



**World Class Leaders for
Lighting Solutions in Sports & Large Area**

Musco offers lighting systems and solutions in 3 business areas



Sports Facilities

(e.g. Stadiums, Arenas, Sports fields (in- & outdoor))



Industrial Applications

(e.g. Harbours, Airports, Rail yards, Multi modal facilities Construction sites, Parking lots, Public places)



Temporary Lighting

(e.g. Sporting events, Special events, Television, Movie productions, etc.)

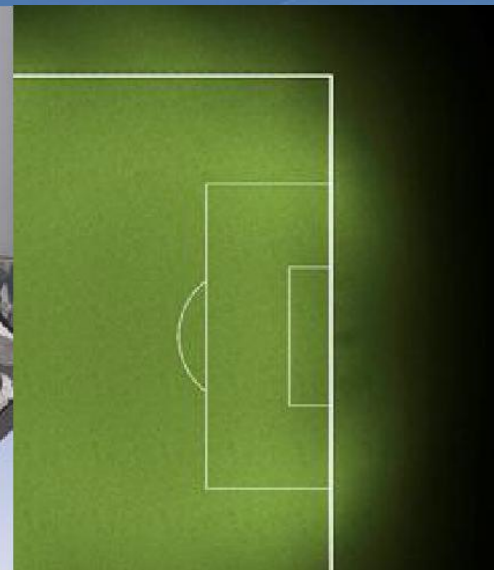
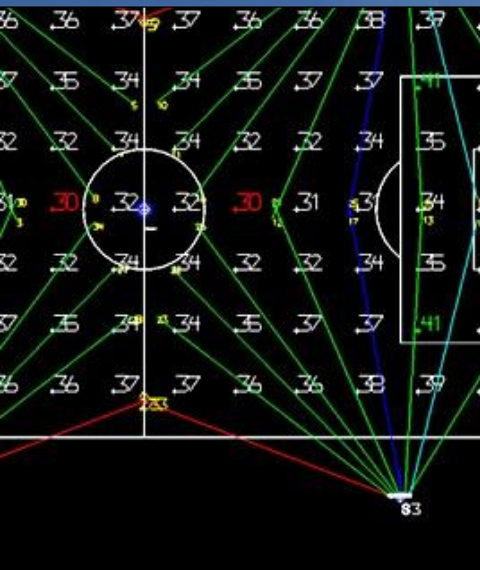
- Founded in 1976
- 1200 employees
- Completed projects in 100+ countries
- Over 200 temporary lighting projects annually
- Over 2500 permanent lighting projects annually or an average of 200 per Month
- Project specific tailormade solutions for energy efficient and optimized lighting
- Own R&D in HQ at Oskaloosa, Iowa

Musco Lighting - Locations



- Headquarters in Oskaloosa, Iowa, USA
- Over 20 offices in over 15 Countries
- Manufacturing in USA, China und Korea
- Completed projects in 100+ countries

Musco Technology

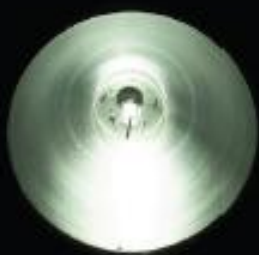



We Make It Happen.

Evolution of Musco Lighting Technology

1976

SportsCluster-



1989

SportsCluster-2



1989

SportsCluster-2
with Level 8"



