

LED FLOOD LIGHTING SPORTS LIGHTING

CASE STUDY

Yankee Stadium

New York USA



PLANLED™

GigaTera®
beyond light

Installation Area : Baseball Stadium Lighting

New York Yankee Stadium USA



Interview with MLB Official Auditor
Michael Owen

"The lighting level of the infield is 25+% higher and the level in the outfield is 50+% higher than the last measurements of the HID system in June 2015. The infield uniformity is approximately the same and the outfield uniformity is much better than the last HID lighting systems' measurements. All of this is achieved while energy usage is reduced by 35-40%. This system is the brightest and has the best uniformities of any ballpark in MLB."

Summary

The first successful MLB stadium to ever light up with LED's was through GigaTera SUFA lights at the Seattle Mariners' Safeco Field and this success did not stop there. After first hand experience with this new technology, the Seattle Mariners announced their full-fledged support for the technology. Though the Yankees originally did not think a lighting upgrade would be necessary because they had already achieved the highest levels of lighting conditions among all baseball stadiums in the US with the new metal halides introduced during the rebuilding of the stadium in 2009, the attestation of Safeco Field stadium operators of the economic and non-economic benefits of LED technology had convinced reconsideration.

In addition, it was revealed later that the Yankee athletes whom had been able to play under the LED lights at the Seattle Mariners Safeco Field had also proposed the lights at their home stadium. After this point, the project had progressed swiftly with the signing of a letter foregoing the MOU stage and moving straight towards the signing of the contract.

The technology had been able to be improved upon since the original SUFA 800W debut at the Mariners Stadium. The GigaTera engineers had been able to complete the development of its successor for sports lighting, the SUFA-A 1kW, just in time for use at the Yankee Stadium for major performance improvements.

Highly acclaimed by the participating MLB Official Auditor, Michael Owen, who has more than 30 years experience, the GigaTera SUFA-A solution at Yankee Stadium far surpasses MLB regulations in terms of luminance and uniformity. A state of the art lighting environment has been achieved with nearly no deviation in the luminance values of the infield and the outfield. Also, unique to the SUFA design is the unprecedented control of glare or uncontrolled light pollution for a much more pleasant viewing experience. The enabling of convenient dimming of the lights behind the home plate with this level of glare control now allows the Yankee Stadium sign in front of the stadium to be viewable from most parts of the stadium. This is the second case ever of LED adoption at MLB stadiums and has succeeded in becoming the best-lit stadium in the world to introduce GigaTera as the new standard for 'the sports lighting of the future'.

At the '2015 Green Sports Alliance Summit', KMW's LED sports lighting brand, GigaTera, was announced as the provider of the newly installed lights for the New York Yankee Stadium just in time for the 2016 season opener. A result of KMW's focus to innovate and take technologies to their limits, KMW is now recognized in the American sports lighting industry as a professional LED sports lighting company. This success will also serve as the model on which to expand upon future sports lighting needs in the United States as well as establish itself as a global leader in the worldwide sports lighting market.

*New York Yankees: The New York Yankees is one of New York's home teams located in the Bronx, New York City, New York. The team was founded in 1901 as part of the American East Division and was one of the 8 original teams during the early days of baseball.

In 2014, the American economic magazine, Forbes, had stated that the New York Yankees were ranked number 1 in terms of the team value assessment in the sports related brand value assessment with a brand value estimation of around half a billion dollars.

*Auditor: Specialist that measures the MLB stadium lighting and determines and assesses the suitability of the lighting.



“ The Seattle Mariners received an overwhelming response from fans, athletes and networks after replacing the lights. The good news for us is we had a little more time for the lighting technology at the company to improve. Being able to further improve on the technology was to our advantage. ”

-Yankees Stadium Operations VP Doug Behar during a CBS interview-

Project

The Yankee Stadium has replaced 888 units of metal halide products in 1kW, 1.5kW, and 2kW power levels from a well known lighting company 'MUSCO' with 692 units of SUFA-A 1kW products. 6 installers were assigned for the removal of the old lights and 20 employees were assigned to install the new lights simultaneously. After the installation of the new lights, 3 installers were tasked with aiming the lights precisely to match GigaTera's ideal settings calculated through computer simulation. This last step took just 4 days for a total installation completion time of two weeks.

The project originally was expected to take over a month but had moved ahead at a much quicker pace, which was a pleasant surprise. A factor in this reduction is the ability to hang the lights on the edges of the stadium instead of being limited to light towers.

