

SECTION 26 09 43

LIGHTING CONTROLS

PART 1–GENERAL

1.01 SUMMARY

- A. Provide a fully functional area lighting control system for the Reynolds Park bicycle polo court in the City of Madison, Wisconsin.

1.02 SUBMITTALS

- A. The following information shall be submitted for review: Lighting control system controller cutsheets including NEMA rating, dimensions, and point-to-point wiring diagrams developed using electronic CAD-based software.

1.03 QUALITY ASSURANCE

- A. UL Listing: The lighting control panel shall be UL listed as a system in addition to using UL listed components.
- B. Manufacturer shall be responsible for on-site delivery within 4-6 weeks from receipt of approved submittals and receipt of complete order information.
- C. Factory-Trained Representative: Manufacturer shall provide a factory-trained representative to be available as required.

1.04 WARRANTY

- A. Manufacturer shall warrant in writing the lighting control panel to be free from defects in materials and workmanship for a period of 10 years starting from the date of delivery.
- B. Manufacturer shall warrant in writing to provide labor and materials to replace defective parts or repair defects in workmanship for a period of at least 10 years from the date of delivery.

1.05 OPERATION AND MAINTENANCE DATA

- A. Submit manufacturer data sheets for all equipment installed.
- B. Include operating, installation, and routine maintenance instructions.

PART 2–PRODUCTS

2.01 PRESUBMITTAL REQUIREMENTS

- A. The Drawings and Specifications were prepared based on MUSCO's Control-Link Retrofit, no equal system, to match OWNER's existing lighting control systems.

- B. Lighting Control Panels and Monitoring System:
1. The lighting control system shall be UL Listed (Industrial Control Equipment). Equipment shall comply with UL standards E33316, E139944, E204954, E311491, E132445, E325078, SA7004, and E337467.
 2. The lighting control manufacturer shall provide factory assembled, wired, and tested control and monitoring cabinets, quantity as indicated on the Drawings. The cabinet shall have sufficient capacity to power and control all associated pole-mounted light fixture assemblies at Reynolds Park.
 - a. Provide manual Off-On-Auto selector switches for control of all light fixture assemblies in each associated zone on the control panel front door.
 - b. Operating ambient temperature range: -20°C to 60°C.
 - c. All electronic assemblies shall be mounted on panels to allow for easy field maintenance.
 - d. The lighting control panel enclosures shall be rated NEMA 12 with lockable cover and shall contain all electronic equipment. Enclosures with prepunched knockouts are not allowed.
 3. Lighting control panels shall control the lighting in each of the two zones based on schedules set up via a manufacturer-maintained web interface when the control panel's manual "Off-On-Auto" selector switch on the lighting controller door is in the "Auto" position. The control panel shall also accept inputs from momentary "On" and momentary "Off" pushbuttons on the remote control station for each of the two zones to control the associated light fixtures when the panel "Off-On-Auto" selector switch is in the "Auto" position. When the Zone 1 "On" or "Off" pushbuttons are pressed, only the Zone 1 lights shall be energized or deenergized. When the future Zone 2 "On" or "Off" pushbuttons are pressed, all light fixtures in both zones shall be energized or deenergized. The remote control station shall be provided by CONTRACTOR where shown on the Drawings. The control panel shall have terminal strips to accept two 14 AWG conductors from each of the two pushbuttons on each zone's control station and relays as required for the controls described above. The control station for Zone 1 shall be provided as part of this project and the control station for Zone 2 will be provided as part of a future project when the Zone 2 light fixtures are installed. Two of the four light fixtures in Zone 1 shall be wired through contactor C1 and the other two fixtures (nearest the stair access) shall be wired through contactor C2. Future Zone 2 light fixtures will be wired through contactor C3. Provide a hardwired time-delay relay to delay the Zone 1 light fixtures wired through contactor C2 from turning off when any "Off" pushbutton is pressed.
 4. Contactor Modules:
 - a. Provide contactors, quantity as required, to control all light fixtures associated with each control panel.
 - b. Contactors shall be UL listed for lighting applications. They shall be rated at full capacity, be electrically held, and utilize a 120-volt coil.
 - c. Terminal blocks shall be provided for each contactor and shall be UL listed. 30-amp contactors shall be sized to accommodate 2/0-14 gauge copper wire.
 5. Communication Equipment:
 - a. Manufacturer shall be responsible for providing and maintaining a cellular communication link through an integral digital cellular antenna mounted on one lighting control panel in order to modify schedules and receive reports. Communication system shall also indicate total operating hours for lamps.
 - b. Owner shall be able to access the monitoring system remotely via a manufacturer maintained web-interface.

- c. The communication link shall be a TCP/IP-type connection with two-way real-time communications.
- d. Manufacturer shall include communication costs for operating the controls and monitoring system for minimum 10 years.

PART 3-EXECUTION

3.01 START-UP AND TRAINING

- A. The manufacturer shall supply factory-authorized representatives to start-up all equipment and demonstrate full compliance with this specification. They shall verify that all supplied components have been properly installed and connected.
- B. CONTRACTOR shall provide a training session for up to three OWNER's representatives for 2 hours (not including start-up) at a jobsite location determined by OWNER. The training session shall be conducted by a manufacturer's qualified representative.

END OF SECTION