



HOSPITALITY LIGHTING DESIGN GUIDE





Hospitality, by definition, is “the quality or disposition of receiving and treating guests and strangers in a warm, friendly, generous way.” Lighting plays a significant role in setting the mood and atmosphere in an establishment, whether it be a restaurant, hotel, resort or casino. There is no single formula to abide by or a “one size fits all” approach. It is important to create a careful balance between style, simplicity, functionality, and energy efficiency.

ConTech Lighting will guide you through the lighting process and be your lighting resource. ConTech Lighting is exceptionally qualified to fulfill all your lighting needs. With an unsurpassed selection of track systems, both line and low voltage, as well as recessed downlighting, and many decorative luminaires, ConTech gives you a complete palette from which to create your signature design. It takes time and effort to ensure that your investment in lighting will be returned to the bottom line, and it’s a partnership we’ll be involved with every step of the way.

HOSPITALITY LIGHTING DESIGN GUIDE

Goals of Lighting Design	5
Color, Reflection, and Contrast	7
Layers of Light	11
Application Solutions	15



GOALS OF HOSPITALITY LIGHTING DESIGN

A variety of key characteristics must be considered when developing lighting plans, including lamp life, system efficiency, lumen maintenance, color rendering and appearance, daylight integration and control, light distribution, points of interest, cost, system control and flexibility. ConTech Lighting's extensive product selection allows you to create the perfect lighting solution every time.

Considerations for hospitality lighting:

- Size and shape of the space
- Traffic patterns through the space
- Ceiling height and shape: light will be reflected off of these surfaces and contribute to the ambient light level in the room
- Color of the walls: darker walls absorb more light and may require higher levels of illumination
- Art work and highlight areas: determining the pieces and places to be highlighted helps determine the number of accent lights needed
- Families of luminaires: recessed downlights used as adjustable accents and wall washers should match in aperture size and trim finish, as well as use similar lamp types. Complement these choices with the same, or similar, finished fixtures to avoid drawing attention to the lighting system.

With the growth and advances in technology, such as smart phones and tablets, the customer journey doesn't always begin and end in a restaurant or hotel; brand image, and experience matter more than ever. Lighting helps to convey a specific brand message; it sets clients' expectations on their visit, helping to create a distinctive environment that gives guests a memorable experience. Choosing the right lighting is critical for projecting the desired image, focusing and attracting attention and enhancing the appeal of your space. Lighting solutions vary depending on the target market, space concept and brand image; and the best lighting will set you apart from competitors.

A well-illuminated store directly contributes to the bottom line. Good lighting can make a first impression positive; creating a warm and inviting environment that makes guests want to return as well as recommend to others. Instead of increasing brightness, and therefore also energy consumption, use lighting that is high-contrast, makes perception easier, and heightens levels of attention.

Diffused general lighting provides a sense of well-being, while vertical illuminance makes orientation easier in a space. Detailed accent lighting improves the perception and attractiveness of highlighted items. Using a high CRI light source and a well-balanced mix of light greatly contributes to the overall feeling of welcomeness, giving guests a feeling of comfort and security.



COLOR, REFLECTION, and CONTRAST

There are a number of factors to consider when lighting a space: the size and shape of the space, the intended use of the space, the intended audience, and the intended message the brand conveys. Many elements come into play, such as color, reflection, contrast, and energy efficiency, that make a hospitality lighting design successful.

Two units of measure are used defining light source color properties: Correlated Color Temperature (CCT) and Color Rendering Index (CRI).

All light sources are not equal. Two white light sources may look the same, but can render colors differently or provide a different feel to the space. By using lamps and luminaires of the same Correlated Color Temperature and with the same, or very similar, Color Rendering Indices, the space will have even, consistent illumination throughout.