Using detailed imaging for the stadium was one of the most important processes in the overall project. To do so, the GigaTera optical team installed flags at units based on a grid with 30ft x 30ft squares along the ground following a lighting simulation. The team then proceeded with the detailed imaging using a laser beam. Because the SUFA-A product has the rotate and tilt functions available for each module unit, it is possible to install uniform lighting without even an iota of overlap.

Though it had rained once during the installation, the installation was able to proceed without halt due to the IP66 grade rating of the product. The second MLB stadium to be fitted with LED lighting, Yankee Stadium held the 6th Pinstripe Bowl on December 27th giving fans a first chance to experience the newly fitted GigaTera lights.

Benefits

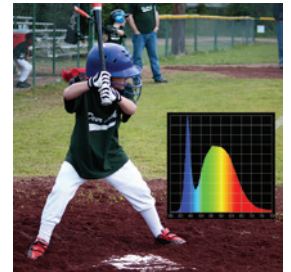
- 25% brighter infield than the existing HID lighting, more than 50% brighter outfield
- Same levels of brightness and uniformity in both the infields and outfields
- Energy reduction improved by 35-40%
- Enabling of event lighting and dimming with GeSS controls
- State of the art glare control and individual unit dimming allows the Yankee Stadium sign to now be viewable from almost any part of the stadium
- Elimination of flicker phenomenon during the broadcasting of super slow motion
- Ultra High Definition (UHD) broadcasting now enabled
- Improvement in color rendering index allows athletes, fans, and viewers to see colors more similarly to how they would look under natural sunlight.
- Can be turned on/off instantly without the need for warm ups.
- Product lifetime improved by twenty-fold over existing lighting.

CRI Difference

Both fans in the stands and those watching at home can enjoy games under optimal conditions compared to the previous lighting system thanks to the improvements in the color reproduction ratio that is closest to natural light.



Existing lighting (63Ra / 3700K)



SF800 (81Ra / 5000K)

Non Flickering

Catching the subtleties of baseball is important during game broadcasting. Clear viewing is possible with no flickering during ultra-slow motion playback beyond 960 frames per second or with UHD 4K broadcasting.