1989

Total Light
Control™



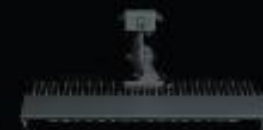
2005

Light-Structure
Green™— HID



2013

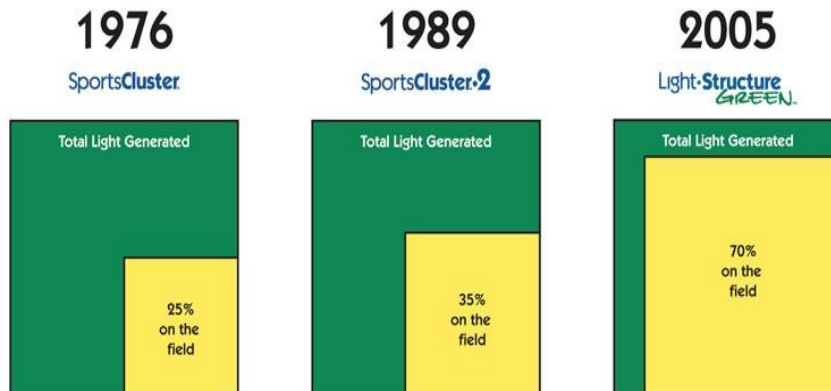
Light-Structure
Green™— LED



Musco Lighting - Sustainability



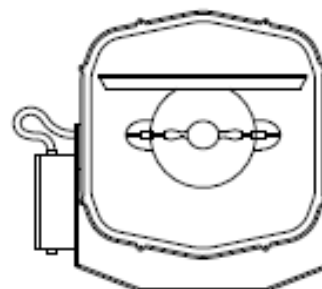
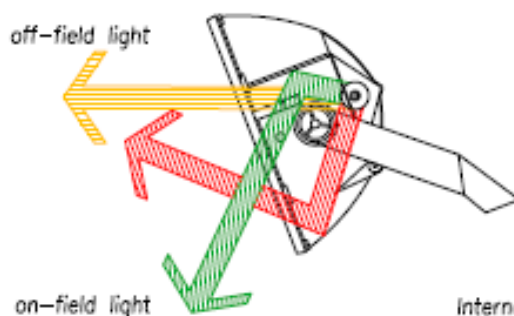
- Reflectors tailored for individual projects eliminate spill, glare and glow
- Advanced photometrics allow for lower capacity bulbs, thus reducing energy consumption and carbon footprint by more than 25%
- Makes your club a “good neighbor”



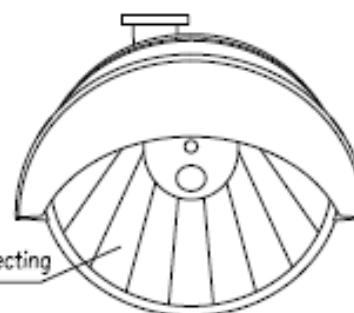
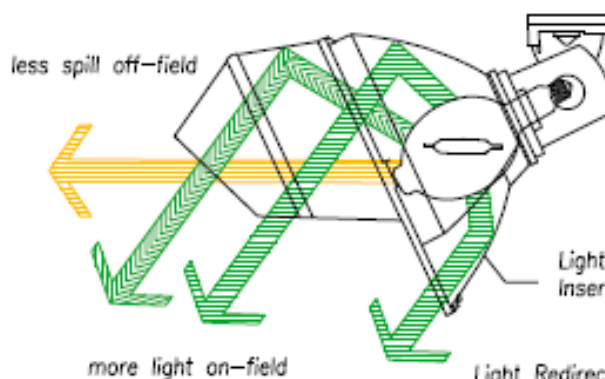
Musco's technology has developed over 29 years to utilize on the field 70% of the available light energy.



