

DIVISION 12

FURNISHINGS

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PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Shade Type 1: Manually operated double interior roller-screen room darkening shades in 0701 (white) series fabric and solar shades in 1316 (Eggshell) in specified window openings or as indicated in schedule at end of section.
 - 2. Shade Type 2: Manually operated interior roller-screen solar shades in 1316 (Eggshell) fabric in specified window opening or as specified in schedule at end of section.
- B. Products Supplied But Not Installed Under This Section:
 - 1. Metal shade pockets or housings recessed into ceiling system or assembly.
 - 2. Extruded aluminum ceiling pocket trim (closure) assemblies.
- C. Related Sections:
 - 1. Section 06114 - Rough Carpentry; blocking for support of window shade brackets or pocket assemblies.
 - 2. Section 09250 - Gypsum Drywall; substrate for window shade systems and installation of shade pockets, pocket closure and/ or accessories supplied only under this section.
 - 3. Section 09510 - Acoustical Ceilings; installations of shade pockets, pocket closure and or accessories supplied only under this section.

1.2 PERFORMANCE REQUIREMENTS

- A. Fire: Provide shade fabrics tested in accordance with:
 - 1. 1989 NFPA 701 small scale Vertical Burn Test and rated "PASS."
 - 2. 1996 NFPA 701 small scale Vertical Burn (telephone booth test) and rated "PASS."
- B. Toxicity: Provide shade fabrics tested in accordance with University of Pittsburgh Toxicity Protocol including LC50 analysis and toxicity characteristics.
- C. Anti-microbial:
 - 1. ASTM G-22-80 results for ATCC6538 (*Staphylococcus aureus*) and ATCC13388 (*Pseudomonas aeruginosa*) indicating minimum 5mm (0.197 inches) 'No Growth Contact Area'.
 - 2. ASTM G-21-85 results for ATCC9642, ATCC9644, ATCC9348 and ATCC9645 indicating 'No Growth'.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets, performance data, and installation instructions for each item required per section 01340.
- B. Shop Drawings:
 - 1. Interior Elevations at 3/8" = 1'-0" scale min indicating shade layout, seam / batten locations and coordination with surrounding conditions.
 - 2. Floor plans or reflected ceiling plans showing overall arrangement of shades and control locations.

3. Head, Jamb and sill details as necessary to coordinate work with surrounding conditions and construction.
 4. Shade schedule coordinating room number, window type, opening size(s), quantities and key to details.
- C. Samples:
1. Selection samples:
 - a. 3" X 5" (76 mm x 127 mm) shade cloth fabric swatches for initial fabric color selection from manufacturer's full range of available fabrics.
 - b. Standard aluminum finish color samples from manufacturer's range of standard colors.
 2. Verification samples:
 - a. One fully operational window shade sample of each type required 30" X 30" (760 mm x 760 mm) complete with selected shade cloth including sample of seam / batten when applicable. Disassemble sample to demonstrating compliance with PART 2.
 - b. One complete set of all shade components, unassembled, demonstrating compliance with PART 2.
- D. Design Data, Test Reports, Certificates: Current reports from independent testing laboratories demonstrating compliance with article 1.2.
- E. Manufacturers' Instructions: Manufacturer's standard installation instructions.

1.4 QUALITY ASSURANCE

- A. Qualifications:
1. Manufacturer: 20 years minimum experience manufacturing products comparable to those specified in this section.
 2. Installer: 20 years minimum experience installing products comparable to those specified in this section.
- B. Field Samples: Install large size sample of selected fabric for final verification of color, weave and density, in opening as directed by design professional.
- C. Do not fabricate shades without obtaining field dimensions for each opening. Coordinate construction of surrounding conditions to allow for timely field dimension verification.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Storage and Protection:
- B. Do not deliver items to the project until all concrete, masonry, plaster, painting and other wet work has been completed and is dry.
- C. Deliver shades to project in labeled protective packaging. Uniquely labeled to identify each shade for each opening. Schedule delivery to prevent delays to completion of work but to minimize on site storage time.
- D. Store materials in a dry secure place. Protect from weather, surface contaminants, corrosion, construction traffic and all other potential damage.

1.6 WARRANTY

- A. Special Warranty:
1. Manual Operating Components: Provide Manufacturer's warranty under provisions of Division 1 - General Requirements. Warranty period to be **25 years** from Date of Substantial Completion and contain provisions that installation is to remain operational without fault for the warranty period and include all operating parts, including shadecloth, except for the bead chain which is not covered by the warranty and is deemed to be a maintenance / service item.
 2. Installation: Provide Contractor's warranty under provisions of Division 1 - General Requirements that installation shall be free from defects for a period of not less than 1 year.
 3. In the event of a warranted product failure, the Shade Contractor will, at no cost to owner, facilitate acquisition and delivery of all necessary components to the owner.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Mechoshade Systems, Inc. (Basis of Design)
- B. Hunter Douglas
- C. Substitutions: Under provisions of Section 01600.

