



City of Encinitas Hall Property Sports Lighting

Presented by:

Musco Sports Lighting



Light•Structure GREEN™

Industry Leader in Sports Light Control:

- Sole focus on lighting for Athletic Applications since 1976

Research and Development:

- 30+ years of research and innovation
- More than \$10 Million invested in Research & Development

Product Focus:

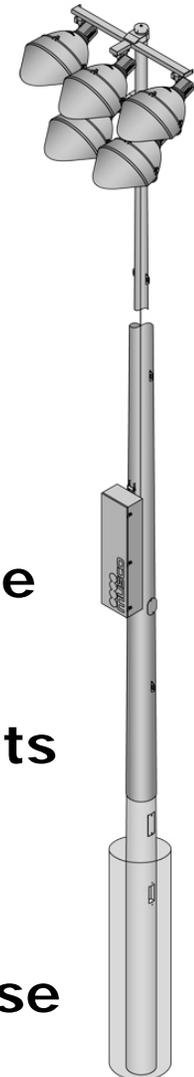
- Environmental light control
- Timed Lighting Control System/ Facility Management
- Energy Efficiency: Fewer Fixtures with Less kW and the best environmental control

Proven system technology in 5 Easy Pieces™



*From Foundation
to Poletop*

1. Poletop Luminaire Assembly
2. Wire Harness
3. Galvanized Steel Pole
4. Electrical Components Enclosure
5. Precast Concrete Base



Hall Property Lighting Overview



- 5 Multipurpose Athletic Fields
 - 4, 60 Foot Poles, 4, 70 Foot Poles, 10, 80 Foot Poles, 4, 90 Foot Poles
 - 144 Fixtures
- Skate Park
 - 1, 70 Foot Poles, 3, 40 Foot Poles
 - 5 Fixtures
- Aquatics Center
 - 8, 60 Foot Poles
 - 9 Fixtures

Overall Project Equipment Total: 34 Poles, 158 Fixtures

Field lighting designs per IESNA, Illuminating Engineering Society of North America's, lighting practice standards for safety and playability

Design Considerations for Spill/Glare Control:

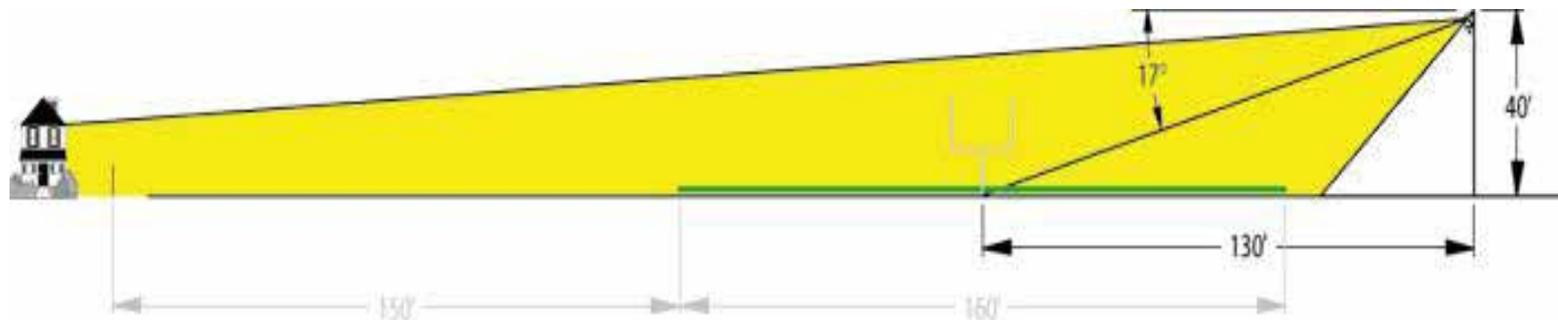
- Proximity of neighbors
- Airport or observatory ordinances
- Environmental issues protected zones
- **Critical Design Elements for Light Control**
 - **Mounting Height/Steep Aiming Angles**
 - **Reflector Design**
 - **Visors/Shielding**

