

**Galvanized Steel Pole**



**Overview**

The galvanized steel pole is designed to slip-fit together with the precast concrete base and the poletop luminaire assembly.

**Features**

- Slip-fit connection allows pole assembly with come-alongs
- Built-in hardware for attaching electrical components enclosure
- Wire access from inside the pole (no exposed wiring or conduit)
- Shipped in sections for easier handling
- Labeled with pole identification for location on field

**Technical Specifications**

Pole dimensions vary. For measurements refer to project specific pole configuration drawing.

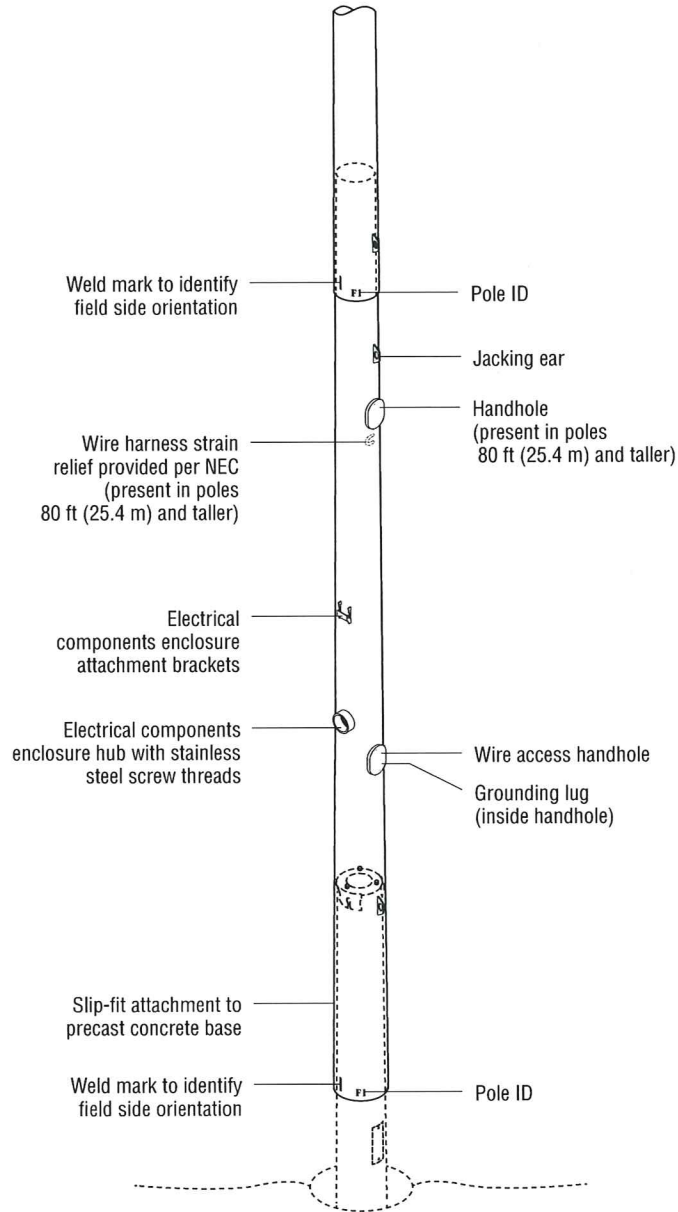
**Construction**

- Pole designs comply with all major building codes
- High strength, low alloy, tapered, round steel pole
- Hot-dip galvanized inside and outside after fabrication to ASTM-A123 standards
- Built to AASHTO stress standards
- Grounding lug
- Pole shipped in sections
- Stainless steel fasteners passivated and coated
- Material certifications are available

**Quality Assurance Tests** (periodic sampling)

- Bending stress
- Minimum galvanizing thickness
- Straightness measurement

**Galvanized Steel Pole**





# Light•Structure GREEN™

***For your budget,  
for the environment.***

**"OFFERED WITH THE CONFIDENCE  
EARNED AND LEARNED FROM  
30 YEARS OF TECHNOLOGY INNOVATION."**

*Mignon Larkin*      *John Rodden*



# Musco's Light-Structure GREEN™

Musco's Green friendly system will reduce by half or more, the cost of operating and maintaining your ballfield lighting system.