Control spill, glare and glow: reflector design



Internal Baffles, Non-Visor, Asymmetrical Reflector



Light Redirecting Inserts and Visor, Asymmetrical Reflector

Musco Lighting - Baseball/Softball Fixture

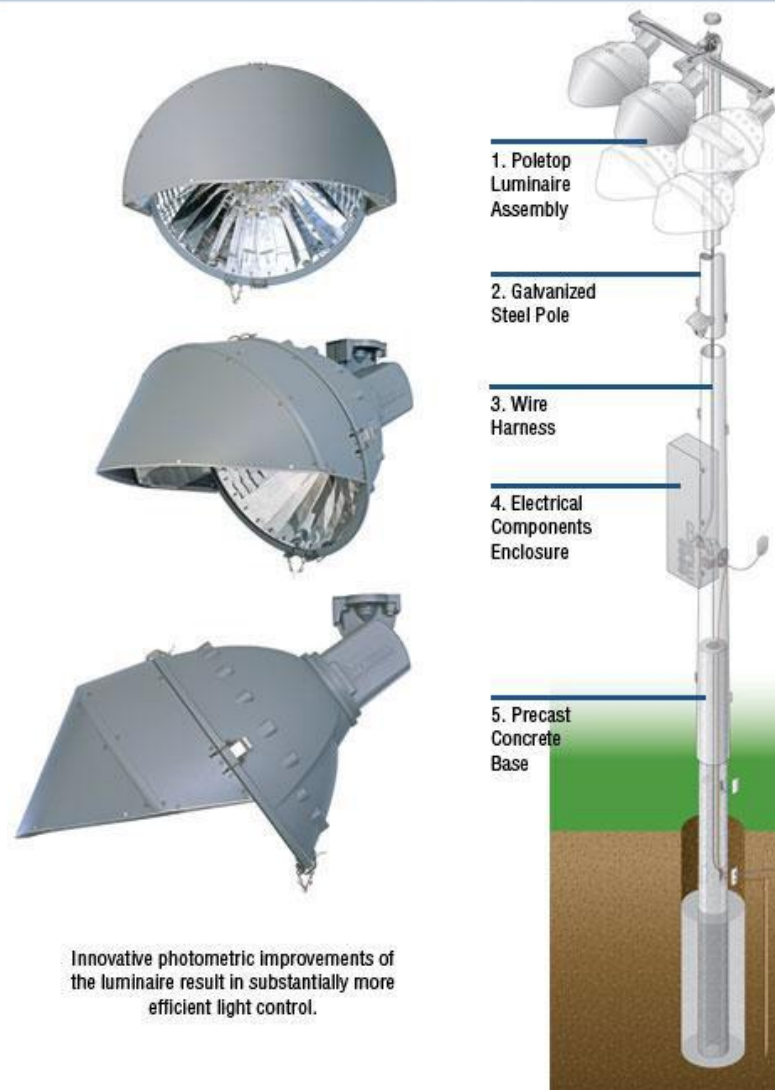
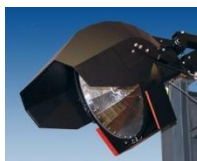
- **Baseball/Softball Fixture**

- Musco created a fixture with an insert which enables up-light for high fly-balls while still controlling the amount of sky-glow and light off of the field.

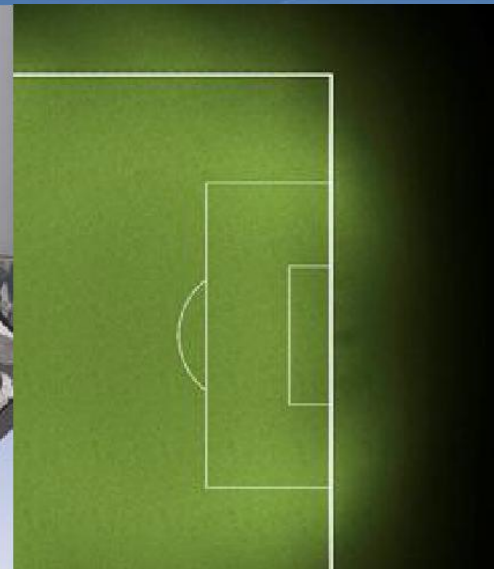
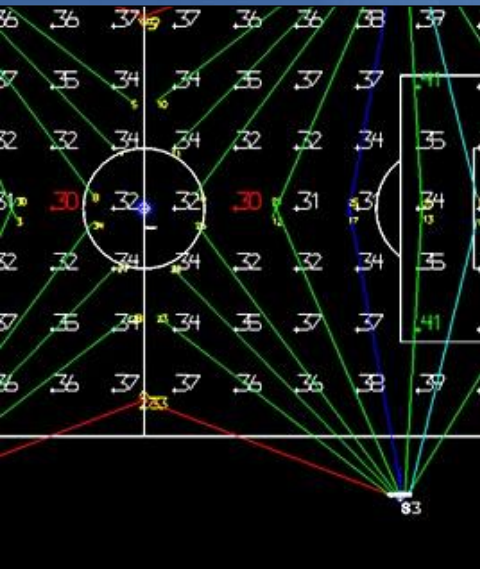


