Control System Summary

Project Specific Notes:

Project Information

Project #:	153579
Project Name:	Northern Kentucky University Student Rec
Date:	03/08/12
Project Engineer:	Brett Morris
Sales Representative:	Zack Vroegh
Control System Type:	Control and Monitoring
Communication Type:	Digital Cellular
Scan:	153579
Distribution Panel Location or ID:	
Total # of Distribution Panel Locations for Project:	1
Design Voltage/Hertz/Phase:	480/60/3
Control Voltage:	120

Equipment Listing

DESCRIPTION	APPROXIMATE SIZE
1.Control and Monitoring Cabinet	24 X 72

	QTY	SIZE
Total Contactors	7	30 AMP
Total Off/On/Auto Switches:	1	

Materials Checklist

Contractor/Customer Supplied:

- ❑ A single control circuit must be supplied per distribution panel location.
  - — If the control voltage is NOT available, a control transformer is required.
- ❑ Electrical distribution panel to provide overcurrent protection for lighting circuits
  - — Thermal/Magnetic circuit breaker sized per full load amps on Circuit Summary by Zone chart
- ❑ Wiring:
  - — Dedicated control power circuit
  - — Power circuit to and from lighting contactors
  - — Monitoring circuit from surge protection device to Control and Monitoring cabinet 1
  - — Harnesses for cabinets at remote locations
  - — Means of grounding, including lightning ground protection
- ❑ Electrical conduit wireway system
  - — Entrance hubs rated NEMA 4: must be die-cast zinc, PVC, or copper-free die-cast aluminum
- ❑ Mounting hardware for cabinets
- ❑ Control circuit lock-on device to prevent unauthorized power interruption to control power
- ❑ Anti-corrosion compound to apply to ends of wire, if necessary

Call Control-Link Central™ *operations center at 877/347-3319 to schedule activation of the control system upon completion of the installation. Note: Activation may take up to 1 1/2 hours*

