

EQUIPMENT LIST FOR AREAS SHOWN

Pole			Luminaires					
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LAMP TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1-S2	70'	-	70'	1500W MZ	6	6	0
2	S3-S4	80'	-	80'	1500W MZ	6/6*	6	6
TOTALS						36	24	12

* This structure utilizes a back-to-back mounting configuration



GUARANTEED PERFORMANCE

ILLUMINATION SUMMARY

Soccer 1

Leesburg Sycolin Soccer Field
Leesburg, VA

Soccer 1

- Size: 330' x 195'
- Grid Spacing = 30.0' x 30.0'
- Values given at 3.0' above grade

- Luminaire Type: Green Generation
- Rated Lamp Life: 5,000 hours
- Avg Lumens/Lamp: 134,000

**CONSTANT ILLUMINATION
HORIZONTAL FOOTCANDLES**

Entire Grid	
No. of Target Points:	77
Average:	30.2
Maximum:	37
Minimum:	22
Avg/Min:	1.38
Max/Min:	1.70
UG (Adjacent Pts):	1.39
CV:	0.12
Average Lamp Tilt Factor:	1.000
Number of Luminaires:	24
Avg KW over 5,000 hours:	37.54
Max KW:	40.8

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

Field Measurements: Averages shall be +/-10% in accordance with IESNA RP-6-01 and CIBSE LG4. Individual measurements may vary from computer predictions.

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 structures located within 3 feet (1m) of design locations.

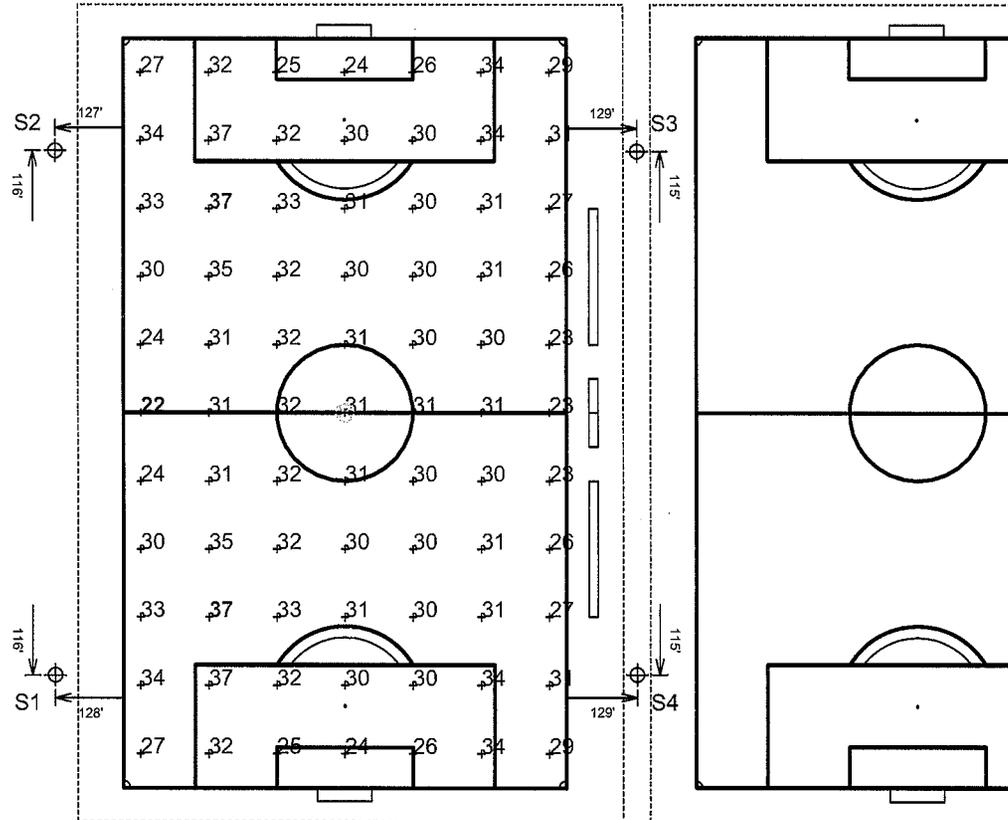
By: Brett Morris

File #: 143906

Date: 04-Sep-09

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

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SCALE IN FEET 1 : 80



EQUIPMENT LIST FOR AREAS SHOWN

Pole		Luminaires						
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LAMP TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S3-S4	80'	-	80'	1500W MZ	6/6*	6	6
2	S5-S6	70'	-	70'	1500W MZ	6	6	0
TOTALS						36	24	12