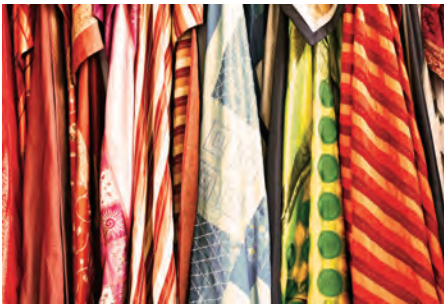
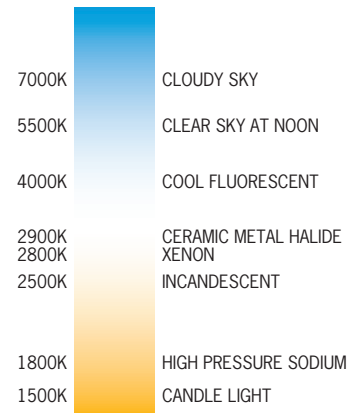
Reflection and glare are both useful and yet potentially harmful to hospitality lighting; they can attract the eye to your environment when used properly, but irritate and annoy when used incorrectly.

A very bright space is not the most effective solution. Using contrast to highlight different areas of your space, helps guests feel more comfortable and draws attention to featured locations.

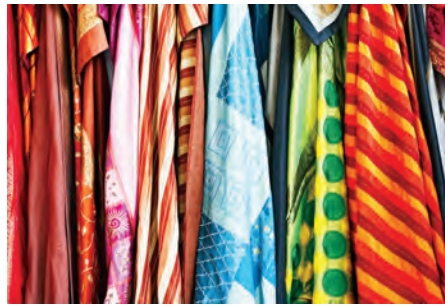
CORRELATED COLOR TEMPERATURE

Correlated Color Temperature, or CCT, is a measure of a lamp's color appearance when lighted. All lamps are given a color temperature based on the color of the light emitted. White light falls into three general categories: warm, neutral and cool, measured in Kelvin (K). White light with a hint of yellow-like candlelight is called "warm white" (below 3000K); it enhances reds and oranges, dulls blues, and adds a yellow tint to whites and greens. Neutral white (3000K – 3500K) enhances most colors equally, and does not emphasize either yellow or blue. Bluish white, like moonlight on snow, is considered "cool white" (above 3500K); enhancing blues, dulls reds and imparts a bluish tint to whites and greens.

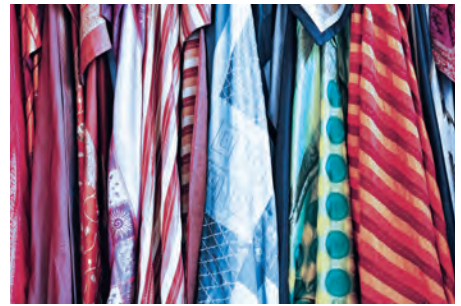
Warm light makes a space feel smaller, more comfortable and familiar, where cooler light make areas appear more spacious. Neutral light improves the feeling of well-being.



WARM



NEUTRAL



COOL

COLOR RENDERING INDEX

Color Rendering Index, or CRI, is a measure of how a light source renders colors of objects compared to how a reference light source renders the same colors. CRI can be used to compare sources of the same type and CCT.

A palette of specific colors is used, and the CRI calculation is the difference between each color sample illuminated by the test light source and the reference source. The group of samples is averaged, and a score between 0 and 100 is calculated, with 100 being the best match between light sources.

The higher the CRI of a light source, the better – and more natural – colors appear.

