indoor sports lighting
From the pre-game excitement of spotlight introductions to crisp lighting that minimizes shadows and enhances each point and goal scored, the right lighting system makes the game. In fact, without it there is no game.

Sterner Lighting Systems provides the most complete sports lighting package in the industry. From arena lighting luminaires to seating lighting, maintenance lighting, emergency lighting, floodlighting, parking lot lighting and custom lighting, Sterner meets your every lighting requirement.

At Sterner we manufacture energy-efficient lighting systems for optimal television and live audience viewing, as well as player comfort.

The sports lighting technology and innovation at Sterner Lighting are so advanced that we have four separate areas of our sports lighting system. The arena luminaire, the Para II, has a unique optical system so precise and efficient it noticeably reduces ice glare and scoreboard shadows. Our unique Arc-Stream Aligner and mounting system create exacting vertical and horizontal illumination levels. An innovative motorized shade system allows instant on/off effects for dramatic theatrics without sacrificing lamp life or color.

Around the world, Sterner Lighting Systems is making points with facility owners and lighting engineers. We’re competitive because you require it, and we’re ready to light your game.

What does your next season look like?

TABLE OF CONTENTS:

ARENA DESIGN CONSIDERATIONS ........................................ 4
Para II LUMINAIRE .................................................. 6
ARC STREAM ALIGNER .............................................. 7
MOTORIZED SHADE .................................................. 8
REDUCED MOUNTING HEIGHT
AND MAINTENANCE LIGHTING .................................. 10
EMERGENCY AND SEATING LIGHTING ......................... 11
LUMINAIRE MOUNTING SYSTEM ............................... 12
ORDERING MATRIX ................................................ 14
LUMINAIRE SPECIFICATIONS .................................... 16
PHOTOMETRICS ...................................................... 20

SELECT INSTALLATIONS:

TD BANKnorth GARDEN, BOSTON ................................. 3
ICE PALACE, TAMPA BAY ....................................... 5
THE ROSE GARDEN CATWALK, PORTLAND ............... 13
MULLINS MEMORIAL CENTER, AMHERST .................... 19
GENERAL MOTORS PLACE ARENA, VANCOUVER ............ 21
SCOTTRADE CENTER ARENA, ST. LOUIS ..................... 22
CAJUNDOME, LAFAYETTE ....................................... 23
BOSTON’S
TD BANKNORTH GARDEN

PARA II ARENA LIGHTING SYSTEM COMPONENTS:

Para II Arena Luminaires
Maintenance Lighting System
Emergency Lighting System
Catwalk Mounting System
Shade Option
As the game races across the playing surface, spectators follow the action while broadcast directors switch camera angles and view points for the home viewing audience. Providing effective lighting for such dynamic, fast paced action need not be as challenging as the game itself. That’s why Sterner has created a simple yet exacting arena lighting system that surpasses all arena design considerations.

**TELEVISION BROADCAST CONSIDERATIONS**

The arena lighting system exceeds:

- Television broadcast requirements for multiple camera locations
- Illumination criteria of broadcast networks and professional sports organizations
- The uniformity gradient (measures the rate of change of light levels – illuminance – on the playing surface of adjacent measuring points)
- The coefficient of variance (measures the ratio of the standard deviation of all values to the mean value for light levels on the playing surface)
- ALL uniformity ratios including maximum/minimum (measures the difference between the highest and lowest light levels – illuminance – on the playing surface)

**SPECTATOR CONSIDERATIONS**

- Minimizes glare for players
- Minimizes glare for spectators
- Provides highest levels of illumination on the court with gradual decrease into seating areas
- Provides balanced illumination on athletes and reduces shadows on playing surface
- Provides a system design where illumination does not impede the quality of the picture projected from the video scoreboard

**THEATRICAL CONSIDERATIONS**

- Supplies an “instant dark system” for the sports lighting luminaire during pre-, mid- and post-game events

IT’S EASY TO MEET ARENA DESIGN CONSIDERATIONS WHEN SPECIFYING AND INSTALLING THE PARA II ARENA LIGHTING SYSTEM

The Para II luminaire was designed specifically for interior sports lighting applications, utilizing a beam pattern engineered for efficiency, glare control and uniformity. In fact, the product derives its name, Para II, from a unique combination of two separate parabolas. This is an illumination system so unique and so advanced in its control of light. The beam pattern provides a narrow vertical beam to minimize unwanted spill light on the scoreboard while providing a wide horizontal beam so the entire playing surface can be evenly illuminated from catwalk systems located on either side of the playing surface. This unique beam pattern eliminates the need for placing supplemental lighting in the “glare zones” on the ends of the catwalks.
TAMPA BAY’S
ICE PALACE
FEATURES AND BENEFITS
The leading sports lighting luminaire in the market, the Para II.

