

SECTION 12494 – ROLLER SHADESPART 1 - GENERAL1.01 SUMMARY

- A. This Section includes manually operated **and motorized** roller shades with single roller.
- B. Related Sections include the following:
 - 1. Section 06100 – ROUGH CARPENTRY
 - 2. Section 08520 – GLAZED ALUMINUM SYSTEMS
 - 3. Section 09250 – GYPSUM BOARD ASSEMBLIES
 - 4. **Section 16500 - LIGHTING**

1.02 SUBMITTALS

- A. Product Data: For each type of product indicated. Include styles, material descriptions, construction details, dimensions of individual components and profiles, features, finishes, and operating instructions.
 - 1. **Motorized Shade Operators: Include operating instructions.**
 - 2. **Motors: Show nameplate data, ratings, characteristics, and mounting arrangements.**
- B. Shop Drawings: Show location and extent of roller shades. Include elevations, sections, details, and dimensions not shown in Product Data. Show installation details, mountings, attachments to other work, operational clearances, and relationship to adjoining work.
 - 1. **Motorized Shade Operators: Show locations and details for installing operator components, switches, and controls. Indicate motor size, electrical characteristics, drive arrangement, mounting, and grounding provisions.**
 - 2. **Wiring Diagrams: Power, system, and control wiring.**
- C. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:
 - 1. Ceiling suspension system members and attachment to building structure.
 - 2. Ceiling-mounted or penetrating items including light fixtures, air outlets and inlets, speakers, sprinklers, recessed shades, and special moldings at walls, column penetrations, and other junctures of acoustical ceilings with adjoining construction.
 - 3. Shade mounting assembly and attachment.
 - 4. Size and location of access to shade operator, motor, and adjustable components.

- D. Samples for Verification:
 - 1. Complete, full-size operating unit not less than 16 inches wide for each type of roller shade indicated.
 - 2. For the following products:
 - a. Shade Material: Not less than 3 inches square, with specified treatments applied. Mark face of material.
- E. Product Certificates: For each type of roller shade, signed by product manufacturer.
- F. Qualification Data: For Installer.
- G. Product Test Reports: For each type of roller shade.
- H. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for each type of roller shade.
- I. Maintenance Data: For roller shades to include in maintenance manuals. Include the following:
 - 1. Methods for maintaining roller shades and finishes.
 - 2. Precautions about cleaning materials and methods that could be detrimental to fabrics, finishes, and performance.
 - 3. Operating hardware.
 - 4. **Motorized shade operator.**

1.03 QUALITY ASSURANCE

- A. Installer Qualifications: Installer shall be approved by manufacturer and shall have 5 years minimum experience of successful installations of specified products in projects of similar size and scope
- B. Source Limitations: ***Obtain roller shades system through one source from a single manufacturer with a minimum of ten years' experience and minimum of five projects of similar scope and size in manufacturing products comparable to those specified in this section.***
- C. Fire-Test-Response Characteristics: Provide roller shade band materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
 - 1. Flame-Resistance Ratings: Passes NFPA 701.
- D. Product Standard: Provide roller shades complying with WCMA A 100.1.
- E. **Coordination:**
 - 1. **Power wiring (line voltage), to be provided by roller shade installer/dealer, per requirements provided by manufacturer. Coordinate following with roller shade installer/dealer.**

2. **Where motorized shades are to be controlled by control systems provided under other sections, coordinate the work with other trades to provide compatible products.**
 3. **Coordinate the work with other trades to provide rough-in of electrical wiring as required for installation of hardwired motorized shades.**
- F. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.**
- 1.04 **DELIVERY, STORAGE, AND HANDLING**
- A. Deliver shades in factory packages, marked with manufacturer and product name, fire-test-response characteristics, lead-free designation and location of installation using same designations indicated on Drawings.
 - B. Store materials in a dry, secure place. Protect from weather, surface contaminants, corrosion, construction traffic and all other potential damage.
- 1.05 **PROJECT CONDITIONS**
- A. Environmental Limitations: Do not install roller shades until construction and wet and dirty finish work in spaces, including painting, is complete and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
 - B. Field Measurements: Where roller shades are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Allow clearances for operable glazed units' operation hardware throughout the entire operating range. Notify Architect of discrepancies. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- 1.06 **EXTRA MATERIALS**
- A. The manufacturer shall make available to the Owner a method of ordering new equipment for replacement or parts to be used as spares.
 - B. The manufacturer shall make available new or remanufactured parts for a minimum period of ten years from the date of Substantial Completion.
- 1.07 **WARRANTY**
- A. **Roller Shade Hardware Warranty: Manufacturer's standard non-depreciation, transferrable warranty for interior shading.**
 1. **Shade Hardware: 10-years unless otherwise indicated**
 2. **Shadecloth: Manufacturer's standard 25-year warranty.**
 3. **Roller Shade Motors: Manufacturer's standard non-depreciating 10-year warranty.**

