

## SECTION 12494 - ROLLER SHADES

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Manually operated sunscreen roller shades.
- B. Manually operated room darkening and sunscreen double roller shades.

#### 1.2 RELATED SECTIONS

- A. Division 6 Section, "Miscellaneous Carpentry": Wood blocking and grounds for mounting roller shades and accessories.
- B. Division 9 Section, "Gypsum Board" for coordination with gypsum board assemblies for installation of shade pockets, closures, and related accessories.

#### 1.3 REFERENCES

- A. ASTM G 21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
- B. NFPA 701 - Fire Tests for Flame-Resistant Textiles and Films.

#### 1.4 SUBMITTALS

- A. Manufacturer's data sheets on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Styles, material descriptions, dimensions of individual components, profiles, features, finishes and operating instructions.
  - 3. Storage and handling requirements and recommendations.
  - 4. Mounting details and installation methods.
- B. Window Treatment Schedule: For all roller shades. Use same room designations as indicated on the Drawings and include opening sizes and key to typical mounting details.
- C. Selection Samples: For each finish product specified, one set of shade cloth options and aluminum finish color samples representing manufacturer's full range of available colors and patterns.
- D. Maintenance Data: Methods for maintaining roller shades, precautions regarding cleaning materials and methods, instructions for operating hardware and controls.

## 1.5 QUALITY ASSURANCE

- A. **Manufacturer Qualifications:** Obtain roller shades through one source from a single manufacturer with a minimum of twenty years experience in manufacturing products comparable to those specified in this section.
- B. **Installer Qualifications:** Installer trained and certified by the manufacturer with a minimum of ten years experience in installing products comparable to those specified in this section.
- C. **Fire-Test-Response Characteristics:** Passes NFPA 701 small and large-scale vertical burn. Materials tested shall be identical to products proposed for use.
- D. **Anti-Microbial Characteristics:** 'No Growth' per ASTM G 21 results for fungi ATCC9642, ATCC 9644, ATCC9645.
- E. **Environmental Certification:** Submit written certification from the manufacturer, including third party evaluation, recycling characteristics, and perpetual use certification as specified below. Initial submittals, which do not include the Environmental Certification, below will be rejected. Materials that are simply 'PVC free' without identifying their inputs shall not qualify as meeting the intent of this specification and shall be rejected.
  - 1. **Third Party Evaluation for Environmentally-Certified Visually Transparent Shadecloth:** Provide documentation stating the shade cloth has undergone third party evaluation for all chemical inputs, down to a scale of 100 parts per million, that have been evaluated for human and environmental safety. Identify any and all inputs, which are known to be carcinogenic, mutagenic, teratogenic, reproductively toxic, or endocrine disrupting. Also identify items that are toxic to aquatic systems, contain heavy metals, or organohalogens. The material shall contain no inputs that are known problems to human or environmental health per the above major criteria, except for an input that is required to meet local fire codes.
- F. **Recycling Characteristics for Environmentally-Certified Visually Transparent Shadecloth:** Provide documentation that the shade cloth can and is part of a closed loop of perpetual use and not be required to be down cycled, incinerated or otherwise thrown away. Scrap material can be sent back to the mill for reprocessing and recycling into the same quality yarn and woven into new material, without down cycling. Certify that this process is currently underway and will be utilized for this project.
- G. **Perpetual Use Certification for Environmentally-Certified Visually Transparent Shadecloth:** Certify that at the end of the useful life of the shade cloth, that the material can be sent back to the manufacturer for recapture as part of a closed loop of perpetual use and that the material can and will be reconstituted into new yarn, for weaving into new shade cloth. Provide information on each shade band indicating that the shade band can be sent back to the manufacturer for this purpose.
- H. **Mock-Up:** Provide a mock-up (manual shades only) of one roller shade assembly for evaluation of mounting, appearance and accessories.
  - 1. Locate mock-up in window designated by Architect.
  - 2. Do not proceed with remaining work until, mock-up is accepted by Architect.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver shades in factory-labeled packages, marked with manufacturer and product name, fire-test-response characteristics, and location of installation using same room designations indicated on Drawings and in the Window Treatment Schedule.