	APPEARANCE
R1	Light Grayish Red
R2	Dark Grayish Yellow
R3	Strong Yellow Green
R4	Moderate Yellowish Green
R5	Light Bluish Green
R6	Light Blue
R7	Light Violet
R8	Light Reddish Purple
R9	Strong Red
R10	Strong Yellow
R11	Strong Green
R12	Strong Blue
R13	Light Yellowish Pink
R14	Moderate Olive Green



Low CRI



High CRI

MATERIAL	REFLECTANCE PERCENT
Diffuse: Uniform surface brightness	
Limestone	35-60
White Paint	75-90
White Structural Glass	70-80
Spread: General diffuse reflection	
Brushed Aluminum	55-60
Etched Aluminum	70-82
Processed Aluminum (Diffuse)	70-80
Satin Chrome	50-55
Specular: Directional control of brightness at specific angles	
Chrome	60-65
Metal coated plastic	75-95
Mirrored and optical coated glass	80-95
Polished aluminum	69-70
Stainless Steel	55-65

Reflection of light off of the various surfaces within the space should be accounted for in the lighting design. When surfaces with a higher reflectance are used, light is reflected back into the space, and higher illuminance levels are created. Light reflectance is based on a scale of 0, total surface light absorption, to 100, total light reflection.

Spread reflection materials, such as brushed aluminum, have a high, though diffused, reflection, reflecting 5-10% of light. Diffused reflection materials, as simple as a white painted wall, give a uniform brightness, and are good reflecting backgrounds for coves and smaller spaces. In addition to reduced energy costs, white and light-reflective surfaces help reduce shadows from shelving and low walls.

CONTRAST RATIOS

Hospitality environments need to make the patrons feel comfortable while accenting key areas and allowing for important tasks. Simply increasing brightness is not only a waste of electricity, but is also not effective. Bright spaces with lots of glare make guests uncomfortable and less likely to return. The key is layering light and using contrast throughout the space.

There are four basic layers of lighting: General lighting, also called ambient, accent lighting, task lighting, and decorative lighting. Measured in footcandles, the IESNA has illuminance level recommendations based on the type of lighting, the type of space, the type of guest, and how the lighting will be used (Page 14). By layering these light types, depth and dimension is added to the space.

Contrast is achieved by using an increased illumination within the different types of light, commonly task and accent, to emphasize featured items against the general light levels. Contrast can be used to create visual hierarchies within the environment, enabling attention to be drawn to and focused on certain items based on the contrast ratio. For example, a 2:1 contrast ratio, with the accent lighting being two times brighter than the general lighting level, creates a barely recognizable contrast. Whereas a 30:1 contrast ratio will create a strong focal effect on the focal items.

Each type of lighting has many options, and by incorporating the recommended light levels and contrast ratios, the end result is a space with high visual interest, depth, and dimension.

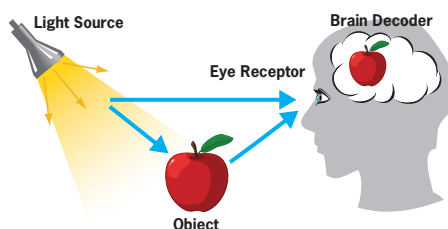


2:1 Ratio



30:1 Ratio

OPTICAL PERFORMANCE



Performance requirements for lamps and integrated luminaires:

1. Visual appearance of light on a surface
2. Numerical performance, light level, and efficiency
3. Visual appearance and glare control of the luminaire itself



LAYERS OF LIGHT

There are four layers of light typically used in hospitality lighting: general (also called ambient) lighting, task lighting, accent lighting, and decorative lighting. Combining and balancing these lighting types gives visual interest to the space and creates a more attractive, exiting and inviting environment.

GENERAL LIGHTING

General lighting is the main source of illumination in a space. This uniform, base level of lighting can easily become the focus of energy reduction, as the light levels from other fixtures can be lowered, especially when using LED sources.

Recommended light levels for general lighting is 30 - 50 foot-candles. General lighting allows the guests and staff circulate throughout the space. Diffused general lighting ensures a sense of well-being, which makes customers feel comfortable. A simple way to achieve this is by arranging recessed fixtures using reflectors, baffles, and lensed trims in overlapping positions.

