ENERGY EFFICIENT LED LIGHTING FOR RETAIL CENTERS

For complete specifications, visit www.qssi.com
QSSI manufactures energy efficient interior and exterior luminaires for all types of retail projects including regional malls, strip centers, neighborhood centers and large retail including Grocery, Big Box and Supercenter stores.

**RETAIL LIGHTING APPLICATIONS**

**AREA/SITE LIGHTING**

Well-controlled LED parking and roadway area lighting provides for uniform light levels, high visibility, security and safety for customers driving and parking in the center. Luminaires are available in multiple styles, mounting and pole types.

**WALKWAY AND LANDSCAPE**

Bollards, Small Ground Mounted Floods and Landscape Lights create low glare pathway lighting and highlighting of landscape trees and features.

**DECORATIVE ACCENT WALL AND CANOPY LIGHTING**

Lighting solutions for storefront canopies, decorative architectural and entrance accents, walking areas near buildings, and egress path lighting.
QSSI EasyLED products are designed with high quality and performance for attractive daytime appearance and efficient lighting distribution at night. Luminaire selections include area/site lighting, floodlighting, wall packs, high bay lighting, decorative accent wall and canopy lighting, walkway and landscape lighting. Traditional, contemporary and historic styles are available in scaled families for a consistent design statement.

**EasyLED Technology**

**HIGH BAY LIGHTING**
Uniform light distribution, energy efficient LED High Bays are used as in-store general lighting for Big Box, Grocery and Supercenters with multiple distribution and lens options.

**WALL LIGHTING**
Building mounted lighting provides perimeter security lighting and site lighting for smaller centers. Fixtures are available in multiple designs and full cut-off optics.

**FLOOD LIGHTING**
Energy efficient LED floodlights can be pole mounted for lighting building fascia, building and ground mounted for wall washing, and ground mounted for monument signs. LED floodlights are sleek and durable with matching styles to coordinate with site/area lights.
Site/Area Lighting Solutions

**Bentley LED**
- Engineered for demanding environments, low profile to blend with the architecture.
- Energy-saving LED 180w-301w, 400w to 1000w HID replacement.
- Use in 20 to 40 foot mounting height applications.

**Bentley Area LED**
- Compact 16" square area light with cutting-edge industrial look and five mounting options for all purpose use.
- LED 187w-568w, 250w to 1500w HID replacement.
- Use for mounting heights of 20 to 40 feet.

**Kitty Hawk LED**
- Architectural design in four sizes allows use from small pedestrian to large parking areas.
- LED 24w-556w, 100w to 1500w HID replacement.
- Ideal mounting heights are 16 to 50 feet.
**Varistar Area LED**
- Uniquely designed housing with vertical fins and five mounting options that offer complete versatility.
- LED 61w-121w; 150w to 400w HID replacement.
- Mount at 15 to 30 feet.

**Reveal LED - Large Round**
- Modern Post top design for parking areas, mall town centers and roadways.
- The Reveal family offers site, bollard and wall lighting for a unified look across the property.
- LED 112 to 190w; 150 to 1000w HID replacement, for heights of 16 to 30 feet.

**Reveal LED - Large Square**
- Contemporary Square Post top design for parking areas, mall town centers and roadways.
- The Reveal family offers site, bollard and wall lighting for a unified look across the property.
- LED 112 to 190w; 150 to 1000w HID replacement, for heights of 16 to 30 feet.

**Reveal LED - Small Round**
- Scaled-down version of our large round Reveal for use along sidewalks and common areas.
- The Reveal family offers site, bollard and wall lighting for a unified look across the property.
- LED 41 to 86w; 70w to 250w HID replacement, for heights of 10 to 20 feet.

**Bostonian LED**
- Classic Acorn Style street lighting can be used along sidewalks, driving lanes, public areas and parks.
- Acrylic globe provides smoothly diffused light for nighttime ambiance.
- LED 37 to 85w; 70w to 250w HID replacement, for heights of 12 to 20 feet.

