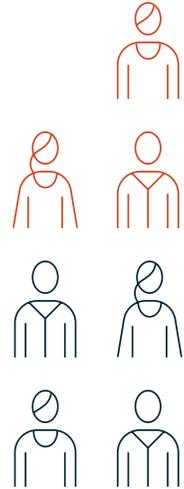
Diffusion

Sound energy is spread evenly in a given space. Wavelengths that cannot be absorbed through acoustic treatment will scatter evenly back into the room, ensuring a better spread while maintaining a live, vivid sound. This property can be obtained by alternating different depths of absorptive material and 3D shapes.



Attenuation

To reduce the sound transfer between different spaces within a room, vertical elements will be applied to cut down sound energy. These sound-dampening elements can come in different forms, such as sound blocks, vertical ceiling panels, room dividers, and desk screens. Attenuation has a positive impact on speech intelligibility and clarity.



Did You Know?

A UK study found that 3 in 10 employees frequently lost their concentration due to chatter and buzz in their workspace.



Lighting

Applications

In Good Light

Fixture Type

Whether you're supporting individual tasks or group interactions, lighting has the potential to enhance the user experience. In the following eight applications, you'll see a combination of three types of lighting fixtures—table, floor, and pendant. Each has a specific role in space design and was created with user comfort in mind, to bring a space to life.

While you get inspired by these applications and their lighting elements, take into consideration matte or dark finishes on trims, baffles, and housings to minimize glare.



Table

Used on desk and table surfaces, table lights are available in freestanding, clamp mount, grommet mount, or magnetic. Typical activities requiring table lamps include heads-down or high-focused work.



Floor

Appropriate for both open and private spaces, floor lights provide illumination in collaborative areas that bring people together, such as lounge, lobby, and waiting spaces. For individual work areas, they offer direct light in enclosed touchdown spaces and private offices.



Pendant

Suspended overhead and typically used in conference and social spaces, pendant lights offer direct or indirect lighting. Use them to light up a collaborative table for group work or hang them from the ceiling in a cozy lounge.

High Impression

Spaces that set the tone and make an impression, impacting how people feel and connect with your culture and brand.

Restore & Connect

Quiet havens or community spaces that help people refresh, rejuvenate, and interact to foster well-being.

Team Engagement

Formal or informal collaborative spaces for idea generation, strategic activities, and learning, generally away from high-traffic areas.



Café



Individual Workstation



Meeting and Conference



Lobby



Private Office



Project Room



Retreat



Collaborative Space

Café

A multipurpose social hub with access to refreshments encourages interaction and relaxation. A brightly lit café has potential to spur more energy and buzz, while a low-lit café creates a more tranquil environment. Pendants help ground communal surfaces or individual dining tables. Consider the acoustical properties of lighting fixtures to help control noise in dining areas with high levels of activity.

Helpful Tips

- For general illumination in a café, functional lighting should provide 5–20 lumens per sq. ft.
- When hanging pendants, the bottom of the fixture should be 28–39" above the table.
- The length of a single pendant should be at least 1 ft. shorter than the length of the table.

To determine spacing between multiple pendants:

- A general rule of thumb to establish the maximum width of lighting fixtures is to measure the length of the table, then subtract 12".
- Space pendants 24–36" apart based on the scale of the fixtures.



2,700–3,000K

Color temperature should be warm to neutral.



Select lamps that provide a CRI of **85 or higher**.





BuzziHat by BuzziSpace

Individual Workstation

To enhance individual performance and privacy needs, a workstation supports the focused work people require to get the job done. Highly-adjustable and dimmable table lights deliver illumination for a range of activities and give users personal control of lighting levels. Acoustical properties of lighting fixtures help control noise and support individual well-being in open floorplans.

Helpful Tips

- Provide 50–100 lumens per sq. ft. at the worksurface for general tasks.
- LED lamps offer the highest efficiency and best sustainability.
- Consider task lights that offer features such as power or USB access.
- A table lamp provides user control and complements overhead lighting sources.



