

MUSCO LIGHTING PROPOSAL
PREPARED FOR

Burlingame Mini Pitch

LED Lighting Project
Burlingame, CA
April 11, 2019

SUBMITTED BY

Musco Sports Lighting, LLC

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A. OVERVIEW

Company Profile
Mini Pitch System Fact Sheet
Luis Munoz Marin School for Social Justice – Newark, NJ
Garrett Park – Dallas, TX
Santa Fe South High School – Oklahoma City, OK

B. PRODUCT INFORMATION

TLC-LED-600 Luminaire and Driver Datasheet
Sample 50'x84' Layout
Sample System Renderings

C. WARRANTY

Sample Musco 10-Year LED Warranty

ITEM A

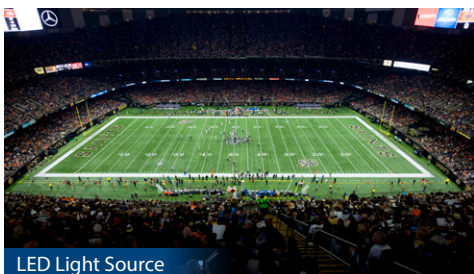


LED Light Source

Statue of Liberty National Monument
New York, New York, USA



Yas Marina Circuit
Grand Prix Racing
Abu Dhabi, UAE



LED Light Source

Mercedes-Benz Superdome
New Orleans Saints
New Orleans, Louisiana, USA



Chongqing Olympic Sports Center
Chongqing Lifan F.C.
Chongqing, China



LED Light Source

Vancouver International Airport
Vancouver, BC, Canada

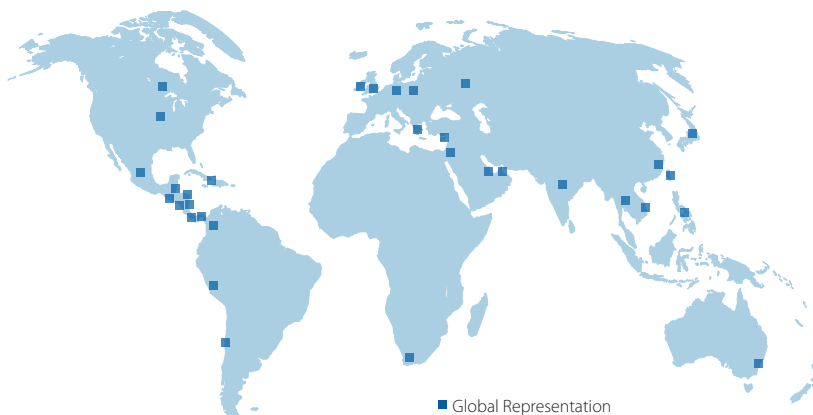
Introduction

Since 1976, Musco Lighting has specialized in the design and manufacture of sports and large-area lighting with innovations in glare reduction and light control responsible to the needs of facility owners, users, neighbors, and the night sky. Musco's Total Light Control – TLC for LED™ technology delivers a level of light control and uniformity that can't be matched, and is the solution of choice for neighborhood Little League® fields, collegiate and professional stadiums and arenas, international airports, rail yards, the Olympic Games, iconic landmarks, and some of the largest ports around the world. Musco has a global team of experts that partner with customers to plan, complete, and maintain a cost-effective, trouble-free lighting solution for their facility.

Headquarters: Oskaloosa, Iowa, USA

Manufacturing: Muscatine, Iowa USA; Shanghai, China; Gumi, South Korea

Global Representation: Australia, Belize, Canada, Caribbean Islands, Chile, China, Colombia, Costa Rica, Cyprus, El Salvador, Germany, Greece, Guatemala, Honduras, India, Ireland, Japan, Jordan, Mexico, Nicaragua, Panama, Peru, Philippines, Poland, Qatar, Russia, South Africa, South Korea, Taiwan, Thailand, United Arab Emirates, United Kingdom, United States, Vietnam