Controlling Light By Mounting Heights



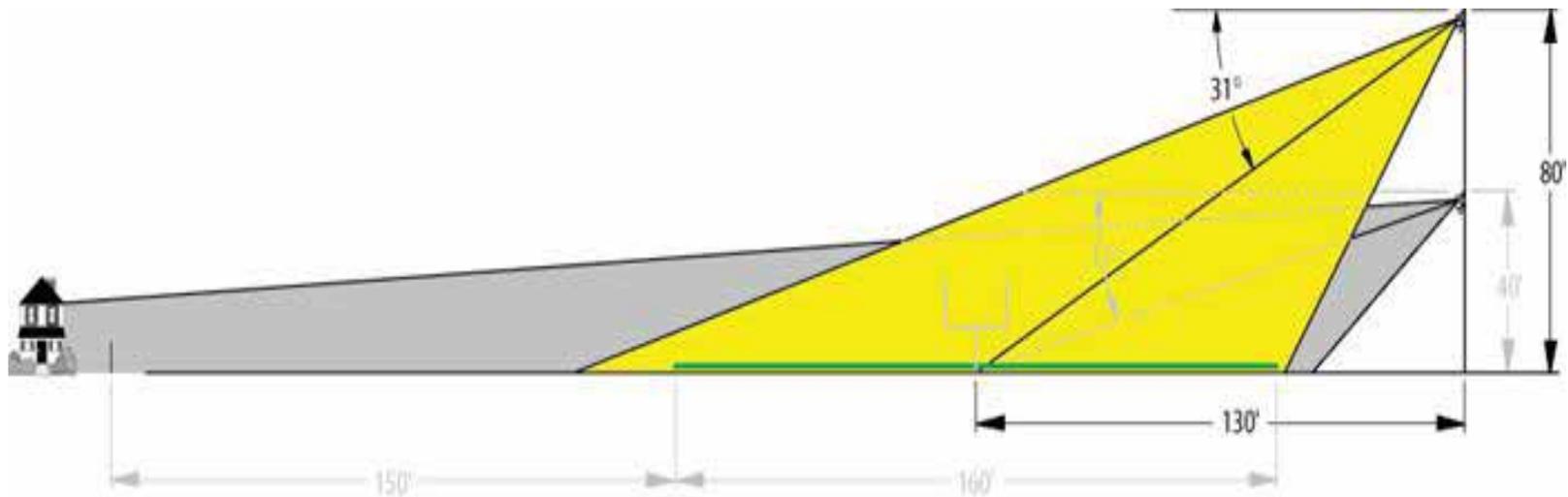
Tall Poles Allow Steep Aiming Angles for Fixtures, Directing Light Downward onto Field

- 40' mounting - Measurements at 150' from field boundary:
- 0.55 maximum footcandles
- 0.06 horizontal footcandles
- 72,000 maximum candela