Key Benefits of Musco Product

- LED and Metal Halide Technology
 - Energy Savings
 - 25% to 75% Energy Savings
- Constant Light
- 40 Years Sports Lighting Experience
- Comprehensive 10 Year Warranty
- Spill Light Control



Musco Services




We Make It Happen.

Musco Lighting - Free Pre-Sale Services

•Planning and Consultation

- Level of Play
- Lighting Standards
- Spill Light Concerns
- Other Areas to Light?

•Engineering

- Lighting Design
- Foundation and Electrical Design

•Existing Field Audit

- Light Level Test
- Amount of poles

•Specification & Request For Proposal

- Assist with the writing process to ensure customer gets what they want.






•Return on Investment Analysis

- Energy Consumption Comparison
- Maintenance Costs



Musco covers all 9 puzzle pieces in any lighting projects

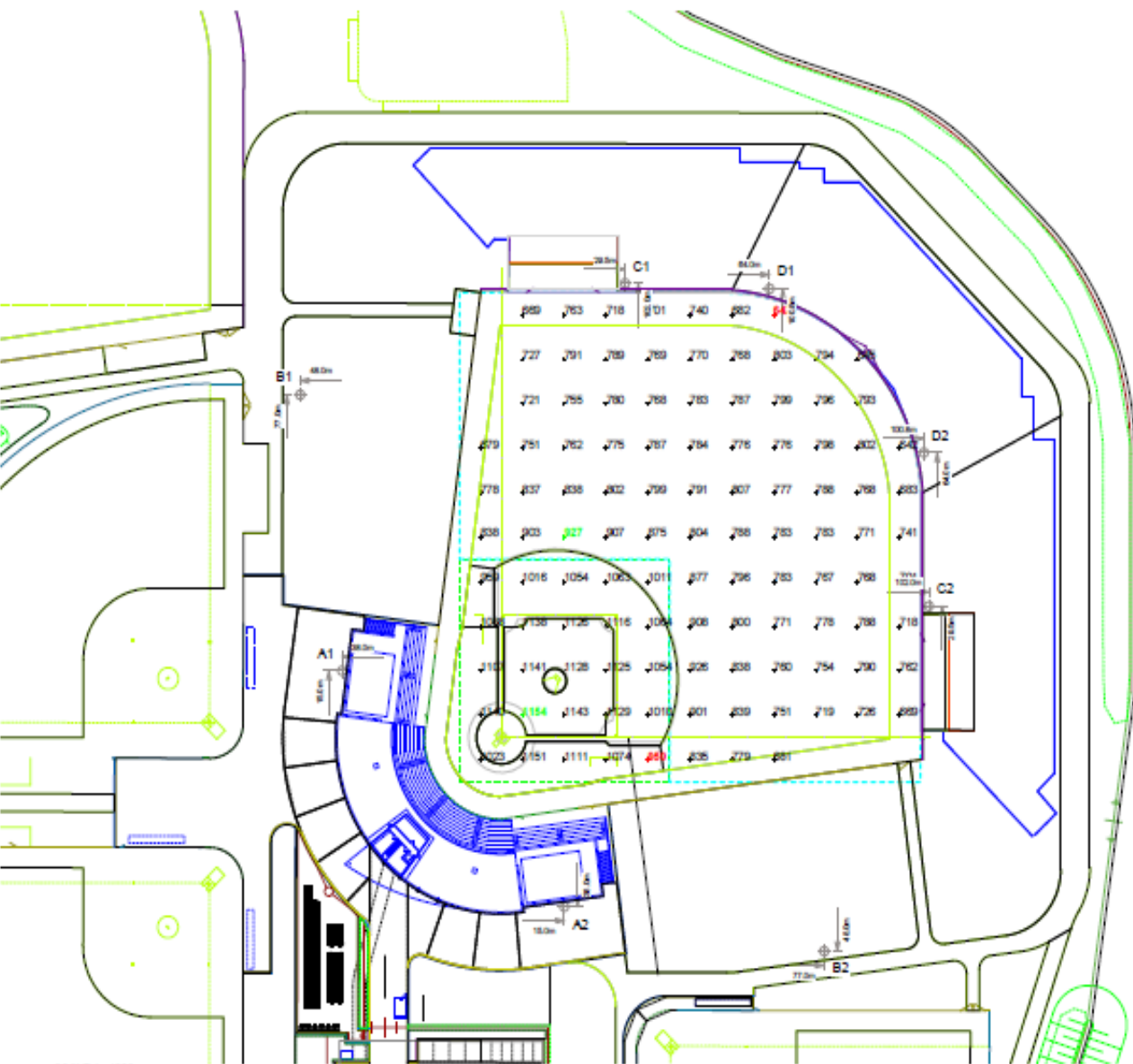
- Customer needs to make decisions on 9 different parts of a lighting project
- Musco offers „turnkey“ solutions covering all 9 pieces