* This structure utilizes a back-to-back mounting configuration



GUARANTEED PERFORMANCE

ILLUMINATION SUMMARY

Soccer 2

Leesburg Sycolin Soccer Field
Leesburg, VA

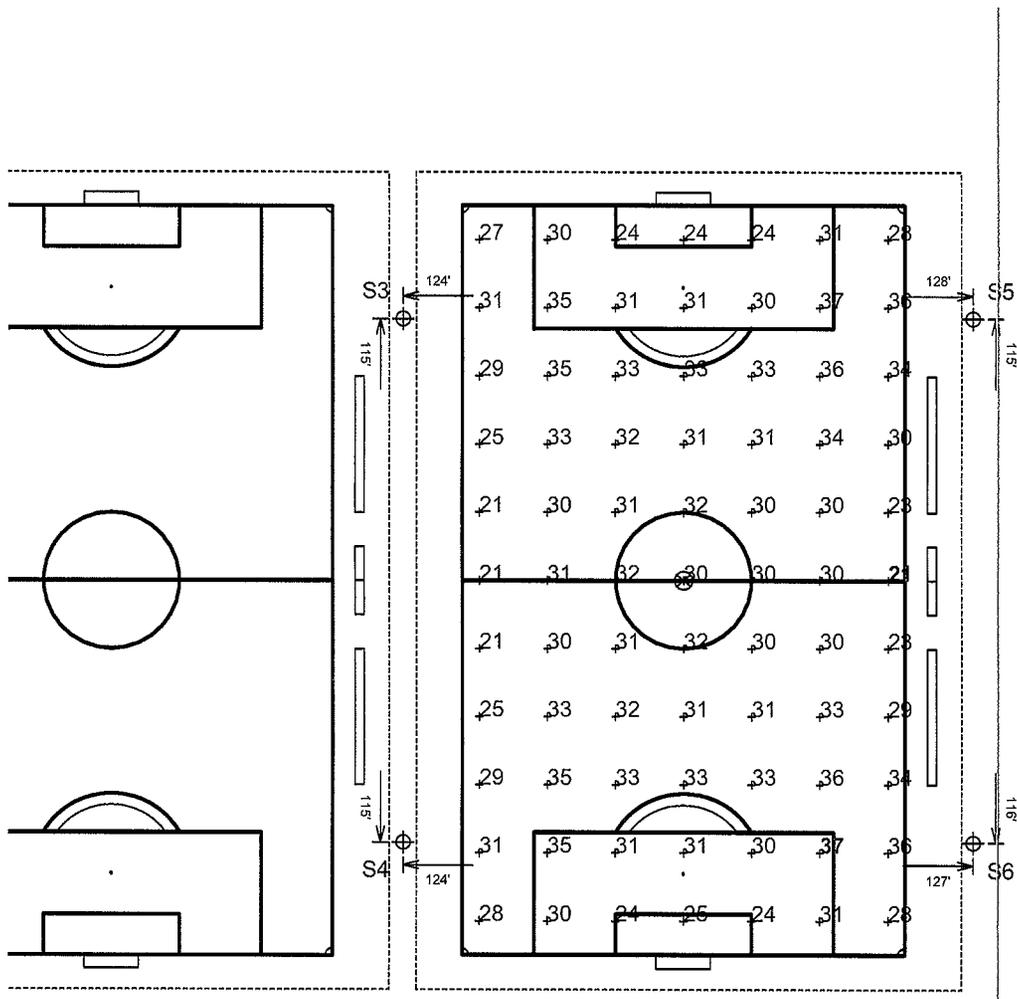
Soccer 2

- Size: 330' x 195'
- Grid Spacing = 30.0' x 30.0'
- Values given at 3.0' above grade