Perimeter lighting, or wall washing, helps define spaces, provides vertical lighting and makes the space feel larger. Done with sconces or wall washers, vertical lighting creates a pleasant, welcoming environment and adds to the visibility and visual impact of the displays on the walls. It is important that vertical surfaces are lit for visual comfort, spaciousness and visual and directional cues. Vertical brightness influences the customers' impression of the space by making orientation easier, helping to define spaces, and aiding in making the space's appearance to be larger, open and more welcoming for the consumer.

TASK LIGHTING

Task lighting is used to illuminate an area for a specific task; providing a focused, localized, and higher level of illumination. Necessary to the functioning of a space, it is important to use energy efficient sources to reduce operating costs.

Task lighting is most effective when used as a supplement to general lighting in workspaces, conference areas and on counter tops. Effective task lighting should eliminate shadows on the specific illuminated area, while preventing glare from the lamp or off surfaces.

Pendant luminaries at the front desk are a great way to provide task light for work; enabling staff to quickly and accurately check guests in, run register sales and credit card transactions, minimizing mistakes. Recommended light levels for task areas are 50 – 200 footcandles. When lighting a task area, take into account the difference in brightness, or contrast, between the task area and the surrounding space. A 3:1 ratio of task lighting to general illumination provides a nice contrast. The amount of light needed on the task, or luminance, is usually the most flexible variable of task lighting, and can be increased to compensate for low contrast levels.

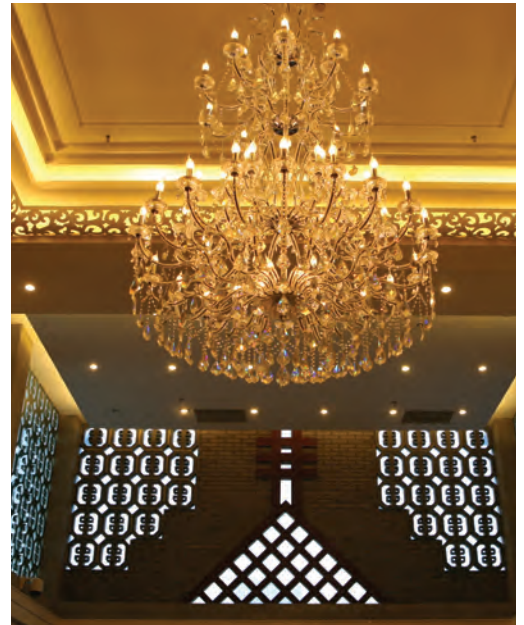
ACCENT LIGHTING

Accent lighting creates a dramatic emphasis on the space using a focused, or point, light source or sources. It adds depth, contrast and creates a focal point for items to be displayed; it highlights shape, texture, finish and color. If this light is directed ambiguously, the end result may have many unwanted shadows obstructing the details of the highlighted items as well as distracting glare.

The key is to make this illumination more precise and of higher intensity than the surrounding ambient light. Track fixtures, recessed housings with adjustable trims and concealed adjustable illumination with point source lamps provide directional control and are especially effective for accent lighting. They are easy to

aim precisely to highlight products' best attributes and influence the customers' impression. Accenting everything and emphasizing nothing is a common mistake with accent lighting; always keep in mind that there such a thing as providing too much light.

The IESNA recommends a 5:1 ratio of accent lighting to ambient light to make items stand out and create a significant visual effect; dark colors may require a higher ratio to bring out detail. Recommended light levels for accent lighting are between 150 – 500 footcandles. For feature displays, higher ratios of 15:1 or 30:1 are used, especially to create sparkle in jewelry or crystal.



DECORATIVE LIGHTING

Decorative lighting serves a dual purpose: not only to contribute to the lighting layers in a hospitality environment, but also to enhance the look of the space as a design element. Decorative lighting includes pendants, sconces, chandeliers, table and floor lamps, and cylinders. Decorative lighting should complement and add visual interest to the interior, as well as provide or contribute to the overall lighting plan.