	Lighting	Electrical	Structural
Design			
Supply			
Install			

9 pieces to be covered in any lighting project

EQUIPMENT LIST FOR AREAS SHOWN

QTY	LOCATION	SIZE	MOUNT	MOUNTING HEIGHT	LUMINAIRE TYPE	WATTAGE	LUMENS	FOOT COUNCILS	FOOT COUNCILS
2	A1-A2	24.00m	-	24.00m	2100W M2	20	20	0	0
2	B1-B2	24.00m	-	24.00m	2100W M2	20	20	0	0
4	C1-C2	24.00m	-	24.00m	2100W M2	11	11	0	0
8	D1-D2	24.00m	-	24.00m	2100W M2	11	11	0	0



SCALE 1 : 1000



Pole location(s) dimensions are relative to (0,0) reference point(s)

MY PROJECT

Name: Hooftdorp Pioniers Stadium
Location: Amsterdam

GRID SUMMARY

Name: Baseball - Level 3
Size: 110.1m x 110.0m
Spacing: 10.0m x 10.0m
Height: 1.0m above grade

CONSTANT ILLUMINATION

SUMMARY	HORIZONTAL LUX	
	Infield	Outfield
Guaranteed Average:	1000	700
Scan Average:	1083.03	777.18
Maximum:	1153.9	926.8
Minimum:	950.4	641.7
Min / Avg:	0.88	0.83
Min / Max:	0.82	0.69
UG (adjacent pt):	1.14	1.25
CU:	0.06	0.08
CU:	0.53	0.53
No. of Points:	25	85
LUMINAIRE INFORMATION		
Luminaire Type:	Green Generation	
Rated Lamp Life:	5,000 hours	
Avg Lumens / Lamp:	134,000	
Avg Lamp TIR Factor:	0.994	
No. of Luminaires:	132	
Avg IAW:	206.45 (224.4 max)	

Guaranteed Performance: The Guaranteed Average CONSTANT ILLUMINATION described above is guaranteed for the rated life of the lamp.

Field Measurements: Illumination measured in accordance with IESNA LM-5-04 and CIE S04. Individual values may vary. See the Warranty document for details.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume +/- 3% nominal voltage at line side of the ballast and structure located within 3 feet (3m) of design locations.