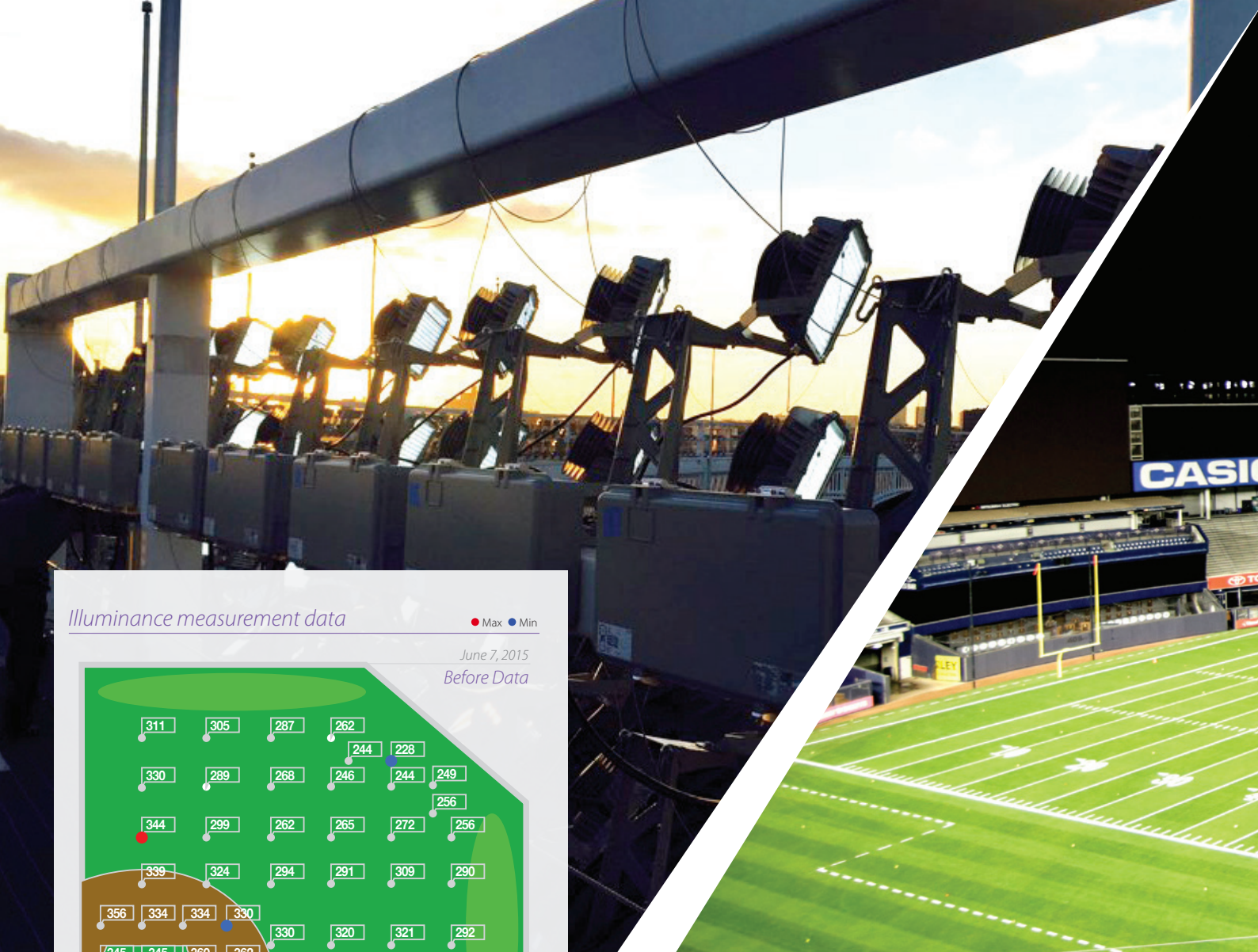
UHD TV Ready



Existing lighting
(Flicker present)



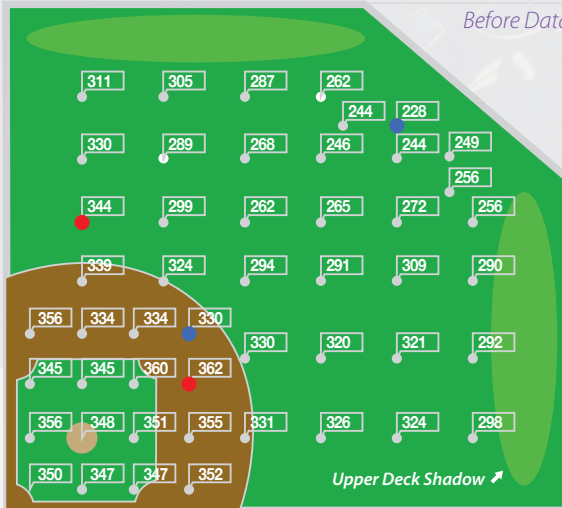
SF800
(Flicker free)