■ Global Representation

Special Projects

- Olympic Games — Rio, 2016; Sochi, 2014; London, 2012; Vancouver, 2010; Athens, 2004; Sydney, 2000; Atlanta, 1996; Los Angeles, 1984
- "Battle": Tiger Woods Golf, 2000–2004
- ESPN Wide World of Sports Complex
- Daytona International Speedway
- Losail International Circuit
- Yas Marina Circuit
- Bahrain International Circuit
- Churchill Downs
- Wimbledon Centre Court
- Madison Square Garden
- Mercedes-Benz Arena, Shanghai
- Mercedes-Benz Arena, Berlin
- Purcell Pavilion, University of Notre Dame
- Munn Ice Arena, Michigan State University
- AT&T Center, San Antonio Spurs
- Emirates Stadium, Arsenal F.C.
- Twickenham Stadium, England National Rugby
- Tianjin TEDA Football Stadium, Tianjin TEDA F.C.
- Citi Field, New York Mets
- NRG Stadium, Houston Texans
- Nationals Park, Washington Nationals
- Dodger Stadium, Los Angeles Dodgers
- Comerica Park, Detroit Tigers
- Lamade Stadium, Home of the Little League® World Series
- Super Bowls XVII, XIX, XXI, XXVII, XXX, XXXV, XXXVIII, XL, XLII, XLIII, XLIV, LI
- ESPN X Games
- San Francisco-Oakland Bay Bridge East Span
- Statue of Liberty
- The White House
- Mount Rushmore National Memorial
- McCarran International Airport
- DP World Jebel Ali Port Terminal 2

continued on back

Company Profile

Major Innovations

- 1982** “The night the lights went on at Notre Dame Stadium,” said Keith Jackson, broadcaster, made television history by taking sports lighting on the road with Musco mobile lighting systems for broadcast of the Notre Dame vs. Michigan prime time college football game.
- 1987** Made significant technical advancements in providing affordable light control with Level-8™ and Total Light Control™ systems.
- 1991** Introduced the industry’s first sports-lighting system complete from foundation to poletop: Light-Structure System™.
- 1992** Revolutionized NASCAR broadcasts by making night racing at the Winston Cup level possible. Mirtran™ systems were first used at Charlotte Motor Speedway and as of 2017, are in place at 20 speedways and racetracks, including the Daytona International Speedway and the Bahrain International Circuit.
- 1996** Introduced cost-effective, quality lighting for special effects and dramatic player introductions in large indoor arenas. ShowLight™ systems were first used at Charlotte Coliseum and are installed throughout the U.S., England, and Ireland.
- 1999** Introduced technology to dramatically advance on/off capability and facility management. Control-Link® system allows facility managers to control their lighting systems remotely as well as provide critical management reports.
- 2005** Revolutionized the sports lighting industry with the introduction of Green Generation™ technology. This system reduces energy consumption by half, spill light by 50% and includes maintenance & relamping for 25 years. Musco’s Constant 25™ product assurance and warranty program guarantees the system will perform at the designed light levels for the duration of the warranty.
- 2008** Installed a cutting-edge lighting system using LED technology in Washington D.C. at the White House. This system dramatically reduced energy consumption by 87%, while providing a clean, color accurate light.
- 2013** Matched its proven system design and application expertise with the evolving LED technology to provide custom lighting solutions for several major arenas and the East Span of the San Francisco-Oakland Bay Bridge.
- 2016** Introduced TLC for LED™ technology, delivering to customers light control and uniformity never before possible, while virtually eliminating glare and significantly improving efficiency. The system is backed by a 25-year parts and labor warranty.

Television Credits

ABC, CBS, NBC, TBS, TNN, ESPN, ESPN2, FOX, FoxSports, SkyTV, CBC, BTN, ESPNU, Longhorn Network, and Channel 9 (Australia) have relied on Musco to provide quality lighting to meet broadcast requirements.



LED Light Source

Xcel Energy Center
St. Paul, Minnesota, USA



LED Light Source

San Francisco-Oakland Bay Bridge
Oakland, California, USA

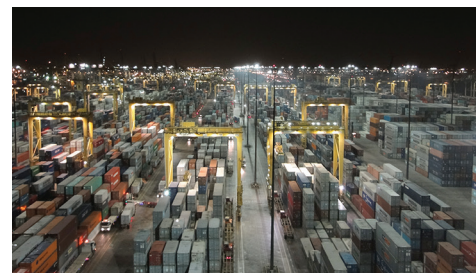


LED Light Source

Twickenham Stadium
England National Rugby
Twickenham, United Kingdom



02 Ski and Resort
Taebaek-si, Gangwon-do, South Korea



DP World Jebel Ali Terminal 1
Dubai, UAE



Mini-Pitch System

All-in-one, modular system

- LED lighting
- Benches and lockable storage
- Wheelchair accessible gates
- Beverage holders
- Optional signage opportunities
- Optional video capabilities