ENGINEERED DESIGN

By: Olley
File # / Date: 157476K2-Prod

26-Dec-13

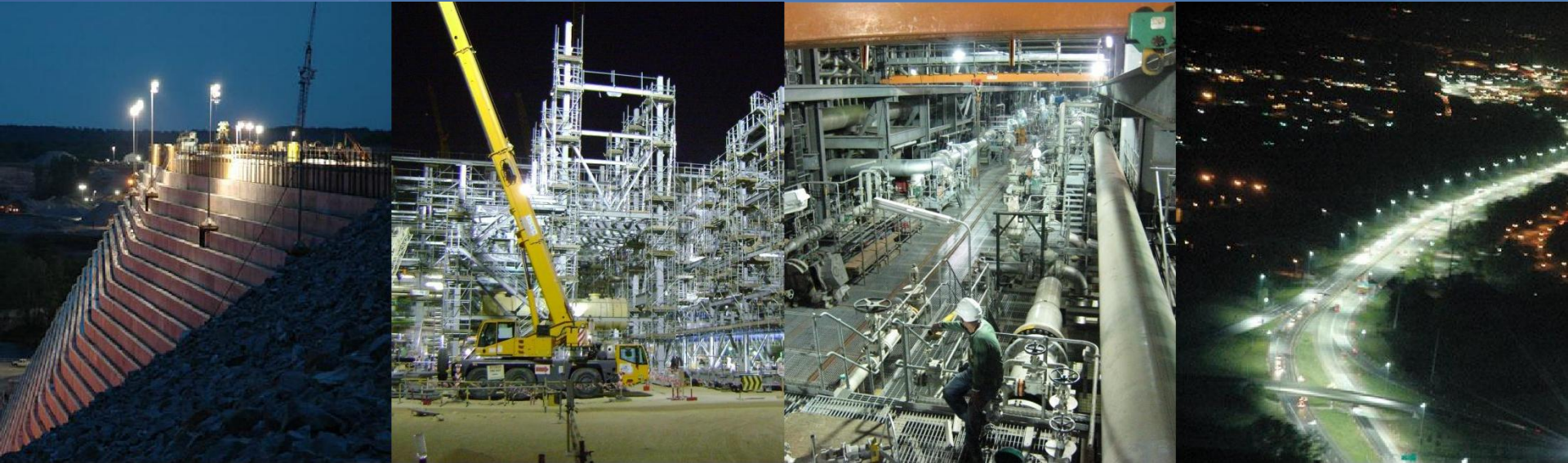
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Hoofddorp Pioniers Stadium, The Netherlands