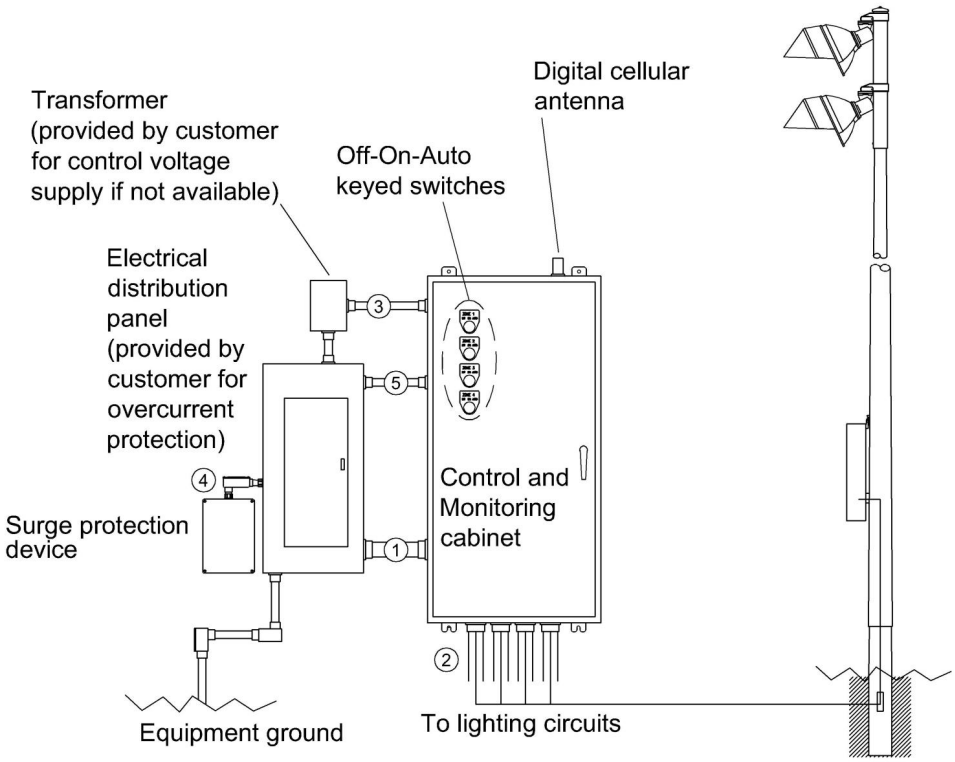
IMPORTANT NOTES

1. Please confirm that the design voltage listed above is accurate for this facility. Design voltage/phase is defined as the voltage/phase being connected and utilized at each lighting pole's ballast enclosure disconnect. Inaccurate design voltage/phase can result in additional costs and delays. Contact your Musco sales representative to confirm this item.
2. In a 3 phase design, all 3 phases are to be run to each pole. When a 3 phase design is used Musco's single phase luminaries come pre-wired to utilize all 3 phases across the entire facility.
3. One contactor is required for each pole. When a pole has multiple circuits, one contactor is required for each circuit. All contactors are UL 100% rated for the published continuous load. All contactors are 3 pole.
4. If the lighting system will be fed from more than one distribution location, additional equipment may be required. Contact your Musco sales representative.
5. A single control circuit must be supplied per control system.
6. Size overcurrent devices using the full load amps column of the Circuit Summary By Zone chart- Minimum power factor of 0.9.

NOTE: *Refer to Installation Instructions for more details on equipment information and the installation requirements*

Form: T-5030-1

Control•Link.
Control and Monitoring System - Digital Cellular



WIRE	DESCRIPTION	# OF WIRES	TYP. WIRE SIZE (AWG)	MAX. WIRE LENGTH (FT)	WIRE FROM MUSCO	NOTES
1	LINE POWER & GROUND TO CONTACTORS	NOTE A	NOTE B	27	NO	A–E
2	LOAD POWER TO LIGHTING CIRCUITS	NOTE A	NOTE B	N/A	NO	A–D
3	CONTROL POWER (DEDICATED, 20A)	3	12	N/A	NO	C, D
4	SURGE PROTECTION DEVICE TO DISTRIBUTION PANEL	--	--	N/A	YES	D
5	SURGE PROTECTION DEVICE MONITORING	2	14	N/A	NO	C, D

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Notes:
A. Voltage and phasing per the notes on cover page
B. Calculate per load and voltage drop
C. All conduit diameters per code.
D. Refer to Control and Monitoring System Installation Instructions for more details on equipment information and the installation requirements.
E. Contact Musco if maximum wire length from circuit breaker to contactor exceeds value shown in chart.

IMPORTANT: Control (3) and monitoring (5) wiring must be in separate conduits from line and load power wiring (1,2).

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Control System Summary

SWITCHING SCHEDULE

Field Type	Zones	Zone Description
Baseball-Softball	1	Softball
Football	1	Football
Soccer	1	Soccer

CONTROL POWER CONSUMPTION	
120V Single Phase	
VA loading of Musco Supplied Equipment	INRUSH: 1800.0
	SEALED: 267.0

BALLAST SPECIFICATIONS .90 Minimum Power Factor	VOLTAGE: 480v		THREE PHASE				
BALLAST OPERATING VOLTAGE	208	220	240	277	347	380	480
1500 Watt Metal Halide Lamp Operating line amperage per fixture, maximum	8.6	7.7	7.5	6.5	5.1	0.0	3.7
1000 Watt Metal Halide Lamp Operating line amperage per fixture, maximum	6.5	5.8	5.8	4.9	4.0	0.0	2.9

CIRCUIT SUMMARY BY ZONE

POLE	CIRCUIT DESCRIPTION	# OF FIXTURES	FULL LOAD AMPS	CONTACTOR SIZE (AMPS)	CONTACTOR ID	ZONE
P1	Multi-purpose	5	14.8	30	C1	1
P2	Multi-purpose	5	14.8	30	C2	1
P3	Multi-purpose	8	22.2	30	C3	1
P4	Multi-purpose	5	14.8	30	C4	1
P5	Multi-purpose	9	22.2	30	C5	1
P6	Multi-purpose	6	14.8	30	C6	1
P7	Multi-purpose	9	22.2	30	C7	1

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Control System Summary

PANEL SUMMARY

CABINET #	CONTROL MODULE LOCATION	CONTACTOR ID	CIRCUIT DESCRIPTION	FULL LOAD AMPS	DISTRIBUTION PANEL ID (BY OTHERS)	CIRCUIT BREAKER POSITION (BY OTHERS)
1	1	C1	Pole P1	14.80		
1	1	C2	Pole P2	14.80		
1	1	C3	Pole P3	22.20		
1	1	C4	Pole P4	14.80		
1	1	C5	Pole P5	22.20		
1	1	C6	Pole P6	14.80		
1	1	C7	Pole P7	22.20		

ZONE SCHEDULE

			CIRCUIT DESCRIPTION	
ZONE	SELECTOR SWITCH	ZONE DESCRIPTION	POLE ID	CONTACTOR ID
Zone 1	1	Multi-purpose	P1	C1
			P2	C2
			P3	C3
			P4	C4
			P5	C5
			P6	C6
			P7	C7