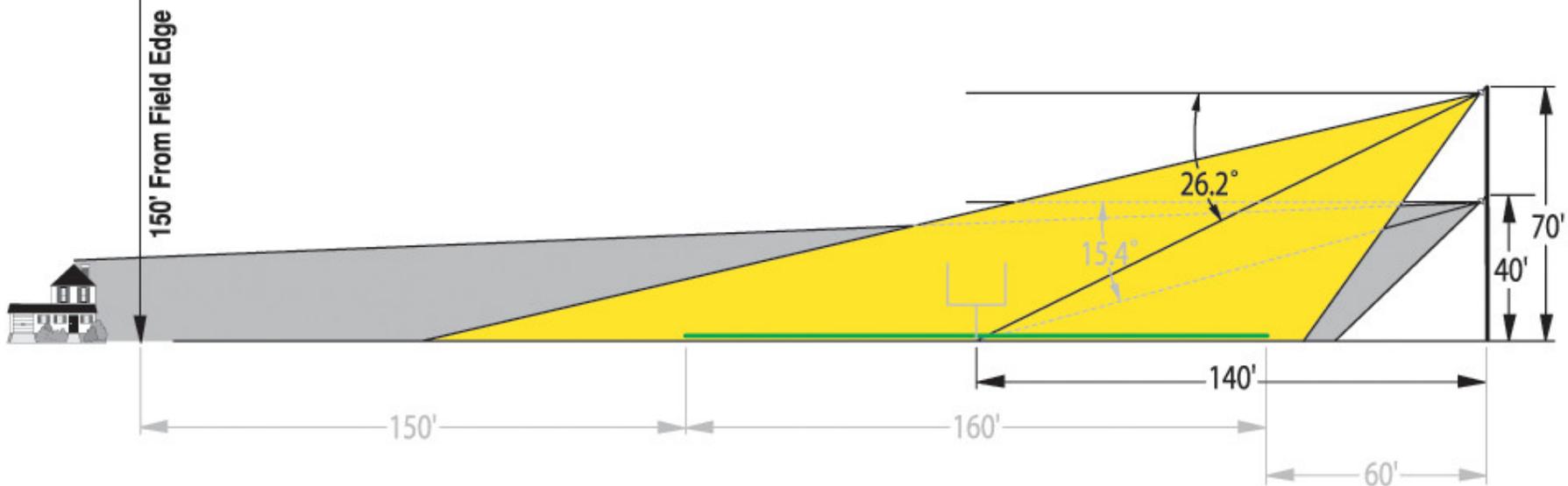


At 80 Feet

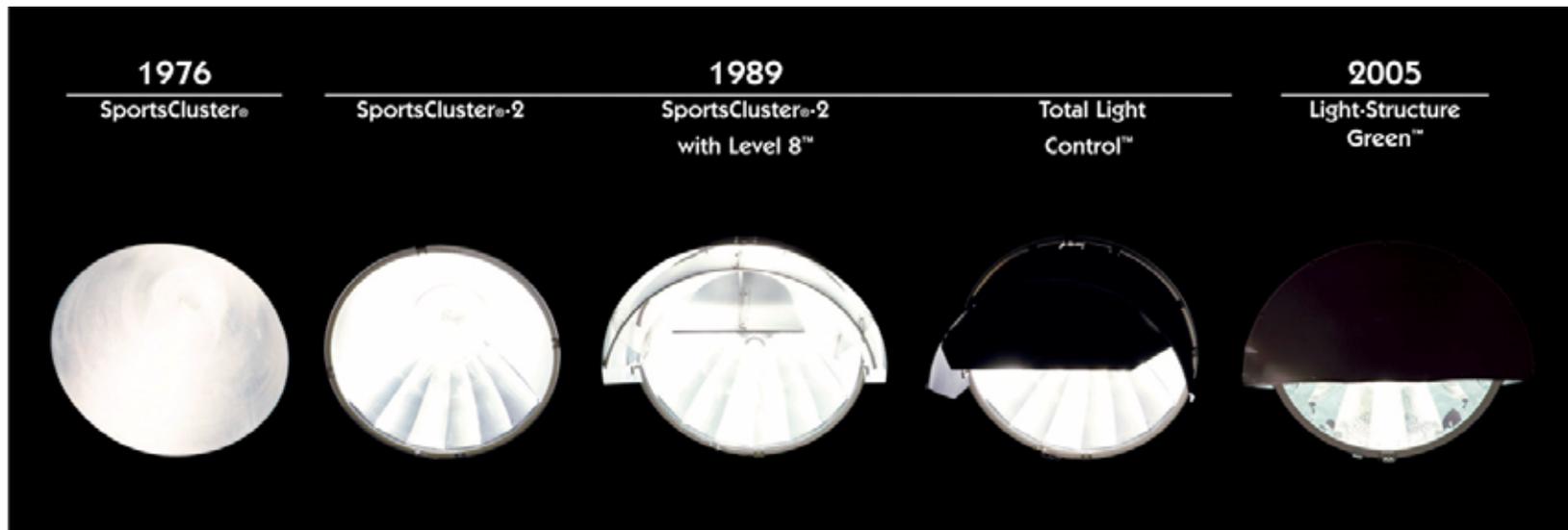
- 80' mounting height - Measurements at 150' from field boundary:
- 0.13 maximum footcandles
- 0.03 horizontal footcandles
- 18,000 maximum candela