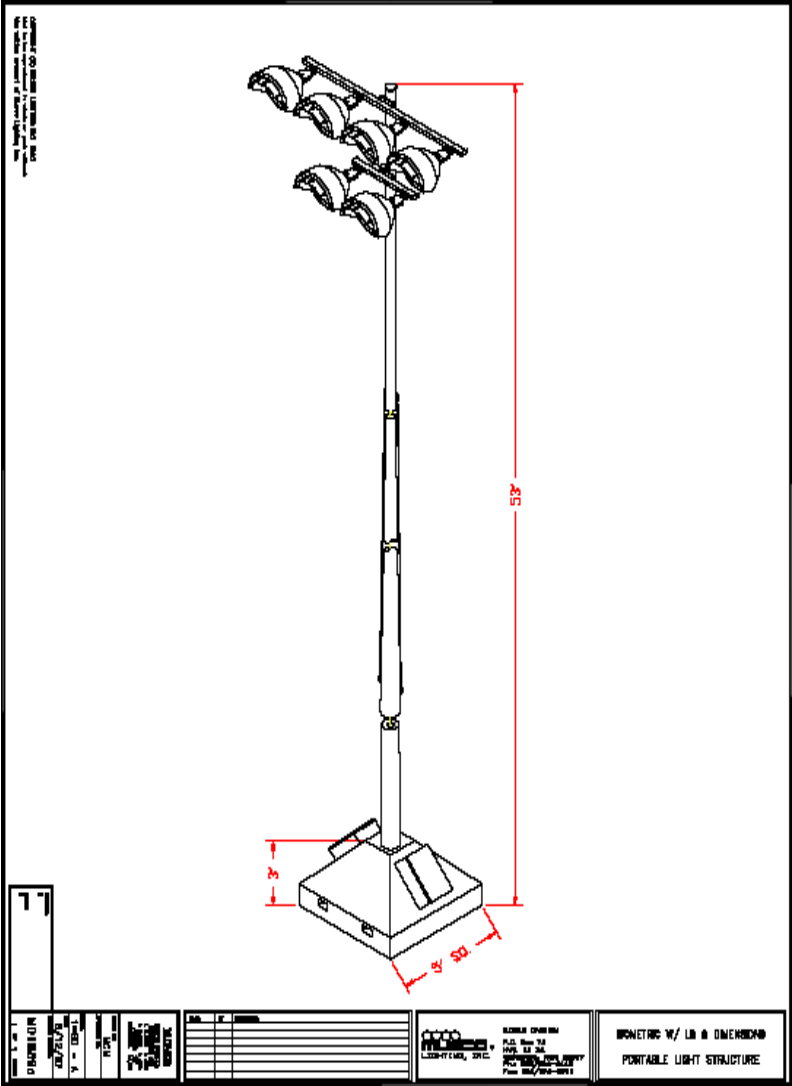
1000 /700 Lux



Temporary and Mobile Lighting



Temporary Lighting



Musco Ferrostaal Mobile Lighting



Musco Light™



Light Trailer



Mini Musco™



Musco Light™

Baseball/Softball Project References

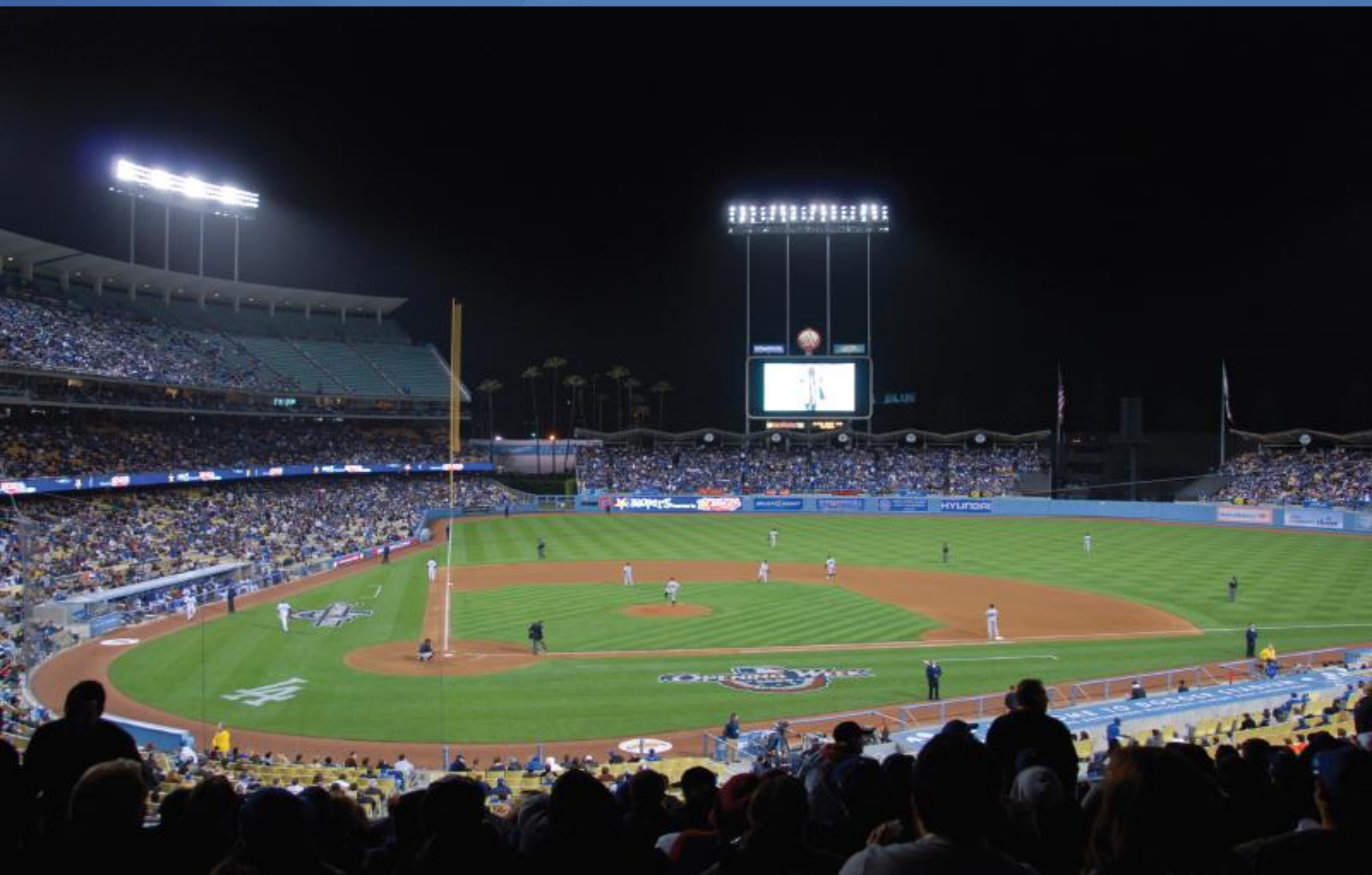


New York Yankee Stadium

3000/2250 Lux