## For Your Budget

Innovative photometric improvements of the luminaire result in substantially more efficient light control.

Musco's evolution of fundamental lamp principles creates a new operating system — Smart Lamp™.

### Savings

#### 25 Year Life Cycle Cost Savings

Prior Technology Fixture Quantity	52
Light-Structure Green™ Fixture Quantity	32
1. Energy — photometric improvement	\$23,080
2. Group Relamp	\$16,250
3. Lamp Maintenance	\$3,750
4. Energy — controls	\$5,770
5. Labor — controls	\$10,000

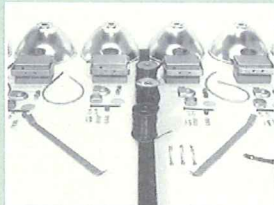
#### Total Projected Savings **\$58,850**

- |  |  |
|--|--|
| 1. 300 hours per year, 9¢ per kilowatt hour            | 4. 25% savings by switching on and off 20 minutes closer to actual usage time.   |
| 2. \$125 per luminaire for relamp labor and materials. | 5. 15 minutes labor for turning on and off at \$8 labor rate — 2,500 operations. |
| 3. Average of 7.5 repairs at \$500 each.               |  |

## Musco's journey to the Green Generation — 30 years of "good old fashioned" new technology

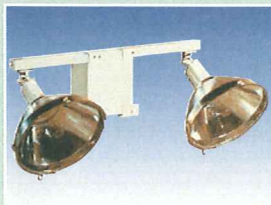
**1976**

Existing technology



**1977**

Factory assembled and wired light cluster — SportsCluster®. Predictable results, easier installation.



**1981**

Glare control research



**1982**

Temporary lighting service and rolling lab — Mobile Lighting System



**1987**

Easier maintenance — remote ballasts





# ... for a More Energy Conscious Generation.

## Amazing new technology . . . big cost benefits.

And best of all, it does wonderful things for the adjoining environment. It puts much less light on nearby properties. It protects the beauty of the dark night skies.

### For The Environment

Spill and glare control features are now a standard part of every luminaire at no extra cost.

This green generation luminaire system cuts spill by half or more, even when compared to Musco's prior industry-leading technology.

Less Spill		
360' x 225' Soccer Field		
30fc Average Maintained	30fc Constant Illumination	
Light-Structure with Total Light Control™ photometric option	Fixture Type	Light-Structure Green™
1500W MZ	Lamp Type	1500W MZ
Vertical Illumination		
0.50 fc	Average	0.15 fc
0.74 fc	Maximum	0.26 fc
52	# of Luminaires	32

### Now 25 years of unprecedented, trouble-free operation

Musco's *Constant 25*™ product assurance and warranty program guarantees:

- Constant light levels and group lamp replacements at the end of rated lamp life
- Reduced energy consumption
- Monitoring, maintenance, and remote on/off control services
- System structural integrity

#### 1989

Glare control with efficiency — SportsCluster-2.



#### 1991

Complete lighting and electrical system from foundation-to-pole-top, Light-Structure System™



#### 1997

Facility management services — 10 Club Service® and Control-Link®



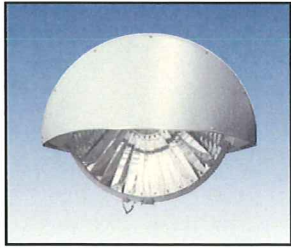
#### 2005

Energy, environment . . . today's prices — Light-Structure Green™



## Light-Structure Green™ System — still Five Easy Pieces™ plus:

### Improved Luminaire Efficiency



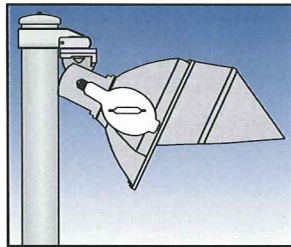
- 1. Reflector system:** More than 2000 photometric patterns provide optimal energy efficiency and minimal spill light for each project.
- 2. Visor System:** Several visor choices provide energy efficient light on the field and minimal spill light. The aerodynamics reduce wind load on the poles.
- 3. Side Shift Beam Control:** Beams can be adjusted within the luminaire horizontally as well as vertically. We can now custom fit the light to the corners.