## 1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Install roller shades after finish work including painting is complete and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

## 1.8 WARRANTY

- A. Roller Shade Hardware and Chain Warranty: Manufacturer's standard non-depreciating twenty-five year limited warranty.
- B. Standard Shadecloth: Manufacturer's standard twenty-five year warranty.
- C. Ecoveil Shadecloth: Manufacturer's standard ten year warranty.
- D. Roller Shade Installation: One year from date of Substantial Completion, not including scaffolding, lifts or other means to reach inaccessible areas.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide MechoShade Systems, Inc., Contact: Karen Lindblad, Nathan/Chapin, p: 773.506.8008, or a comparable product by one of the following:
  - 1. Silent Gliss
  - 2. Solarfective Products Limited

### 2.2 ROLLER SHADE TYPES

- A. Manually Operated Shades:
  - 1. Mounting: Recess mounted with ceiling pocket and closure accessories by manufacturer.
  - 2. Configurations:
    - a. Single solar shadecloth.
    - b. Double solar and blackout shadecloth.

## 2.3 SHADE CLOTH

- A. Basis of Design Solar Shadecloth: MechoShade Systems, Inc., EcoVeil series: TPO for both core yarn and jacket, single thickness, non-raveling 0.030 inch thick fabric, non-PVC basket-weave pattern at 5 percent open.
  - 1. RS-1, Mechoshade, EcoVeil, Style: 1350 Series Dense Basket Weave, color: 1363 Grey 5% openness factor; Contact: Karen Lindblad, Nathan/Chapin, 773.506.8008.
- B. Basis of Design Room Darkening Shadecloth: MechoShade Systems, Inc., ThermoVeil Equinox 0100, blackout shadecloth with opaque acrylic backing.0.008 inches thick PVC-free blackout material and weighing 0.94 lbs. per square yard, comprising of 53 percent fiberglass, 45 percent acrylic, 2 percent poly finish.
  - 1. RS-2, Mechoshade, ThermoVeil, Style: 0100 blackout shade, color: Silver; Contact: Karen Lindblad, Nathan/Chapin, 773.506.8008.

## 2.4 SHADE BAND

- A. Shade Bands: Construction of shade band includes the fabric, the hem weight, hem-pocket, shade roller tube, and the attachment of the shade band to the roller tube. Sewn hems and open hem pockets are not acceptable.
- B. Hem Pockets and Hem Weights: Fabric hem pocket with RF-welded seams (including welded ends) and concealed hem weights. Hem weights shall be of appropriate size and weight for shade band. Hem weight shall be continuous inside a sealed hem pocket. Hem pocket construction and hem weights shall be similar, for all shades within one room.
- C. Shade Band and Shade Roller Attachment:
  - 1. Use extruded aluminum shade roller tube of a diameter and wall thickness required to support shade fabric without excessive deflection.
  - 2. Provide for positive mechanical engagement with drive / brake mechanism.
  - 3. Provide for positive mechanical attachment of shade band to roller tube; shade band shall be made removable / replaceable with a "snap-on" snap-off" spline mounting, without having to remove shade roller from shade brackets.
- D. Mounting spline shall not require use of adhesives, adhesive tapes, staples, and/or rivets.
- E. Any method of attaching shade band to roller tube that requires the use of: adhesive, adhesive tapes, staples, and/or rivets are not acceptable.

## 2.5 SHADE FABRICATION

- A. Fabricate units to completely fill existing openings from head to sill and jamb-to-jamb, unless specifically indicated otherwise, as indicated on the Drawings.
- B. Shade bottom limits shall be set as indicated on the Drawings. Contractor shall set bottom shade limits in the field. Where not indicated, shades shall operate from head to sill in window openings.