Illuminance measurement data

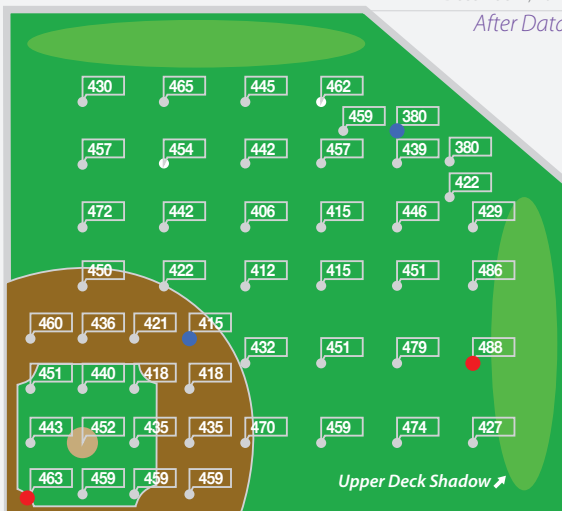
● Max ● Min

June 7, 2015
Before Data



Measurements made with Minolta T-10 digital photometer calibrated Oct. 30, 2014

December 7, 2015
After Data

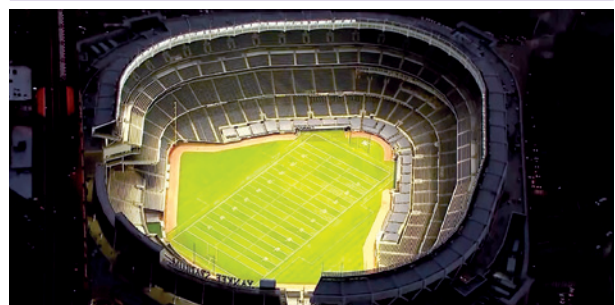


Measurements made with Minolta T-10 digital photometer calibrated Oct. 14, 2015

Illuminance measurement data

		Before	After
Average FC level	Infield	348 fc (3,746 lx)	441 fc (3,746 lx)
	Outfield	291 fc (3,132 lx)	443 fc (3,132 lx)
Min. FC level	Infield	330 fc (3,552 lx)	415 fc (3,552 lx)
	Outfield	228 fc (2,454 lx)	380 fc (2,454 lx)
Max. FC level	Infield	362 fc (3,896 lx)	463 fc (3,896 lx)
	Outfield	344 fc (3,703 lx)	488 fc (3,703 lx)
Uniformity	Infield	1.10	1.116
	Outfield	1.51	1.28
Enhance Illuminance	Infield		25%
	Outfield		50%

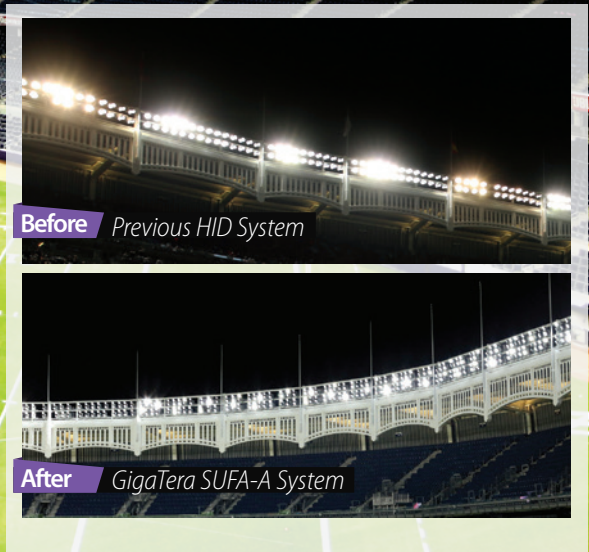
Air View



Energy Saving
43%

Uniformity Enhancement
15%

Outfield Enhance Illuminance (Ave.)
52%



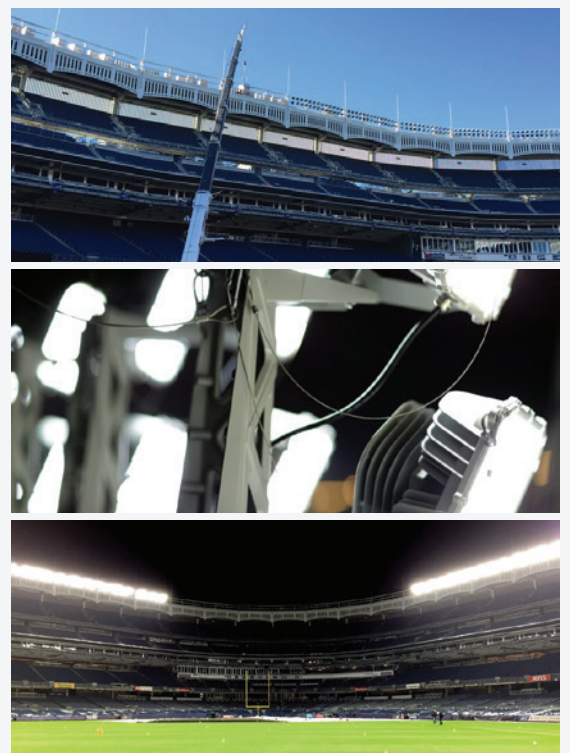
Site Information

Application Sports Flood Lighting
 Location Yankee Stadium (New York, USA)
 Light source SFA1K0
 Lighting support GigaTera & PlanLED Technical Team

Installation Data

Comparison Category	Before	After	Remarks
Lighting Unit	MUSCO	GigaTera	Replaced in December 2015
Number of Fixtures	888 pcs	692 pcs	Housekeeping lighting included
	- 1kW : 226 pcs	- 1kW : 692 pcs	
	- 1.5kW : 486 pcs		
Total Power Consumption	1,227kW	692kW	Energy reduction 43%
CRI	-	Greater than 80Ra	
FC Level (average)	348 fc(3,746 lx)	441 fc(4,747 lx)	25% improvement
	291 fc(3,132 lx)	443 fc(4,768 lx)	52% improvement
Uniformity (Max./Min.)	Infield 1.10	1.116	
	Outfield 1.51	1.28	15% improvement
Control System	-	Individual Unit Lighting Controls	GeSS

Installation Photo



Unique & Better

www.gigateraled.com



SUFA-A

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