2,700–3,500K
Color temperature should be warm to neutral.



Select lamps that provide a CRI of **85 or higher**.





Giraffa by Pablo Designs

Meeting and Conference

For meeting and brainstorming activities among small or large groups, the conference room requires lighting that keeps the space versatile—and people energized. Continuous lighting sources achieve optimal illumination for viewing work on tackable surfaces or markerboards. Programmed lighting with preset controls take the guesswork out of lighting levels to illuminate the room appropriately (e.g., the entire room versus dimming the room during a videoconference).

Helpful Tips

- For glare-free illumination, provide 15–20 lumens per sq. ft.
- At least 30 lumens per sq. ft. should be allotted at the worksurface for general tasks.
- Aim for 20–70 lumens per sq. ft. for shadow-free illumination of the screen during videoconferencing.
- Consider the acoustical properties of lighting fixtures to help control noise within the room.



3,000–3,500K
Color temperature should be warm to neutral.



Select lamps that provide a CRI of **85 or higher**.





Circa by Pablo Designs

Lobby

The space where first impressions are made should be warm, welcoming, and memorable—setting the tone for brand and culture. Lighting contributes to the brand attributes experienced by customers and guests as they enter the space—and what they will remember as they exit. A series of pendants hung overhead support wayfinding by illuminating a path. Pendants also help delineate space to define specific areas within the lobby, such as waiting or reception.

Helpful Tips

- For general illumination, functional lighting should provide 10–20 lumens per sq. ft.
- Consider the acoustical properties of lighting fixtures to help control noise in these potentially high-traffic areas.
- In seated areas, ensure pendants don't obstruct eye-to-eye contact.
- Allow 7 ft. above finished floor to the bottom of the pendant so people can walk under the fixture if necessary.



2,700–3,500K
Color temperature should be warm to neutral.



Select lamps that provide a CRI of **85 or higher**.





Swell by Pablo Designs
Cielo by Pablo Designs

Private Office

This unique space, often occupied by an executive, offers opportunity for personalization and branding to fit the user's needs. It's also a place where private conversations occur. Highly-adjustable table and floor lights support different tasks and offer personal control, while complementing overhead lighting sources. Dimming controls can enhance the quality of work and well-being while supporting energy efficiency. For ambient light from floor lamps, make sure bulbs are shaded or diffused to control glare and that bulbs in reading lamps are not visible while people are seated.



Helpful Tips

- Plan for 50–100 lumens per sq. ft. from an adjustable task lamp on the worksurface.
- Provide 30–50 lumens per sq. ft. at the worksurface for general tasks.
- For glare-free illumination of whiteboards, provide 15–20 lumens per sq. ft.
- For increased user control, consider task lights that offer features such as power, USB access, and bluetooth technology.



2,700–3,500K
Color temperature
should be warm to
neutral.



Select lamps that
provide a CRI of
85 or higher.



Lana by Pablo Designs

Swell by Pablo Designs

UMA by Pablo Designs

Project Room

Often tucked away from high traffic areas and natural light, project rooms don't always get the attention needed to provide inspiration for creativity and innovation to take place. These tactical spaces where teams strategize together accommodate a variety of activities requiring workspaces and vertical display areas. Programmed lighting with preset controls take the guesswork out of lighting levels to illuminate the room appropriately (e.g., the entire room versus dimming the room during a videoconference).



Helpful Tips

- Provide 30–50 lumens per sq. ft. at the worksurface for general tasks.
- For glare-free illumination of vertical surfaces, provide 15–20 lumens per sq. ft.
- Lighting within a room for a videoconference should allow for shadow-free illumination of 30–40 lumens per sq. ft.
- When hanging pendants, the bottom of the fixture should be 28–39" above the table.



2,700–3,500K
Color temperature should be warm to neutral.



Select lamps that provide a CRI of **85 or higher**.