**Site Lighting Poles**
- Square and round steel and aluminum poles complement area lighting fixtures.
- Special mounting options and custom colors are available.
- Poles are available in heights from 10 to 30 feet for all wind zones.

**Traverse LED Flood**
- Low profile flood light with C3 LED technology in two sizes for small and medium flood lighting applications.
- Adjustable mounting options for easy installation in new or retrofit projects.
- LED 20w-80w; 100w to 400w HID replacement.

**Die Cast Linear LED Floods**
- Durable die cast housings in three sizes for versatile use.
- Ideal for landscape and sign lighting, wall washing, and delivery areas.
- LED 26w-152w; 70w to 400w HID replacement.

**Kitty Hawk LED Floods**
- Architectural design in three sizes accent landscaping to architectural elements.
- Provides security lighting while complementing the property design.
- LED 24w-281w; 100w to 1000w HID replacement.

**Varistar & Round Back LED Flood**
- Architectural designs with adjustable mounting options to provide maximum performance and versatility.
- Ideal for monument signs and building wall wash applications.
- LED 61w-121w; 150w to 400w HID replacement.

**Small LED Floods**
- Simple compact floods for accenting landscaping, signage, flag poles and architectural details.
- LED 20w; 50w to 100w HID replacement, multiple beam patterns available.
- Adjustable mounting for easy installation.

**PowerBolt Bentley Kitty Hawk & 16” Flood**
- High-power, high-output for taller mounting heights or larger expanses.
- Adjustable mount allows precise light placement.
- LED 557-568w; 1000w to 1,500w HID replacement.

For complete specifications, visit www.qssi.com
Walkway and Landscape Lighting

**LED Bollards**
- Modern round or square bollards complement today’s modern architecture.
- Sealed IP67 optical assembly, durable aluminum housing with polycarbonate lenses.
- LED 20w; 50w to 100w HID replacement.

**Reveal LED Bollards**
- Unique round and square bollards with a distinctive appearance.
- The Reveal family offers site, bollard and wall lighting for a unified look across the property.
- LED 20w; 50w to 100w HID replacement.

**Turbin C³ LED Bullet**
- Decorative bullet fixture for accenting landscaping, signage, flag poles and architectural details, multiple beam patterns available.
- LED 20w; 50w to 100w HID replacement.
- Adjustable mounting for easy installation.

**Domed LED Bollards**
- Classic design bollards complement most architectural building styles.
- Constructed with durable aluminum bodies and vandal resistant polycarbonate lenses.
- LED 17w; 50w to 70w HID replacement.

**Flat LED Bollards**
- Flat top bollards complement most architectural building styles.
- Constructed with durable aluminum bodies and vandal resistant polycarbonate lenses.
- LED 17w; 50w to 70w HID replacement.

**Stainless Steel LED Bollards**
- Stainless bollards with a sophisticated style.
- Resistant to harsh environments.
- LED 17w; 50w to 70w HID replacement.
Decorative Accent Lighting

Reveal LED Wall Sconce
- Unique round and square sconces with a distinctive appearance.
- The Reveal family offers site, bollard and wall lighting for a unified look across the property.
- LED 20w, 50w to 100w HID replacement.

Turbine Wall Cylinders
- Distinctive round wall sconces with down only or up & down configurations.
- Complements other exterior lighting while highlighting building architecture.
- LED 20w-40w; 50w to 175w HID replacement, multiple beam patterns available.

Traverse LED Wall Light
- Sleek low profile wall lighting featuring front vertical accent lines and C3 LED technology.
- Ideal for wall, low level lighting including stairways and pathways, post lighting and can be inverted mounted for wall washing or canopy lighting.
- LED 20w-80w; 100 to 400w HID replacement.

Excel Round LED Bulkheads
- Low profile wall lighting for exterior or interior use.
- Sealed IP67 optical assembly.
- Softly diffused lighting enhances site ambiance.
- LED 20w; 50w to 100w HID replacement.