2.2 COMPONENTS

- A. Shadebands: Construction of shadeband includes the fabric, the hembar and hempocket, and the attachment of the shadeband to the roller tube:
- B. Room Darkening Shades
 1. Vinyl Room darkening Shadecloth (single-fabric): MechoShade Systems, Inc., "0700 series", Blackout material, washable and colorfast laminated and embossed vinyl coated fabric, .012 inches thick (.30 mm) blackout material and weighing .81 lbs., (368.18 grams) per square yard, with a minimum of 62 threads per square inch in colors selected from manufacturer's available range.
Fabric Series: 0701 White
 2. Hembars:
 - a. Exposed (Blackout) Hembar: 3/8 x 1-1/2 inches (9.5 mm x 38.1 mm) with vinyl seal and concealed attachment to shadecloth. Bevel top and bottom of hembar to smoothly travel up and down inside side channels. Extend shadeband and hembar into side channel as a single element where side channels are required.
- C. Solar Shades Shadebands: Construction of shadeband includes the fabric, the hembar and hempocket, and the attachment of the shadeband to the roller tube:
 1. Visually Transparent Single Fabric Shadecloth: MechoShade Systems, Inc., Fabric Series: 1316 Eggshell
 2. Hembars and hempockets: Fabric hempocket with RF - welded seams (including welded ends) and concealed hemweights. Hemweights must be of

appropriate size and weight for shadeband and must be continuous inside a sealed hempocket. Match hempocket construction for all shades in same rooms.

D. Manually Operated Hardware and Shade Brackets:

1. Provide for regular and offset drive capacity (chain fall at front or rear of bracket) on all shade drive end brackets.
2. Provide shade hardware system that allows for removal of shade roller tube from brackets without removing hardware from opening.
3. Provide shade hardware that allows for removal and re-mounting of the shade band without having to remove shade tube, drive or operating support brackets.
4. Provide hardware for installation of a removable fascia, regular or reverse roll, which shall be installed without exposed fastening devices of any kind.
5. Provide shade hardware system that allows for a removable regular and / or reverse roll fascia(s) to be mounted continuously across two or more shade bands without requiring exposed fasteners of any kind;
6. Provide shade hardware system that allows for operation of multiple shadebands by a single chain (Multi-banded shades) operator subject to manufacturer's design criteria. Connectors shall be offset to assure alignment from the first to the last shade band.
7. Provide shade hardware system that allows multi-banded manually operated shades to be capable of smooth operation when the axis is offset a maximum of 6° on each side of the plane perpendicular to the radial line of the curve (12° total offset).
8. Provide positive mechanical engagement of drive mechanism to shade roller tube. Friction fit connections for drive mechanism to shade roller tube shall not be accepted.
9. Provide shade hardware constructed of minimum 1/8" (3.18 mm) thick cadmium plated steel or heavier as required to support 150% of the full weight of each shade.
10. Provide only Delrin engineered plastics by DuPont for all plastic components of the shade hardware. Styrene polyester and ABS based plastics are not acceptable.
11. Drive Bracket/Brake Assembly:
 - a. MechoShade Drive Bracket model 5 shall be fully integrated with all MechoShade Wide accessories and brackets, including but not limited to Fascia, Black Out channels center supports and connectors for multi-band shade operation etc.
 - b. M5 bracket shall use the standard 1/8 inch (3.175mm) steel plate for mounting and support of the assembly. The drive sprocket and brake assembly shall rotate and be supported on a welded 3/8 inch steel pin (9.525mm).
 - c. The brake means shall be an over running clutch design which shall disengage to 90% during the raising and lowering of a shade. The brake shall with stand a pull force of 50 lbs. (22kg) in the stopped position.
 - d. The braking (patent pending) means shall be applied to a oil impregnated hub on to which the brake system is mounted. The oil impregnated hub design includes an articulated brake assembly which assures smooth, non-jerky operation in raising and lowering the shades. The brake assembly is warranted for the life of the system, which is in itself warranted to be fit for the use intended for **25 years**.