### Smart Lamp™ Operating System



- 1. Lamp:** 30 years of lamp experience has taught Musco how to operate the lamp with less energy and extend its life with a system of timed power adjustments.
- 2. Geared tilt adjustment:** With a geared leveling mechanism, the lamp arc tube operates in the energy advantageous horizontal position.

### Increased Durability, Assured Results



- 1. Die-Cast aluminum reflector housing:** Provides a rugged foundation for building and maintaining a sophisticated photometric unit.
- 2. Gasketing:** Improved material and gasket system design virtually eliminate “outgasing” and other contamination of the reflectors and lens.
- 3. Factory Assembled Luminaires:** The luminaire ships totally assembled: avoids contaminants, saves time, improves aiming accuracy.
- 4. Attaching Mechanism:** The factory assembled luminaire connects electrically and structurally to the crossarm with one simple attachment.
- 5. Factory Aiming:** Musco’s well established service of factory aiming is even better with Light-Structure Green™. . . field, changes can still be done.

### Solid control and flexible management

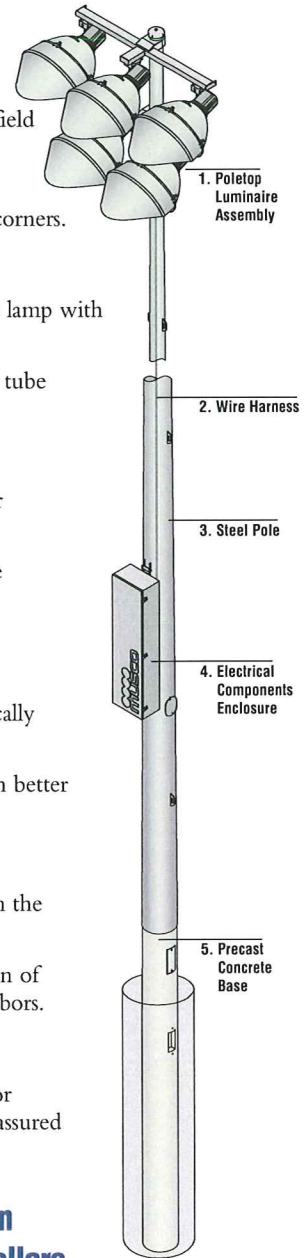


- 1. Controls and monitoring:** This system, in one simple cabinet, included in the base price, saves energy and gives you a solid, flexible management tool.
- 2. Control Link Central™:** Real people at Musco, 24/7, support the operation of your lights . . . from office, field or home . . . benefits field users and neighbors.

### Ultimate guarantee

With **Green Generation Lighting**, Musco’s Constant 25™ guarantees it all for 25 years, plus free relamping at the end of the lamps’ rated life. All of this is assured by Musco’s field service department and their technicians.

**Light-Structure Green™ is the result of more than a dozen inventions and innovations from more than 10 million dollars of research and capital investment by Musco.**