4. Roller Shade Installation: One-year from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 ROLLER SHADES

- A. Basis-of-Design Product: Subject to compliance with requirements, provide
1. Manual Single Roll Shade System: Mecho/5 by MechoShade Systems, Inc; Wide Bracket with fascia.
 2. **Motorized Single Roll Shade System: Electroshade by MechoShade Systems Inc; Wide Bracket with fascia**
- B. Sheer Shade (**WT-1**): EcoVeil1750
1. Fabric Width: 126-inches.
 2. Fabric Thickness: 0.0358-inches
 3. Type and Color: 100% Thermoplastic Olefin shade cloth. Color as scheduled.
 4. Material Properties:
 - a. Openness Factor – 1%,
 5. Bottom Hem: Straight
 6. Anti-Microbial Characteristics: Shade cloth shall conform to requirements for 'No Growth' in accordance with ASTM G 21 results for fungi, using fungus samples ATCC 9642, 9644, and 9645.
- C. Rollers: Extruded-aluminum tube of diameter and wall thickness required to support and fit internal components of operating system and the weight and width of shade band material without sagging; designed to be easily removable from support brackets; with double-sided adhesive strip for attaching shade material. Provide a minimum one turn of fabric on roller before the working section of fabric starts.
- D. Direction of Roll: Regular from back of roller.
- E. Mounting Brackets: Single mounting brackets; galvanized or zinc-plated steel
- F. Removable Bottom Flap: Extruded aluminum 0.063-inch thick; long edges rolled; continuous panel concealing bottom of shade roller, brackets, and operating hardware and operators; length as indicated on Drawings; removable design for access.
- G. Bottom Bar: Steel or extruded aluminum, with plastic or metal capped ends. Provide exposed-to-view, external type bottom bar with concealed weight bar as required for smooth, properly balanced shade operation.
- H. Mounting: Single mount as indicated on the Drawings, mounting permitting easy removal and replacement without damaging roller shade or adjacent surfaces and finishes.
- I. Shade Operation: Manual as scheduled on the Drawings:

1. Manual Chain-and-Clutch Operating Mechanisms: With continuous-loop bead chain and clutch that stops shade movement when bead chain is released; permanently adjusted and lubricated.
 - a. Bead Chains: Stainless steel.
 - 1) Loop Length: Full length of roller shade.
 - 2) Limit Stops: Provide upper and lower ball stops.
2. **Motorized operator as schedule on the Drawings**
 - a. **Motorized Operator: See Article 2.03 of this Section.**

2.02 ROLLER SHADE FABRICATION

- A. Product Description: Single roller shade consisting of a one roller, a means of supporting the roller, a flexible sheet or band of material carried by the roller, a means of attaching the material to the roller, a bottom bar, and an operating mechanism that lifts and lowers the shade.
- B. Concealed Components: Non-corrodible or corrosion-resistant-coated materials.
 1. Lifting Mechanism: With permanently lubricated moving parts.
- C. Unit Sizes: Obtain units fabricated in sizes to fill window and other openings as follows, measured at 74 deg F:
 1. Shade Units Installed Outside Jambs: Width and length as indicated, with terminations between shades of end-to-end installations at centerlines of mullion or other defined vertical separations between openings.
- D. Installation Brackets: Designed for easy removal and reinstallation of shade, for supporting roller, and operating hardware and for hardware position and shade mounting method indicated.
- E. Installation Fasteners: No fewer than two fasteners per bracket, fabricated from metal noncorrosive to shade hardware and adjoining construction; type designed for securing to supporting substrate; and supporting shades and accessories under conditions of normal use.
- F. Color-Coated Finish: For metal components exposed to view, apply manufacturer's standard baked finish complying with manufacturer's written instructions for surface preparation including pretreatment, application, baking, and minimum dry film thickness.
- G. Colors of Metal and Plastic Components Exposed to View: [As selected by Architect from manufacturer's full range, unless otherwise indicated.

2.03 MOTORIZED ROLLER SHADE OPERATORS

- A. **General: Provide factory-assembled motorized shade operation systems designed for lifting shades of type, size, weight, construction, use, and operation frequency indicated. Provide operation systems of size and capacity with features, characteristics, and accessories suitable for Project conditions and recommended by shade manufacturer, complete**

with electric motors and factory-prewired motor controls, power disconnect switches, enclosures protecting controls and all operating parts, and accessories required for reliable operation without malfunction. Include wiring from motor controls to motors. Coordinate operator wiring requirements and electrical characteristics with building electrical system.

- B. **Comply with NFPA 70.**
- C. **Control Equipment: Comply with NEMA ICS 1, NEMA ICS 2, and NEMA ICS 6 with NFPA 70, Class 2 control circuit, maximum 24-V ac or dc.**
- D. **Low-Voltage Motors: MechoShade Systems LLC; WhisperShade IQ2-DC System. Tubular, asynchronous, integral DC motor. 24 VDC; temperature Class B, thermally protected, totally enclosed, maintenance-free. Powered by low voltage power supply and connected into the Networked Digital Lighting Control System specified in Section 16500 – LIGHTING.**
 - 1. **Audible Noise: 38 dBA measured 3-feet from motor unit, depending on motor torque.**
 - 2. **Nominal Speed: 10 to 28 RPM. Configurable. Speed managed such that it does not vary due to load/lift capacity.**
 - 3. **Low voltage power supply for powering external accessories connected to either the dry contact or network port.**
 - 4. **Network Functions:**
 - a. **Integrate with third-party lighting control systems as specified Section 16500 - LIGHTING.**
 - 5. **Controls:**
 - a. **Wired Wall Switch:**
 - 1) **Single Zone Intelligent Wall Switch: Push-Button for control of one motorized shade or one zone.**

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, operational clearances, and other conditions affecting performance.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 ROLLER SHADE INSTALLATION

- A. Install roller shades level, plumb, and aligned with adjacent units according to manufacturer's written instructions and located so shade band is not closer than 2 inches to interior face of glass. Allow clearances for window operation hardware.
- B. **Replace shades exceeding specified tolerances at no extra cost to Owner.**

C. Connections: Connect motorized operators to building electrical system and audiovisual system.

3.03 ADJUSTING

- A. Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.

3.04 CLEANING AND PROTECTION

- A. Clean roller shade surfaces after installation, according to manufacturer's written instructions.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that roller shades are without damage or deterioration at time of Substantial Completion.
- C. Replace damaged roller shades that cannot be repaired, in a manner approved by Architect, before time of Substantial Completion.

3.05 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain roller shades.

END OF SECTION