	40' Mounting Height	70' Mounting Height
Maximum Footcandles	0.725	0.194
Horizontal Footcandles	0.068	0.034
Maximum Candela	99,406	27,157



Evolution of Light Control



Light•Structure GREEN™

Reflector Design


We Make It Happen



Improved Luminaire Efficiency

Fixture Optics & Housing:

- Reflective inserts customize each fixture per the site needs: direct, side shift, aim light
- Visor system blocks direct light source and significantly reduces spill light and glare
- Fixtures are Precisely Factory Aimed per Engineering Design. Protects against field aiming errors



Fewer Luminaires = Less Energy, Less Sources of Glare, Less Impact

Prior Generation Technology



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This Means Less Fixtures For Hall Property:

Prior Generation= 264 Fixtures

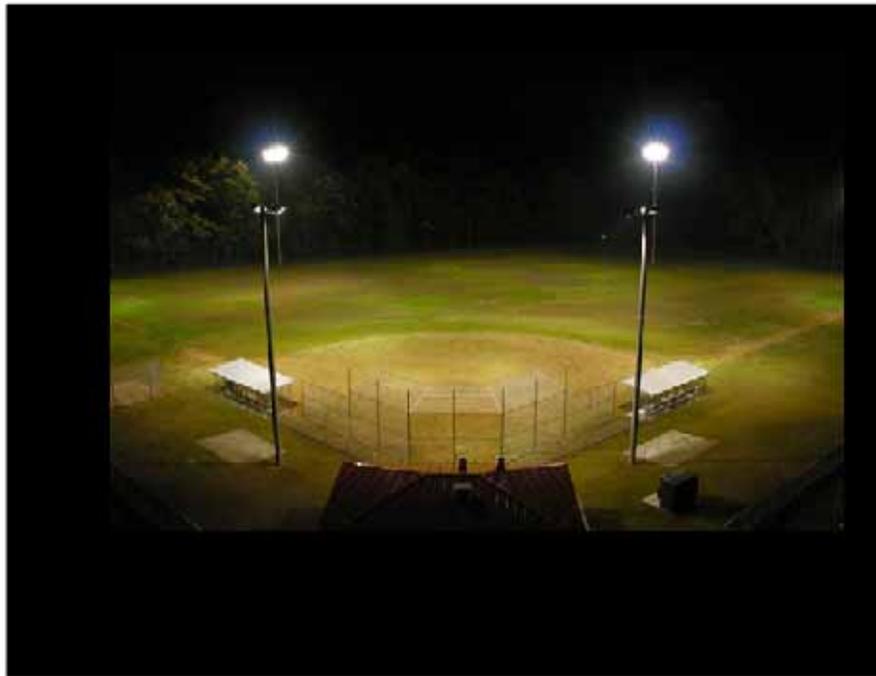
Green Technology= 158 Fixtures

Light•Structure GREEN™

Reduces Spill Light by 50%



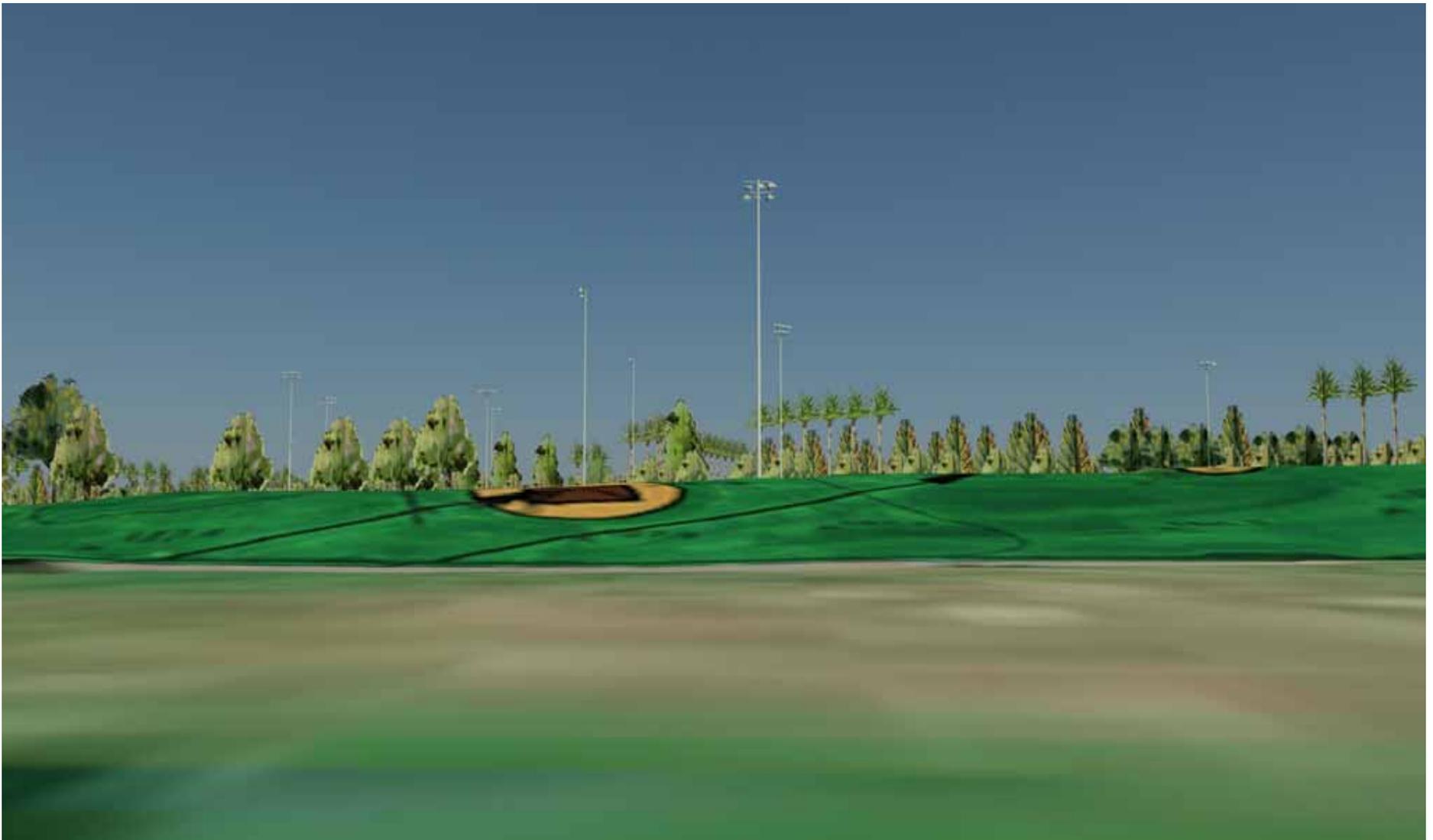
Old Technology



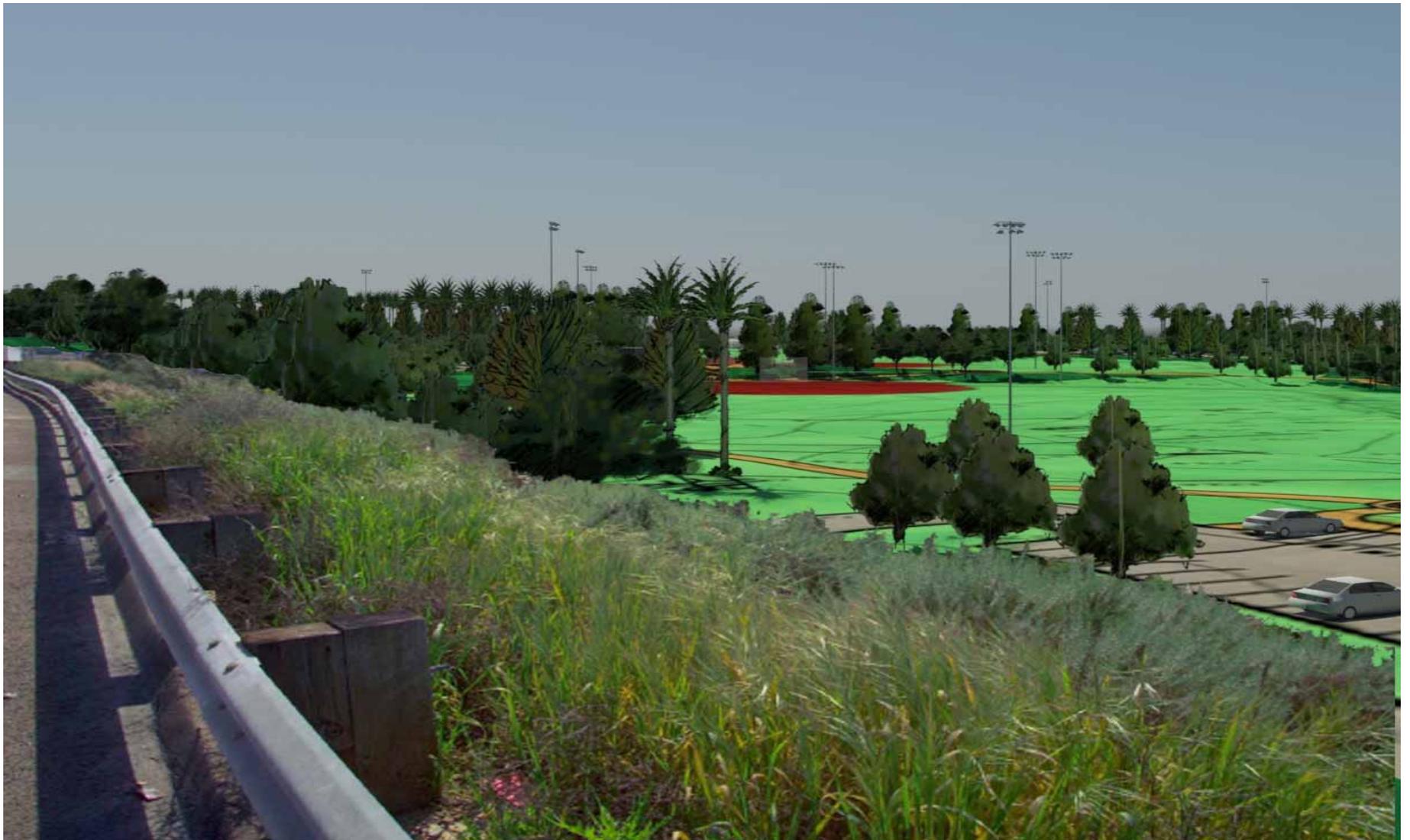
New Technology



Hall Property Photo Simulation



Hall Property Photo Simulation



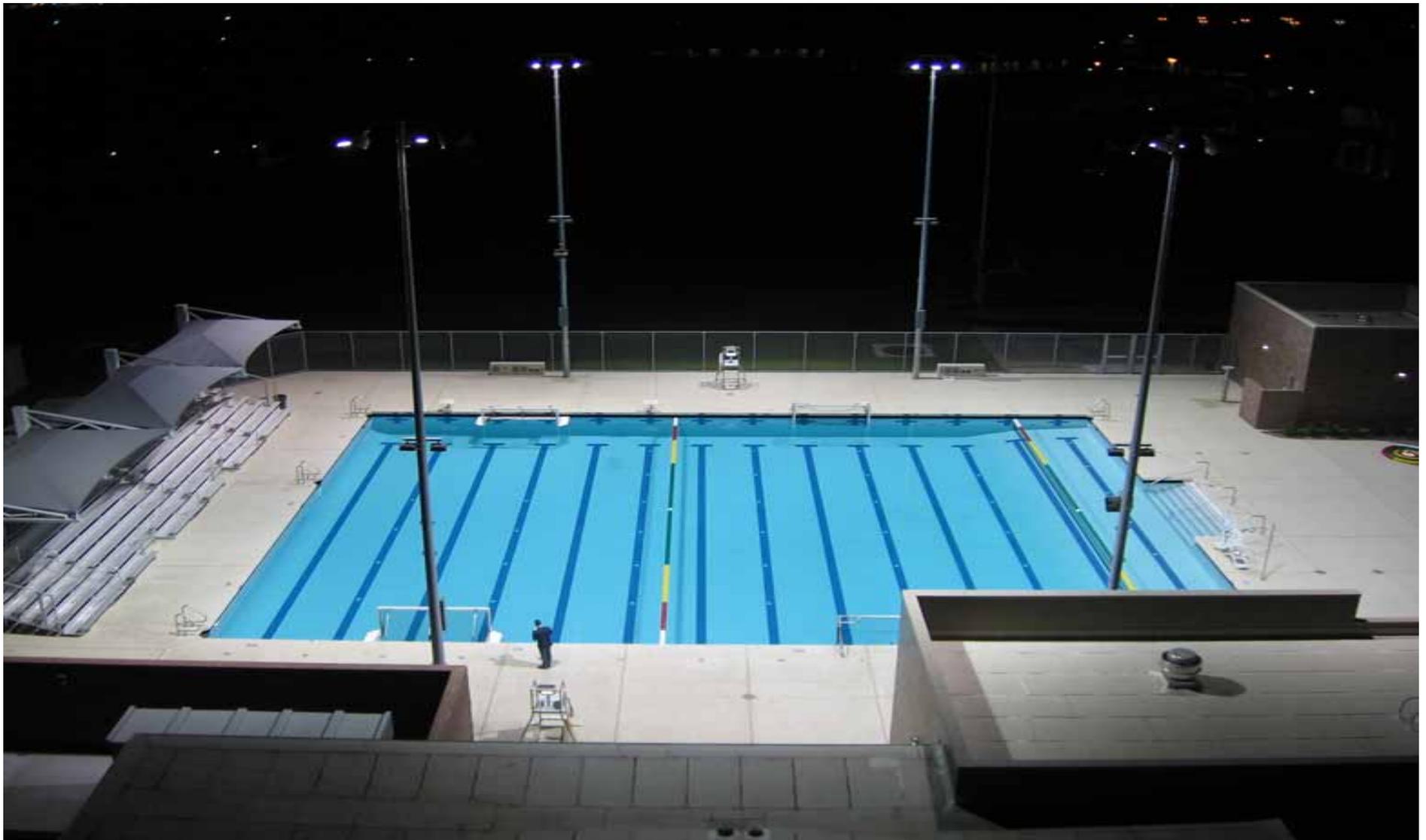
Hall Property Photo Simulation