Easy installation

- Can be installed by local volunteers

Durable, stable structure

Permanent or temporary installation

Comprehensive long-term warranty



Technical Specifications

Lighting

- Two LED luminaires
- 20 fc (200 lx) (vary by pitch size)
- Can be equipped with Control-Link® for instant on/off scheduling and remote capabilities

Pitch Sizes

- 40 ft x 84 ft (12 m x 25 m) Pitch: 6550 lb (3000 kg)
- 50 ft x 102 ft (15 m x 31 m) Pitch: 7500 lb (3400 kg)
- 60 ft x 120 ft (18 m x 36 m) Pitch: 8250 lb (3700 kg)
- All units are approved for 130 mi/h (58 m/s) winds

Playing Area

- Provided by others
- Acrylic surface (recommended)

Materials

- Square tubing and channel material: 11 gauge 0.120 in (3 mm) thick steel
- Sheet metal: 12 gauge 0.109 in (2.7 mm) thick
- Anchor for asphalt surface: 12 in (304 mm) long x 7/8 in (22.2 mm) diameter, with a 7/16 in (11 mm) female head
- Anchor for concrete surface: 1/2 in x 5 1/2 in (12.7 mm x 139.7 mm).
- Galvanized after welding
- Optional powder coat paint over galvanizing

Goals and Storage

- Goal dimensions: 70 in (1.7 m) tall x 90 in (2.3 m) wide x 34 in (0.9 m) deep
- Storage: 20 ft³ (566 l) of storage per corner with lockable cabinet

Delivery

- System fits on one truck
- 12-hour setup with 3-person crew















MUSCO
Lighting
We Make It Happen



ENERGY-ASSET
FOUNDATION

U.S.
SOCCER
FOUNDATION

ITEM B

Luminaire Data

Weight (luminaire)	40 lb (18 kg)
UL listing number	E338094
UL listed for USA / Canada	UL1598 CSA-C22.2 No.250.0
CE Declaration	LVD, EMC, RoHS
Ingress protection, luminaire	IP65
Material and finish	Aluminum, powder-coat painted
Wind speed rating (aiming only)	150 mi/h (67 m/s)
UL, IEC ambient temperature rating, luminaire	50°C (122°F)

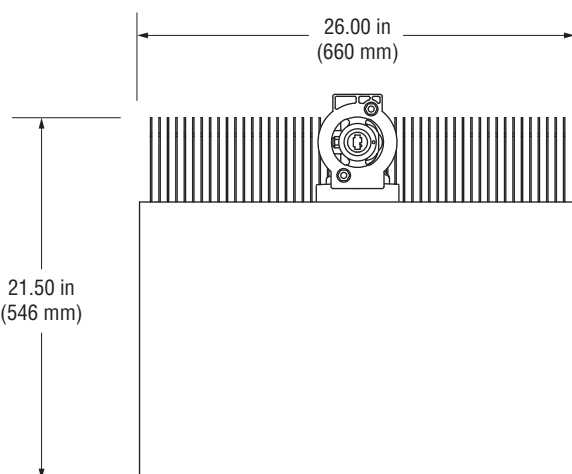
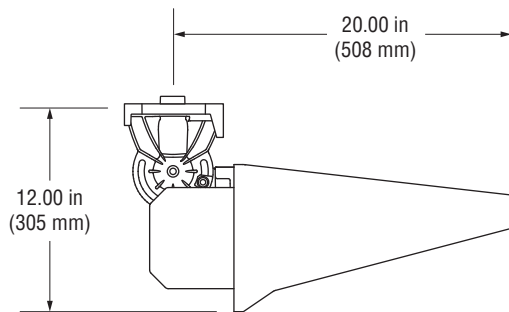
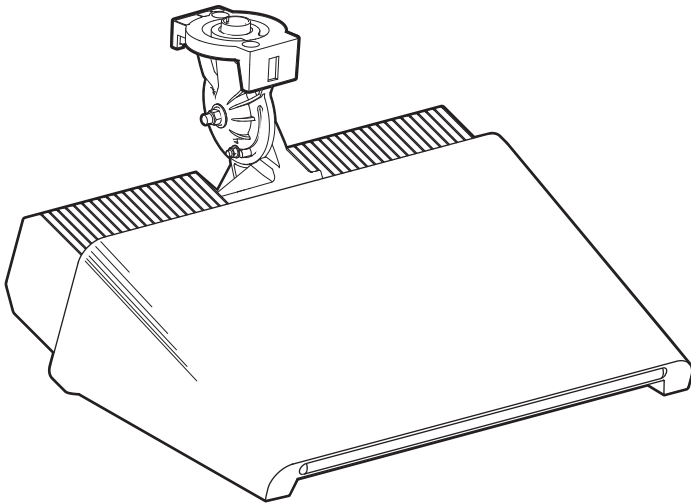
Photometric Characteristics