**We Make It Happen.®**

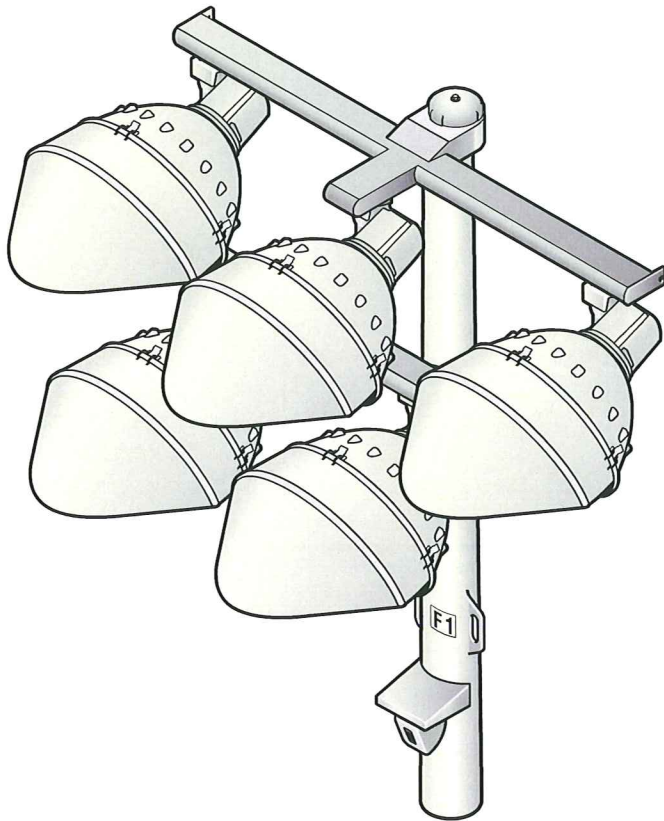
800/825-6030

www.musco.com

e-mail: lighting@musco.com



## Poletop Luminaire Assembly



### Overview

The factory-aimed poletop luminaire assembly is the upper section of the pole and slip-fits together with the galvanized steel pole.

### Features

- Luminaire mounts and connects in a single step
- Slip-fit connection allows assembly with come-alongs
- D-shaped crossarm reduces wind loading
- Each luminaire is factory-built, tested, and ships as a unit
- Luminaires are factory-aimed to two-tenths degree of accuracy
- All luminaires are factory-wired to a quick-connect harness for easy installation
- Labels identify pole and luminaire location
- No exposed wiring or conduit
- Factory-set pole alignment beam allows easy field alignment

### Technical Specifications

#### Construction

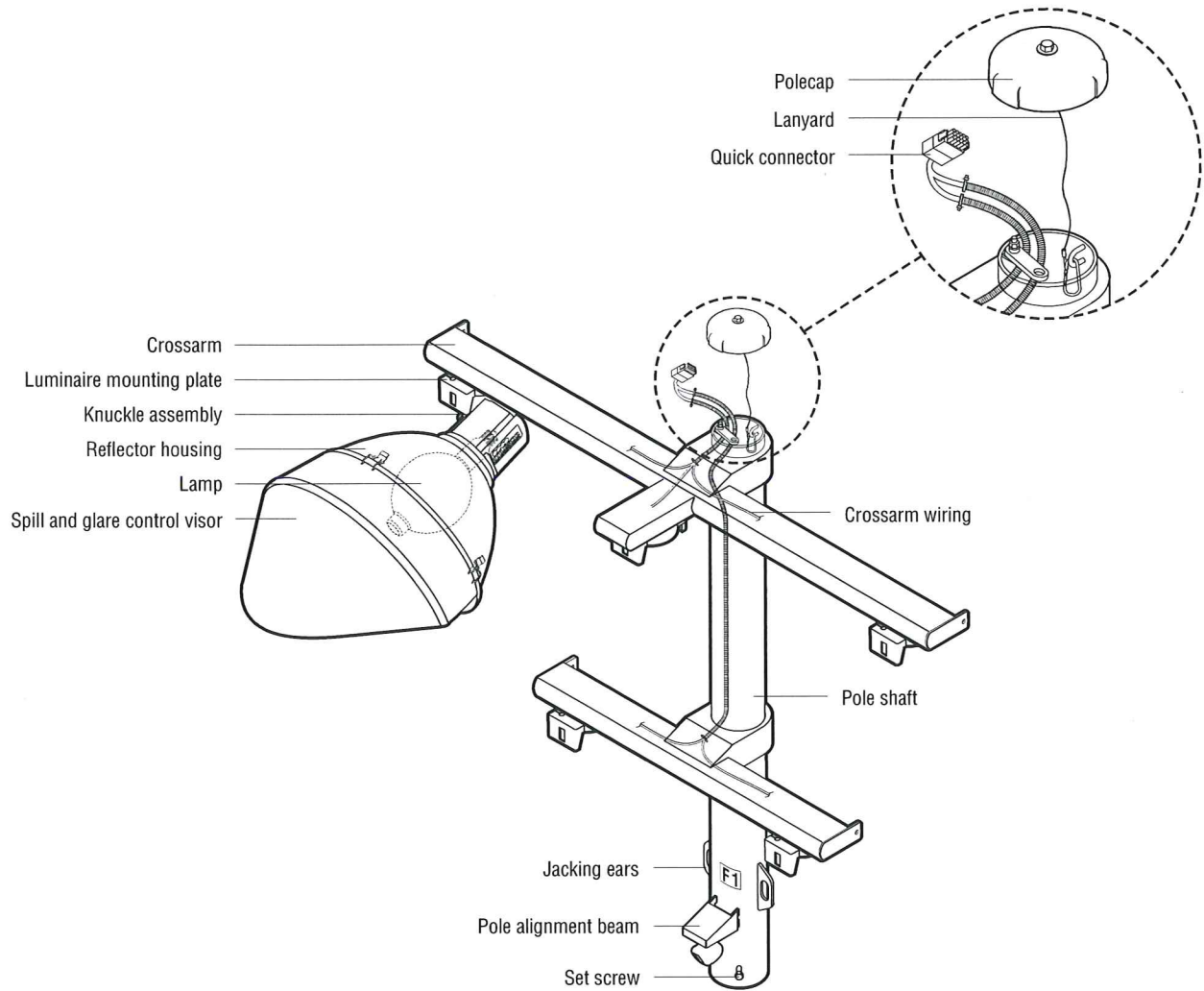
- Crossarms hot-dip galvanized after fabrication to ASTM-A123 standards
- All aluminum components powder-coated or anodized to mil-A-8625F
- Luminaire and knuckle powder-coated die-cast aluminum
- All stainless steel fasteners passivated and coated
- Crossarms constructed of 1/8 inch wall thickness D-shaped steel tubing
- Polecap attached with stainless steel lanyard and securing bolt