Los Angeles Dodger Stadium



New Sharon High School Softball Field

500/300 Lux



Little League Field

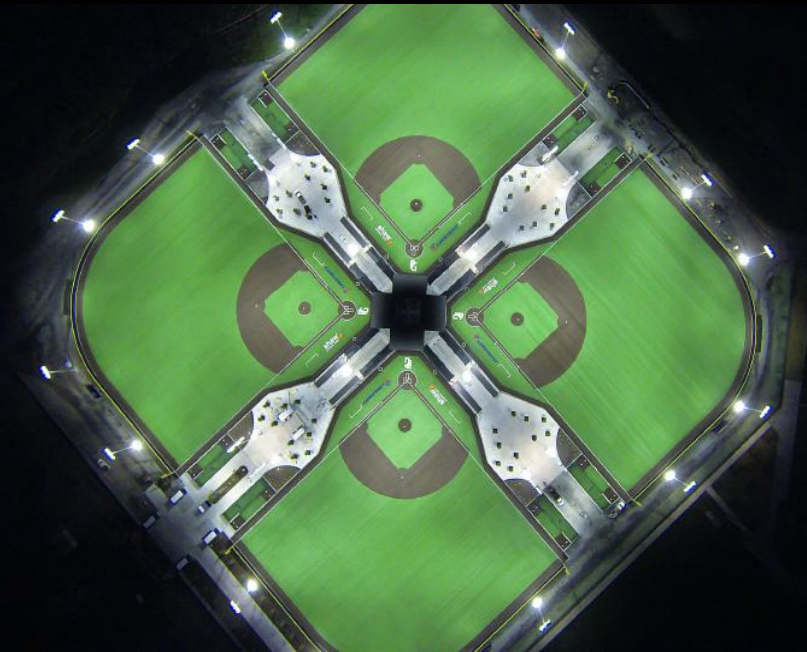
500/300 Lux



Lake Point Sports Complex LED Lightsource

Key Benefits of LED Lighting:

1. Energy Savings
2. Spill Control
3. Instant On/Off
4. Dimming



Thank you for your attention !