PERFORMANCE
➤ The most powerful arena luminaire available – 79.7% total efficiency
➤ Rectangular beam patterns engineered to fit the rectangular surfaces of basketball, hockey and other sporting events (see diagram below)
➤ Unique Arc Stream Aligner for clean, precise lighting design (see page 7)
➤ Advanced lamp support system keeps end of lamp from “sagging” while holding lamp in design center
➤ UL listed

MOTORIZED SHADE
➤ Motorized shade option provides a time-tested, reliable method for providing “instant on/off” capabilities, theatrical effects for player introductions, half time shows, special effects and other scenarios (see page 8)

MOUNTING
➤ Unique Catwalk Mounting System (see page 12)
➤ Heavy-duty yoke with mounting system that locks aiming into place
➤ Horizontal and vertical protractors for easy aiming
➤ Tooless rear access for re-lamping leaves aiming angles undisturbed and maintenance personnel safely on the catwalk
➤ Can be double stacked with other arena luminaires when space is limited

RECTANGULAR BEAMS PROVIDE A MORE UNIFORMLY ILLUMINATED PLAYING SURFACE THROUGH BETTER UTILIZATION OF THE BEAM. THE TOP ILLUSTRATION SHOWS HOW A RECTANGULAR BEAM BETTER COVERS THE PLAYING SURFACE, ELIMINATING DARK SPOTS LEFT BY ROUND BEAM PATTERNS.
With such exacting lighting criteria as maximum/minimum values, uniformity gradient and coefficient of variance, there is no greater tool for assuring a successful installation than the Arc Stream Aligner. The unique Arc Stream Aligner positions the arc stream into the reflector’s focal point and is available only from Sterner Lighting Systems.

High intensity discharge (HID) lamps create visible energy (light) when an electron stream “arcs” between two electrodes. It has been shown that gravity affects the arc stream of metal halide lamps, causing convective motion of the gas, which leads to a bowing of a horizontally operated arc. This, in turn, affects the photometric performance of the luminaire. The effects of gravity cause the arc stream to bow upwards and out of the photometric design center of the reflector (as shown below).

An unaligned arc stream will affect the beam distribution in a reflector, causing unwanted spill light and lowering the amount of useful light exiting the luminaire.

Sterner’s unique arc stream aligner repositions the arc stream at the focal point or design center of the reflector in ALL luminaire aiming angles to ensure that the required beam distribution remains uniform and intact. This assures a clean, precise lighting design that puts the light where it was meant to go and maximizes efficiency.
FEATURES AND BENEFITS

Lighting systems in many arenas today require 15–20 minutes to achieve full output after they are turned off. Sterner’s motorized shade provides “instant on-off” capabilities without the hassles and cost associated with an instant re-strike system. It is perfect to use when “theatrical blackout” scenarios are required for player introductions and half time shows.

OPERATION

➢ Shade option provides “blackout scenario” in less than three seconds

➢ True “instant on” with immediate full-color rendering

➢ Shade operation is very quiet

➢ Amperage draw from the motor is less than 0.7 amps – no extra circuits need to be added (control circuit is necessary). Contact your Sterner Lighting Systems Representative.

INSTALLATION

➢ Designed to use minimal catwalk space

➢ Does not interfere with the photometric distribution of the luminaire

➢ Shades are powered by the 120V-ballast tap of the Para II ballast system to minimize wire runs and labor

➢ Shades can be easily installed at a later date without re-aiming or adding extra luminaires to the layout

CLOSED POSITION

➢ Provides a “no light leak” system when in the closed position

➢ Material does not deform or warp with heat

➢ Lamp remains at 100% output when shade is closed

➢ Shades can remain closed indefinitely without excessive heat build-up

➢ Shade may be equipped with an optional “fail-safe” system to extinguish the lamp in the event that the shade does not close – ensuring a dark arena when required
**SHADE FULLY OPEN**

Does not interfere with photometric distribution and allows for optimum mounting positions.