Hall Property Photo Simulation



Hemet High School



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Local Examples



JSerra Catholic High School San Juan Capistrano, CA



Ransom Everglades Football, FL

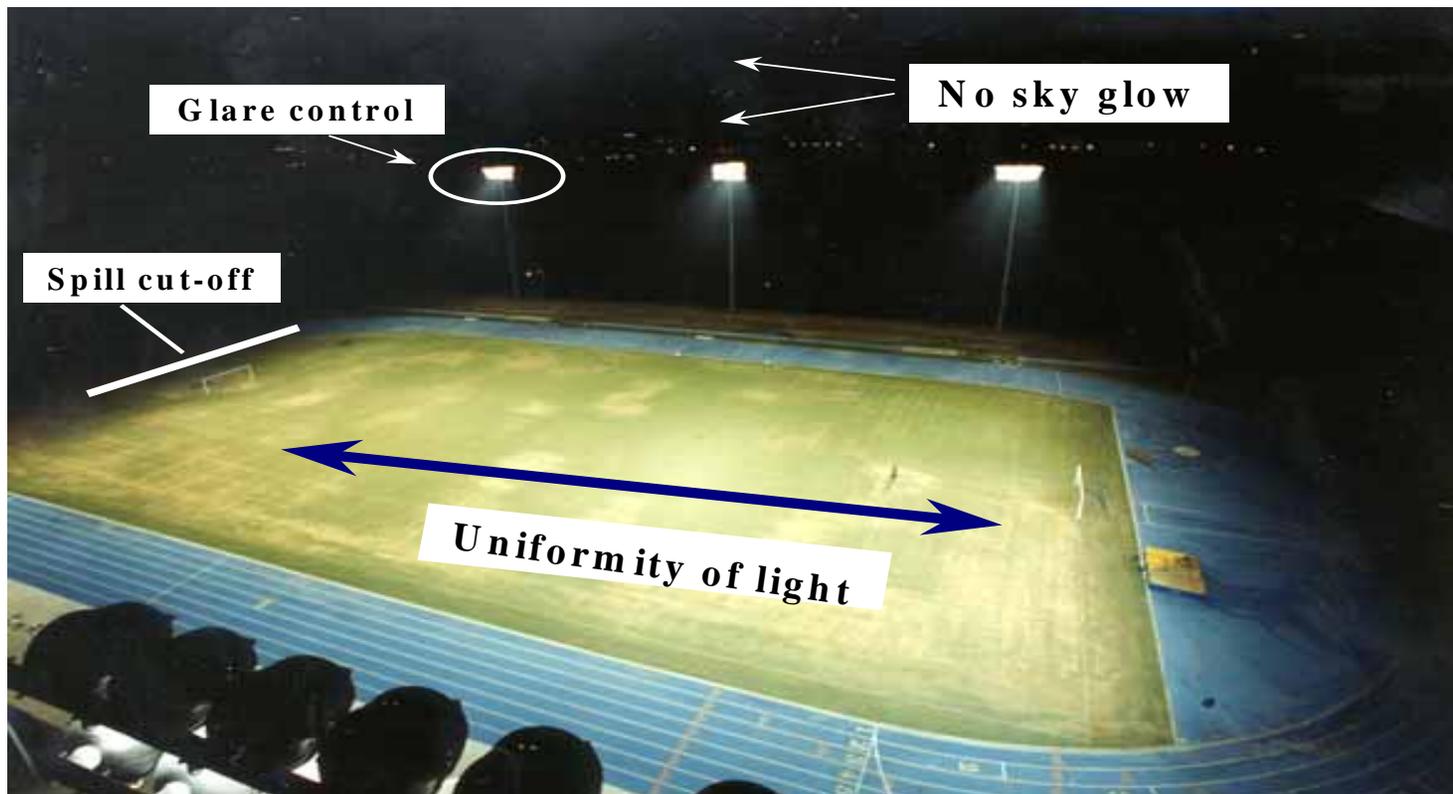


Light•Structure GREEN™

Reduces Spill Light by 50%



UCI Anteater Track Irvine, CA



Includes Facility Management System



Control•Link.

- Remote on/off Control
 - City of Encinitas Control-Link User Since 2005
 - Ensures lights turn off at scheduled time
 - Usage Reports-
 - Since 2005, User “lights off” call-in’s has saved over 900 hours of usage