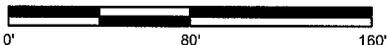
- Luminaire Type: Green Generation
- Rated Lamp Life: 5,000 hours
- Avg Lumens/Lamp: 134,000

**CONSTANT ILLUMINATION
HORIZONTAL FOOTCANDLES**

Entire Grid	
No. of Target Points:	77
Average:	30.2
Maximum:	37
Minimum:	21
Avg/Min:	1.46
Max/Min:	1.78
UG (Adjacent Pts):	1.51
CV:	0.13
Average Lamp Tilt Factor:	1.000
Number of Luminaires:	24
Avg KW over 5,000 hours:	37.54
Max KW:	40.8



SCALE IN FEET 1 : 80



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

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EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LAMP TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	S1-S2	70'	-	70'	1500W MZ	6	6	0
2	S5-S6	80'	-	80'	1500W MZ	6/6*	12	0
6	← TOTALS →					48	48	0

* This structure utilizes a back-to-back mounting configuration



GUARANTEED PERFORMANCE

ILLUMINATION SUMMARY

Property Line

Leesburg Sycolin Soccer Field
Leesburg, VA

Property Line

- Grid Spacing = 30.0'
- Values given at 3.0' above grade

- Luminaire Type: Green Generation
- Rated Lamp Life: 5,000 hours
- Avg Lumens/Lamp: 134,000

CONSTANT ILLUMINATION HORIZONTAL FOOTCANDLES

Entire Grid	
No. of Target Points:	45
Average:	2.155
Maximum:	6.59
Minimum:	0.01

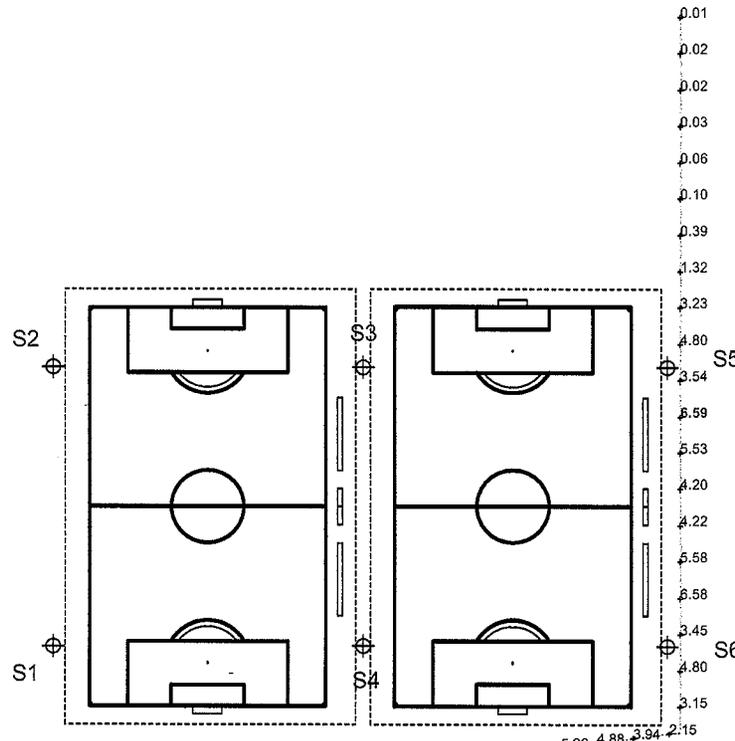
Average Lamp Tilt Factor:	1.000
Number of Luminaires:	48
Avg KW over 5,000 hours:	75.07
Max KW:	81.6

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

Field Measurements: Averages shall be +/-10% in accordance with IESNA RP-6-01 and CIBSE LG4. Individual measurements may vary from computer predictions.

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 structures located within 3 feet (1m) of design locations.