**SHADE IN MOTION**

Opens and closes within 3 seconds.

**SHADE FULLY CLOSED**

No light leaks or heat build-up.
On occasion architectural space dictates that a lower mounting height be used for the lighting of arenas. The 655 has a wider beam spread that is ideal for lower mounting heights and provides a more uniform distribution without sacrificing efficiency.

**FEATURES AND BENEFITS**

- Two different beam spreads for all lighting applications
- Tool-less rear lamp access leaves aiming angles undisturbed, reducing maintenance costs
- Installs on standard luminaire mounting system
- Can be double stacked with the other arena luminaires when space is limited
- Heavy-duty, lightweight, die-cast aluminum housing
- Provides the high efficiency and superb optical design available with all Infranor products
- UL listed
Spectators need light to find their seats and read their programs. The ASL utilizes a 900W quartz lamp that can be easily dimmed to adjust to any seating lighting levels.

**FEATURES AND BENEFITS**

- Three different beam spreads for all seating lighting applications
- Tooless rear lamp access leaves aiming angles undisturbed, reducing maintenance costs
- Installs on standard luminaire mounting system
- Can be double stacked with other arena luminaires when space is limited
- Heavy-duty, lightweight, die-cast aluminum housing
- Provides the high efficiency and superb optical design available with all Infranor products
- UL listed
Our luminaire mounting system is solid, substantial and has been engineered to fit virtually any round pipe railing system. In fact, it is so unique and easy to use.

FEATURES AND BENEFITS

➤ Easy to install – simply place the brackets over the pipe railing, slip through the U-channel and tighten the bolts

➤ Ballast box mounts directly to the bracket system, allowing for easy access by maintenance personnel

➤ Allows for double stacking of luminaires when minimal catwalk space is available

➤ Predrilled to accept all Sterner arena luminaires

➤ Cast-iron bracket system supports up to 900 lbs.

See page 15 for other mounting arrangements.
## Sports Lighting Luminaire Ordering Matrix

**Sample Order Number:** AP2-1000MH-RN-277-SH-FS-BK  
655-1000MH-RW-277-BK  
ASL-900Q-RM-YK-BL

<table>
<thead>
<tr>
<th>SERIES</th>
<th>LAMP TYPE</th>
<th>BEAM PATTERN</th>
<th>VOLTAGE</th>
<th>FIXTURE MOUNT</th>
<th>ACCESSORIES AND OPTIONS</th>
<th>FINISH</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP2* Arena Luminaire</td>
<td>1000MH</td>
<td>RN (8 x 21) RM (13 x 30)</td>
<td>120 208 240 277 347</td>
<td>SH- (Motorized Shade) FS- (Fail Safe)***</td>
<td>BK- (Black) AL-(Aluminum)</td>
<td></td>
</tr>
<tr>
<td>655* Reduced Height Sports Lighting Luminaire</td>
<td>1000MH</td>
<td>RN RM</td>
<td>120 208 240 277 347</td>
<td>SH- (motorized shade) FS- (Fail Safe)***</td>
<td>AL-(Aluminum) BK-(Black)</td>
<td></td>
</tr>
<tr>
<td>ASL* Seating Luminaire</td>
<td>900Q**</td>
<td>RN RM RW</td>
<td>YK-(Yoke)</td>
<td>SH- (Motorized Shade) FS- (Fail Safe)***</td>
<td>BL-(Black)</td>
<td></td>
</tr>
</tbody>
</table>

* AP2, 655 and ASL include safety cable.  
** 900Q lamp is available in 240, 277V ONLY, sold separately  
*** Recommended when motorized shade is ordered.  
Lamps included, AP2 & 655 only

In the interest of continuous product improvement, Sterner Lighting Systems Incorporated reserves the right to change specifications without notice.
## Mounting Options and Ordering Matrix

### Mounting Options
- **DSMB** – Double Sports Mounting Bracket
- **SSMB** – Single Sports Mounting Bracket
- **SQMB** – Sport and Quartz Mounting Bracket
- **DQMB** – Double Quartz Mounting Bracket
- **QMB** – Single Quartz Mounting Bracket