#### Quality Assurance Tests

- Reflector photometric test
- Lamp lumen output
- Galvanizing thickness
- High potential dielectric withstand
- Electrical continuity

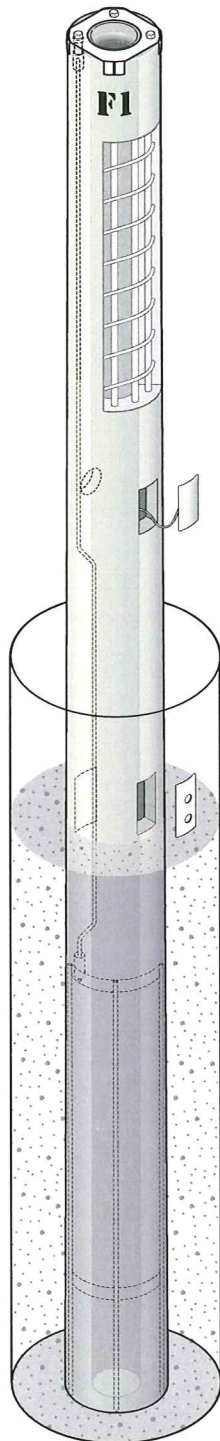
**5 Easy Pieces™**

**Poletop Luminaire Assembly**





**Precast Concrete Base**



**Overview**

The precast concrete base is set directly into the ground and backfilled with concrete. The base includes an integrated lightning ground system.

**Features**

**Base**

- Set pole on base in 24 hours
- Tapered upper section for slip-fit steel pole
- Access holes for wire entry
- Epoxy coated ends prevent water intrusion
- Lifting hole accepts load-rated steel rod provided by Musco

**Integrated Lightning Ground System**

- Complies with NFPA 780 and UL 96A standards when installed per Musco installation instructions
- UL Listed, Class II Lightning Protection, file number E337467
- Tested up to 100 kA by independent laboratory
- Steel pole interfaces with integrated grounding system by means of the pole grounding connector
- 2/0 AWG grounding electrode conductor
- Concrete-encased grounding electrode, 20 feet (6.1 m) total length, ½ inch (12.7 mm) diameter

**Technical Specifications**

Base dimensions vary. For measurements refer to project specific foundation and pole assembly drawing.