Projected lumen maintenance per IES TM-21-11

L90 (13.5k)	>81,000 h
L80 (13.5k)	>81,000 h
L70 (13.5k)	>81,000 h
CIE correlated color temperature	5700 K
Color rendering index (CRI)	75 typ, 70 min
Lumens ¹	65,600

Footnotes:

1) Incorporates appropriate dirt depreciation factor for life of luminaire.

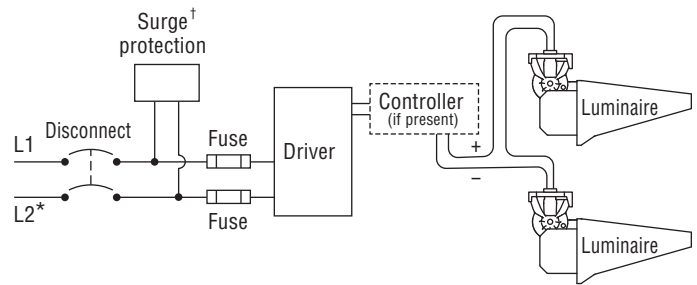


Driver Data

Typical Wiring

Electrical Data

Rated wattage ¹	
Per driver	1160 W
Per luminaire	580 W
Number of luminaires per driver	2
Starting (inrush) current	<40 A, 256 μ s
Fuse rating	15 A
UL, IEC ambient temperature rating, electrical components enclosure	50°C (122°F)
Ingress protection, electrical components enclosure	IP54
Efficiency	95%
Dimming mode	optional
Range, energy consumption	20 – 100%
Range, light output	25 – 100%



* If L2 (com) is neutral then not switched or fused.

† Not present if indoor installation.

	200 Vac 50/60 Hz	208 Vac 60 Hz	220 Vac 50/60 Hz	230 Vac 50 Hz	240 Vac 50/60 Hz	277 Vac 60 Hz	347 Vac 60 Hz	380 Vac 50/60 Hz	400 Vac 50 Hz	415 Vac 50 Hz	480 Vac 60 Hz
Max operating current per luminaire ²	3.54 A	3.40 A	3.22 A	3.08 A	2.95 A	2.56 A	2.04 A	1.86 A	1.77 A	1.71 A	1.48 A