 - Staffed 24/7 by Musco Control-Link Staff
- Saves Energy – Manages Usage*



References



Partial Listing of Southern California Local Communities Currently Using Musco Products:

Coastal Towns:

City of Aliso Viejo
City of Avalon
City of Carlsbad
Corona Del Mar
City of Costa Mesa
City of Dana Point
City of Encinitas
City of Huntington Beach
City of Imperial Beach
Town of La Jolla
City of Laguna Beach
City of Long Beach
City of Manhattan Beach
City of Newport Beach
Newport Coast
City of Oceanside
Pacific Palisades
City of Redondo Beach
City of Santa Barbara
City of San Clemente
City of San Diego
City of San Juan Capistrano
City of Santa Monica

Other Local Communities:

City of Anaheim
City of Beverly Hills
City of Brea
City of Chula Vista
City of Diamond Bar
East Bay of San Diego
City of El Cajon
City of Escondido
Fallbrook
City of Irvine
City of La Mesa
City of Laguna Hills
City of Laguna Niguel
Lake Forest
Lakeside
City of Lemon Grove
City of Los Angeles
City of Mission Viejo
City of Poway
City of San Marcos
City of Santee
City of Temecula
City of Vista

Light•Structure
GREEN™

Unequaled Performance
Unequaled Service
Unequaled Light Control

Musco

Green Generation Lighting®