BuzziProp LED by BuzziSpace

Retreat

Quiet havens that foster well-being offer people a chance to seek tranquility and rejuvenate, as well as support for focused work. Soft, warm lighting creates a welcoming vibe, and can highlight artwork or textiles. Lighting elements with sound capabilities provide music or white noise. Table and floor lamps complement pendant lighting and are designed for personal comfort and control.

Helpful Tips

- At least 5–20 lumens per sq. ft. are needed for general illumination.
- For ambient light from floor lamps, make sure bulbs are shaded or diffused to control glare.
- Bulbs in reading lamps should not be visible while people are seated.
- Consider a light with an integrated pedestal to store or charge devices if space is limited.



2,700–3,000K
Color temperature should be warm to neutral.



Select lamps that provide a CRI of **85 or higher**.





Tube Top by Pablo Designs

Collaborative Space

A comfortable, open space provides opportunities for interaction and collaboration. Warm spaces with a residential aesthetic and a blend of lighting elements draw people in. Table lamps, floor lamps, and pendant fixtures support ambient lighting. Consider a dimming system to enhance quality of interactions and user well-being within collaborative spaces.

Helpful Tips

- Provide 5–20 lumens per sq. ft. for general illumination.
- In seating areas, allow 7 ft. above finished floor to the bottom of the pendant so people can walk under the fixture if necessary.



2,700–3,000K
Color temperature should be warm to neutral.

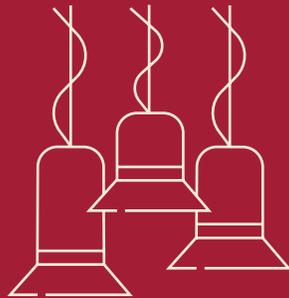


Select lamps that provide a CRI of **85 or higher**.





Bola Disc by Pablo Designs



Lighting

Solutions

Harness the Power of Light

Lighting Partners

Haworth is a leader in lighting solutions through our Haworth Collection portfolio. With partners BuzziSpace and Pablo Designs, we offer you an array of products and options to address all of your lighting needs. BuzziSpace is known for its acoustic lighting solutions in unexpected, functional designs. Pablo Designs fuses beauty and utility to enhance lighting experiences.

Set the tone, enrich the atmosphere, or generate the distinct vibe that will make your project unique. Let us help you choose the lighting solutions that elevate the potential of your application—and watch transformation take place.

HAWORTH collection



Pablo



BuzziHat by BuzziSpace



UMA and UMA Mini by Pablo Designs



Pixo Plus by Pablo Designs

Table Lighting

Brazo®
Pablo Designs



Circa
Pablo Designs



Contour
Pablo Designs



Corner Office
Pablo Designs



Giraffa
Pablo Designs



Lana
Pablo Designs



LIM
Pablo Designs



LIM 360
Pablo Designs



Pixo
Pablo Designs



Pixo Plus
Pablo Designs



Superlight
Pablo Designs



Talia
Pablo Designs



Tube Top
Pablo Designs



UMA®
Pablo Designs



UMA Mini
Pablo Designs



Floor Lighting

Brazo
Pablo Designs



Circa
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Contour
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LIM
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Superlight
Pablo Designs



Talia
Pablo Designs



Tube Top
Pablo Designs





Contour by Pablo Designs



Belmont by Pablo Designs

Pendant Lighting

Belmont
Pablo Designs



Bola™ Disc
Pablo Designs



Bola Felt
Pablo Designs



Cielo
Pablo Designs



Cielo XL
Pablo Designs



Circa
Pablo Designs



Solis Drum
Pablo Designs



Swell
Pablo Designs



BuzziBell*
BuzziSpace



BuzziHat*
BuzziSpace



BuzziJet*
BuzziSpace



BuzziLight Mono*
BuzziSpace



BuzziMoon*
BuzziSpace



BuzziPleat LED*
BuzziSpace



BuzziProp LED*
BuzziSpace



BuzziShade*
BuzziSpace



* Acoustic performance

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US Department of Energy

Illuminating Engineering Society of North America

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