SCALE IN FEET 1 : 150



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

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EQUIPMENT LIST FOR AREAS SHOWN

Pole		Luminaires						
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LAMP TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	S1-S2 S5-S6	70'	-	70'	1500W MZ	6	6	0
2	S3-S4	80'	-	80'	1500W MZ	6/6*	12	0
← TOTALS →						48	48	0

* This structure utilizes a back-to-back mounting configuration



GUARANTEED PERFORMANCE

ILLUMINATION SUMMARY

Property Line

Leesburg Sycolin Soccer Field
Leesburg, VA

Property Line

- Grid Spacing = 30.0'
- Values given at 3.0' above grade

- Luminaire Type: Green Generation
- Rated Lamp Life: 5,000 hours
- Avg Lumens/Lamp: 134,000

**CONSTANT ILLUMINATION
MAX VERTICAL FOOTCANDLES**

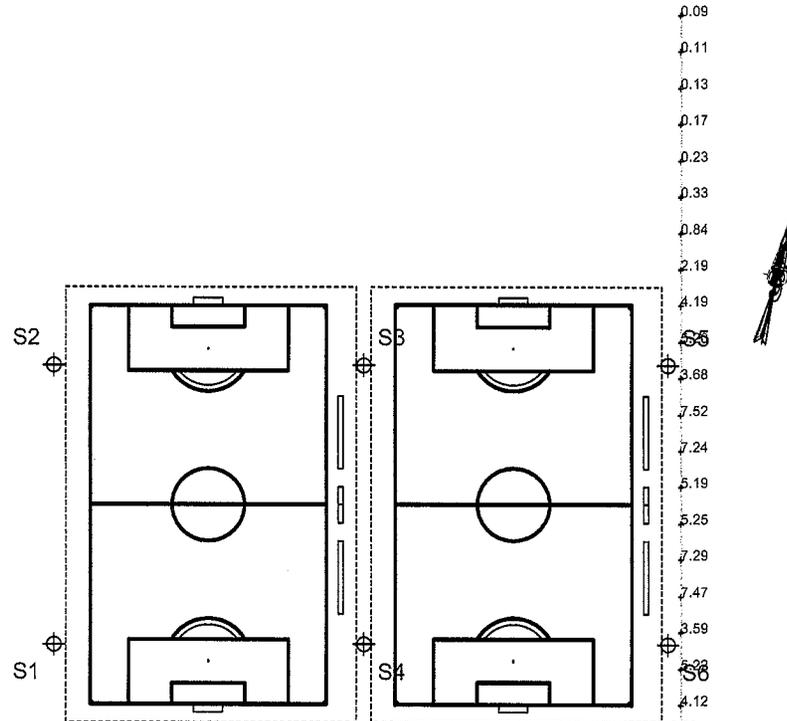
Entire Grid	
No. of Target Points:	45
Average:	3.001
Maximum:	8.51
Minimum:	0.09
Average Lamp Tilt Factor:	1.000
Number of Luminaires:	48
Avg KW over 5,000 hours:	75.07
Max KW:	81.6

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

Field Measurements: Averages shall be +/-10% in accordance with IESNA RP-6-01 and CIBSE LG4. Individual measurements may vary from computer predictions.

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 structures located within 3 feet (1m) of design locations.



0.09 0.10 0.13 0.16 0.19 0.25 0.32 0.41 0.52 0.87 1.27 1.83 2.22 2.19 2.27 2.60 3.26 3.40 4.71 5.07 6.40 8.51 7.83 6.09 3.29

