

SECTION 12 2413
ROLLER WINDOW SHADES

PART 1 GENERAL

1.1 SUMMARY

- A. Work of this Section includes manual roller shades and motorized shade operators, including:
 - 1. Window shades and accessories.
 - 2. Electric motor operators.
 - 3. Motor controls.
- B. Related Documents and Sections: Examine Contract Documents for requirements that directly affect or are affected by Work of this Section. A list of those Documents and Sections include, but is not limited to the following:
 - 1. General provisions of the Contract, including General and Supplementary Conditions, and Division 01 General Requirements Specification Sections.
 - 2. Section 06 2023 - INTERIOR FINISH CARPENTRY.
 - 3. Section 09 2116 - GYPSUM BOARD ASSEMBLIES.

1.2 SUBMITTALS

- A. Product Data: Provide manufacturer's standard catalog pages and data sheets including materials, finishes, fabrication details, dimensions, profiles, mounting requirements, and accessories.
 - 1. Motorized Shades: Include power requirements and standard wiring diagrams.
- B. Shop Drawings: Include shade schedule indicating size, location and keys to details.
 - 1. Motorized Shades Provide schematic system riser diagram indicating component interconnections. Include requirements for interface with other systems.
- C. Certificates: Manufacturer's documentation that line voltage components are UL listed or UL recognized.
- D. Selection Samples: Include fabric samples in full range of available colors and patterns.
 - 1. Motorized Shades: Include finish selections for controls.
- E. Manufacturer's Instructions: Include instructions for storage, handling, protection, examination, preparation, and installation of product
- F. Project Record Documents: Record actual locations of control systems and show interconnecting wiring.
- G. Operation and Maintenance Data: List of all components with part numbers, sources of supply, and operation and maintenance instructions; include copy of shop drawings.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing work of this type with minimum three years of experience.

- B. Coordination:
 - 1. Where motorized shades are to be controlled by control systems provided under other Sections, coordinate the work with other trades to provide compatible products.
 - 2. Coordinate the work with other trades to provide rough-in of electrical wiring as required for installation of hardwired motorized shades.
 - 3. Coordinate with window installation and placement of concealed blocking to support shades.
- C. Preinstallation Meeting: Convene one week prior to commencing work related to products of this Section; require attendance of all affected installers.
- D. Sequencing:
 - 1. Do not fabricate shades until field dimensions for each opening have been taken.
 - 2. Do not install shades until final surface finishes and painting are complete.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver shades in manufacturer's unopened packaging, labeled to identify each shade for each opening.
- B. Handle and store shades in accordance with manufacturer's recommendations.

1.5 FIELD CONDITIONS

- A. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design Manufacturer:
 - 1. Lutron Electronics Co., Inc.; Sivoia QS Wireless Roller Shades.
- B. Source Limitations: Furnish products produced by a single manufacturer and obtained from a single supplier.

2.2 ROLLER SHADES

- A. Roller Shades: Fabric roller shades complete with mounting brackets, roller tubes, hembars, hardware and accessories; fully factory-assembled.
 - 1. Drop: Regular roll.
 - 2. Size: As indicated on Drawings.
- B. Fabric: Non-flammable, color-fast, impervious to heat and moisture, and able to retain its shape under normal operation; PVC-free; 100 percent recycled.
 - 1. Flammability: Pass NFPA 701 large and small tests.
 - 2. No growth, tested to ASTM G21 for ATCC9642, ATCC9348, and ATCC9645.
- C. Roller Tube As required for type of operation, extruded aluminum with end caps.
 - 1. Dimensions: Manufacturer's standard, selected for suitability for installation conditions, span, and weight of shades.
 - 2. Fabric Attachment: Utilize double sided adhesive tape.

3. Finish Clear anodized.
- D. Hembars and Hembar Pockets: Wall thickness designed for weight requirements and adaptation to uneven surfaces, to maintain bottom of shade straight and flat.
 1. Style: Half Wrap fabric covered bottom bar, flat profile with closed ends.
 2. Finish: Anodized.
 3. Color: As selected from manufacturer's standard colors.
- E. Manual Operation: Clutch operated continuous loop; nylon cord meeting WCMA A100.1.
- F. Motor Operation: Motor system housed inside roller tube, controlling shade movement via motor controls indicated; listed to UL 325.
 1. Audible Noise: Maximum 39 dBA measured 3 feet from the motor unit; no audible clicks when motor starts and stops.
 2. Motors: Size and configuration as recommended by manufacturer for the type, size, and arrangement of shades to be operated; integrated into shade operating components and concealed from view.
 3. Motor Type: Both AC and DC motors are acceptable; provide required transformers for DC motors.
 4. Coupling of Multiple Shades: Where possible, minimize number of motors by coupling adjacent shades.
 5. Control Compatibility: Fully compatible with the controls to be installed.