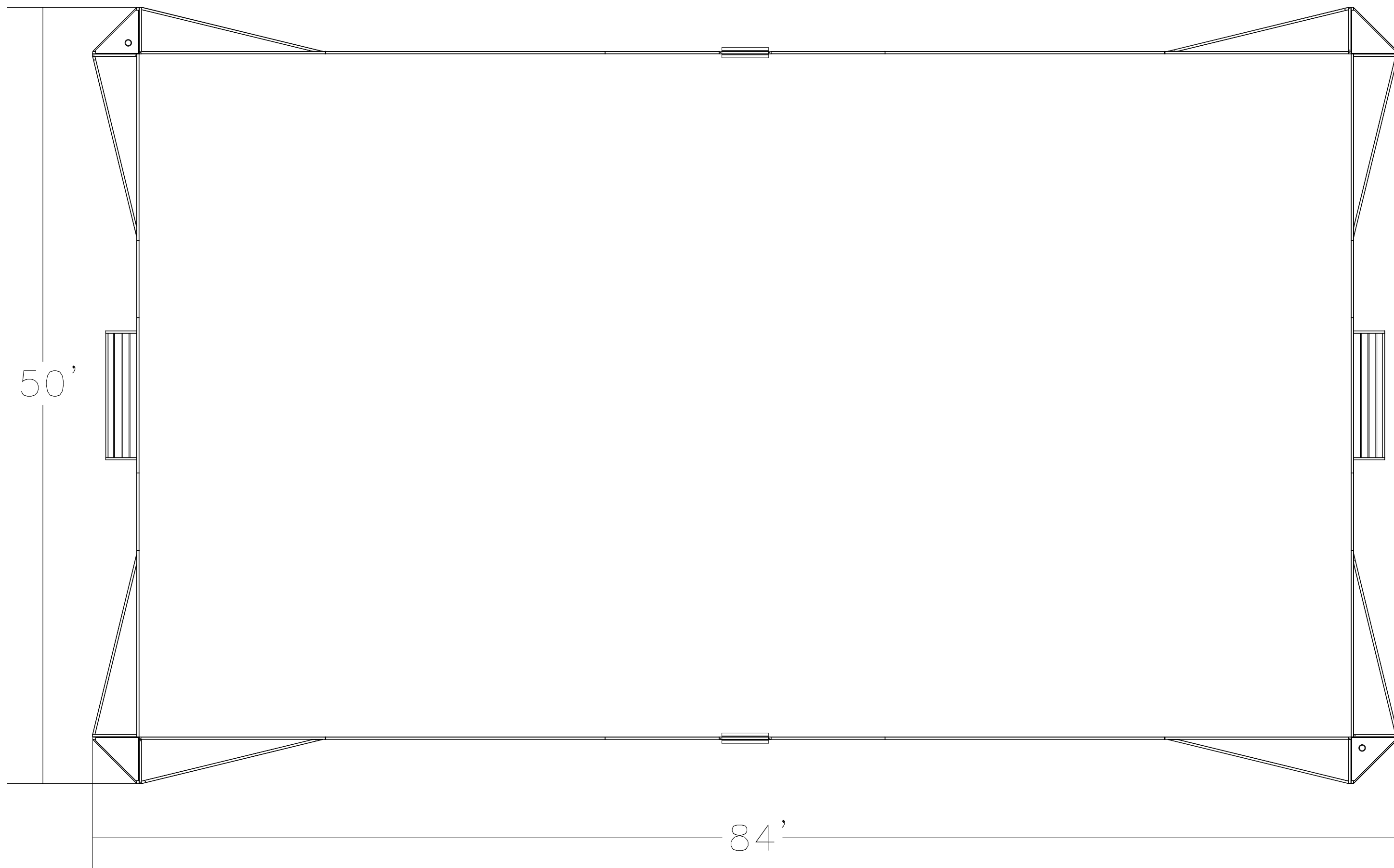
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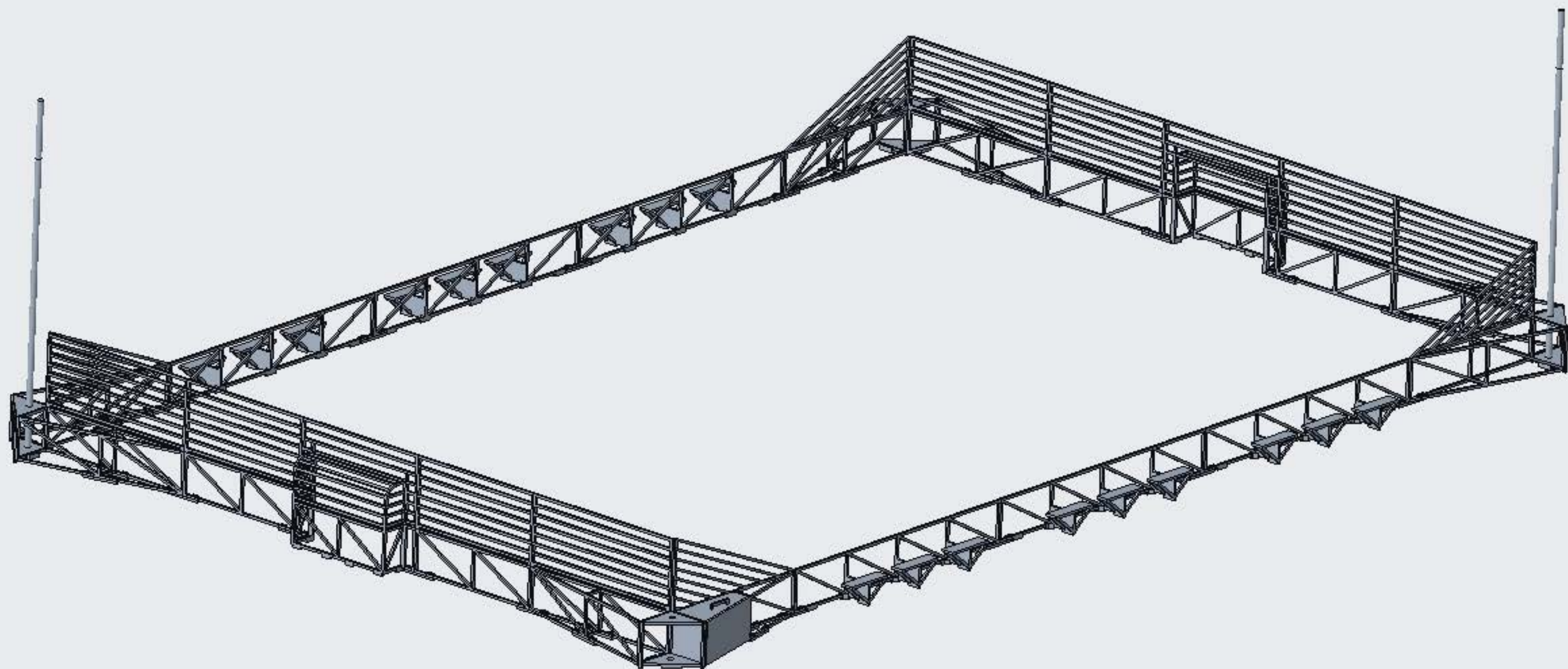
- 1) Rated wattage is the power consumption, including driver efficiency losses, at stabilized operation in 25°C ambient temperature environment.
- 2) Operating current includes allowance for 0.90 minimum power factor, operating temperature, and LED light source manufacturing tolerances.