Pendants should be mounted 8 - 12 feet above the finished floor (a.f.f.) so they are still within view, but not too low as to deter the shopping experience. Pendants displayed over counters should be hung 36 - 48 inches above the horizontal plane so customers can peer into the glass without being hindered by the luminaire.

Wall sconces and wall mounted cylinders should be mounted approximately 5-1/2 feet a.f.f.; this helps to create a sense of human scale, especially in a large space.

Adding décor, beauty and style using decorative lighting is also an important reflection of a store's brand image, and reinforces the theme and style of the space. Decorative lighting can also contribute a feeling of hospitality and comfort to the experience, putting guests at ease.

By combining and layering these lighting types, your environment will be more attractive, exciting, and inviting.





APPLICATION SOLUTIONS

Hospitality lighting systems are complex: the key is to create an attractive, comfortable and functional environment. A common goal of any lighting design, but here, the guests' satisfaction with the environment determines the business's success. When done successfully, hotel lighting should go completely unnoticed; it should integrate with the architecture and décor, it should feel comfortable and natural, it should welcome guests and provide a sense of comfort and safety.

No where else will you find as many space types - guest rooms, restaurants, meeting rooms, banquet halls – that create the whole experience. Each element must be addressed as an individual component, yet all are interconnected: by the mood and atmosphere that the lighting conveys, by the style of the architecture and décor.

THE LOBBY

The hotel lobby gives the first impression about the hotel. Lighting here must focus on detail as much as the overall design; it must compliment the architecture, provide a safe exterior-to-interior transition, and reinforce brand identity.

The balance of the lobby must be warm, welcoming, and navigational. The registration area needs higher light levels to attract guests' attention, as well as provide adequate task lighting for desk staff. Consideration should be taken to light the front desk staff's faces so they appear approachable. Consider using mono-point pendant fixtures with one of ConTech Lighting's exclusive shades to compliment the décor.

MEETING ROOMS, CONFERENCE CENTERS, HALLS AND BALLROOMS

The key to lighting these areas is flexibility and versatility; as rearranging the seating and partitions, as well as the use of the space and, therefore, the lighting schemes, are important. Using two or more adjustable lighting systems is ideal. The general lighting in the room, at a comfortable and navigational level, needs to be dimmable to vary the illuminance level for audio/visual presentations.

CORRIDORS

Hallways and corridors are very important elements of the hotel as they connect the lobby to all other areas of the facility. A safe, navigational, and energy conserving light level is around 5 foot candles, a conventionally low to moderate level. The

corridors must remain continuously illuminated for safety and clear passage; therefore, it is important to use energy efficient lighting. ConTech Lighting offers a variety of Energy Star rated fixtures, from downlights to wall sconces. All corridors must also have emergency lighting and exit signs, as they are paths of regress.

GUEST ROOMS

When guests arrive in their room, they must feel a sense of total privacy, safety, and comfort. This is their home away from home for the extent of their stay. The lighting should be easy to maintain, and not easily broken or damaged. While primarily a bedroom, anything from reading, to watching TV, to entertaining, to sleeping, can occur in the space. Cost is a significant concern, as each guest room lighting plan is multiplied by dozens, or even hundreds, of rooms. With guest room lighting, high quality, energy efficient lighting is a necessity.

Guest Room Lighting Needs

- Light at the bathroom mirror/vanity
- Light at the entry hall to illuminate the path and the closet or clothes storage area
- Light by each side of the bed at an adequate foot candle level for reading
- Light at the desk or work table
- Adequate ambient lighting so the room does not seem dim



RESTAURANTS, BARS, AND LOUNGES

Lighting design for restaurants all depends on the type of venue, and the desired atmosphere. The perfect formula for lighting restaurants is a mixture of ambient and accent lighting that blends into the architecture and becomes unnoticeable. This allows the addition of decorative luminaires to be just that – decorative – adding to the atmosphere and mood of the restaurant. Consider ConTech Lighting Recessed Housings; a myriad of voltage, lamp, and trim options make it an excellent ambient light source.