- e. The entire MechoShade 5 assembly shall be fully mounted on the steel support bracket, and fully independent of the shade tube assembly, which may be removed and reinstalled with out effecting the roller shade limit adjustments.
- E. Shade roller and shadecloth attachment:
- 1. Provide an extruded aluminum shade roller tube of diameter and wall thickness required to support shade fabric without (excessive) deflection. Roller tubes less than 1.55” in diameter are not acceptable. Tube shall have two asymmetrical channels for mounting of the shade band spline.
 - 2. Provide for positive mechanical engagement with drive / brake mechanism.
 - 3. Provide for positive mechanical attachment of shade band to roller tube without the use of adhesives, adhesive tape, staples or rivets. Two sided pressure sensitive adhesive tape shall not be acceptable. Shade bands stapled to roller tubes shall not be acceptable. A mounting method that does not readily allow the shade band to be removed from the shade tube while installed shall not be acceptable.
 - 4. Attach shadebands to tube in such a way that removal and replacement of a shadeband can be accomplished without removing either the tube from the brackets or without removing shade brackets. Shadebands must be replaceable on site without removing shade tube or brackets.
- F. Drive Chain: #10 Qualified stainless steel chain rated to 90 pound (41 kg) minimum breaking strength.

2.3 ACCESSORIES

- A. Shade Pockets: As Required
- 1. Provide extruded aluminum shade pocket with exposed flush mounted extruded aluminum removable closure panel to provide access to shades and an exposed flush mounted tile support (MechoShade 7113 pocket for Double Shades, 4123 pocket for Single Shades supplied in manufacturer’s standard painted finish) for acoustical tile or dry wall soffits and ceilings
 - 2. Provide extruded aluminum shade pocket with exposed flush mounted extruded aluminum removable closure panel to provide access to shades
 - 3. Provide extruded aluminum pocket closure assembly(ies) for use with Drywall or other framed shade pocket construction as shown in the drawings. Closure panel shall be 2” wide or 3” wide or 5” wide or custom width as indicated in the drawings.
- B. Room darkening light resistant side channels: Extruded aluminum channels with polybond edge seals (Design Professional to select color from manufacturer’s standards). Side and / or sill channels shall be mounted with concealed fasteners.

2.4 FABRICATION

- A. Fabricate units to completely fill existing openings from head to sill and jamb to jamb, unless specifically indicated otherwise. Comply with Manufacturer’s edge clearance standards and recommendations.
- B. 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.

- C. Provide battens in non-railroaded shades as required by the Manufacturer to assure proper tracking and uniform rolling of the shadebands, in accordance with the manufacturer's published width x height shade fabrication guide and standards.
- D. For railroaded shadebands, provide seams or battens in railroaded multi-width shadebands as required by Manufacturer to meet Width:Height ratios and size requirements. Unless specified elsewhere, manufacturer's standard seam / batten placements are acceptable to Design Professional. If custom placement of seams / battens is required, coordinate these locations with design requirements.
- E. Provide batten pockets utilizing self-colored fabric front and back, RF welded into the shadecloth. Provide a self-colored opaque liner front and back to eliminate any see through of the batten pocket and shall not exceed 1-1/2 inches (38 mm) high and be totally opaque. A see-through moiré effect which occurs with multiple layers of transparent fabrics are not acceptable. Reinforce batten pockets using coil coated, roll formed spring steel to insure flatness of shadebands in accordance with manufacturer's standards. Concave formed profile of batten stiffeners to be compatible with diameter of shade roller tube.

2.5 FINISHES

- A. Aluminum Components: Design Professional shall select from Manufacturer's standard PPG Duracron baked enamel colors to match existing.
- B. Steel Components: Cadmium-plated, satin-finished, or bonderized prior to painting with Manufacturer's standard baked-enamel finish.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrate and conditions for installation. Do not commence installation until conditions are satisfactory. Commencement of installation indicates acceptance of site conditions by Contractor. Notify the Design Professional upon inspection when the project conditions are unacceptable for shade installation. "Beginning of installation" means acceptance of substrate and project conditions.

3.2 INSTALLATION

- A. Install units to comply with the Manufacturer's instructions for the type of mounting and operation required. Provide units plumb, true, and securely anchored in place with recommended hardware and accessories to provide smooth operation without binding.
- B. Install units within the following tolerances:
 - 1. Maximum variation of gap at window opening perimeter: 1/4 inch, per 8 feet (+/- 1/8 inch) of shade height.
 - 2. Maximum offset from level: 1/16 inch per 5 feet of shade width.

3.3 ADJUSTING

- A. Adjust drive / brake mechanism of units for smooth operation. Adjust shade and shadecloth to hang flat without buckling or distortion. Replace any units or components which do not hang properly or operate smoothly.

3.4 CLEANING

- A. Touch up damaged finishes and repair minor damage in order to eliminate evidence of repair. Remove and replace work that cannot be satisfactorily repaired.
- B. Clean exposed surfaces, including metal and shadecloth, using non-abrasive materials and methods recommended by the Shadecloth Manufacturer. Remove and replace work which cannot be satisfactorily cleaned.

3.5 DEMONSTRATION

- A. Demonstrate operation method and instruct Owner's personnel in the proper operation and maintenance of the window shade systems.

3.6 SCHEDULES (TBD)

END OF SECTION