- C. Fabricate shadecloth to hang flat without buckling or distortion. Fabricate with heat-sealed trimmed edges to hang straight without curling or raveling. Fabricate unguided shadecloth to roll true and straight without shifting sideways more than 1/8 inch in either direction per 8 feet of shade height due to warp distortion or weave design. Fabricate hem as follows:
  - 1. Standard concealed hem bar.
- D. Provide battens in standard shades as required to assure proper tracking and uniform rolling of the shadebands, if the width-to-height ratio is 1:4 or greater. Provide battens and guide cables as required to assure proper tracking and uniform rolling of the shadebands, if the width-to-height ratio is 1:6 or greater. Contractor shall be responsible for assuring the width-to-height (W:H) ratios shall not exceed manufacturer's standards or, in absence of such standards, shall be responsible for establishing appropriate standards to assure proper tracking and rolling of the shadecloth within specified standards.
  - 1. Battens shall be roll formed of stainless steel or tempered steel and concave to match the contour of the roller tube.
  - 2. Batten pockets shall be self-colored fabric front and back RF welded into the shadecloth. A self-color opaque liner shall be provided front and back to eliminate any see through of the batten pocket that shall not exceed 1-1/2 inches high and be totally opaque. A see-through moire effect, which occurs with multiple layers of transparent fabrics, shall not be acceptable.

## 2.6 COMPONENTS

- A. Access and Material Requirements:
  - 1. Provide shade hardware allowing for the removal of shade roller tube from brackets without removing hardware from opening and without requiring end or center supports to be removed.
  - 2. Provide shade hardware that allows for removal and re-mounting of the shade bands without having to remove the shade tube, drive or operating support brackets.
  - 3. Use only Delrin engineered plastics by DuPont for all plastic components of shade hardware. Styrene based plastics, and /or polyester, or reinforced polyester will not be acceptable.
- B. Manual Operated Chain Drive Hardware and Brackets:
  - 1. Provide for universal, regular and offset drive capacity, allowing drive chain to fall at front, rear or non-offset for all shade drive end brackets. Universal offset shall be adjustable for future change.
  - 2. Provide shade hardware system that allows for operation of multiple shade bands (multi-banded shades), if required, by a single chain operator, subject to manufacturer's design criteria. Connectors shall be offset to assure alignment from the first to the last shade band.
  - 3. Provide positive mechanical engagement of drive mechanism to shade roller tube. Friction fit connectors for drive mechanism connection to shade roller tube are not acceptable
  - 4. Provide shade hardware constructed of minimum 1/8-inch thick plated steel or heavier as required to support 150 percent of the full weight of each shade.

5. Drive Bracket / Brake Assembly:
  - C. Drive Bracket: MechoShade Model M5 shall be fully integrated with all accessories, including, but not limited to: pockets, center supports and connectors for multi-banded shades, as required.
    1. M5 drive sprocket and brake assembly shall rotate and be supported on a welded 3/8 inch steel pin.
    2. The brake shall be an over-running clutch design which disengages to 90 percent during the raising and lowering of a shade. The brake shall withstand a pull force of 50 lbs. in the stopped position.
    3. The braking mechanism shall be applied to an oil-impregnated hub on to which the brake system is mounted. The oil impregnated hub design includes an articulated brake assembly, which assures a smooth, non-jerky operation in raising and lowering the shades. The assembly shall be permanently lubricated. Products that require externally applied lubrication and or not permanently lubricated are not acceptable.
    4. The entire M5 assembly shall be fully mounted on the steel support bracket, and fully independent of the shade tube assembly, which may be removed and reinstalled without effecting the roller shade limit adjustments.
    5. Drive Chain: #10 qualified stainless steel chain rated to 90 lb. minimum breaking strength. Nickel plate chain shall not be accepted.

## 2.7 ACCESSORIES

- A. Roller Shade Pocket: For recessed mounting in drywall ceilings as indicated on the Drawings.
- ~~B. Provide either extruded aluminum and or formed steel shade pocket, sized to accommodate roller shades, with exposed extruded aluminum closure mount, tile support and removable closure panel to provide access to shades.~~
- ~~C. Provide "Vented Pocket" such that there will be a minimum of four 1 inch diameter holes per foot allowing the solar gain to flow above the ceiling line.~~
- ~~D. Pocket Accessories, including closure and closure mount at ceiling condition: As indicated on the Drawings.~~

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

### 3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.

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

### 3.3 INSTALLATION

- A. Install roller shades level, plumb, square, and true according to manufacturer's written instructions, and located so shade band is not closer than 2 inches (50 mm) to interior face of glass. Allow proper clearances for window operation hardware.
- B. Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.
- C. Clean roller shade surfaces after installation, according to manufacturer's written instructions.
- D. Engage Installer to train Owner's maintenance personnel to adjust, operate and maintain roller shade systems.

### 3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 12494