Excel Square LED Bulkheads
- Low profile wall lighting for exterior or interior use.
- Sealed IP67 optical assembly.
- Softly diffused lighting enhances site ambiance.
- LED 20w; 50w to 100w HID replacement.

Element LED Wall Sconce
- Low profile vandal-resistant design is ADA compliant.
- Includes optional-use integrated photocell for automatic operation in areas not controlled by other systems.
- LED 17w; 50w to 70w HID replacement.

Orion LED Wall Sconce
- Architectural full cutoff design.
- Use for wall lighting and around entranceways.
- LED 52w; 175w to 250w HID replacement.

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Wall Lighting

**Hooded Semi-Cutoff Wall Pack**
- Semi-cutoff design reduces uplight and glare.
- Two sizes and wattages allow use across the site with a unified appearance.
- LED 44w-67w; 175w to 400w HID replacement.

**Varistar LED Wall Light**
- Uniquely designed housing with vertical fins.
- Three wattages and seven mounting options provide complete versatility for the Varistar, from small to medium applications.
- LED 61w-121w; 150w to 400w HID replacement.

**Kitty Hawk LED Wall Packs**
- Architectural design in two sizes allows high and low wall mounting.
- Full cutoff design eliminates uplight.
- LED 24w-112w; 100w to 400w HID replacement.

**Die Cast Linear LED Surface Mounts**
- Durable die cast IP67 sealed housings in three sizes for versatile use.
- Ideal for general purpose wall lighting, parking garages and passageways.
- LED 26w-152w; 70w to 400w HID replacement.

**Accord LED Wall Mounts**
- Architectural design complements most building styles.
- Available in two sizes for entranceway to building perimeter usage.
- LED 44w-69w; 150w to 400w HID replacement.

**Crescent LED Sconce**
- Architectural full cutoff design.
- Use for wall lighting and around entranceways.
- LED 52w; 175w to 250w HID replacement.

**Crescent LED Up/Down Light Sconce**
- Architectural design provides up and down wall washing.
- Use for wall lighting and around entranceways.
- LED 52w; 175w to 250w HID replacement.

**Constellation LED Wall Packs**
- Full cutoff design eliminates uplight.
- Three sizes and wattages allow use across the site with a unified appearance.
- LED 25w-63w; 100w to 400w HID replacement.
High Bay Lighting

**Bentley 16” COB Highbay**
- High efficiency lighting for big box stores and indoor common areas.
- Ideal for retail showroom, warehouse and distribution center use.
- LED 200w; 400w HID replacement.

**Bentley 16” LED Highbay**
- High efficiency lighting for big box stores and indoor common areas.
- Ideal for retail showroom, warehouse and distribution center use.
- LED 179w; 250w to 400w HID replacement.

**Bentley 22” LED Highbay**
- High efficiency lighting for big box stores and indoor common areas.
- Ideal for retail showroom, warehouse and distribution center use.
- LED 296w; 400w to 1000w HID replacement.

Canopy Lighting

**LED Canopy Lighting**
- Vandal resistant fixtures are perfect for canopies, garages, covered walkways and shipping and receiving areas.
- LED 53w; 175w HID replacements.

**Die Cast Linear LED Canopy**
- Durable die cast IP67 sealed housings in three sizes for versatile use.
- Ideal for garage and canopy lighting, covered walkways, corridors and stairwells.
- LED 26w-152w; 70w to 400w HID replacement.

**LED Garage Lighter**
- Low profile housing accommodates sensors for dimming and control systems.
- Specially designed optical lens for garage lighting applications.
- LED 30w-48w; 100w to 175w HID replacement.