2.3 MOTOR CONTROLS

- A. Motorized shades, unless otherwise indicated, to be controlled by wall-mounted controls and wireless (RF) handheld remote controls as specified below.
- B. Control Requirements:
 1. Unless specifically indicated to be excluded, provide all required equipment, conduit, boxes, wiring, connectors, hardware, supports, accessories, software, system programming, etc. as necessary for a complete operating system that provides the control intent indicated
 2. Capable of controlling shade speed for tracking within plus or minus 0.125 inch throughout entire travel.
 3. Capable of stopping within accuracy of 0.125 inch at any point between open and close limits.
 4. Capable of assigning shades to groups and subgroups without rewiring.
 5. Capable of storing up to 250 programmable stop points, including open, close, and any other position.
 6. Provide 10 year power failure memory for preset stops, open and close limits, shade grouping and subgrouping and system configuration.
 7. Capable of synchronizing multiple units of the same size to start, stop and move in unison.
 8. Provide all components and connections necessary to interface with other systems as indicated.
- C. Wall-Mounted Controls UV stabilized visible parts meeting ASTM D4674 ; furnished with backlit buttons; provided by shade manufacturer.
 1. Control Functions:
 - a. Open: Automatically open controlled shade(s) to fully open position when button is pressed
 - b. Close: Automatically close controlled shade(s) to fully closed position when button is pressed.

- c. Raise: Raise controlled shade(s) only while button is pressed.
- d. Lower: Lower controlled shade(s) only while button is pressed.
- e. Stop shade(s) in motion by tap on any button.
- f. Presets: Provide button(s) as indicated for selection of programmable scenes.
- g. Multiple Shade Groups: Provide individual controls for each shade group as indicated.
2. Finish: To be selected by Architect.
3. Button Engraving: Manufacturer's standard engraving, unless otherwise indicated

D. Wireless (Radio Frequency) Handheld Remote Control: Battery-powered; provided by shade manufacturer

1. Wireless Range: 30 feet
2. Control Functions:
 - a. Open: Automatically open controlled shade(s) to fully open position when button is pressed
 - b. Close: Automatically close controlled shade(s) to fully closed position when button is pressed.
 - c. Raise: Raise controlled shade(s) only while button is pressed.
 - d. Lower: Lower controlled shade(s) only while button is pressed.
 - e. Preset: Provide button for selection of programmable scene.
3. Finish: To be selected by Architect.

2.4 ACCESSORIES

- A. Fasciae: Size as required to conceal shade mounting.
1. Style: As selected by Architect from shade manufacturer's full selection.
 2. Material and Color: To match shade.
- B. Brackets and Mounting Hardware: As recommended by manufacturer for mounting configuration and span indicated.
- C. Fasteners: Non-corrosive, and as recommended by shade manufacturer.

2.5 FABRIC PANEL MATERIALS

- A. Fabric Panel Material Flame-Resistance Rating: Comply with [NFPA 701] <Insert requirement>. Testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- B. Light-Filtering Fabric: Woven fabric, stain and fade resistant.
1. Opacity: 3 percent openness.
 2. Composition: PVC-free consisting of one layer of aluminum vacuum formed to 100 percent Trevira CS fibers.
- C. Light-Blocking Fabric: Opaque fabric, stain and fade resistant.
1. Composition: 100 percent polyester with foamed acrylic backing.
 2. Fire Classification: California U.S. Title 19 (small scale), NFPA101 (Class A Rating).

2.6 FABRICATION

- A. Field measure finished openings prior to ordering or fabrication.
- B. Fabricate shades to fit openings within specified tolerances.

1. Vertical Dimensions: Fill openings from head to sill with 1/2 inch space between bottom bar and window stool.
 2. Horizontal Dimensions - Inside Mounting Fill openings from jamb to jamb.
- C. Dimensional Tolerances: As recommended in writing by manufacturer.
- D. At openings requiring continuous multiple shade units with separate rollers, locate roller joints at window mullion centers; butt rollers end-to-end.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine finished openings for deficiencies that may preclude satisfactory installation.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Start of installation shall be considered acceptance of substrates.

3.2 PREPARATION

- A. Prepare surfaces using methods recommended by manufacturer for achieving best result for substrate under the project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions and approved shop drawings, using mounting devices as indicated.
- B. Installation Tolerances:
1. Inside Mounting: Maximum space between shade and jamb when closed of 1/16 inch.
 2. Maximum Offset From Level: 1/16 inch.
- C. Replace blinds that exceed specified dimensional tolerances at no extra cost to Owner.
- D. Adjust level, projection and shade centering from mounting bracket. Verify there is no telescoping of shade fabric. Ensure shades for smooth operation.

3.4 SYSTEM STARTUP

- A. Motorized Shade System: Provide services of a manufacturer's authorized representative to perform system startup.

3.5 CLEANING

- A. Clean soiled shades and exposed components as recommended by manufacturer.
- B. Replace shades that cannot be cleaned to "like new" condition.

3.6 CLOSEOUT ACTIVITIES

- A. Demonstration: Demonstrate operation and maintenance of window shade system to Owner's personnel.
- B. Training: Train Owner's personnel on operation and maintenance of system.

1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
2. Provide minimum of two hours training by manufacturer's authorized personnel at location designated by the Owner.

3.7 PROTECTION

- A. Protect installed products from subsequent construction operations.

END OF SECTION