SCALE IN FEET 1 : 150



By: Brett Morris

File #: 143906

Date: 04-Sep-09

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

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GUARANTEED PERFORMANCE

EQUIPMENT LAYOUT

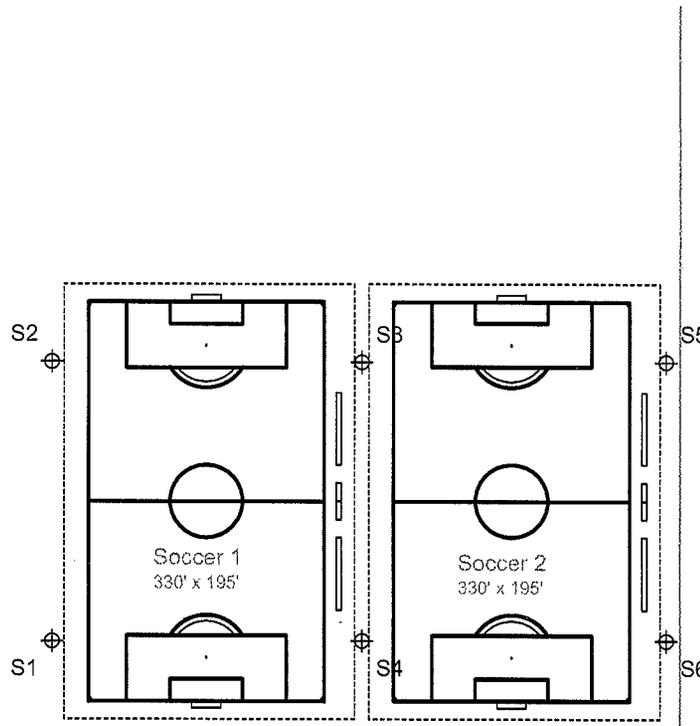
Leesburg Sycolin Soccer Field
Leesburg, VA

INCLUDES:

- Soccer 1
- Soccer 2

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 structures located within 3 feet (1m) of design locations.



EQUIPMENT LIST FOR AREAS SHOWN

QTY	LOCATION	Pole		Luminaires			QTY/ POLE
		SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LAMP TYPE		
4	S1-S2 S5-S6	70'	-	70'	1500W MZ	6	
2	S3-S4	80'	-	80'	1500W MZ	6/6*	
6	TOTALS					48	

* This structure utilizes a back-to-back mounting configuration

SINGLE LUMINAIRE AMPERAGE DRAW CHART

Ballast Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)								
	120 (60)	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	415 (60)	480 (60)
Single Phase Voltage									
1500 watt MZ	15.0	8.6	7.7	7.5	6.5	5.1	4.7	-	3.7

SCALE IN FEET 1 : 150



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By: Brett Morris

File #: 143906

Date: 04-Sep-09

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CONTROL SYSTEM SUMMARY

Project Number:	143906	
Project Name:	Leesburg Sycolin Soccer Field	
Prepared By:	Brett Morris	
Sales Rep:	Joe Forche	Date: 09/04/2009
Scan:	143906	
Service Location:	1 of 1	

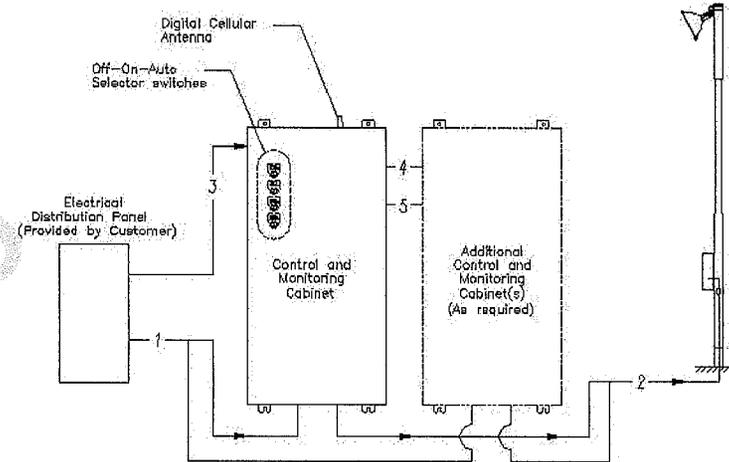
CONTROL SYSTEM TYPE: Control and Monitoring Typical

Control and Monitoring Digital Typical Equipment Layout

EQUIPMENT LISTING

DESCRIPTION	APPROXIMATE SIZE
1. CONTROL AND MONITORING CABINET	24 X 72

	QTY	SIZE
TOTAL CONTACTORS:	8	30 AMP
TOTAL Off/On/Auto SWITCHES:	2	



Wiring Details						
WIRE	DESCRIPTION	VOLTAGE	# OF WIRES	TYP. SIZE	NOTES	SUPPLIER
1	POWER TO LIGHTING CONTACTORS (LINE)	NOTE A	NOTE A	NOTE B	A thru E	CONTRACTOR
2	POWER FROM CONTACTORS TO POLES (LOAD)	NOTE A	NOTE A	NOTE B	A thru E	CONTRACTOR
3	CONTROL VOLTAGE (20 AMP)	120V (AC)	3	12	C,D,E	CONTRACTOR
4	CONTROL VOLTAGE HARNESSSES	120V (AC)	---	---	C,D,E	MUSCO
5	MONITORING MODULE COMMUNICATION CABLE	N/A	1	---	C,D,E	MUSCO

Service Notes:

Please note that this control summary assumes a single 480 V 3 Phase electrical service will be used for sports lighting. This will need to be verified.