### Mounting Options Table

<table>
<thead>
<tr>
<th>Mounting Option</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSMB – Double Sports Mount Bracket</td>
<td>BK</td>
</tr>
<tr>
<td>SSMB – Single Sports Mount Bracket</td>
<td>BK</td>
</tr>
<tr>
<td>SQMB – Sport Quartz Mount Bracket</td>
<td>BK</td>
</tr>
<tr>
<td>DQMB – Double Quartz Mount Bracket</td>
<td>BK</td>
</tr>
<tr>
<td>QMB – Single Quartz Mount Bracket</td>
<td>BK</td>
</tr>
</tbody>
</table>

Other mounting arrangements available – consult factory.
HOUSING/REFLECTOR MODULE
The luminaire optical system shall be of a 0.06 aluminum compound hydroformed aluminum and shall serve as the luminaire housing. The reflector shall be bright dipped and anodized. The reflector/housing shall be hinged to the doorframe and shall swing away from the doorframe for tooless rear access.

LENS AND DOORFRAME
The luminaire lens shall be clear tempered flat glass 0.188" thick, thermal and impact resistant. Lens shall seal to the doorframe with a continuous extruded silicone gasket. Doorframe shall be extruded aluminum mitered and corner keyed. Doorframe shall be hinged to the housing and shall be equipped with two spring-loaded reflector latches for tooless lamp access.

LUMINAIRE YOKE
Luminaire yoke shall be 0.25” x 2.00” steel bar and shall be supplied with an electrodeposition finish to prevent corrosion and shall be supplied with a safety cable for attachment between yoke and catwalk railing. The fixture yoke shall also include horizontal and vertical aiming protractors for ease of fixture aiming.
PARA II (AP2) LUMINAIRE SPECIFICATIONS

LAMP HOLDER ASSEMBLY
Cast aluminum 319 component shall include the Arc Stream Aligner to position the arc stream in the reflector design center and shall include a lamp stabilizer to prevent the lamp from sagging out of photometric light center. The Arc Stream Aligner and the lamp support device shall be accessible without tools and without entering the optical chamber.

ELECTRICAL MODULE
Luminaire shall be UL and ULc rated for use in damp locations and shall be manufactured from components that are UL and ULc recognized. The ballast enclosure shall be fabricated of 14 ga. steel sheet and shall include a top piece cover that is removable for service of the core and coil ballast. Multi-tap ballast shall be CWA high power factor rated.
HOUSING/REFLECTOR MODULE
The luminaire housing shall be one-piece die-cast aluminum and shall contain integral cooling fins for heat dissipation. The luminaire reflector module shall be of a high purity anodized or patterned specular aluminum in a choice of forms to provide a rectangular beam pattern.

LENS AND DOORFRAME
The luminaire lens shall be clear tempered flat glass, 0.188" thick, thermal and impact resistant. Lens shall be set into a die-cast doorframe and retained by eight preset clips. Doorframe shall be secured to the housing hinges and over center latches for toolless rear lamp access. Aiming angles shall not be disturbed when relamping. Doorframe shall contain four cored holes for securing accessories.

LUMINAIRE YOKE
Luminaire yoke shall be 0.19" x 2.00" steel bar and shall be supplied with an electrodeposition finish to prevent corrosion and shall be supplied with a safety cable for attachment between yoke and catwalk railing.
COMPLETE PHOTOMETRIC INFORMATION AND LAYOUTS AVAILABLE

Our sports lighting application specialists are members of the Illuminating Engineering Society of North America (IESNA) and have more than thirty years of combined sports lighting experience. Dozens of professional arenas now operating with Sterner product provide time-proven testimony. Our arena team will work closely with your design team from concept through final aiming and measurement of the resultant light levels of your project.

The key to perfect arena lighting is comprehensive photometric layouts. This lighting model shows how one of our photometric designs works in an actual arena.
VANCOUVER’S
GENERAL MOTORS
PLACE
MISSOURI'S
SCOTTRADE CENTER ARENA
LOUISIANA'S CAJUNDOME
In addition to arena lighting, Sterner Lighting Systems is the pre-eminent resource of high performance luminaires for specifiers worldwide.

Contact us to create unique pathway lighting or enduring architectural statements throughout the interior and exterior of any facility.