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Proper layering of light clearly communicates brand identity and quality to a store's customers while also improving a retailer's bottom line.



# *Illuminating Retail*

The second a customer enters a retail space, a message should be communicated by the lighting design alone.

**Whether it is the cool sophistication** of a luxury retailer or the bright frenzy of a toy store, effective lighting can tell customers the story of what to expect and guide them on their purchasing journey. However, to determine the most appropriate lighting sources for a business and its bottom line, it is necessary to consider not only the store's brand identity and the desired effect, but also how to garner the most energy and cost savings with visually appealing solutions.

Light emitting diodes (LEDs) have rapidly entered the marketplace within the past decade. With a full spectral distribution and high energy efficiency, LED lighting solutions make colors shine and keep utility bills low. Additionally, their good color rendering, which closely mimics that of natural daylight, has been proven by the National Renewable Energy Laboratory's report "A Literature Review of the Effects of Natural Light on Building Occupants" to boost productivity – an additional bonus for employers.

## **Layered Lighting Design**

LEDs are not the only energy-efficient source available for those who want to add punch and sparkle to their product displays. To ensure a retail environment is

specified with the sources that will shine the most positive light on its products, the following illumination solutions also should be considered to create a mixed-source lighting design:

- **Ceramic metal halide:** With an exceptional color rendering index (CRI) of 90+, this is a high-efficacy source appropriate for high ceilings, general and accent applications. This source can effectively illuminate merchandise when it is used in track heads or in a variety of other accent luminaires.
- **Compact fluorescent:** Featuring a good CRI of 80+, this efficient source is designed for general, task and wall wash applications. Retailers can consider replacing inefficient public-space incandescent lamps, such as recessed downlights, with this source.
- **Low-voltage halogen:** Having the highest CRI of 100, this source's faceted reflectors enhance perceived brightness within a space. When incorporated in an architectural dimming system, numerous lighting possibilities are available in the same space with minimal energy consumption requirements.

An energy-efficient lighting solution often overlooked in retail spaces is daylight. This element has become taboo from a marketing perspective, because daylight indicates time and may prevent consumers from lingering in the store when a change in the time of day is evident. However, understanding how the presence of natural light interacts with various surfaces throughout the area and properly integrating it with lighting control systems can

greatly improve the visual appeal of merchandise where it makes sense.

## **General lighting**

With an oversaturated marketplace, it is becoming increasingly important to showcase products creatively to boost buyer appeal. This visual interest is created by layering light sources to add depth and dimension to a retail space.

To effectively layer light, it is essential to incorporate three types of lighting – general/ambient, task and accent – each providing a variety of options to meet the environment's lighting goals.

General/ambient lighting is the base level of lighting. It is the primary focus of energy reduction efforts and is commonly the main source of illumination within a store. In retail, several approaches can deliver a specific lighting scheme. Directional execution from downlights pinpoints areas where lights are needed within the stores, from displays to highlighted merchandise.

For stores with higher ceilings, a diffuse execution of light can deliver a higher efficacy. However, this type of approach comes with an increased risk of glare, which is an element that can decrease customers' visual comfort and distract them from a purchase.

Although uniform lighting is another approach for general lighting, it often is least impactful. Typically uniform lighting is found within 24-hour general warehouse retail settings that do not try to narrate a retail story, but instead showcase as many products as possible with energy-efficient illumination around the clock.

### Task lighting

Task lighting is the functional level of lighting used to accommodate tasks that require higher levels of concentration. Such tasks within retail include reading print on tags and product information on packages, as well as reading signs to identify store departments. Efficient task lighting not only helps customers navigate through merchandise details but also assists cashiers in decreasing transaction times and minimizing errors.

Downlighting can be accomplished at reduced expense by employing fixtures that use LEDs instead of incandescent lamps.

Task lighting is typically three times brighter than general lighting levels and is not usually impacted by a project's energy reduction efforts because it:

- Is too necessary to the functioning of a particular space;
- May utilize more energy-efficient sources, but fixture reductions are not likely because the number of "tasks" to be performed in a space are static; and
- Is often accomplished by portable lamps/fixtures that are introduced into the space after the project is complete.

### Accent lighting

It also is essential to remember the importance of accent lighting in creating drama within the space. This emotional layer of lighting complements general and task lighting layers for a complete application and should, as a general rule, be a minimum of four to five times the general lighting level to provide the appropriate contrast. In retail environments, accent lighting puts the spotlight on featured merchandise, drawing attention to the products' colors, textures and shapes.

With a variety of beam levels and intensities, low-voltage halogen lighting is a popular choice for accent lighting because

it offers precision and sharp white light. Low-wattage ceramic metal halides offer a suited choice for larger store settings with high ambient levels. Track and recessed lighting fixtures also add to a retail space by delivering a narrow-beam light to "punch up" the targeted merchandise.

Accent lighting requires flexibility and creativity to really make the retail space's story shine through.



Whether backlighting products to exaggerate size, uplighting merchandise from below to create a dramatic, shadowy effect or key lighting to indicate the focal point of the display, strategic consideration needs to be placed behind the lighting design to convey the specific retail message.

Beyond these layers of lighting, by making sure that the vertical surfaces also are properly illuminated with sconces or wall washers, one can lower the required light level contribution from other fixtures and subsequently enhance the energy savings within the overall space.

### Controlling Cost Savings

For overall efficient retail lighting, systems should provide high efficacy, as measured in lumens per watt, to ensure the most energy savings as well as controllability and color quality to guarantee that merchandise in a store sparkles.

In addition to sources featuring high lumens per watt, savings achieved by the utilization of more energy-efficient lighting

fixtures are significantly enhanced when combined with lighting control solutions. In fact, the average savings of 25 to 30 percent with more efficient lighting fixtures can be increased to as much as 75 to 80 percent during peak power usage, depending on the control solution deployed and the application at hand.

The options that can be considered for maximizing energy efficiency include daylight harvesting systems, networked lighting, sensors and

wireless controls systems.

A daylight harvesting system utilizes photocell technology to sense a presence of ambient daylight and can be tuned to detect desired levels of daylight in terms of foot-candles.

Networked lighting controls systems are another alternative to evaluate because these programmable lighting control systems can integrate all of a retail property's various lighting controls into one network. For example, it can link sensors with daylight harvesting to more "static" fixtures.

A final option to consider is a wireless control system. This is easier to install in retrofit applications because of a lesser need to run wiring from lighting control stations to desired fixtures.

Proper layering of light allows retailers to communicate their product offerings and reduce their bottom line. 📦

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