Notes:

- Voltage and phasing per the notes on page 2.
- Calculate per load, voltage drop.
- For more information on equipment, see attached drawings.
- Refer to installation instructions for details on equipment mounting and conduit entry points.
- Power circuits (wire #1-4) must be run in separate conduit from non-power circuits (wire #5).



CONTROL SYSTEM SUMMARY

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Project Name:	Leesburg Sycolin Soccer Field	
Prepared By:	Brett Morris	
Sales Rep:	Joe Forche	Date: 09/04/2009
Scan:	143906	
Service Location:	1 of 1	

CIRCUIT SUMMARY BY ZONE						
POLE	CIRCUIT NAME	# OF FIXT	FULL LOAD AMPS	CONTACTOR SIZE(AMPS)	CONTACTOR ID	ZONE
S1	Soccer 1	6	14.8	30	C1	1
S2	Soccer 1	6	14.8	30	C2	1
S3	Soccer 1	6	14.8	30	C3	1
S4	Soccer 1	6	14.8	30	C4	1
S3	Soccer 2	6	14.8	30	C5	2
S4	Soccer 2	6	14.8	30	C6	2
S5	Soccer 2	6	14.8	30	C7	2
S6	Soccer 2	6	14.8	30	C8	2

IMPORTANT NOTES:

1. This design is based on **480 VOLTS 3 phase**. If voltage is other, equipment costs may be affected. Contact your Musco sales representative.
2. When 3 phase service is available, all 3 phases are to be run to each pole.
3. One contactor is required for each pole. When a pole has multiple circuits, one contactor is required for each circuit.
4. If the lighting system will be fed from more than one service location, additional equipment may be required.
5. Entrance hub and locknut materials must be die-cast zinc, copper free die-cast aluminum or PVC and must meet NEMA 4 enclosure sealing requirements.
6. A **single 120V control circuit** must be supplied to each control system.
7. Size overcurrent devices using the full load amps column of the chart. Full load amps based on an assumed power factor of 0.9.

CONTROL POWER CONSUMPTION	
120V SINGLE PHASE (SEE NOTE 6)	
VA LOADING OF MUSCO SUPPLIED EQUIPMENT	INRUSH: 645.0
	SEALED: 145.0

SWITCHING SCHEDULE

Field Type	Zones	Customer Field Name
Soccer	1	Soccer 1
Soccer	2	Soccer 2



CONTROL SYSTEM SUMMARY

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Sales Rep:	Joe Forche	Date: 09/04/2009
Scan:	143906	
Service Location:	1 of 1	

PANEL SUMMARY						
CABINET #	CONTROL MODULE LOCATION	CONT. ID	CIRCUIT DESCRIPTION	FULL LOAD AMPS	DISTRIBUTION PANEL ID BY OTHERS	CIRCUIT BREAKER POSITION BY OTHERS
1	1	C1	Pole S1	14.8		
1	1	C2	Pole S2	14.8		
1	1	C3	Pole S3	14.8		
1	1	C4	Pole S4	14.8		
1	1	C5	Pole S3	14.8		
1	1	C6	Pole S4	14.8		
1	1	C7	Pole S5	14.8		
1	1	C8	Pole S6	14.8		

ZONE SCHEDULE				
ZONE	Selector Switch	ZONE DESCRIPTION	CIRCUIT DESCRIPTION	
			POLE ID	CONT ID
Zone 1	1	Soccer 1	S1	C1
			S2	C2
			S3	C3
			S4	C4
Zone 2	2	Soccer 2	S3	C5
			S4	C6
			S5	C7
			S6	C8

VOLTAGE NOT CONFIRMED