

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Motor-operated roller shades **[solar] [and] [room darkening]**.
- 2. Shade accessories.
- 3. Control systems

- B. Related Requirements:

- 1. Section 03610-002-001-001 ke(.3(r)-4.DC 1 k)-24.45(o)0.5(o/MCID)-8(.))TJ 4 T
Motor-operated roller shades and accessories.
- 2. Section 079200 "Joint Sealants" for sealing the perimeters of installation accessories for light-blocking shades with a sealant.
- 3. Section 2600000 - Electrical: Connection to electrical motor control system and lighting control system components.

1.3 REFERENCES

- A.

1. 1310 – Class 2 Power Units.
2. 508 – Industrial Control Equipment.

1.4 SYSTEM DESCRIPTION

- A. Roller Shade System: 24V Low-Voltage powered, Ultra-quiet, precision-controlled electronic drive unit contained within head tube, controlling shade movement.
- B. Controls: [Wall mounted Keypads in combination with software enabled shades tied to campus Quantum solution.]

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 1. Descriptive literature and details for each product type including materials, finishes, construction, and dimensions of individual components, profiles, and mounting requirements.
 2. Wiring diagrams, details on integration to lighting control systems, AV systems, and building management systems, installation instructions, and operating instructions.
 3. Current certificates showing that line voltage components of system are either [UL Listed or UL recognized.]
- B. Shop Drawings:
 1. Shade schedule indicating room number, opening sizes, quantities and key to details.
 2. Head, jamb and sill details, and mounting dimension requirements for each product and mounting condition.
 3. One-line wiring system diagrams including connection details and overall arrangement of shades and control locations.
- C. Samples.
 1. Fabric samples showing [each specified color.] [manufacturer's full range of available colors.]
 2. Samples showing available color and finish selections for controls.
- D. Quality Control Submittals:
 1. Test Reports: Indicating compliance with specified fabric properties.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For roller shades to include in maintenance manuals.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Roller Shades: Full-size units equal to 5 percent of quantity installed for each size, color, and shadeband material indicated, but no fewer than two units.

1.11 COORDINATION

- A. Coordinate pre-wiring of system utilizing manufacturer's approved low voltage wiring to each shade drive location.
- B. Fabricate shades after obtaining field dimensions for each opening.
- C. Coordinate construction of surrounding conditions to allow for timely field dimension verification.

1.12 WARRANTY

- A. Provide manufacturer's 2 year parts and labor and 8 years limited parts warranty for defective equipment.

1.13 MAINTENANCE

- A. Make ordering of new equipment for expansions, replacements, and spare parts available to qualified dealer or installer.
- B. Make replacement parts available for minimum of ten years after date of manufacture.
- C. Provide 24-hour, 7-day a week technical support to troubleshoot system wiring and aid in system programming.
- D. Provide on-site service support within 24 hours anywhere in continental United States and within 72 hours.
- E. Offer renewable service contract on yearly basis to include parts, factory labor, and annual training visits. Make service contracts available up to ten years after date of system startup completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design (Substitutions are Not permitted): Lutron Electronics.

2.2 SYSTEM REQUIREMENTS

- A. Roller Shade Description
 - 1. Lutron Sivoia QS 24V low voltage motor-operated shade.
 - 2. Ultra-quiet, precision-controlled electronic drive unit housed inside roller tube, controlling shade movement.
 - 3. Audible noise: Maximum 50 dBA measured 3 feet from electronic drive unit. No audible clicks when motor starts or stops.
 - 4. Include 10 year power failure memory for preset stops, open and close limits, shade grouping and subgrouping, and system configuration.
 - 5. Operate independently, without use of external group controllers.

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B. System Description

4. Furnished with astronomical time clock and solar clock to track the position of the sun to control the shades and limit penetration of direct sunlight.
5. Maintains a backup of the programming in a non-volatile memory capable of lasting more than 10 years without power.

G. Shade Control System Computers

1. Computers:

a. System PC (Desktop/Laptop):

- 1) Suitable for occasional programming, monitoring, and control of shade control system.
- 2) Unless otherwise indicated, computer(s) to be provided by lighting and shade control system manufacturer.

b. Computers Provided by Shade Control System Manufacturer: Computer software to be preinstalled and tested prior to shipping.

H. Shade Control System Software

1. Provide system software license and hardware that is designed, tested, manufactured, and warranted by a single manufacturer.
2. Control and Monitor Software:

a. Basis of Design:

b. 25.34 EMC /H4 <</MCID 9 >>BDC -0.31 Tc -0.001 6w -29 -2.6-1.1578.241b.

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