It is important to consider zoning: the overall ambient lighting should be subtle, but passageways, service areas, and hallways should be more brightly lit. The light levels should be appropri-

ate for the space. Recommended ambient levels are around 15 foot candles, with 30 foot candles over the tables for contrast and functionality. A low voltage mono-point pendant is a perfect option for over dining tables; the light will be concentrated on the table and one of ConTech's decorative glass shades adds to the atmosphere.

Color rendition is extremely important in a restaurant setting; not only for the appearance of the space, but also the patrons and most crucially, the food itself. Using high CRI LED light sources from the same bin and closely matched on the MacAdam ellipse will ensure consistent, even, white light.



Casinos are a multi-purpose environment; in addition to gaming, many casinos have restaurants, bars, shows, shopping and even rides. This variety requires a specialized lighting design, where energy efficiency is an important issue.

The gaming floor can be divided into two basic areas: slots and tables. The slot areas require general illumination from at least two sources, the first predominantly from the slot machines themselves, the second usually from recessed downlights or pendant fixtures. Consider ConTech Lighting's recessed multiples; they are even with the ceiling plane, are available in one to four lamp configurations, and are adjustable. This flexibility allows for changes in the layout of the gaming floor.



EXIT & EMERGENCY LIGHTING

ConTech offers a variety of high quality exit and emergency lighting fixtures to suit your space. When general lighting systems fail, exit and emergency lighting direct the safe exit of the building's occupants. If no exit is required, the lighting should provide security and comfort until the general lighting can be restored. ConTech's exit and emergency fixtures are tested to the highest safety standards; meeting or exceeding NFPA101, NEC and UL294.

ILLUMINANCE CATEGORIES AND ILLUMINANCE VALUES FOR GENERIC TYPES OF ACTIVITIES IN INTERIORS¹

Type of Activity	Illuminance Category	Footcandles	Reference Work-Plane
Public spaces with dark surroundings	A	2-3-5	General lighting through spaces
Simple orientation for short temporary visits	B	5-7.5-10	
Working spaces where visual tasks are only occasionally performed	C	10-15-20	
Performance of visual tasks of high contrast or large size	D	20-30-50	Illuminance on task
Performance of visual tasks of medium contrast or small size	E	50-75-100	
Performance of visual tasks of low contrast or very small size	F	100-150-200	
Performance of visual tasks of low contrast and very small size over a prolonged period	G	200-300-500	Illuminance on task, obtained by a combination of general and local (supplemental lighting)
Performance of very prolonged and exacting visual task	H	500-750-1000	
Performance of very special visual tasks of extremely low contrast and small size	I	1000-1500-2000	

WEIGHTING FACTORS TO BE CONSIDERED IN SELECTING SPECIFIC ILLUMINANCE LEVELS¹

For Illuminance Categories A through C			
Room and Occupant Characteristics	Weighting factor		
	-1	0	+1
Occupant Ages	Under 40	40-55	Over 55
Room Surface Reflectances*	Greater than 70%	30-70%	Less than 30%
For Illuminance Categories D through I			
Task and Worker Characteristics	Weighting factor		
	-1	0	+1
Worker's Ages	Under 40	40-55	Over 55
Speed and/or Accuracy ²	Not Important	Important	Critical
Reflectance of Task Background ³	Greater than 70%	30-70%	Less than 30%

*Average weighted surface reflectances, including wall, floor, and ceiling reflectances, if they encompass a large portion of the task area or visual surround. For instance, in an elevator lobby, where the ceiling height is 25 feet, neither the task nor the visual surround encompass the ceiling, so only the floor and wall reflectances would be considered.