For complete specifications, visit www.qssi.com
HID LIGHTING SYSTEMS

HID systems use a high light output arc tube that uses reflectors or refractors to spread illumination over the lighted surface. One of the significant challenges of this technology is that most fixtures use the arc tube in a horizontal position. This orientation causes the small area under the fixture to be over lit in order to have enough light energy to meet minimums between poles. This phenomenon is evidenced by the visible hot spots under each fixture observable in the image showing MH and HPS. The only solution to this problem is to add more fixtures, increasing energy consumption and over-lighting above required footcandle levels to create better uniformity. Other issues with HID systems include hot restrike time of 15 minutes when power is lost, difficulty implementing emergency back-up systems and inability to dim for low occupancy situations.

METAL HALIDE (MH) SYSTEMS

MH lighting systems provide the desired “white light” appearance with improved color rendering index (CRI) between 65 and 85. This improvement comes at a cost. The result is that the efficacy (lumens/watt) is lower and the lumen maintenance over the life of the system is typically as low as 50%. This means the project will be significantly over lit at the start of operations, and if not properly maintained will decline to levels lower than half of the initial installation.

HIGH PRESSURE SODIUM (HPS) SYSTEMS

HPS lighting systems produce a yellow color with lowered color rendering index (CRI) between 35 and 65. This system, though one of the more energy efficient HID types, does not provide good visibility and bright inviting appearance for retail centers. HPS is mostly still used for roadways and security.

TRADITIONAL HID LIGHTING VS LED SOLID STATE LIGHTING

There are many advantages to implementing LED solid state lighting over traditional HID lighting systems for your project. LED lighting offers significant energy savings of 50% to 70% while lowering maintenance costs, improving safety and visibility, and allowing for increased control capabilities. QSSI’s LED Dedicated designs for high performance produce predictable and consistent lumen maintenance that provides uniform light levels over the life of the system.
LED Solid State Lighting

Our LED Dedicated luminaires offer improved visibility and quality engineered solutions to fit the needs of Retail Lighting projects. LED lighting systems offer significant improvement in site lighting level uniformity. This is visible in the below image and is a result of the ability to carefully direct and measure the amount of light delivered to the area illuminated by a specific fixture. This is accomplished by arranging and aiming LEDs to direct only the right amount of light needed to meet the project requirements.

LED Luminaire Advantages

The combination of precise LED optical design and engineered heat management systems allows LED luminaires to deliver many advantages over traditional lighting sources:

- Significant energy efficiency—Reduces operating costs
- Superior light level uniformity—Improved visibility and security
- Longer system life—LED systems perform 2 to 3 times longer than HID
- Consistent light level over life—Lumen maintenance over normal life above 80%
- Even appearance and color—CRI and CCT can be matched easily throughout project

QSSI’s industry leading optical systems are designed to distribute light where it is specifically needed for interior high ceiling stores, area/site, floodlighting, wall accent, security, pedestrian, parking structure and landscape applications.

System Comparison - Traditional HID vs Solid State LED

<table>
<thead>
<tr>
<th>HID System</th>
<th>HID Input Watts</th>
<th>HID Rated Life (Hours)</th>
<th>HID Lumen Maintenance</th>
<th>LED Input Watts</th>
<th>LED Life L70@25°C</th>
<th>LED Lumen Maintenance</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>150w MH</td>
<td>185</td>
<td>15,000</td>
<td>0.65</td>
<td>60-70</td>
<td>100,000 Hrs +</td>
<td>0.7 - 0.8</td>
<td>63% - 68%</td>
</tr>
<tr>
<td>250w MH</td>
<td>285</td>
<td>15,000</td>
<td>0.65</td>
<td>120-140</td>
<td>100,000 Hrs +</td>
<td>0.7 - 0.8</td>
<td>51% - 58%</td>
</tr>
<tr>
<td>320w MH</td>
<td>360</td>
<td>20,000</td>
<td>0.65</td>
<td>185-210</td>
<td>100,000 Hrs +</td>
<td>0.7 - 0.8</td>
<td>41% - 49%</td>
</tr>
<tr>
<td>400w MH</td>
<td>450</td>
<td>20,000</td>
<td>0.65</td>
<td>210-250</td>
<td>100,000 Hrs +</td>
<td>0.7 - 0.8</td>
<td>45% - 54%</td>
</tr>
<tr>
<td>100W HPS</td>
<td>130</td>
<td>24,000</td>
<td>0.9</td>
<td>60-70</td>
<td>100,000 Hrs +</td>
<td>0.7 - 0.8</td>
<td>46% - 54%</td>
</tr>
<tr>
<td>250W HPS</td>
<td>295</td>
<td>24,000</td>
<td>0.9</td>
<td>155-170</td>
<td>100,000 Hrs +</td>
<td>0.7 - 0.8</td>
<td>42% - 48%</td>
</tr>
<tr>
<td>400W HPS</td>
<td>465</td>
<td>24,000</td>
<td>0.9</td>
<td>225-265</td>
<td>100,000 Hrs +</td>
<td>0.7 - 0.8</td>
<td>44% - 53%</td>
</tr>
</tbody>
</table>