Notes

1. Use thermal magnetic HID-rated or D-curve circuit breakers.
2. See *Musco Control System Summary* for circuit information.









ITEM C



10-Year Warranty

Sample Warranty LED Lighting System

Warranty start date: ***Date of Shipment***
Luminaires Covered: ***See Design***

For the next 10 years, Musco Sports Lighting, LLC ("Musco") will provide all materials and labor to maintain the operation of your lighting system.

Equipment

Musco warrants your lighting system to be free from defects in materials and workmanship for a period of 10 years starting from date of product shipment. Musco agrees to provide labor and materials to replace defective parts or repair defects in workmanship. This includes all Musco manufactured product (such as wire harnesses, drivers, luminaires, poles, concrete bases). Individual outages that occur during the warranty period are repaired when the usage of any field is materially impacted.

Alignment

Musco warrants accurate alignment of the luminaires on the luminaire assembly for a period of 10 years starting from date of product shipment.

Light Levels

Musco warrants the light levels will not fall below the specified illuminance value for each field for a period of 10 years starting from date of product shipment.

Availability of Service

Musco Warranty Department is available from 8:00 AM to 5:00 PM Central time, Monday through Friday. Musco call center operators are available 24 hours a day, 7 days a week and can be contacted in the event of an emergency and to aid in troubleshooting. Musco will exercise all reasonable efforts to perform service under this contract, but will not be responsible for delays beyond its control. Customer agrees to provide reasonable access for crane or man lift equipment to service the lighting system. Musco is not responsible for damage from operating equipment on the site when the equipment is operated in the prescribed manner over a designated route.

Service Limitations

This contract does not cover weather condition events such as lightning or hail damage, improper installation, vandalism or abuse, unauthorized repairs or alterations, or product made by other manufacturers. Customer agrees to check and replace fuses as needed. Musco provides spare fuses in the lowest alpha-numeric numbered enclosure and will replenish spare fuses used.

Warranty Contact Information

Musco Sports Lighting, LLC
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100 1st Avenue West
PO Box 808
Oskaloosa, IA USA
Phone: +1 641 673 0411
Email: lighting@musco.com