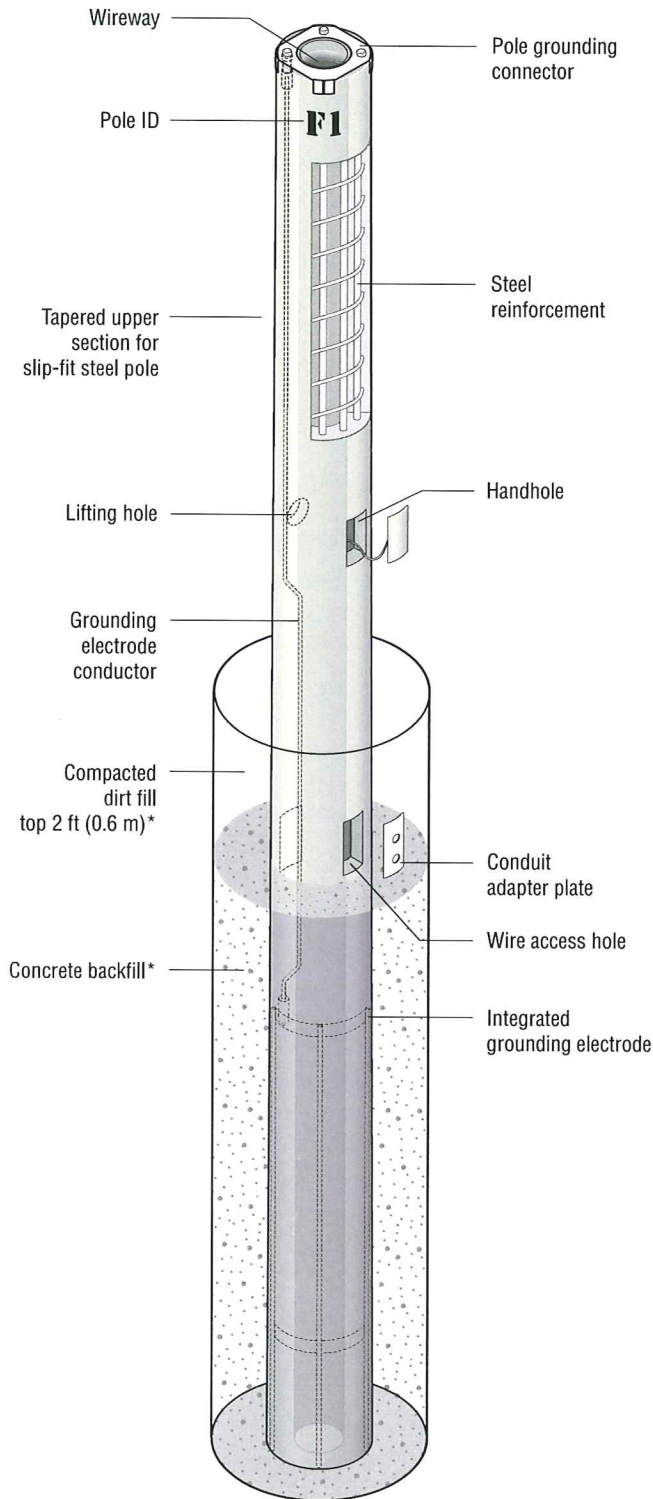
**Construction**

- Spun concrete construction
- Prestressed vertical strands and steel coil spiral for radial reinforcement throughout base
- Minimum design strength is 9500 lb/in² (65.5 MPa) at 28 days

**Quality Assurance Tests**

- 28-day compressive strength
- Bending moment capacity
- Grounding system continuity

**Precast Concrete Base**



\*Standard pier foundation shown. Foundation and/or backfill may vary per alternate foundation design.