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C³ LED Lighting

Introducing the C³ Cool Copper COB, our new energy saving performance LED Chip On Board (COB) technology. Our LED chips are bonded directly to a thick copper substrate for ultra-high thermal connectivity, increased lifespan and improved photometric performance. C³ Cool Copper COB products are backed by a 5-Year warranty.

### FEATURES | BENEFITS
--- | ---
COB bonded to Copper substrate | Dissipates heat more effectively than aluminum based substrate COB's
Cooler LED operating temperature | Increased lifespan with minimal lumen depreciation
Cooler luminaire operating temperature | Allows luminaires to perform well in higher ambient temperatures
Starting Temperature as low as 20°C | Excellent for cold storage facilities
Long life: up to 50,000 hours | Eliminates maintenance versus traditional HID
Excellent Color Rendition (CRI of 80+) | Increases visibility and productivity
Dimmable drivers standard | Allows for daylight harvesting and additional energy savings
4100K and 5000K CCT | Ability to match project environmental and efficiency requirements

EasyLED Lighting

QSSI has developed EasyLED, a unique LED platform that includes custom-designed arrays for each fixture, improved thermal management for longer life, enhanced optics for better light distribution, and easy assembly for serviceability. Luminaires are benchmarked at a minimum of 40°C (104°F) ambient during thermal testing and feature fully automated LED array manufacturing to provide many years of trouble-free service. Each fixture is custom designed and engineered with careful consideration for the best possible performance.

EasyLED is backed by our five-year warranty and with over thirty years in business, you can be assured of on-the-job performance.

**LumaFit LED Arrays**
- LED Arrays are custom designed for each fixture for maximum thermal performance.
- Arrays are manufactured using state-of-the-art fully automated SMT machines in a clean room environment.
- Our AlumiLED arrays utilize only 100% aluminum boards with copper tracings for thermal management and stability.
- Each array is custom designed to maximize the optical performance by spreading the light source properly throughout the lens area.

**Thermally Sound Heat Management:**
- Our AlumiLED aluminum boards provide a large surface area for thermal management of individual LEDs.
- EasyLED uses low- and mid-power LEDs in larger quantities to produce the same or better lumen output than we could achieve using high-power LEDs.
- Lower operating temperatures of low- and mid-power LEDs helps provide an enhanced LED lifespan.

**On-Board Optics:**
- Individual On-Board Optics allow the light distribution to be optimally configured for the fixture and the intended use.
- The automated SMT manufacturing process allows us to precisely place optics on each individual LED chip.

**LumaLens:**
- EasyLED fixtures are offered with glass or polycarbonate lenses that help eliminate the hot spots inherent with LEDs.
- Polycarbonate lenses are enhanced with a Bayer polymer to create an opal lens that breaks up the hot spots while enhancing light distribution.
- Prismatic flat or borosilicate molded glass lenses provide the same reduction of hot spots.

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