1. IESNA Lighting Handbook, 8th Edition
2. In determining whether speed and/or accuracy is not important, important, or critical, the following questions need to be answered: What are the limitations? How important is it to perform the task rapidly? Will errors produce an unsafe condition or product? Will errors reduce productivity and be costly? For example, in reading for leisure there are no time limitations and it is not important to read rapidly. Errors will not be costly and will not be related to safety. Thus, speed and/or accuracy is not important. If, however, a worker is involved in exacting work, accuracy is critical because of the close tolerances, and time is important because of production demands.
3. The task background is that portion of the task upon which the meaningful visual display is exhibited. For example, on this page the meaningful visual display includes each letter which combines with other letters to form words and phrases. the display medium, or task background, is the paper, which has a reflectance of approximately 85%.

IESNA ILLUMINANCES

HOSPITALITY ILLUMINANCE RECOMMENDATIONS FOR GENERAL LIGHTING AND SPECIFIC VISUAL TASKS

Areas/Activity	Illuminance Category
<i>Hotels</i>	
Bathrooms, for Grooming	D
Bedrooms, for Reading	D
Corridors, Elevators, and Stairs	C
Front Desk	E
Linen Room	
Sewing	F
General	C
Lobby	
General Lighting	C
Reading and Working Areas	D
<i>Food Service Facilities</i>	
Dining Areas	
Cashier	D
Cleaning	C
Dining	B
Kitchen	E
<i>Service Stations</i>	
Stairways, Corridors	C
Elevators, Freight and Passenger	C
Toilets and Washrooms	C
<i>Exhibition Halls</i>	C
<i>Conference Rooms</i>	D
<i>Dance Halls and Discotheques</i>	B
<i>Club and Lodge Rooms</i>	D

WHAT SETS US APART

INNOVATION

We combine the latest energy efficient technology and design styles to create an extensive range of attractive and sustainable luminaires. We have over 5,000 products, including many high performance products that can't be found anywhere else. Our EcoTechnology solutions offer sustainable energy solutions that meet the qualitative needs of the visual environment with the least impact on the physical environment.

SUSTAINABILITY

At ConTech Lighting, our commitment to the environment is as important as our commitment to innovation, quality and our customers. We believe that lighting can be environmentally responsible and energy efficient, while providing high-quality performance and outstanding aesthetic design. EcoTechnology applies to our daily operation as well as to our products; from materials, manufacturing and transportation to the disposal process for our products and by-products.

QUALITY

We use the best components and manufacturing methods resulting in the highest quality fixtures. From cast housings and high performance reflectors, to the testing of each ballasted fixture before it ships, ConTech Lighting is defined by its quality. For consistency, we use only the most reliable LED chip makers including Cree, Nichia, Lumileds, Bridgelux and Sharp.

SERVICE

Our responsive, personalized customer focus, and market expertise represents an oasis of outstanding service in an industry that values it, but frequently doesn't receive it. We are here for you, live and in person, Monday through Friday 7:30am – 5:30pm CST.

PRODUCT AVAILABILITY & SPEEDSHIP™

Our products are in stock and ready to ship. Our unique SpeedShip™ process helps us toward our goal of shipping 100% of placed orders within 48 hours; at no additional cost to you.

MARKET EXPERTISE

Each market has its own unique lighting challenges. Designs can get tricky, having to verify every fixture, test every connector and make certain that every length of track is just right. We have an experienced staff of sales professionals to assist you with your projects from concept to completion.

LIGHTING EXPERIENCE

Lighting is more than just numbers on a spec sheet. Visit one of our facilities near you to experience the power of light to make your space more productive, more aesthetically pleasing, and more energy efficient. Visit our corporate Inspiration Center in Northbrook, Illinois, or one of our Leviton LIVE centers in San Francisco, California or New Orleans, Louisiana.



725 Landwehr Road
Northbrook, Illinois 60062
www.contechlighting.com
847.559.5500

All specifications subject to change without notice.



Copyright Conservation Technology of Illinois, LLC ©2020

LITHOS15